The influence of fear- and guilt-fear appeals on consumers in different stages of change: A study on high-sugar-content products

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Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

The alarming growth in sugar intake and related health conditions in South Africa has prompted the need for effective warning label interventions on products with a high sugar content to discourage excessive consumption. Despite the need for warning labels, little is known how these labels should be designed to maximise their effectiveness. Although the existing literature provides overwhelming support for the use of fear appeals to discourage unhealthy behaviours, its effectiveness has also been questioned. Consequently, it has been suggested to add guilt to a fear appeal to strengthen persuasive outcomes, given that the two negative emotions complement each other. Guilt arousal in sugar consumption settings seems plausible as the emotion is known to lead to decreased unhealthy choices. However, growing evidence suggests that the emotion can also remind the consumer of the potential pleasure that will be experienced during consumption, which in turn may lead to increased, excessive consumption. Given the contradicting findings on these negative emotional appeals, the current study investigated the effectiveness of fear and guilt-fear appeals, for the recently government-suggested warning labels on high-sugar-content products. When considering the effectiveness of communication appeals in behaviour change contexts, scholars advise against a 'one-size-fits-all' approach, as consumers demonstrate distinct differences that influence their behaviour. More specifically, consumers are at different stages of readiness to change their behaviour, and this level of readiness in turn has an impact on how they respond to communication messages. It is against this background that the study investigated the responses of consumers to the negative emotional appeal warning labels by considering the different stages of change they may be in.

A true experimental post-test-only control group design was conducted, with a total sample size of 460 respondents, obtained through convenience sampling. Respondents were classified into their appropriate stage of change and were then randomly exposed to either a fear appeal, a guilt-fear appeal, or they were assigned to the control group. The results indicated that while different negative emotional appeal warning labels did not influence consumers' cognitive responses differently, it influenced their emotional responses differently. Based on these results, it is recommended that social marketers continue to explore alternative approaches to fear and guilt-fear appeals, as their use does not significantly influence consumers' cognitive responses. However, when emotional responses are considered, fear appeals in particular are recommended for consumers in the pre-contemplating and those in the preparation stage, and guilt-fear appeals for consumers in the contemplation stage.

Overall, three key findings of the study are apparent. Firstly, consumers are not all ready to change their behaviour, and different negative emotional appeals are more effective in eliciting negative emotions among pre-contemplators, contemplators, and those in the preparation stage of change. Meaning, a 'one-size-fits-all' warning-label approach might not always be effective. Secondly, however, given the insignificant cognitive responses to the negative emotional appeals in each stage of change, either a fear appeal or a guilt-fear appeal can be used for high-sugar-content product warning labels should social marketers want to target consumers' cognitive responses only. Finally, despite researchers maintaining that guilt evocation leads to enhanced anticipated pleasure from anticipated consumption, the current study found no support for this argument. In fact, the use of a guilt-fear appeal shows promising results in decreasing anticipated pleasure in certain instances. Therefore, the study concludes that the emotion of guilt can be incorporated on warning labels in high-sugar-content settings.

OPSOMMING

Die kommerwekkende toename in suikerverbruik en verwante gesondheidstoestande in Suid-Afrika het die behoefte aan doeltreffende waarskuwingsetikette op produkte met ‘n hoë suikerinhoud na vore gebring, met die doel om oormatige suikerverbruik te ontmoedig. Daar is egter min bekend oor hoé hierdie waarskuwingsetikette ontwerp moet word om die gewensde uitwerking daarvan te verseker. Alhoewel die literatuur oorwegend steun bied vir die gebruik van ‘n vrees-aanslag op waarskuwingsetikette om ongesonde gedrag te ontmoedig, word die uitwerking daarvan op verbruikers ook bevraagteken. Gevolglik is voorgestel dat skuldgevoelens by ‘n vrees-aanslag gevoeg word om meer oortuigende uitkomste te verkry aangesien die twee negatiewe emosies mekaar aanvul. Die aanwakkering van skuldgevoelens in suikerverbruikkontekste kan geregverdig word, aangesien dit bekend is dat skuldgevoelens lei tot ‘n afname in ongesonde keuses. Toenemende bewyse dui egter daarop dat skuldgevoelens die verbruiker ook kan herinner aan die moontlike plesier wat tydens suikerverbruik ervaar word, wat opnuut kan lei tot verhoogde, oormatige verbruik. Gegewe die teenstrydige bevindings oor negatiewe emosionele aanslae, het hierdie studie die uitwerking van beide vrees en skuldgevoelens in waarskuwingsetikette ondersoek, veral teen die agtergrond van die regering se onlangse voorstel om waarskuwingsetikette op produkte met 'n hoë suikerinhoud aan te bring.

Wanneer kommunikasieboodskappe in die konteks van gedragsverandering oorweeg word, waarsku navorsers teen ‘n standaardbenadering, oftewel ‘n ‘een-grootte-pas-almal’-benadering, aangesien verbruikers duidelike verskille toon wat hulle gedrag beïnvloed. Anders gestel, verbruikers bevind hulleself in verskillende stadiums van gereedheid om hulle gedrag te verander, en elke gereedheidstadium het weer ‘n invloed op hoe hulle op kommunikasieboodskappe reageer. In hierdie studie is die reaksie ondersoek van verbruikers op waarskuwingsetikette met ‘n negatiewe emosionele aanslag, en met inagneming van die verbruikers se verskillende stadiums van verandering.

’n Ware eksperimentele kontrolegroepontwerp slegs vir natoetsgebruik is toegepas, met 'n totale steekproefgrootte van 460 respondente, verkry deur ‘n gerieflikheidsteekproefneming. Respondente is in hul toepaslike stadium van verandering ingedeel en is dan lukraak blootgestel aan 'n vrees-aanslag, 'n skuld-vrees-aanslag of hulle is aan ‘n kontrolegroep toegewys. Die resultate het aangedui dat, hoewel verskillende waarskuwingsetikette met ‘n negatiewe emosionele aanslag nie die verbruikers se kognitiewe reaksies verskillend beïnvloed het nie,

het dit wel hulle emosionele reaksies verskillend beïnvloed. Op grond van die resultate word dit aanbeveel dat sosiale bemarkers voort moet gaan om alternatiewe benaderings as dié van vrees en skuld te ondersoek, aangesien die gebruik daarvan nie die verbruikers se kognitiewe reaksies beduidend beïnvloed het nie. Sou verbruikers se emosionele reaksies egter oorweeg word, word ‘n vrees-aanslag spesifiek aanbeveel vir verbruikers in die vooroorweging- en voorbereidingstadium van verandering, en ‘n vrees-skuld-aanslag vir diegene in die oorwegingsfase van verandering.

Oor die algemeen kan drie sleutelbevindings uitgewys word. Eerstens is verbruikers nie almal gereed om hulle gedrag te verander nie, en is verskillende negatiewe emosionele aanslae meer doeltreffend om negatiewe emosies aan te wakker onder voor-oorwegers, oorwegers en verbruikers in die voorbereidingstadium van verandering. Dit beteken dat ‘n standaardbenadering (‘n een-grootte-pas-almal) in waarskuwingsetikette nie noodwendig wenslik is nie. Tweedens, gegewe die onbeduidende kognitiewe reaksies op negatiewe emosionele aanslae in elke stadium van verandering, kan beide ‘n vrees-aanslag of ‘n aanslag op vrees- en skuldgevoelens gebruik word vir waarskuwingsetikette op produkte met 'n hoë suikerinhoud, in die geval waar sosiale bemarkers slegs verbruikers se kognitiewe reaksies wil teiken. Ten slotte, ten spyte van navorsers se aanname dat ‘n waarskuwingsetiket met ‘n skuld-aanslag tot groter verwagte plesier onder verbruikers kan lei, het hierdie studie geen steun vir die argument gevind nie. Inteendeel, 'n aanslag wat beide emosies van skuld en vrees insluit, toon belowende resultate en het gelei tot ‘n afname in verwagte plesier en gevolglike verbruik in sekere gevalle. Die gevolgtrekking word dus gemaak dat die emosie van skuld inderdaad gebruik kan word in waarskuwingsetikette op produkte met 'n hoë suikerinhoud.

KEYWORDS

Social marketing

Behaviour change interventions

Warning labels

Fear appeals

Guilt-fear appeals

Stages of change

LIST OF ABBREVIATIONS AND ACRONYMS

AHA	American Heart Association
AMA	American Marketing Association
ANS	Automated nervous system
BCT	Behaviour change technique
ELM	Elaboration likelihood model
EPPM	Extended parallel process model
FOP	Front-of-package labels
HBM	Health belief model
HEALA	Healthy Living Aliance (South Africa)
HPV	Human pappilomavirus vaccine
LSM	Living standard measure
PMT	Protection motivation theory
RCQ	Readiness to change questionnaire
SSB(s)	Sugar-sweetened beverage(s)
SOC	Stages of change
TPB	Theory of planned behaviour
TTM	Trans-theoretical model
WHO	World Health Organization

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CHAPTER ONE

INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

The World Health Organization (WHO) has recently identified South Africa as the unhealthiest country in sub-Saharan Africa (Ebrahim, 2018). Considering that, on average, South Africans consume 47.5g of free sugar per person daily (Bhardwaj, 2016), the rise in non-communicable diseases, such as obesity, comes as no surprise (Neethling, 2019). Against this background, the need for effective public health interventions to discourage the worrisome sugar consumption is evident. The South African government has suggested the use of warning labels to caution consumers against the dangers associated with excessive sugar consumption (Tswanya, 2019). Subsequent to this suggestion, an investigation into how these warning labels should be designed to ensure behaviour change, is required (Grummon, Hall, Taillie & Brewer, 2019).

Learning form cigarette packaging warning labels, fear-inducing messages have been found to effectively stimulate behaviour change (Popova, 2014). Even more so, scholars have suggested that fear appeal messages could incorporate guilt evocation to strengthen persuasive outcomes (Carcioppolo, Li, Chudnovskaya, Kharsa, Stephan & Nickel, 2017). Based on previous findings relating to these reports, it may therefore be suggested that warning label messages found on sugary products should be designed to induce fear and guilt to effectively stimulate behaviour change. This assumption is however cautioned as some researchers argue against the evocation of fear and guilt due to the potential maladaptive consequences that may render such emotional appeals ineffective (Witte & Allen, 2000). As a result of this conundrum, this study proposes an investigation into which emotional appeal warning label may render effective behaviour change intentions amongst consumers who engage in excessive sugar consumption.

In addition to the notion that the emotional appeal incorporated into a message may translate to unwanted outcomes, literature shows that personal characteristics of the target population may also be responsible for the potential maladaptive consequences. More specifically, the stage of change a consumer belongs to may determine whether an emotional appeal aptly encourages behaviour change. Given that consumers have different levels of readiness to change their unhealthy behaviour, and that each stage's distinct characteristics may influence

how they respond to communication efforts, it is asserted that effectiveness of emotion-based interventions depend on which stage of change consumers are in at the time of evocation (Manika & Gregory-Smith, 2017; Cho & Salmon, 2006). Scholars maintain that emotional evocation in persuasive communication should ensure a match between the emotion and the target audience to ensure effectiveness (Turner, 2007). In other words, fear and guilt that is elicited through the warning label message should be appropriate for the specific target audience to avoid maladaptive responses (Turner, 2007). Considering this information, careful consideration should be given when implementing emotionally loaded messages to ensure that the intended outcome of behaviour change is encouraged. It is against this background that this study investigated different negative emotional appeals in high-sugar-content warning label interventions to encourage consumers in different stages of change to decrease their excessive sugar consumption.

As an introduction to this study, the following section will elaborate on the consumption of sugar, along with the worrisome health concerns related to excessive intake. This will be followed by a discussion on the role of social marketing and public health interventions to discourage unhealthy behaviours. Then, the study's problem statement will be presented, along with the objectives and proposed methodology.

1.2 SUGAR CONSUMPTION AND THE RELATED HEALTH CONCERNS

Avoiding excessive sugar consumption is encouraged by governments worldwide (de Alcantara, Ares, de Castro & Deliza, 2020). Although different types of sugar exist, free sugars are particularly important to this study. Free sugars, which refer to the sugars that manufacturers add to foods during processing to improve the taste of products, are associated with several health problems (Machado, Steele, da Costa Louzada, Levy, Rangan, Woods, Gill, Scrinis & Monteiro 2020). Overall, Euromonitor has reported that, on average, South Africans consume 47.5g of free sugar per person daily (Bhardwaj, 2016). This intake contrasts starkly with the WHO's recommendation of a limit of roughly 24g per person per day (Lindmeier & Davies, 2016; Sugar Facts Wits University, 2016). Resultantly, educating South African consumers about the sugar content of specific products is essential, especially in light of the growing health problems experienced due to the intensified consumption of sugar (Neethling, 2019). Indeed, health experts are increasingly raising their concerns about the risks related to unnecessary sugar intake (Erickson & Slavin, 2015). Several studies have shown a noteworthy correlation between excessive sugar consumption and threatening health issues, notably

obesity and type 2 diabetes (Villines, 2019; Malik, Popkin, Bray, Després, Willett & Hu, 2010). For instance, consuming one sugar-sweetened beverage (SSB) daily increases an adult's likelihood to develop obesity by 27 per cent, and type 2 diabetes by 25 per cent (Manyema, Veerman, Chola, Tugendhaft, Sartorius, Labadarios & Hofman, 2014).

Against this background of health concerns related to the excessive consumption of sugar, it is argued that many consumers should reduce their daily free sugar intake. However, even though the risks related to excessive sugar intake are acknowledged, and the subsequent benefits of reduced intake are known, little is currently done to encourage consumers to change their potential harmful sugar consumption behaviour. In fact, instead of encouraging sugar avoidance, such unhealthy foods are still freely promoted to consumers by means of marketing communication initiatives, including advertising and promotions (Jolly, 2011). To address this concern, social marketing initiatives such as the recent health promotion levy (Tswanya, 2018) and the recommended implementation of warning labels in the future are encouraged.

1.3 SOCIAL MARKETING IN PUBLIC HEALTH

Social marketing refers to a marketing approach that attempts to change or maintain consumers' behaviour for the benefit of themselves as well as the society as a whole (Green, Crawford, Williamson & DeWan, 2019). This marketing approach addresses harmful or risky behaviours by developing interventions that would encourage sustainable and beneficial behaviours. Nowadays, the public health sector dominates the use of social marketing interventions as it addresses individuals' problematic behaviours and encourages behaviour change (Green *et al*., 2019). More specifically, social marketing plays an important role in changing harmful behaviours that are particularly difficult to alter. Such behaviours include cigarette smoking, dangerous driving practices and unhealthy eating habits (Boshoff & Toerien, 2017; Sheer & Chen, 2008). Interventions attempting to change these behaviours include seat-belt compliance campaigns, smoking cessation communication programmes, and warning label interventions.

The success of social marketing in the public health domain has led to its widespread adoption by governments across the world. In South Africa, after recognising the health risks associated with sugar consumption, the government has implemented a tax-driven approach to address the sugar consumption concern (Holmes, 2018). Despite this first step, the World Economic Forum has indicated that governments should consider a multifaceted approach to combat these

health concerns (Cullinan, Green & Pilane, 2019). Indeed, there are many other interventions available that may encourage behaviour change. A common intervention used in the public health sector is that of warning labels (Hammond, Fong, McDonald, Brown & Cameron, 2006).

1.4 WARNING LABELS AS PUBLIC HEALTH INTERVENTIONS

Interventions refer broadly to coordinated sets of activities formulated to change specific behaviours and habits (Michie, Van Stralen & West, 2011). Public health interventions depend on marketing communication efforts, such as public service advertisements and campaigns, to reach large audiences and subsequently facilitate behaviour change to improve personal health (Bleakley, Jordan, Hennessy, Glanz, Strasser & Vaala, 2015).

A popular and cost-effective intervention that is often used in behaviour change contexts is that of warning labels on products (Mantzari, Vasiljevic, Turney, Pilling & Marteau, 2018; Hammond *et al*., 2006). This popularity may be ascribed to the success that warning labels have shown in facilitating behaviour change in specifically cigarette and alcohol contexts (Van Epps & Roberto, 2016; Bleakley *et al*., 2015; Popova, 2014). Given the alarming statistics of sugar consumption in South Africa, and the success that the use of warning labels have demonstrated in other health contexts, it has recently been suggested that warning labels should be implemented on sugary products to caution consumers against the excessive consumption of these products (Cullinan *et al*., 2019). This consideration of warning-label initiatives on these products seem warranted given that such public health interventions have the ability to persuade a targeted audience to change their risky consumption behaviours (Johnson & May, 2015; Michie *et al*., 2011).

1.5 CONSUMER BEHAVIOUR AND EMOTIONS

Consumer behaviour is a dynamic and complex process that typically involves studying how consumers acquire, use, reject, and make decisions about different aspects, such as products and services (Hawkins, Mothersbaugh & Best, 2007). Although predominantly relevant to marketers in terms of purchase decisions, consumer behaviour also includes how consumers make non-purchase related decisions, for instance, regarding lifestyle practices such as social responsibility and healthy eating habits (Perner, 1999). In public health contexts, intervention designers leverage such literature on consumer decision-making processes in order to persuade consumers to adopt healthier consumption habits.

Persuasion is an important strategy used in public health communication efforts (Rossi & Yudell, 2012). Persuasion comprises a conscious attempt to influence the thoughts or behaviours of a specified targeted audience (Cameron, 2009). Perloff (2003) describes persuasion as a process whereby communicators attempt to convince consumers to change their attitudes or alter their behaviours regarding an issue. In a public health context, persuasion involves communication that induces positive or negative feelings that attempt to motivate healthy consumer behaviours (Michie *et al*., 2011). The evocation of such positive or negative feelings forms part of consumers' experienced emotions (Scherer, 2005).

Emotions are understood as internal mental states that express consumers' evaluation in response to events, individuals, or objects (Nabi, 2002). When investigating emotions, the existing literature suggests that a message that arouses a specific emotion will most likely lead to increased attention, better recall and memory (Lin, Lee & Lin, 2014; Lwin, Phau, Huang & Lim, 2014). In addition to heightened attention and memory, emotions also tend to initiate behaviour change as recommended in a persuasive message (Nabi, 2015; Opel, Diekema, Lee & Marcuse, 2009). Consequently, social marketing interventions employ emotional appeals to facilitate behaviour change regarding risky behaviours, including dangerous and/or unsafe road use and smoking habits (Brennan & Binney, 2010).

Emotional appeals refer to persuasion methods that attempt to elicit specific emotions among its target audience (Bhasin, 2018). Emotional appeals appear in health communication campaigns, advertisements, packaging and events, and its effectiveness has been well acknowledged in the marketing literature (Achar, So, Agrawal & Duhachek, 2016). Negative appeals, i.e. messages that attempt to stimulate negative emotions such as fear, have received considerable attention in social marketing (Mays, Turner, Zhao, Evans, Luta & Tercyak, 2014). More specifically, fear and guilt are negative emotions that significantly contribute to consumers' decisions to change their behaviour (Mantzari *et al.*, 2018; Boshoff & Toerien, 2017; Duhachek, Agrawal & Han, 2012).

1.5.1 Fear appeals in social marketing

Whereas fear is a negative motivational emotional state characterised by an anticipation of pain, worry or anxiety, usually accompanied by a desire to reduce the negative feelings (Williams, 2012), fear appeals are persuasive communication tactics that attempt to evoke fear

in order to encourage precautionary behaviour or self-protective action (Rogers & Deckner, 1975). To arouse fear, fear appeals involve a communicated threat to consumers' well-being (Williams, 2012). The success of fear appeals in health communication is best illustrated with warning labels on cigarette packaging (Ruiter, Kessels, Peters & Kok, 2014). More specifically, warning labels that employ fear appeals typically attempt to engender fear by stimulating perceptions of potential risks relating to the relevant problematic behaviour among the targeted consumers (Rosenblatt, Bode, Dixon, Murawski, Summerell, Ng & Wakefield, 2018). By incorporating threatening messages, warning labels have long been argued to successfully persuade individuals to change their unhealthy behaviour, including smoking (Popova, 2014).

The success of warning labels can be ascribed to the fact that fear appeal messages are easily noticed, read, and remembered (Popova, 2014). As a result, the South African government's proposition of implementing warning labels on sugary products seems warranted (Tswanya, 2019). Evidence of the effectiveness of warning labels in South Africa is underexplored, and theory suggests its use should be approached with caution (Witte & Allen, 2000). This attentiveness is based on the growing contradicting evidence that infers the negative emotional arousal may induce maladaptive responses.

In fact, despite the evidence in support of fear appeals, authors have previously questioned its effectiveness (Witte & Allen, 2000). For example, fear appeals can lead to unintended maladaptive effects such as message avoidance and denial (Hall, Sheeran, Noar, Boynton, Ribisl, Parada, Johnson & Brewer, 2018). Considering this line of reasoning, fear appeals may also be ineffective. However, despite the possibility of negative effects, the overwhelming majority of public health interventions still contain fear appeals, including warning labels on harmful products (Ruiter *et al*., 2014; Williams, 2012). In the light of contrasting information in the fear appeal literature, some researchers have recently introduced a strategy to minimise the defensive responses relating to fear appeals and therefore enhance behaviour change effectiveness. More specifically, this strategy is introduced as the use of multiple emotional appeals (Myrick & Oliver, 2015; Carrera, Muñoz & Caballero, 2010). In response to the conundrum relating to the effectiveness of fear appeals, and the underexplored nature of warning labels in a sugary product context, the current study examined whether fear-evoking warning labels, as part of multiple emotional appeals, can be effectively utilised for high-sugar-content products.

1.5.2 Multiple emotional appeals and guilt appeals

Several authors have hinted at the potential value of creating content that evokes multiple emotions simultaneously when designing messages (Myrick & Oliver, 2015; Brennan & Binney, 2010; O'Keefe, 2002). In response to this proposition, and with specific reference to fear appeals, scholars have suggested incorporating other negative emotions to strengthen the persuasive influence of fear appeals (Dillard & Shen, 2018; Lewis, Watson & White, 2013; Mukherjee & Dubé, 2012) and to mitigate the potential maladaptive consequences that may follow fear appeal exposure (Passyn & Sujan, 2006; Shimp & Stuart, 2004). More specifically, some scholars have recently proposed that the combination of fear and guilt be investigated to determine whether persuasive outcomes of the message are improved (Schindler-Ruwisch, Leavitt, Macherelli, Turner & Abroms, 2018; Carcioppolo *et al.*, 2017; Brennan & Binney, 2010). Since the South African government suggested the use of warning labels to discourage sugar consumption amongst consumers, the current literature presents the opportunity to investigate the use of both fear appeals and guilt-fear appeals. Despite the recommended combination of a fear and guilt appeal in a message, limited research has addressed this combination in a social marketing context.

Guilt can be defined as a negative, self-conscious emotion that is evoked through negative perceptions or evaluations of the self (Niedenthal & Ric, 2014). The inclusion of guilt in a traditional fear appeal framework holds significant potential given that these two emotions are both motivational in nature (Carcioppolo *et al.*, 2017). That is, consumers are likely to feel compelled to reduce their feelings of both fear and guilt, thus enhancing compliance to the message. Moreover, the combination of fear and guilt may prove effective when considering Passyn and Sujan's (2006) argument that fear is necessary to gain attention and to emphasise a specific problem whereas guilt can direct the solution. Considering the limited research conducted on the combination of fear and guilt appeals, and the potential to assist in the design of the warning labels as suggested by the South African government, the literature focusing on guilt appeals on its own was examined, in order to elaborate on the potential combination of guilt-fear appeals.

1.5.3 Guilt appeals in sugar consumption contexts

Since guilt is an emotion that consumers feel compelled to reduce, and in response to the significant support for this notion in the existing literature (Antonetti, Baines & Jain, 2018;

Netemeyer, Burton, Andrews & Kees, 2016; Duhachek *et al.*, 2012), using guilt appeals to discourage the consumption of high-sugar-content products seem appropriate (Chédotal, Berthe, de Peyrelongue & Le Gall-Ely, 2017). Indeed, some authors reported significant decreases in consumers' choices to consume unhealthy foods when guilt is aroused (Zemack-Rugar, Bettman & Fitzsimons, 2007; Giner-Sorolla, 2001). This positive outcome may be due to the known association that guilt has with the consumption of unhealthy foods, including sugary products (Kuijer & Boyce, 2014). Stated differently, many consumers correctly perceive such foods as being unhealthy. Because of this association, consumers are aware of the potential feelings of guilt that will follow when succumbing to the temptation (Conzen, 2015). To avert the possible feelings of guilt, consumption is avoided. Based on this notion, it could be asserted that triggering guilt through warning labels on sugary products will encourage consumers to limit or avoid purchasing and consuming the sugary product as they attempt to mitigate feelings of guilt.

Despite this beneficial association between sugar consumption and evoked guilt, it has also been suggested that guilt feelings may produce maladaptive consequences pertaining to healthy behaviour (Kuijer & Boyce, 2014; Rozin, Bauer & Catanese, 2003). Various findings, for instance, have shown that feelings of guilt can essentially lead to increased enjoyment during consumption (Kuijer & Boyce, 2014; Vong, 2012). With reference to sugary products, a key reason for this effect can be ascribed to the cognitive association between guilt and pleasure, since high-sugar-content products are considered as 'guilty pleasures' that make individuals feel good and bad at the same time (Conzen, 2015). Resultantly, although researchers have encouraged the use of both fear and guilt for successful message outcomes, the existing association between guilt and pleasure may suggest otherwise. The inclusion of a guilt appeal in fear appeal warning labels on high-sugar-content products should be done with caution, given that guilt can either facilitate behaviour change (Zemack-Rugar *et al*., 2007; Giner-Sorolla, 2001), or remind the consumer of the potential pleasure that may be experienced during consumption, subsequently prompting unwanted increased consumption (Goldsmith, Cho & Dhar, 2012).

To conclude, in light of the inconclusive information regarding the use of guilt-fear appeals for high-sugar-content products specifically, this study examined whether the use of a multiple emotional appeal (i.e. guilt and fear), will result in the intended outcomes desired by the South African government. Despite the growing interest in the use of multiple emotional appeals,

limited research exists on the impact of guilt-fear appeals in the context of persuasion outcomes and behaviour change interventions (Carcioppolo *et al*., 2017). As far as could be established, no study has investigated the impact of guilt-fear appeals in the context of sugary product consumption. It is against this background that the present study was developed to incorporate a guilt-fear appeal in a sugar warning-label context. To this end, it is necessary to examine how the effectiveness of these appeals can be measured.

1.5.4 Measuring the effectiveness of guilt-fear appeals

Although fear appeal models exist that can predict the potential effectiveness of fear appeal communication (Witte, 1992; Rogers & Deckner, 1975; Maddux & Rogers, 1983), limited published research has examined the process through which guilt appeals may influence consumers to change their risky behaviour (Basil, Ridgway & Basil, 2008; O'Keefe, 2002). In light of the need for theoretical models to explain guilt-appeal effects (Xu & Guo, 2018), some scholars have suggested that fear appeal models may be used to measure the effectiveness of guilt appeals too. More specifically, the extended parallel process model (EPPM), a prominent model in the fear appeal literature, has shown potential for explaining the effects of both fear and guilt appeals (Becker-Olsen & Briones, 2009; Basil *et al*., 2008). In the following section the EPPM will be briefly discussed, but the model is explored in depth in Chapter Four, and is graphically depicted in Figure 4.4 in the same chapter.

1.5.4.1 The extended parallel process model and guilt appeals

The extended parallel process model (EPPM) explains how recipients process and respond to fear appeals (Rintamaki & Yang, 2014). The EPPM posits that fear appeals involve two cognitive evaluative processes, namely threat and efficacy appraisal (Maddux & Rogers, 1983). The model illustrates that, when a consumer is exposed to a fear-evoking message, consumers firstly engage in threat appraisal, which includes their evaluation of susceptibility and severity. When individuals engage in efficacy appraisal, response-efficacy and self-efficacy evaluations take place. Based on the cognitive processes of threat and efficacy appraisal, the EPPM suggests that, under high efficacy and high threat appraisals, danger-control responses are initiated, which result in individuals adopting recommended behaviours as the fear appeal suggests (message acceptance). In contrast, fear-control processes refer to where individuals implement maladaptive coping strategies, such as denial or avoidance of the message, in an

effort to manage the negative feelings evoked by the fear appeal (message rejection) (Rintamaki & Yang, 2014).

To illustrate how the EPPM may assist in understanding guilt appeals, Carcioppolo *et al*. (2017) explain that the cognitive variables found in the model, namely susceptibility, severity, response efficacy, and self-efficacy originally developed in a fear appeal context, play a role in guilt-based messages too. It is thus speculated that the use of the cognitive constructs found in the EPPM may provide valuable explanations for guilt appeals too in health behaviours. To further the argument that the EPPM may be used to measure the effectiveness of guilt appeals too, guilt appeals seem to also elicit processes similar to fear appeals pertaining to subsequent message outcomes (Block, 2005). That is, the process by which guilt appeals generate intended and unintended effects display significant similarities to those of fear appeals.

1.5.4.2 Intended and unintended effects of fear and guilt appeals

In addition to evidence suggesting that fear and guilt appeals can be explained by the same theoretical cognitive constructs, Kubany and Watson (2003) indicate that guilt appeals employ similar pathways to fear appeals, in an attempt to eliminate the negative emotion. More specifically, where fear appeals may stimulate either fear-control or danger-control processes to eliminate the feeling of fear, consumers exposed to guilt appeals may use guilt reduction and guilt avoidance to eliminate the feelings of guilt.

Guilt reduction thus refers to how consumers engage in behaviours to reduce their feelings of guilt. Essentially, guilt reduction processes indicate that the message has successfully elicited guilt and consumers 'accept' the message and engage in active behaviours to control their feelings. In contrast, guilt avoidance involves strategies that deny the guilt, suggesting that the guilt appeal has triggered unintended effects. In these cases, it can be argued that individuals reject the message because they do not intend to engage in behaviours recommended by the message (Block, 2005). Again, the process is similar to the EPPM's fear-control notion, i.e. that individuals opt for maladaptive coping strategies, such as message denial, to reduce the negative feelings of fear. As a result, and as in the case of fear appeals, the evocation of guilt may produce maladaptive responses, and result in the reduction of the intended persuasive outcomes (Bessarabova, Turner, Fink & Blustein, 2015; Mantzari *et al*., 2018; O'Keefe, 2002).

Although unintended consequences have been recorded in the literature on both fear and guilt (Hall *et al*., 2018; Popova, 2016; Kuijer & Boyce, 2014), intended responses are also prominent (Donnelly, Zatz, Svirsky & John, 2018; Boudewyns, Turner & Paquin, 2013; Block, 2005). The current study attempted to address this ambiguity by comparing a guilt-fear appeal to a traditional fear appeal to determine which appeal proves to be successful in deterring South African consumers from consuming high-sugar-content products. However, to investigate which emotional-appeal warning label will increase the intended responses towards high-sugar-content products remains complicated amidst the growing body of research suggesting that consumers have different levels of willingness to change. More specifically, theory suggests when designing interventions like emotion-eliciting warning labels, the stage of change in which a consumer is must be considered (Manika & Gregory-Smith, 2017; Cho & Salmon, 2006).

1.6 STAGES OF CHANGE

When considering interventions aimed at changing unhealthy behaviours, Prochaska, DiClemente and Norcross (1992) suggest that consumers progress through five stages when considering behaviour change. Because consumers in the five stages of change differ in their willingness to change, interventions attempting to motivate change will only be effective if they are tailored to address the defining characteristics of the different stages (Norcross, Krebs & Prochaska, 2011). The first stage is referred to as pre-contemplation and stipulates that consumers in this stage do not intend to change their behaviour. The second stage, namely contemplation, refers to consumers who are aware that their current behaviour is problematic and who are seriously considering changing their behaviour. For contemplators, however, preparations to take action have not yet been made. Consumers in the third phase have made the decision to act within the next month. Despite this intention, these consumers are believed to be unsuccessful in changing their problematic behaviour in the preceding year and are classified in the preparation stage. The fourth stage, namely action, typifies consumers who have changed their behaviour. The final stage is the maintenance stage, where consumers are actively attempting to maintain their behaviour change by preventing a relapse (Povey, Conner, Sparks, James & Shepherd, 1999). The last two stages, namely action and maintenance, involve strict time frames. Those in the action stage are described as having changed their behaviour in a period of one day to six months (Norcross *et al*., 2011), whereas those consumers in the maintenance stage have changed their behaviour for more than six months. Because theory

recommends that interventions should be tailored to a consumer's specific stage of change for intended behaviour to follow (Manika & Gregory-Smith, 2017; Cho & Salmon, 2006), the current study considered consumers in their different stages of change. However, since the study investigated how warning labels should be designed to change consumers' risky sugar consumption behaviours, it was deemed unnecessary to include those consumers who were in the action and maintenance stages, as they had already altered their behaviours (Prochaska *et al*., 1992). As a result, this study only focused on the first three stages of change.

Although both fear and guilt appeals have been shown to result in the reduction of harmful behaviours (Hall *et al*., 2018; Popova, 2016; Kuijer & Boyce, 2014), these emotional appeals have also engendered maladaptive and unintended responses (Boudewyns *et al*., 2013; Block, 2005). It can be argued that different emotionally loaded warning labels may be better suited for consumers in different stages of change. Given this notion and supporting evidence, this study incorporated consumers' stages of change when exploring whether different emotion appeals are effective in stimulating their behaviour change in a sugar consumption setting.

Interventions that are based on stages of change require reliable and valid indicators of consumers' different stages of change (Norcross *et al.*, 2011). The existing literature reports a variety of ways that researchers have used to measure consumers' stages of change. Questionnaires like the readiness to change questionnaire contains statements to classify consumers in either the pre-contemplation, contemplation, preparation, action, or maintenance stage (Rollnick, Heather, Gold & Hall, 1992). Although widely used, however, these measurement methods have been criticised for being unable to accurately classify individuals in their appropriate stage of change (Adams & White, 2004; Littell & Girvin, 2002). This critique is partly based on the premise that classification occurs based on the respondents' self-assessment of a certain problematic behaviour (Brug, Conner, Harré, Kremers, McKellar & Whitelaw, 2005; Povey *et al.*, 1999). The argument emphasises individuals' tendency to portray themselves as more socially acceptable, thus leading to social desirability and acquiescence bias (West, 2005; Rollnick *et al*., 1992). Since the accurate assessment of the stages of change is critical in designing and delivering tailored interventions (Brug *et al*., 2005), the current study addressed this limitation by using response latency. Response latency measures enable researchers to evaluate whether respondents' reported answers are sincere, or whether they have been modified to appear more socially desirable. The result of such an assessment allows for a better prediction of behaviour (Andersen & Mayerl, 2017).

To summarise, using response latency provides a possible solution to address the difficulties when measuring consumers' stages of change. In the current study, the accurate measurement of stages of change is critical in determining which emotional appeal is better suited for which consumer. To this end, the information assisted the researcher in establishing which warning labels would be most effective when implemented in a high-sugar-content product context.

1.7 PROBLEM STATEMENT

The Healthy Living Alliance (2018) reported that almost 70 per cent of women and 39 per cent of men in South Africa are overweight (Ebrahim, 2018). Major causes of health conditions such as obesity have been linked to excessive sugar intake. Despite the prominent consequences of excessive sugar consumption, South Africans consume almost double the amount of sugar than the daily recommendation (South Africans consume alarming amounts of sugar, 2017). In an effort to educate consumers about the subsequent health risks, and to combat excess sugar intake, the South African government has announced an investigation into placing warning labels on products that pose risks to consumers' health, including those products with a high sugar content (Tswanya, 2019).

Warning labels present a plausible way to encourage consumers to change their risky dietary behaviours (Mantzari *et al*., 2018; Mostafa, 2015). Warning labels on products are especially effective because it cautions consumers against the risks related to excessive consumption (Rosenblatt *et al*., 2018). When designing these labels to modify unhealthy dietary behaviours, overwhelming support has been found for the effectiveness of negative emotional appeals. More specifically, the majority of persuasion research in the health domain attempts to elicit a fear response from the audience (Carcioppolo *et al*., 2017; Ruiter *et al*., 2014). Despite the widespread use of fear appeals, research has also shown its potential unintended effects, including message avoidance and denial. Consequently, some studies have shown the utility of incorporating other negative motivational emotions in a fear appeal to strengthen the persuasive outcomes (Dillard & Shen, 2018) and minimise the unintended consequences of fear evocation (Passyn & Sujan, 2006; Shimp & Stuart, 2004). Including guilt in a fear appeal message may be especially influential, since some scholars imply that the two emotions complement each other (Schindler-Ruwisch *et al*., 2018; Carcioppolo *et al*., 2017; Passyn & Sujan, 2006).

Combining guilt with a fear appeal to discourage the consumption of high-sugar-content products seems appropriate due to the link between guilt and consuming unhealthy products

(Chédotal *et al*., 2017; Conzen, 2015). In addition to this logic, studies have reported empirical evidence to support the use of guilt appeals to reduce unhealthy consumption choices (Kuijer & Boyce, 2014). Moreover, guilt elicitation has shown significant success in health behaviour interventions, including smoking cessation and an increase in physical activity (Netemeyer *et al*., 2016). Although evidence seems to favour the effectiveness of guilt elicitation (Antonetti *et al*., 2018; Boudewyns *et al*., 2013), and despite the explicit call for furthering multiple emotional appeal research specifically relating to the combination of fear and guilt (Schindler-Ruwisch *et al*., 2018; Carcioppolo *et al*., 2017), the evocation of guilt should be considered with caution. This attentiveness is based on contrasting research that suggests that guilty feelings can lead to unhealthy actions, due to the emotion amplifying the anticipated pleasure consumers expect to experience through actual consumption (Goldsmith *et al*., 2012). Thus, because high-sugar-content products are perceived as 'guilty pleasures', the added evocation of guilt in a fear appeal may in fact increase consumers' intention to consume products with a high sugar content, resulting in unintended outcomes of the communicated message. This ambiguity was addressed in the current study by investigating whether the complementary use of guilt-fear appeals, as opposed to traditional fear appeals only, are more effective in stimulating the intended outcomes of the communicated message. To determine this outcome, the cognitive constructs suggested by the extended parallel process model were used.

When designing such behaviour change interventions, however, an important consideration is the notion that individuals are not all equally ready to change. The stages of change model suggests that some individuals have no intention to modify their unhealthy behaviours whereas others may be contemplating action. As a result, interventions should be tailored accordingly, to address the differing levels of consumers' readiness to change (Norcross *et al.*, 2011). In other words, it is argued that the effectiveness of a communication message depends on which stage of change individuals are currently in (Herzog & Komarla, 2011; Cho & Salmon, 2006). Stated differently, an emotional appeal may produce intended effects for consumers in one stage of change, and unintended effects for others who have been exposed to the same emotional appeal (Wong & Cappella, 2009). Given the impact that stages of change may have on the effectiveness of interventions, the current study investigated the effectiveness of different negative emotional appeals – across the different stages of change – on important cognitive and emotional responses, for the recently suggested high-sugar-content warning-label interventions.

1.8 OBJECTIVES

The study's research problem, as proposed in the previous section, alludes to various objectives. These objectives were divided into primary and secondary objectives.

1.8.1 Primary objectives

Literature discussed previously assisted in developing objectives to investigate the influence of different negative emotional appeal warning labels on consumers' cognitive and emotional responses. More specifically, according to the extended parallel process model, when evaluating the effectiveness of fear- and guilt-based messages, specific cognitive responses should be considered. In addition to the important cognitive responses, researchers maintain that emotional evocation play an essential role in the process of behaviour change (Nabi, 2015; Opel *et al.,* 2009). Resultantly, the current study endeavoured to investigate consumers' emotional and cognitive responses to the negative emotional responses. Furthermore, seeing as consumers are in different stages of readiness to change their behaviour and may therefore respond differently to communication messages based on distinct characteristics, consumers of different stages cannot be considered as one homogenous group. Responses to emotional appeals should therefore be determined by considering each stage of individually. It is against this background that the study investigated the responses of each stage of change separately.

To reiterate, since research shows that consumers are in different stages of change, and that interventions should be tailored according to each stage, the following primary objectives were pursued:

(1) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the pre-contemplation stage.
(2) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the pre-contemplation stage.
(3) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the contemplation stage.
(4) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the contemplation stage.
(5) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the preparation stage.

(6) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the preparation stage.

1.8.2 Secondary objectives

To address the primary objectives, a number of secondary objectives were formulated. Based on the extended parallel process model, important constructs were evaluated to assess the effectiveness of both negative emotional appeals. In particular, the model stipulates five cognitive constructs essential to the emotional appeals' influence on behaviour change intentions. Each construct, namely behavioural intention, response-efficacy, self-efficacy, severity and susceptibility, was assessed for each negative emotional appeals, and is outlined in the secondary objectives. In addition to the cognitive responses, the study also evaluated emotional responses, given that emotions often guide consumer behaviour (Dillard & Meijnders, 2002). The emotions identified in the literature relevant to the current study, that is, fear, guilt and anticipated pleasure, were assessed separately and is outlined in the secondary objectives. Again, seeing as consumers are in different stages of change, and may respond differently to the negative emotional appeals, the pre-contemplation, contemplation and preparation stage of change was investigated separately.

Although the following listed secondary objectives are outlined for the pre-contemplation stage only, the same objectives were addressed for the contemplation and preparation stages of change (See Appendix A). The secondary objectives for the pre-contemplation stage were:

(1) To investigate the impact of negative emotional appeal warning labels on the behavioural intention of consumers in the pre-contemplation stage.
(2) To investigate the impact of negative emotional appeal warning labels on response efficacy of consumers in the pre-contemplation stage.
(3) To investigate the impact of negative emotional appeal warning labels on self-efficacy of consumers in the pre-contemplation stage.
(4) To investigate the impact of negative emotional appeal warning labels on severity of consumers in the pre-contemplation stage.
(5) To investigate the impact of negative emotional appeal warning labels on susceptibility of consumers in the pre-contemplation stage.
(6) To investigate the impact of negative emotional appeal warning labels on feelings of fear of consumers in the pre-contemplation stage.

(7) To investigate the impact of negative emotional appeal warning labels on feelings of guilt of consumers in the pre-contemplation stage.
(8) To investigate the impact of negative emotional appeal warning labels on feelings of anticipated pleasure of consumers in the pre-contemplation stage.

To address the above objectives, the study implemented a research design consisting of various phases. The research design and its phases are discussed next.

1.9 RESEARCH DESIGN

For the purposes of this study, the research approach consisted of three phases. First, secondary research was conducted, which entailed an in-depth study of the existing literature related to the models and variables that were used in the study. Next, the qualitative research phase entailed personal interviews that explored emotional appeals and provided essential feedback for the subsequent development of the stimuli. The information gathered in the first two phases of the research assisted in the last phase, the quantitative experimental design, which was necessary to address the research objectives. In the following section, the secondary and primary research methods, as well as the proposed sampling plan, data collection instruments and data analysis relevant to this study are discussed.

1.9.1 Secondary research

The study commenced with secondary research, in the form of an in-depth literature review, to explore the different constructs and variables identified in the research problem. The Internet databases of the Stellenbosch University Library, amongst others, were used to access relevant articles and publications pertaining to the study. That is, constructs and terms related to fear appeals, warning labels, and stages of change, were investigated.

According to Malhotra (2010), secondary research is essential as it lays the foundation for primary research. After an extensive literature review, the study further required primary research to address its objectives. Primary research for the current study first entailed qualitative research in the form of in-depth personal interviews.

1.9.2 Qualitative research and in-depth personal interviews

In-depth personal interviews, a popular qualitative research technique, were conducted with eight individuals with the purpose of gaining a deeper understanding of the topics and concepts relevant to the research problem (Zikmund & Babin, 2010). These eight individuals, who

adhered to the target population criteria, were selected based on convenience. During the interviews, they were asked about their sugar intake habits, their opinions on certain fear-based warning labels, as well as which factors about sugar consumption engendered guilty feelings among them. The insights gathered from these interviews supported the process of executing the primary quantitative phase of this study. More specifically, the information collected assisted the researcher in developing appropriate stimuli to be used in the quantitative experimental phase.

1.9.3 Quantitative experiment

A true experimental post-test-only control group design was employed to collect the required data that were necessary to address the primary and secondary objectives of the study. The experiment was conducted to allow for the manipulation of emotional appeals, to understand its influence on the respondents' cognitive and emotional responses. These cognitive responses are behavioural intention, susceptibility, severity, self-efficacy, response-efficacy, fear, guilt, and anticipated pleasure.

The experiment was conducted via a structured, non-interactive self-administered questionnaire that was distributed electronically. The respondents were assigned to one of the three experimental groups (that is, fear, guilt-fear, or control), after which the questions regarding the dependent variables followed. Items that were used to measure the dependent variables were pre-designed and pre-tested, but they were slightly adapted towards the context of sugary product consumption. Before commencing with the experiment, however, a pilot study was conducted to ensure that the proposed methodology, procedure and subsequent analysis would be feasible (Thabane, Ma, Chu, Cheng, Ismaila, Rios, Robson, Thabane, Giangregorio & Goldsmith, 2010).

1.9.4 Sampling process

The sampling process entailed the following steps: identifying the target population characteristics and deciding on the appropriate sampling method and size. The target population was defined as consumers who consume high-sugar-content products, since such products exceed the daily recommended limit and therefore advised to be avoided (Todd, 2019). Such consumers were classified as consumers who needed to be encouraged to reduce their sugar consumption habits. The target population included both males and females. Because adults are the main purchasers of food and beverages (Bleakley *et al*., 2015), the study

excluded individuals younger than 18 years. That is, the target population included individuals between the ages 18 and 65. Older adults were included because weight gain occurs as a result of lifestyle factors throughout consumers' lives, including sugar consumption (Vorster, Kruger, Wentzel-Viljoen, Kruger & Margetts, 2014).

Data collection was restricted to using a non-probability sampling method as there was no sampling frame available. More specifically, a convenience sampling method was implemented to reach a sample congruent with the target population. To include both younger adults and older adults, the study distributed the questionnaire link in two ways. Firstly, the Stellenbosch University Alumni Relations Office distributed the questionnaire link on behalf of the researcher to former students of the university. The questionnaire link was posted on several platforms, including *MatiesConnect*, which consists of university alumni. Utilising the alumni ensured that older individuals were targeted and included in the sample. Secondly, to reach younger adults, the questionnaire link was additionally distributed to existing students at Stellenbosch University. The link was distributed through *SunSurveys*, the university's unique survey platform.

Before the study could access Stellenbosch University's students and alumni, a request was first submitted for permission. See Section 1.10 for the ethical principles applied to obtain ethical clearance for the study. Once permission was granted to using Stellenbosch University's existing students and alumni as sample, the data collection could commence. The final sample size was 460. Following the data collection, data analysis was conducted.

1.9.5 Data analysis

The qualitative data that were collected from the interviews first underwent analysis. The information was analysed to identify recurring themes, and conclusions were presented in a summarised report, from which the stimuli were designed. The data collected during the experimental phase was subjected to both descriptive and inferential analyses, using the IBM Statistical Package for the Social Sciences (SPSS version 25). Before these analyses were performed, the data were prepared, and the reliability of measures was tested. From the quantitative experimental phase, the descriptive data analysis provided an indication of the demographics of the sample (Zikmund & Babin, 2010). The primary objectives of the study were addressed through inferential data analysis. One-way ANOVAs determined whether there were differences in the dependent variables (i.e. intent, perceived severity, susceptibility, self-efficacy and response efficacy) for respondents exposed to the fear warning label, the guilt-

fear warning label, and the no-warning label group. A one-way ANOVA was conducted for each of the stages of change group (i.e. the pre-contemplator, contemplator, and preparation stages), to determine whether the outcomes differed between the emotion-based warning labels for each group.

1.10 ETHICAL CONSIDERATIONS

The current study followed strong ethical principles. The research was deemed a low-risk study, as the only potential risk was one of discomfort. The possibility of discomfort among respondents could have occurred via the exposure to fear-induced warning labels. For both the qualitative and quantitative phases of the study, the researcher emphasised her assistance should any participants experience discomfort.

All the participants that were approached and invited to participate in the research received a consent letter to be read and signed before participation could commence. Participants were informed that their participation was entirely voluntary, and that they could withdraw from the study at any time. Furthermore, all the information that was provided was treated anonymously, unless respondents gave their e-mail addresses to take part in a random draw to stand a chance to win one of the two R500 Takealot vouchers offered to participants. However, the e-mail addresses were only used for the lucky draw and not for any other purposes. After the draw was completed, the e-mail addresses were deleted. As the researcher did not have access to the respondents' personal e-mail addresses, unless given in case of the lucky draw, the data were considered anonymous as it was impossible for the researcher to contact specific respondents. The information the respondents provided also remained confidential. To ensure confidentiality, the information was not reported on individually, but analysed at an aggregate level. The raw data collected were stored on a password-protected flash disk, only to be used for analysis by the researcher and the supervisor, and to confirm security. Once the study received ethical clearance from Stellenbosch University's Ethics Committee, the data were collected to which only the researcher and her supervisor had access to.

1.11 ORIENTATION OF THE STUDY

The study comprises eight chapters. Chapter One entails an introduction to the study that provides the reader with the background to the research, including the problem statement and the objectives that were addressed. The subsequent four chapters form part of the literature review. Chapter Two discusses, amongst others, sugar consumption habits in the South African

market and its detrimental influence on public health. The concept of social marketing is broadly explored, with emphasis on marketing communication and its role in addressing public health issues. Chapter Three broadly examines consumer behaviour, as well as how it pertains to health behaviours. This chapter also elaborates on the process of behaviour change, interventions that focus on behaviour change in public health, highlighting the significance of using warning labels on certain unhealthy products. Chapter Four explains how social marketers use emotional appeals, especially negatively valenced appeals, to persuade behaviour change. Fear appeals and the complementary use of both guilt and fear in appeals are discussed in detail. Chapter Five, the last chapter of the literature review, pertains to the stages of change model. Besides an in-depth discussion of the model, this chapter also explains how the study attempted to address an important methodological issue relating to the model. The following chapter, Chapter Six, discusses the methodology of the study, including an elaboration on the qualitative focus groups conducted, the experimental design used, the target population, the process of sampling, and how the data were collected. The empirical results are presented in Chapter Seven, followed by the closing chapter, Chapter Eight, which offers the study's main conclusions, limitations as well as suggestions for future research.

1.12 CONTRIBUTION OF THE STUDY

This study contributes to the existing but limited knowledge on multiple emotional appeals by further exploring negative emotions incorporated in a fear appeal framework (Carcioppolo *et al*., 2017). More specifically, eliciting guilt in addition to fear in a communication message is suggested to increase persuasive outcomes, yet remains underexplored. In addition to this potential contribution, as far as could be ascertained, no study has addressed guilt-fear appeals in a high-sugar-content setting. Moreover, the use of stages of change as a segmentation tool in social marketing studies are still relatively limited, despite the suggestion that behaviour change interventions depend on accurately identifying at which stage consumers are in the process of change (Manika & Gregory-Smith (2017). The current study aims to investigate whether considering stages of change when designing behaviour change interventions have an impact on the intervention's effectiveness. Finally, a methodological contribution of the current study was addressing the prolonged criticism of measuring the stages of change by using response latency (Brug *et al*., 2005). Response latency can improve the accuracy of the classification of respondents into their specific stage of change, as respondents' self-reported

answers generally contain bias. Efforts to accurately classify consumers' stage of change by using response latency have not yet been investigated.

1.13 CONCLUSIONS

As the South African government has suggested the implementation of warning labels on what is referred to as 'junk' food items, which include sugary products, the persisting challenge is how these warning labels should be designed to maximise their effectiveness. Although a plethora of evidence supports the use of fear appeals to discourage health-risk behaviours, some scholars argue that the evocation of fear may result in maladaptive consequences. In response to the contrasting information in the fear appeal literature, some scholars suggest the combination of fear and guilt in a persuasive message to enhance the message's effectiveness. Although fear and guilt appeals have received considerable attention as separate constructs, the combination of the two negatively valenced emotions is still relatively underexplored, especially in a sugar consumption context. Given the association between guilt and unhealthy food consumption, which can lead to less unhealthy food choices, eliciting guilt in a sugary product setting seem reasoned. However, studies have also demonstrated that the evocation of guilt may be ineffective because guilt could amplify the pleasure that consumers anticipate experiencing through actual consumption. Given the inconclusive findings presented in the fear appeal literature, and the limited research regarding guilt-fear appeals, this study proposed an investigation into the use of both appeals for the newly suggested sugary product warning-label interventions in South Africa.

To further refine the evidence of fear and guilt-fear appeal outcomes, the study also addressed the notion of consumers' readiness to change their behaviour. The inclusion of the stages of change model is based on the premise that not all consumers are willing to change their unhealthy behaviours, and that individuals in each stage should be treated separately. Indeed, emotional arousal could generate different responses among consumers in their different stages of change. Resultantly, the current study incorporated the stages of change model to determine whether specific emotionally loaded messages induce the intended outcomes for consumers in their different stages of change.

CHAPTER TWO

SUGAR CONSUMPTION AND SOCIAL MARKETING

2.1 INTRODUCTION

Avoiding excessive sugar consumption is an accepted dietary guidance worldwide (Goldfein & Slavin, 2015). In response to substantial evidence linking excessive sugar consumption to non-communicable diseases (Neethling, 2019; Marturana, 2015), including obesity, the World Health Organization (WHO) has recommended a daily intake of not more than 24g of free sugar per person (Kidd, 2018). Since South Africa is considered to be the nation with the highest obesity levels in Africa, it is alarming to learn that South Africans consume considerable amounts of free sugar per day – much more than recommended by the WHO (Euromonitor, 2016). South Africans' apparent growing reliance on unhealthy foods, especially those with a high sugar content, has engendered a public health issue that should be addressed (Steyn, Myburgh & Nel, 2003). The literature suggests that public health concerns can be remedied by social marketing interventions, which have shown significant potential to encourage behaviour change in various public health contexts (Thackeray & Neiger, 2000).

To conceptualise the role that social marketing may play in the context of excessive sugar consumption, the current chapter starts with a definition and overview of free sugar and its detrimental health effects. Then, the concept of marketing will broadly be explored, focusing on the significance of commercial (or traditional) marketing communication and its role in promoting unhealthy consumption. Social marketing, as a means to address public health issues, will also be discussed, during which the importance of warning labels will become evident. Finally, the chapter closes with concluding remarks.

2.2 FREE SUGAR AND PRODUCTS WITH A HIGH SUGAR CONTENT

Sugar is a carbohydrate and is characterised by its sweet taste (Types of sugar, 2019). Sugar is naturally present in fruit and vegetables, but its highest concentration form is found in sugarcane and sugar beet plants (Kitts, 2010). The sugar is removed from these plants in which it occurs naturally, to be used for producing commercial sugar. Once consumed, sugar is converted into glucose for energy (Goldfein & Slavin, 2015).

Although sugar can be a source of energy, it contains empty calories and no vitamins and minerals (Types of sugar, 2019). Sugar has several important functions in cooking, such as assisting in the fermentation processes. In addition to these usages, sugar is mainly added to a variety of foods and beverages to improve their flavour and palatability (Goldfein & Slavin, 2015). For example, in reduced-fat ice creams and reduced-fat yogurts, adding sugar results in improved flavour; the bitter flavour of cocoa in chocolate is balanced out by the sweetness of added sugar; and adding sugar to fruit-based products such as beverages, sauces, and preserves is essential as it balances the sweetness and acidity (Goldfein & Slavin, 2015; Gwinn, 2013). In sum, adding sugar to foods and beverages increases the chances of the products being purchased and consumed by consumers.

The sugar used for the previously mentioned functions is commonly referred to as ‘free sugar’, which is evident in most foods and beverages consumed daily (Steyn *et al*., 2003). Free sugar thus denotes the sugars that are removed from their natural occurring source, and then added by the manufacturer, cook, or by the consumer to foods and beverages (Mela & Woolner, 2018). Free sugar is added during the processing or preparation of foods and beverages to improve flavour (Erickson & Slavin, 2015). Since the WHO refers to the term ‘free sugar’ in their diet recommendations for countries including South Africa, the current study will henceforth also refer to free sugar when discussing the problem of excessive sugar consumption habits.

As mentioned, free sugar mainly improves the flavour and texture of foods and beverages, but as it provides no nutritional benefits, it is recommended to exclude it from the diet (Todd, 2019). Examples of the types of free sugar are agave nectar, corn syrup, brown rice syrup, brown sugar, and coconut sugar. The main sources of free sugar include those concealed in processed foods and beverages, such as sugar-sweetened beverages, confectionaries, baked goods, and sweetened dairy (Hughes, n.d.). However, even savoury foods that could be perceived by consumers as containing little or no free sugar, such as bread, salad dressings, canned soups and vegetables, contain considerable amounts of added free sugar for improved texture and taste (Goldfein & Slavin, 2015). Often, these savoury products are presented as low-fat or high-energy, and consumers tend to be unaware of the unhealthy sugar content. Therefore, consumers are, knowingly or unknowingly, at an increased risk of consuming excessive amounts of free sugar.

Worldwide, consumers are increasingly consuming processed foods and beverages owing to its convenience, accessibility and because often such products are better priced than the healthier options (Cullinan *et al.*, 2019). Unfortunately, processed products tend to be high in sugar and in fat content, inducing the development of various health problems. In South Africa in particular, consumers consume foods and beverages high in sugar content, such as cereals, yogurts, and sugar-sweetened beverages (Cullinan *et al.*, 2019). Because free sugar intake is a key driver of health problems – even more so than fat – high-sugar-content products are subsequently recommended to be avoided in the diet (Todd, 2019).

Products are classified as high-sugar-content products when the total amount of free sugar exceeds 10g per 100g (Elliot, 2008). According to the Dietary Guidelines (Todd, 2019), the foremost problematic product categories are sugar-sweetened beverages, such as carbonated drinks; fruit drinks that do not consist of 100 per cent fruit juice; and sports drinks, as well as processed confectionaries, such as cookies; candied sweets; pastries; and ice cream. The excessive consumption of these high-sugar-content products has been linked to various health-related issues, as will be discussed in the following section.

2.3 SUGAR-RELATED HEALTH CONCERNS

Excessive sugar consumption is well known to be detrimental to consumers' health. While the sugar that is naturally found in fruit and dairy is necessary for a healthy diet, the sugars that are added to processed foods and beverages are related to the development of various health problems, including obesity, type 2 diabetes, and dental caries (Marturana, 2015).

2.3.1 Obesity

In South Africa, almost 70 per cent of women and 39 per cent of men are overweight, making it the country with the highest obesity rate in sub-Saharan Africa (Healthy Living Alliance, 2018). According to the WHO's forecasts, more than 27 million South Africans will suffer from obesity by the year 2025 (Neethling, 2019). Obesity is a complex health problem with numerous contributing factors, including a poor diet. Excessive sugar intake has been argued to be the foremost diet-related factor, even more so than fat (Carroll, 2017). In fact, a vast majority of studies have linked excessive sugar consumption to weight gain (Te Morenga, Mallard & Mann, 2013; Malik, Pan, Willet & Hu, 2013). For instance, consuming one SSB daily increases an adult's likelihood to develop obesity by 27 per cent (Manyema *et al*., 2014). The link with obesity is explained by the fact that because sugar is a carbohydrate, it converts

to fat when consumed and is stored in either fat cells or fat droplets, causing weight gain (Kubala, 2019). Products with a high sugar content are also high in calories, contain almost no fibre or protein, and individuals often consume excessive amounts of sugar before feeling full or satisfied. Consequently, in the long term, the excessive intake of sugar leads to obesity (Marturana, 2015). Being overweight or obese, in turn, increases the likelihood of developing numerous other health diseases, most notably type 2 diabetes.

2.3.2 Type 2 diabetes

As in the case of obesity, type 2 diabetes is also related to lifestyle factors such as a poor diet and inadequate physical activity. It has been reported that a high-calorie diet increases the risk of developing type 2 diabetes (Kandola, 2019). A poor diet characterised by sugary foods can add to the risk, given that excessive sugar intake leads to cells becoming resistant to the normal effects of insulin. Insulin resistance prompts the body to struggle with absorbing the sugar (glucose) before converting it for energy (Marturana, 2015). Despite the pancreas having to work harder to produce insulin, the cells cannot absorb the glucose, resulting in the excess sugar to be 'stuck' in the bloodstream, which in turn increases the level of blood sugar. When the blood sugar reaches a high level, the onset of type 2 diabetes becomes a significant risk. Studies have reported that by consuming one SSB daily increases the risk of developing the disease by 25 per cent (Manyema *et al*., 2014). Approximately 10 per cent of the South African population already has type 2 diabetes, mostly because of being overweight (Neethling, 2019). It is further expected that the percentage of individuals living with type 2 diabetes will increase by 14 per cent in the following ten years, owing to the continuous growth in obesity. Another alarming statistic that relates to the excessive consumption of sugar is the growing problem of dental caries in South Africa (Steyn *et al.*, 2003).

2.3.3 Dental caries

Dental caries refer to the process whereby acid is produced by the presence of bacteria in the mouth. The acid damages the enamel and dentine of the teeth resulting in the formation of holes or cavities (Sugars and tooth decay, n.d.). A considerable relation exists between sugar intake and oral health (Steyn *et al*., 2003; Touger-Decker & Van Loveren, 2003). When sugar is consumed, it produces acid, which is responsible for tooth decay as it dissolves the enamel (Sugars and tooth decay, n.d.).

Having proper oral health is vital as poor oral health affects the overall wellbeing of individuals (Molete, 2018). Therefore, it is alarming to learn that in South Africa, 41 per cent of women and 30 per cent of men suffer from some form of oral disease (Dental cavities, 2011). Even more concerning is that over 60 per cent of primary school children suffer from tooth decay, and it is reported that 80 per cent of these children do not receive any dental treatment for the disease (Molete, 2018).

As sugar is acknowledged to be the most significant contributor to the development of dental cavities (Molete, 2018; Steyn *et al*., 2003), avoiding sugar is a well-known dietary guideline to minimise the risk of developing of dental caries.

2.3.4 Other sugar-related health problems

In addition to the sugar-related diseases mentioned previously, high-sugar diets can contribute to several other health problems. Consuming considerable amounts of sugar increases inflammation in the body, which can cause insulin resistance, both aggravating the possibility of developing certain cancers (Orgel & Mittelman, 2013). More specifically, a study conducted by Chazelas, Srour, Desmetz, Kesse-Guyot, Julia, Deschamps, Druesne-Pecollo, Galan, Hercberg, Latino-Martel and Deschasaux (2019) found that consuming one SSB daily increases the overall risk of developing cancer by 18 per cent and by 22 per cent for developing breast cancer in particular. Other health problems that are related to excessive sugar intake include kidney disease (Karalius & Shoham, 2013) and the increased risk of developing depression (Guo, Park, Freedman, Sinha, Hollenbeck, Blair & Chen, 2014).

Summarily, it is well documented that excessive free sugar intake can lead to detrimental health issues. Even more concerning is the growing evidence that sugar consumption can be addictive (Kresser, 2019).

2.3.5 Sugar addiction

Scientists previously refrained from describing individuals' obsession with sugar consumption as an 'addiction' (Kresser, 2019). It appeared exaggerating to compare the desire for sugar consumption to the intake of known addictive substances such as cocaine. Yet, a growing body of research suggests that sugar can be just as addictive as some recognised harmful substances because sugar has similar effects on the human brain. More specifically, research on the biochemical and neurobehavioural consequences of sugar intake has led to the consensus that

sugar can indeed be addictive owing to the process that follows sugar consumption (Barclay, 2014).

When consuming sugary products, dopamine is released in the brain, which causes a rush of pleasure similar to when addictive substances are used, although not of the same magnitude (Greenberg, 2013). Dopamine is a central part of what is referred to as the brain's 'reward circuit', which relates to addictive behaviour. When individuals engage in a behaviour that releases excess dopamine, like consuming sugary foods, a 'pleasurable high' feeling is experienced. Individuals tend to feel the need to repeat the experience, thus increasing their sugar intake. As the behaviour is continuously repeated, the brain adjusts to reduce the release of dopamine. In response, individuals increase their amount of sugar intake in an effort to experience the pleasurable feelings. The compulsive behaviour continues despite the negative consequences such as headaches, weight gain etc. The activation of dopamine has led sugary products to be associated with pleasure, enjoyment, and rewards (Schaefer & Yasin, 2020). These positive associations with sugar, however, complicate the challenge to counter the development of various health issues mentioned in the previous section. Noticeably, decreasing free sugar intake will be beneficial to consumers' health.

2.3.6 Benefits of decreased free sugar intake

Against the background of the reported health issues associated with excessive sugar intake, it is suggested that South Africans should be warned about their current problematic sugar intake. As mentioned before, reducing or avoiding sugar consumption is beneficial for individuals' overall health and nutrition (Lindmeier & Davies, 2016). The risk of developing chronic diseases can be minimised substantially by reducing one's daily sugar intake. Moreover, if sugary foods are replaced by healthier options, individuals tend to consume more essential vitamins and minerals (Johnson, 2017). Having little or no intake of free sugar can also ensure that the body does not experience tiredness or feelings of weakness, which usually happens after free sugar has been absorbed. Rather, reduced sugar consumption can add to more stable energy levels. In addition, limiting free sugar can improve the skin, reduce cavity formation, help to focus better, and to heighten a person's mood. Lastly, reducing sugar intake can help to minimise mental health issues and help to improve stress management (Naidoo, 2018).

However, it is important to note that a diet completely free of sugar is not a necessity for healthy wellbeing. As mentioned earlier, the sugars that are naturally found in some fruit, vegetables, and dairy, form an essential part of a balanced diet. By reducing the intake of free sugar,

however, such as the sugar present in processed foods, confectionaries, and sugar-sweetened beverages, can have multiple health benefits (Johnson, 2017).

In summary, because of the considerable evidence that excessive free sugar intake has detrimental health consequences, and the known benefits regarding the reduced consumption of sugar, health practitioners and organisations have proposed daily sugar intake guidelines to educate consumers and encourage safer sugar consumption.

2.3.7 Daily sugar intake guidelines

Since the acknowledgement that excessive sugar intake is a significant contributor to the worldwide obesity epidemic and other growing health concerns (Bovi, Di Michele, Laino & Vajro, 2017), organisations have started to propose sugar intake guidelines to address the issue. Recommended guidelines tend to differ between various organisations. For example, the American Heart Association (AHA) refers to added sugars, which include sugars found in some pureed fruits and vegetables, suggesting that adult males should not exceed a daily added sugar intake of 37.5g (about nine teaspoons) (Added Sugars, 2018). For female adults it is as little as 25g (about six teaspoons) per day. For children, the AHA recommends between 12g and 25g of added sugar per day. Conversely, the WHO includes free sugar and suggests that both adults and children should be reducing their intake to less than 10 per cent, preferably five per cent, of their total energy intake (Sugar Research Advisory Service, 2015). According to the WHO, this amounts to roughly 24g of free sugar in the diet per day (Lindmeier & Davies, 2016). Given that South Africa follows the same guidelines used internationally (Hanekom, 2016), the current study adopted the WHO's recommended daily intake of 24g free sugar as a guideline for assessing consumers' harmful sugar intake.

In referring to free sugar, the WHO's guidelines exclude the sugars that are present in fruits, vegetables, and dairy, as these natural sugars are encouraged to be part of a healthy diet. Furthermore, there is no scientific evidence that consuming these natural sugars have unhealthy effects (Lindmeier & Davies, 2016). In contrast, however, free sugar should be limited, or avoided altogether in the diet (Goldfein & Slavin, 2015). Yet, despite the benefits associated with decreased sugar intake, as well as the worldwide acknowledged intake guidelines, free sugar consumption has increased rapidly in South Africa over the past five years (Vorster *et al*., 2014). The subsequent section will elaborate on the sugar industry in South Africa and the consumption habits of consumers.

2.4 SOUTH AFRICAN SUGAR CONSUMPTION

The South African sugar industry is among the world's leading cost-competitive producers of high-quality sugar, ranking in the top 15 of sugar-producing countries worldwide (Sugar Industry, 2021). Yet, since 2000, the industry has faced many challenges. The sugar industry has been characterised by a continuous decline in the number of sugarcane farmers, accompanied by the recent implementation of the health promotion levies on sugary beverages, which forced increases in overall prices (McHunu, 2019).

Despite the challenges that sugarcane producers are encountering, and the subsequent increased prices consumers face, South Africans continue to purchase alarming amounts of sugary products. For example, in 2015, it was reported that consumers spent more of their expendable income on sugar, chocolate and confectionary than on fruits (Living Conditions Survey, 2015). Adding to this statistic, South Africans' overall intake of processed sugar has surged by 33 per cent since 1999, mainly because of increased purchases of sugary beverages, biscuits, and doughnuts, whereas other confectionaries have also experienced increased consumption (Carnie, 2015). In addition to this alarming growth, it has been reported that South Africans consume, on average, 47.5g of sugar daily, contained in packaged food and soft drinks (Temmers, 2017). Moreover, it has also been reported that a typical South African consumes approximately 2.6kg of cakes and sweets in a year (Carnie, 2015). This intake is in stark contrast with the WHO's recommendation of a total limit of 24g per person per day.

Recently, practitioners' focus has shifted to sugar-sweetened beverages, as its consumption increased by 42 per cent over the period of 10 years up to 2019 (Neethling, 2019). To illustrate, Carnie (2015) suggests that a typical South African consumer purchases and consumes 282 cans of sugary beverages annually. A recent report claimed that South Africans spend roughly R7.2 billion specifically on carbonated drinks (Cullinan *et al.*, 2019). South Africans across all 10 Living Standard Measures (LSM) reported that they had purchased and consumed Coca-Cola (Coke) in the previous seven days (Eighty20, 2016). The popularity of sugary drinks continues to be a problem considering its health impact, as a recent study has pointed out that consuming as little as 100ml of a carbonated drink, which includes fruit juices and drinks with added sugar, can be linked to an increased risk of developing certain cancers and obesity (Chazelas *et al*., 2019; Manyema *et al*., 2014).

To conclude, even as the risks related to excessive sugar intake are generally acknowledged, and subsequently the benefits of reducing intake, little is done to encourage consumers to

change their existing consumption behaviour. Instead, unhealthy foods, including those with a high sugar content, are freely promoted and advertised to consumers by means of various marketing tactics (Cullinan *et al.*, 2019; Jolly, 2010). In fact, marketing plays an essential role in any organisation's strategy (Hose, 2010). Two basic approaches in marketing are identified as traditional (commercial) marketing and social (societal) marketing (Hose, 2010).

2.5 MARKETING APPROACHES

According to the American Marketing Association (AMA), marketing can broadly be defined as the 'activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners and society at large' (Lamb, Hair, McDaniel, Boshoff, Terblanche, Elliot & Klopper, 2010:5). Two main types of marketing approaches exist that differ in certain characteristics. In traditional marketing contexts, the emphasis is placed on increased market share and profits, whereas social marketing is more focused on the society as whole (Lamb *et al.*, 2010). The key differences and similarities of these two approaches are presented in Table 2.1.

Table 2.1: The differences and similarities between traditional marketing and social marketing

DIFFERENCES BETWEEN TRADITIONAL MARKETING AND SOCIAL MARKETING	
Traditional marketing	**Social marketing**
Typically sells goods and/or services to target market	Mostly markets ideas and concepts and promotes behaviour change
Emphasis is on the marketer and financial gains	Emphasis is on behaviour change and focuses on the society, without gaining personal profit
SIMILARITIES BETWEEN TRADITIONAL MARKETING AND SOCIAL MARKETING	
Consumers are central to both marketing approaches' strategies	
The use of market planning, marketing research, segmentation and communication tools	
Aim to address and to change consumer attitudes and behaviours	

Adapted from Kotler and Keller (2016)

Marketing offerings can range between goods and services, as seen in traditional marketing contexts, to communicating ideas, as seen in social marketing settings (Kotler & Keller, 2016). The marketing of offerings typically seeks a certain response from the consumer, such as increased awareness, encouraging a purchase, or persuading behaviour change (Kotler & Keller, 2016). While these marketing approaches encompass important differences, they also share some similarities in that social marketing has developed from traditional marketing (Peattie & Peattie, 2009). Indeed, marketing has evolved as a discipline as it adapted to new influences over the years.

Scholars suggest that marketing has evolved through six developmental phases, referred to as marketing orientations (Lamb *et al*., 2010). These marketing orientations include production, product, sales, the consumer, relationship marketing, and societal marketing orientations (Kerin, Hartley, Berkowitz & Rudelius, 2006). Each orientation has been a dominant model at some point in the development of the marketing discipline (Lamb *et al*., 2010). The production orientation, for example, developed during the period in history when production processes were improved and started to progress towards mass production (Kerin *et al.*, 2006). The production orientation mainly involves assessing a firm's capabilities and internal sources as part of the marketing strategy. The product orientation followed the production orientation as firms started to focus increasingly on improving specific product features and quality (Kerin *et al.*, 2006). Essentially, firms believe that consumers will buy products of good quality regardless of other influencing aspects. The sales orientation phase is based on the principle that consumers will buy products or services when appropriate sales techniques are implemented (Lamb *et al*., 2010). Because firms with a product, production, and sales orientation only essentially lacks the understanding of consumer needs, these firms often find it difficult to convince consumers to buy products because it is neither wanted nor needed. As a result, firms started to shift towards a consumer orientation to better target consumers and to subsequently provide value (Strydom, 2014).

A consumer orientation is the foundation of contemporary marketing philosophy (Lamb *et al.*, 2010). It involves integrating a firm's activities, while focusing on consumers' needs and wants, with the objective of creating consumer satisfaction, and achieving other long-term goals such as sustained profitability (Strydom, 2014). Although firms have generally accepted the consumer orientation approach, two additional requirements have since emerged to ensure successful marketing. Firstly, with firms recognising the significance of fostering long-term relationships and facilitating consumer loyalty, the notion of relationship marketing emerged.

Firms following this orientation successfully benefit from repeated sales and referrals, leading to increased sales, market share, and profits (Lamb *et al.*, 2010). Secondly, the societal marketing orientation suggests that firms should not only emphasise consumers' needs in their strategies, but should also consider the long-term best interests of the society as a whole (Strydom, 2014). According to Ibrahim, Haron and Saad (2017), social marketing emerged in response to the criticism regarding traditional marketing's profit maximisation orientation.

As is the case with traditional marketing, social marketing considers consumers as a focal point of their strategies and is focused on changing consumers' attitudes and their subsequent behaviour (Lamb *et al.*, 2010). However, while traditional marketers emphasise benefits for the marketer, social marketers are dedicated to changing the harmful behaviours of consumers to benefit society. The current study's focus is specifically on social marketing as it concerns harmful sugar consumption and its overall health impact on society.

2.6 SOCIAL MARKETING

The term 'social marketing' emerged in 1971 as an approach to address societal problems by implementing commercial marketing elements (Kotler & Zaltman, 1971). This marketing approach is derived from the societal marketing concept, which considers the influence of consumers' behaviour on society as a whole (Lamb *et al*., 2010).

2.6.1 Understanding social marketing

The idea of using traditional marketing concepts to influence behaviour in a non-profit domain dates back to 1951 (Stead, Hastings& McDermott, 2007), but the term social marketing was only formally introduced in 1971 by Kotler and Zaltman (Kotler & Zaltman, 1971). The authors originally explained social marketing as the design, implementation, and management of programmes, with the primary objective to influence individuals about specific social ideas (Kotler & Zaltman, 1971). As the term gained attention, numerous definitions of social marketing emerged.

2.6.1.1 Defining social marketing

As social marketing gained increased attention as a viable tool to facilitate behaviour change (Evans, 2006), various authors have conceptualised the term differently, and the deliberation seems to continue (Bridges & Farland, 2003; Andreasen, 1995). Typically, social marketing is explained as a marketing approach that applies concepts and techniques derived from

commercial marketing, with the objective of promoting behaviour change (Luca & Suggs, 2013). A thorough definition is offered by Peattie and Peattie (2009) who describe the term as a technique derived from traditional marketing, used to influence consumers to adopt or avoid a specific behaviour in an effort to create long-term value for themselves and society as a whole.

Two important aspects of social marketing definitions should be highlighted. First, social marketing uses traditional marketing elements. To illustrate, social marketers implement commercial tactics, such as using market research and communication tools, to successfully target consumers. Second, social marketing relates to encouraging consumers to engage in a behaviour that is beneficial to themselves as well as the society. For instance, by restricting tobacco smoking in public areas benefits not only smokers' health, but also protects other consumers around them against the complications of second-hand smoke inhalation. Similarly, against the background of the current study, encouraging decreased sugar consumption will be beneficial to consumers' health, therefore addressing a public health issue. These aspects are reflected in Andreasen's (1995:7) definition that social marketing is the 'application of commercial marketing technologies to the analysis, planning, execution and evaluation of program[me]s designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of society'. Since this definition is argued to be the most useful as it encompasses all the elements important to understand the core of social marketing (Stead *et al.,* 2007), the current study viewed social marketing according to Andreasen's (1995) definition.

2.6.1.2 Social marketing and the marketing mix

Social marketing concepts and strategies are predominantly borrowed from the marketing literature (Craig-Lefebvre & Flora, 1988). As is the case with traditional marketing, consumers are also central to the social marketing strategy (Neiger, Thackeray, Barnes & McKenzie, 2003; Walsh, Rudd, Moeykens & Moloney, 1993). Both strategies thus focus on changing consumers' attitudes and, subsequently, their behaviour (Lamb *et al*., 2010). To influence consumers to engage in beneficial behaviours, strategies involve not only the basic marketing elements such as product planning and marketing research, but also the four 'Ps' of marketing. Often referred to as the 'marketing mix', the term includes four important components, namely product, place, price, and promotion. These components are designed and combined to produce mutual beneficial exchanges with a specific and desired target market in mind (Lamb *et al.,*

2010). However, social marketing contains an extended version of the marketing mix, by adding four additional components: partnership, policy, public, and purse. While the original four Ps have been adapted to apply in social marketing contexts, the extended four Ps show how social marketers utilise commercial marketing techniques.

Products are often at the core of the marketing mix, as the price, distribution, and promotion strategies are built on the product's qualities and features. In traditional marketing contexts, these qualities and features provide consumers with value (Keegan & Green, 2015). The term 'product' in social marketing is described as the behavioural idea that is presented to consumers (Scott, 2005). In the current study, product refers to the idea of reducing sugar consumption. In commercial marketing, price simply refers to the amount of money consumers pay for a firm's products. A firm's pricing strategies are therefore critical as the price multiplied by the number of units sold equals the total revenue for the firm (Lamb *et al*., 2010). According to Weinreich (2011), price in a social marketing context considers what consumers must give up or sacrifice to be able to engage in the recommended behaviour. Bridges and Farland (2003) explain price examples as consumers' perceived inconvenience, self-efficacy, and the consumer's perceived impact on their social status.

Distribution (place) concerns providing the product to consumers at the right place and time, in desired and usable conditions. Without appropriate distribution strategies, consumers will not be able to purchase the products. While place in a commercial marketing context is described as the distribution of products, social marketers refer to place as where consumers are made aware of a social problem and the recommended behaviour that addresses the problem (Weinreich, 2011). Thus, the placement of messages is essential and should be congruent with the possible problematic behaviour (Bridges & Farland, 2003). For instance, healthier eating habit messages can be placed in food catalogues or at supermarkets as the latter is where the problematic behaviour is likely to occur. Finally, the last original component of the four Ps, promotion, is similarly used in both commercial and social marketing contexts. Marketing communication strategies refer to the process of informing, persuading and reminding consumers about the benefits of a firm and its products. Social marketers rely on a variety of tools to reach their targeted consumers (Kotler & Keller, 2016) of which personal selling, advertising, and sales promotions are some examples. Social marketers use these promotional tools to create awareness of problematic issues, thereby encouraging consumers to adopt specific behaviours that are beneficial to themselves and society at large (Scott, 2005). These

tools include mass media advertising through, for instance, radio and television (Walsh *et al*., 1993).

The first additional component applicable to the social marketing context is that of partnerships. Since changing problematic behaviours of society often involves complex tasks, social organisations with similar goals have been advised to consider partnerships to strengthen the effectiveness of the organisation's desired outcomes (Kar, 2011). Collaborations between for-profit organisations and social organisations are also common, as both parties benefit from the other's skills and expertise (Doh, 2012). An example is the Lego Group's partnership with the social organisation, the World Wildlife Fund (WWF), to promote global action on climate change (LEGO Group extends partnership with WWF, 2017). Partnerships can also assist in the problem of funding (Bridges & Farland, 2003).

The second additional component, policy, refers to the importance of policymakers' role in ensuring that social marketing efforts engender sustainable behavioural changes (Weinreich, 2011). Bridges and Farland (2003) suggest that policies should include laws enforcing certain behaviours and government initiatives. Legislation that has been implemented to reduce smoking habits is an example of policy.

The public component, according to Kar (2011), describes external and internal groups, since social marketing campaigns typically differ in the type of audience they target. External group members consist of target consumers and policymakers, whereas the internal groups include individuals involved in the design, implementation and execution of the campaign.

Finally, purse refers to the notion that social marketers rely on governmental organisations, foundations, and private donations for financial assistance of its communication efforts (Weinreich, 2011). Funding plays a pivotal role in social marketing as it directly contributes to the sustainability of its efforts (Bridges & Farland, 2003). However, because of a worldwide surge in social needs and health challenges (WHO Global Background, n.d.), governments experience increased pressure to provide sufficient funding for social marketing interventions (Madill, O'Reilly & Nadeau, 2014). These interventions have increased in both popularity and usage in the public health sector as social marketing addresses individuals' problematic behaviours (Green *et al*., 2019; Grier & Bryant, 2005).

2.6.2 Social marketing in public health

Public health has become a prominent social issue in modern society (Ney, 2012). Behaviours such as drinking-and-driving, the smoking of cigarettes, and excessive eating habits are considered as social health issue globally. As a result, there has been an increased awareness of social marketing strategies as a mode to promote the improvement of public health (Grier & Bryant, 2005).

A variety of health concerns have been addressed by social marketing campaigns, including physical activity and nutrition (Neiger *et al*., 2003), HIV prevention (Olawepo, Pharr & Kachen, 2019) and smoking cessation (Durkin, Brennan & Wakefield, 2012). In order to address these health concerns, social marketers communicate through different mass media platforms, such as television, using marketing techniques such as segmenting audiences and delivering tailored messages (Evans, 2006). These messages are typically designed to either prevent risky health behaviours through educating consumers or promoting alternative behaviours (Hornik & Yanovitsky, 2003). For instance, some smoking cessation campaigns aim to promote healthier lifestyles by offering alternatives, whereas anti-drug messages tend to incorporate the idea of preventative behaviours (Hornik & Yanovitsky, 2003).

As the use of social marketing in practice is increasing, academic evidence of its effectiveness is also burgeoning (Hastings & McDermott, 2006). A vast amount of research demonstrates how social marketing principles and methods have rendered successful results across various health settings including the promotion of responsible alcohol use (Spoth, Redmund & Lepper, 1999), nutrition (McDermott *et al*., 2005) and physical activity (Withall, Jago & Fox, 2012). The effectiveness of social marketing in public health settings is especially evident in mass communication campaigns, whereby attitudinal and behavioural changes of individuals are addressed through messages (Evans, 2006). More specifically, to influence behaviour, messages are designed in a way that evokes cognitive or emotional responses from individuals. In the case of health risk behaviours, the desired outcomes include intent to change unhealthy behaviour (Wakefield, Loken & Hornik, 2010). For instance, campaigns promoting smoking cessation tend to emphasise the risks of smoking, thereby eliciting either an emotional or cognitive response from recipients. Individuals are then expected to be motivated to change their smoking habits. An example of a smoking cessation campaign that yielded effective results is the *Florida 'Truth' anti-smoking campaign* (Hicks, 2001), which successfully raised awareness regarding the dangers of tobacco products among young adults.

While social marketing has the potential to address these major health issues, its effectiveness relies heavily on theoretical foundations (Luca & Suggs, 2013; Thackeray & Neiger, 2000). According to Evans (2006), the appropriate use of social marketing theories is essential when targeting consumers to changes their health risk behaviours. To successfully influence consumers' health decisions, social marketers embed behavioural and persuasion theories in their marketing strategies (Evans, 2006). Theoretical concepts in particular are used to design and evaluate communication campaigns (Hornik & Yanovitzky, 2003). For instance, social marketers often rely on the elaboration likelihood model (ELM) to understand how consumers engage in message processing, that is, the different routes to persuasion (Hawkins & Mothersbaugh, 2010). Appropriate messages can then be designed to successfully persuade consumers to engage in a recommended behaviour. Towards this end, behavioural theories are essential in identifying the determinants of the behaviour that can be modified (Evans, 2006). Determinants are used to construct conceptual frameworks or models that can assist in developing communication messages to encourage changes in behaviour (Evans, 2006). As stated earlier, the current study is concerned with communicating ideas in a social marketing domain. However, it is important to understand traditional marketing communication strategies, since encouraging healthy behaviours requires successful communication of ideas (Vermeir, Vandijck, Degroote, Peleman, Verhaeghe, Mortier, Hallaert, Van Daele, Buylaert & Vogelaers, 2015). Indeed, social marketing initiatives typically employ traditional marketing communication strategies.

2.7 MARKETING COMMUNICATION

Marketing communication is critical in developing a successful marketing strategy. The current section will elaborate on the objectives and elements of marketing communication, followed by the role advertising play in the consumption of high-sugar-content products.

2.7.1 Objectives of marketing communication

The objectives of marketing communication is to (directly or indirectly) inform, persuade, or remind consumers about an offering (Keller, 2009), and several authors have endorsed these objectives (Hawkins & Mothersbaugh, 2010; Lamb *et al.*, 2010). Essential to marketing communication is the tendency of consumers to refrain from buying a product or service, or support a specific idea, if they are unaware of the benefits that an offering will provide. Therefore, marketing communication has the first objective of informing consumers about the

benefits of the offering, raising awareness and subsequently influencing purchase decisions (Lamb *et al*., 2010). The significance of informing consumers is also applicable in the context of unhealthy sugar consumption habits: if consumers are uninformed about the risks associated with excessive sugar intake, it is unlikely that they will decide to engage in corrective behaviours. Studies underline the importance of having a sound understanding of consumers' unhealthy habits in order to engender behaviour change efforts (Park, Onufrak, Sherry & Blanck, 2013; Dumitrescu, Wagle, Dogaru & Manolescu, 2011; Reddy, Meyer-Weitz, & Yach, 1996).

Another objective of marketing communication is that of persuasion. Persuasion strategies are aimed at influencing consumers to buy a specific firm's offering, as opposed to those of its competitors (Strydom, 2014). Contrastingly, in social marketing contexts, the objective of persuasion is to convince consumers to adopt or cease a certain behaviour. Often, communicators make use of appeals on consumers' emotions, such as love and belonging (Lamb *et al.,* 2010). According to Fox and Atnichai-HambuTgei (2001), emotional appeals create a sense of urgency to engage in certain behaviours. Essentially, emotional appeals are effective as it is perceived and memorised easily by consumers, consequently increasing their involvement with the situation (Fox & Atnichai-HambuTgei, 2001). Against the background of the current study's domain, public health communicators rely strongly on emotional appeals to engender behaviour change.

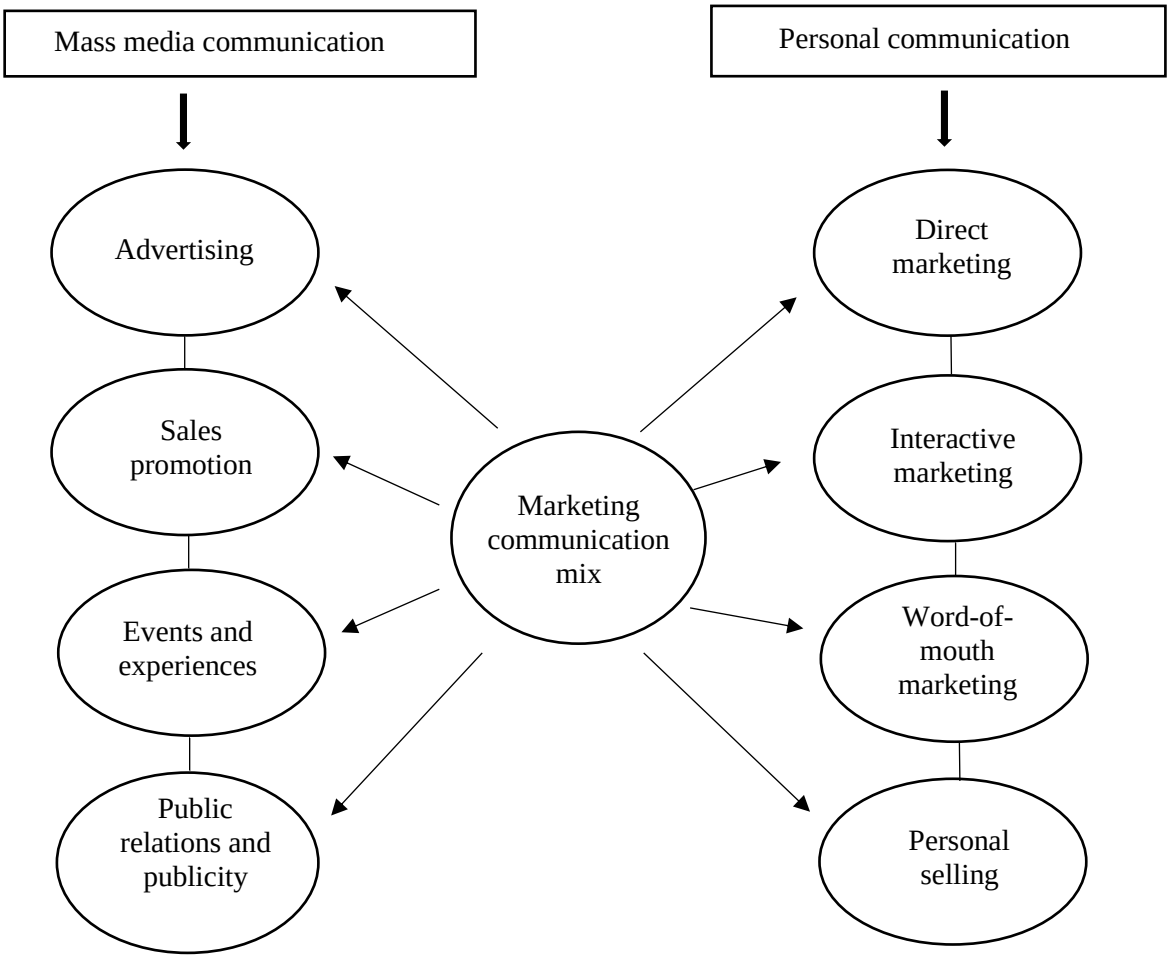
A final important objective of marketing communication is to remind consumers of a firm's offering (Strydom, 2014). Even when consumers have been informed and persuaded to purchase a firm's product or service, it is essential to reinforce the benefits of the offering to consumers to ensure continued loyalty (Lamb *et al*., 2010). Especially in the context of health behaviours, including sugar consumption habits, consumers need to be reminded of behaviours that need to change (Wilson & Danenberg, 2018).

In essence, an important component of marketing includes communicating with existing and potential consumers with the main objective of informing, persuading and reminding consumers of a firm's offerings and its benefits (Keller, 2009). To reach the desired target market, different types of marketing communication tools, referred to as the marketing communication mix can be used (Kotler & Keller, 2016).

2.7.2 Elements of the marketing communication mix

The marketing communication mix consists of eight major types of communication tools (Keller, 2009). These are advertising, sales promotion, events and experiences, public relations and publicity, direct marketing, interactive marketing, word-of-mouth marketing, and personal selling. The types of communication are displayed in Figure 2.1. The first four tools can be described as mass media modes of communicating with consumers, whereas the latter four are characterised as personal types of communication (Kotler & Keller, 2016). The different methods of marketing communications perform various functions to targeted consumers.

Figure 2.1: The marketing communication mix



Source: Lamb *et al*. (2010)

Sales promotions, for example, can motivate consumers to purchase a product, therefore addressing actual behaviour, while public relations and publicity is centred on establishing favourable consumer attitudes towards the firm's image (Lamb *et al.*, 2010). Events and experiences are activities designed to raise awareness and to create an experience that will

resonate in consumers' minds, while direct marketing enable direct interactions with specific consumers (Keller, 2009). Personal selling is important for forming strong relationships with current and potential consumers (Lamb *et al.,* 2010). Word-of-mouth marketing is one of the most valuable forms of marketing (Mosley, 2017). As consumers are inclined to rely on other consumers' opinions, word-of-mouth communication leads to referrals and new consumer acquisitions (Trusov, Bucklin & Pauwels, 2009). Furthermore, word-of-mouth marketing is especially appealing because of its lower costs (Trusov *et al*., 2009) compared to other forms of marketing. Direct marketing, which entails the process of communicating directly with consumers by using mail, telephone, fax, e-mail or the Internet, is especially effective when fostering new relationships with consumers is the objective (Keller, 2009).

Interactive marketing involves developing tailored messages to consumers' preferences with the objective to raise awareness, improve a firm's image, or to elicit purchases of products and services (Interactive marketing, 2012; Keller, 2009). The final communication element, advertising, is claimed to be the most used method to communicate with existing and potential consumers. According to Keller (2009), advertising is a central element of marketing communication strategies. In fact, almost all firms, including those in social marketing domains, use some form of advertising to communicate with consumers and influence their choices (Lamb *et al.,* 2010). Against the background of the current study, it is thus essential to understand the impact of advertising efforts on consumers' harmful consumption habits.

2.7.3 Advertising and its effects on harmful consumption

Advertising can be described as a paid, mass-mediated attempt to persuade consumers regarding ideas, products, or services (Semenik, Allen, O'Guinn & Kaufmann, 2012; Keller, 2009). As contained in the definition, advertising is essential in the process of persuading consumers to engage in a specific action. More specifically, persuasive advertisements attempt to create some change in consumers' thoughts, feelings, and behaviour (Kotler & Keller, 2010). With reference to marketing, such attempts can encourage consumers to purchase a firm's product or service. Alternatively, persuasive advertisements can be effective in social marketing contexts where the objective is to encourage consumers to engage in certain behaviours that are not only beneficial to themselves but also to society at large (Dann, 2010).

However, advertising attempts can also influence consumers' behaviour to a negative extent (Kinsey, 2019), as in the case of consuming harmful products such as tobacco and alcohol. Prior studies have shown increased smoking tendencies among smokers when exposed to

cigarette advertisements (Goel & Morey, 1995). Similarly, evidence suggests that the advertising of alcoholic beverages increases the likelihood of young adults to start drinking alcohol (Anderson, de Bruijn, Angus, Gordon & Hastings, 2009), and also increases the frequent drinking of those already drinking, which in turn enhances the risk of developing a dependence on alcohol in the future (Hingson, Heeren & Winter, 2006). The advertising of these harmful products typically portrays the products as being desirable and exciting, but in doing so fuel health issues such as lung problems and weight gain. It is against this background that policymakers have implemented regulations to protect consumers against the challenge (Semenik *et al*., 2012). In several countries, governments have regulated the advertising industry with regard to tobacco products and alcoholic beverages (Kelly-Gagnon, 2011). Similarly, in response to the public health issue of unhealthy eating habits, it has been advised that the advertising of specifically junk foods should be banned as it promotes harmful consumption that adds to numerous diseases (Semenik *et al.*, 2012).

2.7.4 Advertising of junk food products

Junk food items typically refer to products high in sugar, salt, and fat content – for instance, sweet desserts, fried fast food, and sugary carbonated beverages (Boncinelli, Gerini, Pagnotta & Alfnes, 2017). A well-known driver of consumers' increased intake of such foods is the marketing thereof (Thomas, Thomas, Hooper, Rosenberg, Vohra & Bauld, 2019). The extensive marketing of pre-packaged unhealthy foods, especially of foods high in fat and sugar, has made healthy eating choices and habits a considerable challenge (Jolly, 2010). On a daily basis, consumers are bombarded with advertising efforts through traditional modes such as billboards and television, but also through newer techniques such as social media platforms and in-store promotions (Junk Food Marketing, 2019). Typically, food advertisements contain sensory elements that make resistance to the message especially difficult (Harris, Bargh, Brownell, 2009). For instance, Lowe and Butryn (2007) found that appetising elements in food advertising triggers hedonic hunger, which instils thoughts, feelings and urges about food even if consumers exposed to the advertising were not hungry. Indeed, a significant body of academic work has shown the effectiveness of advertising junk food products (Emond, Longacre, Drake, Titus, Hendricks, MacKenzie, Harris, Carrol, Cleveland, Langeloh & Dalton, 2018), and have concluded that food advertising directly contributes to increased food intake (Zimmerman & Shimoga, 2014; Harris *et al*., 2009).

Given the way in which unhealthy foods are usually advertised, it comes as no surprise that the consumption of foods and beverages that are specifically high in sugar and fat, has increased throughout the world (Cullinan *et al.,* 2019). Such advertising is linked to stronger preference, increased snacking, a better recall of brands, and a greater intake of the junk food advertised (Thomas *et al*., 2018; Boyland, Nolan, Kelly, Tudur-Smith, Jones, Halford & Robinson, 2016). Given the detrimental health problems associated with increased intake of junk food items, it becomes critical that advertising efforts encourage consumers to opt for healthier eating habits instead of persuading them to make unhealthy choices. According to Ruder (as cited in Cullinan *et al.,* 2019), individuals' health is primarily influenced by their relationship with the environment. Unfortunately, the environment in which most South Africans live promotes food options that are usually high in sugar, fat, and salt, mainly because of its accessibility and low cost (Cullinan *et al.,* 2019). These factors create significant challenges for the majority of South African consumers to eat healthy. It is against this background that the government should take responsibility to regulate the food environment, as opposed to holding consumers responsible for continuing to choose unhealthy options (Cullinan *et al.,* 2019).

Since consumers are repeatedly exposed to marketing efforts that portray unhealthy food as enjoyable, exciting, and positive (Cullinan *et al.,* 2019), and given the alarming increase in the obesity rate in the country, policies are required to encourage healthy eating habits. Especially high-sugar-content products, which have been linked to a variety of health concerns, should be addressed (Cullinan *et al.,* 2019). As South Africans continue to consume excessive amounts of sugar (Neethling, 2019; Vorster *et al*., 2014), these policies should engender behaviour change. Since excessive sugar consumption is a critical contributor to health-related problems in South Africa, social marketing interventions pose an ideal approach to engender behaviour change and subsequent healthier sugar consumption habits of South Africans.

2.7.5 Social marketing and harmful sugar consumption

Although social marketers have focused primarily on smoking cessation as a public health issue, some researchers believe that unhealthy eating habits and obesity have emerged as an even bigger concern in some countries (Wakefield *et al*., 2010). After recognising the health risks associated with sugar consumption, the South African government has started to address the sugar consumption concern by means of social marketing interventions (Holmes, 2018). These interventions include social marketing campaigns, a health promotion levy on sugary

beverages, and the suggested implementation of warning labels on junk food items including high-sugar-content products.

2.7.5.1 Social marketing advertising campaigns

Globally, public health practitioners have implemented advertising campaigns in an effort to encourage individuals to adopt healthier lifestyles (Dixon, Scully, Cotter, Maloney & Wakefield, 2015). Considering the growing obesity rates evident across the world (Obesity and overweight, 2018), raising awareness and educating consumers about the importance of healthier diets have become a widespread priority. In South Africa, the Healthy Living Alliance (HEALA) has launched campaigns relating to the education of consumers pertaining to healthier diets, to address the country's high rates of non-communicable diseases (HEALA Campaigns, 2018). For instance, the organisation's 2017 school nutrition campaign had the objective of implementing nutrition policies and regulations to protect children in the school environment from junk food items and sugar-sweetened beverages (School Nutrition Campaign, 2017). HEALA's more recent campaign, named *What's in my food,* aims to raise awareness regarding consumers' knowledge about the content of foods usually purchased and consumed (Mkize, 2019). The campaign also encouraged consumers to understand the detrimental health effects of popular processed foods' high content of sugar, salt, and saturated fat. As illustrated by HEALA's campaigns, social marketing advertising campaigns in South Africa tend to adopt a holistic approach, encouraging both healthy diets and increased physical activity in campaigns that address the obesity concerns. Therefore, to date, harmful sugar consumption in particular has not been the core problem addressed in advertising campaigns. However, after recognising the health risks associated with specifically excessive sugar consumption, the South African government recently took action to encourage behaviour change among South Africans. Joining countries such as Norway and the United Kingdom, South Africa implemented a tax-driven approach in 2018 to combat the sugar concern (Holmes, 2018).

2.7.5.2 Health promotion levy

The first proposal to implement a health promotion levy, otherwise known as sugar tax, was made in South Africa's 2016 budget speech (Holmes, 2018). The reason for proposing sugar tax relates to the deplorable number of South Africans suffering from obesity. The WHO already reported that almost 30 per cent of South Africans are obese, making it the country

with the highest obesity rate on the continent (Healthy Living Alliance, 2018). With free sugars identified as a significant contributor to numerous health implications, South Africa implemented a tax of 20 per cent on sugar in beverages, that is, 2.29 cents per gram of sugar in beverages (Chutel, 2019).

Since a main source of free sugar intake is sugar-sweetened beverages (Todd, 2019), and consumption of these beverages has increased substantially in South Africa over the past 42 years (Neethling, 2019), the tax was specifically targeted at sugar-sweetened beverages. The beverage industry managed to delay the implementation of the tax by arguing that singling out beverages is unfair, as various other products on the market also consist of harmful free sugars. Despite this argument, the tax proposition was approved in 2018 as a starting point to address the continuous growth rate of obesity in the country (Chutel, 2019). At the end of 2021, it was reported that the tax had raised approximately R8 billion, and positive changes were observed in consumers' daily sugar intake (Omerjee, 2021). As the implementation of sugar tax on beverages has forced companies to reformulate their product ingredients, a rise in the prices of sugary products has also emerged in the market.

While empirical evidence suggests that the rise in prices can lead to decreased consumption of SSBs (Omerjee, 2021; Colchero, Rivera-Dommarco, Popkin & Ng, 2017), some argue that it does not ensure lessening the obesity epidemic (Holmes, 2018). Other scholars argue that the tax implementation alone is not enough to change behaviour (Hofman & Tugendhaft, 2017). According to the World Economic Forum, governments should consider a multifaceted approach to combat obesity and other non-communicable diseases (Cullinan *et al.*, 2019). In fact, there are many other interventions available to encourage behaviour change. Warning labels in particular have shown significant potential to discourage risky behaviour (Holmes, 2018).

2.7.5.3 Warning labels

Recently, countries throughout the world have moved towards treating junk food items in the same manner as tobacco products (Corbishley, 2021; Allen & Goddard, 2018). That is, governments advise that the packaging of junk food items should contain warning labels, as warning labels have been proven to be a cost-effective intervention used by various governments to encourage smoking cessation (Hammond *et al*., 2006). In 2019, the Department of Health of South Africa announced its suggestion to implement warning labels on these junk food items, as consumers tend to be unaware of the unhealthy content of the products. An

additional argument for using warning labels is centred on the problem of the growing levels of obesity and unhealthy lifestyles (Tswanya, 2019). At the time of this study, the South African government was working towards adding warning labels on packaged food by the end of 2019 or the beginning of 2020. According to Lynn Moeng-Mahlangu, the Chief Director of Nutrition at the Department of Health, the label was to be called a 'front-of-packaging' (FOP) label, earmarked for mainly packaged foods and drinks (Tswanya, 2019).

While there has been some empirical evidence that nutritional labelling indicating harmful content has been effective in changing consumers' behaviour (Sacks, Rayner & Swinburn, 2009), it is still relatively unknown how warning labels should be designed to maximise their effectiveness (Cullinan *et al.,* 2019). At the time of the current study, South African government was still in the process of investigating this challenge (Cullinan *et al.,* 2019). If the outcome is successful, however, the country will join the ranks of many others such as Chile, Canada and Israel who have already implemented improved warning labels to help people to identify unhealthy foods, and to encourage change in unhealthy eating behaviour.

While the majority of research on warning labels is about tobacco and alcohol consumption (Crawford, Balch & Mermelstein, 2002; Robinson & Killen, 1997), less is known of the effectiveness of such labels on high-sugar content products in particular (Bollard, Maubach, Walker & Mhurchu, 2016). However, experimental academic research exists on warning labels that are used in junk food contexts (Boncinelli *et al*., 2017; Van Epps & Roberto, 2016). For instance, Allen and Goddard (2018) reported that consumers chose significantly fewer breakfast cereal products with a high sugar content when the packaging contained a warning message. Conversely, Boncinelli *et al*. (2017) reported that warning labels in junk food contexts had little effect on the consumers' choices. Sugar-sweetened beverages in particular are singled out in studies as substantial evidence points to a link between its excessive consumption and numerous diseases (Chazelas *et al*., 2019; Manyema *et al*., 2014). Several academic studies found warning labels to improve consumers' intentions to reduce their SSB purchases and intake (Mantzari *et al*., 2018; Roberto, Wong, Musicus & Hammond, 2016; Van Epps & Roberto, 2016).

Although the interest in health warning labels has grown globally (Grummon *et al*., 2019), it is still relatively unclear how such labels should be designed to ensure successful outcomes (Cullinan *et al*., 2019). In its review, Stewart and Martin (1994) found that warning labels tend to lack persuasive power. It is synthesised that the lack in persuasion is perhaps owing to the

notion that warning labels are predominantly informative in nature. As a result, some consumers only selectively notice them. Furthermore, the warning labels' effectiveness decreases as the frequency of exposure to them increases (Stewart & Martin, 1994). Therefore, informational appeal warning labels can be unsuccessful as they do not prompt immediate behaviour change. It is against this background that the current study explored a different persuasive appeal when suggesting how warning labels should be designed in South Africa. More specifically, emotional appeals were explored given the considerable influence emotions have on consumers' behaviour and decision-making (Lerner, Li, Valdesolo & Kassam, 2015; Williams, 2012).

2.8 CONCLUSIONS

Extensive evidence confirms that sugar is a leading risk factor for numerous health conditions and diseases that are prevalent in South Africa (Steyn *et al*., 2003). Given that South Africans consume considerable amounts of free sugars per day – far more than recommended by the WHO (Euromonitor, 2016) – it is proposed that South Africans should be cautioned to change their harmful behaviours. Social marketing has shown considerable potential in behaviour change settings, and therefore has been extensively applied in public health contexts to benefit the society as a whole (Thackeray & Neiger, 2000). However, changing human behaviour can be a difficult task, especially in personal health contexts (Boshoff & Toerien, 2017). To this end, social marketers rely on designing effective behaviour change interventions that are grounded in well-documented theoretical models and constructs.

CHAPTER THREE

BEHAVIOUR CHANGE INTERVENTIONS AND PERSUASION

3.1 INTRODUCTION

As South Africans' excessive sugar consumption habits are contributing to the growing health concerns in the country, finding effective ways to persuade consumers to change their behaviour is critical for social marketers and public health practitioners. However, changing human behaviour is not an easy task, especially when it comes to sugar consumption habits (Krieger, 2016). The literature suggests that there are several interventions available to promote healthier lifestyles, such as education and persuasion techniques. Yet, in some instances, interventions are ineffective in changing consumers' unhealthy behaviour (Michie, Jochelson, Markham & Bridle, 2009). Therefore, it is imperative for social marketers to find successful ways and strategies to persuade consumers to change their behaviour (Johnson & May, 2015). According to Hawkins *et al.* (2007), marketing decisions and strategies should be based on sufficient consumer behaviour knowledge. As a result, a sound understanding of consumer behaviour is a critical component of social marketing as it aids in developing interventions that will successfully engender behaviour change.

In an attempt to understand the relation between consumer behaviour and behaviour change interventions, this chapter will define and explore consumer behaviour and how consumers make decisions, with reference to public health and sugar consumption contexts. Specific behaviour change theories will be discussed given the important role theories play when attempting to understand how consumers make decisions and behave. Finally, the chapter will conclude by delineating the theory relating to persuasive techniques that can be utilised to assist in encouraging behaviour change.

3.2 UNDERSTANDING CONSUMER BEHAVIOUR

Understanding the behaviour of a specific target market forms the basis of any marketing strategy (Hawkins *et al*., 2007). If marketers understood why consumers behave the way in which they do, marketers' ability to target and influence consumers would be far more effective in terms of several outcomes (Stankevich, 2017), including persuading consumers to decrease their sugar consumption. The current section will elaborate on the value of having a sound

knowledge of consumer behaviour for marketers in both commercial and public health domains.

3.2.1 Defining consumer behaviour

To understand consumer behaviour, the term 'behaviour' should be defined first. Davis, Hobbs, Campbell, Hildon and Michie (2015) provide a simple explanation derived from various studies of behaviour theories by referring to the term as anything an individual does in response to an event. With regard to consumer behaviour in particular, the *Business Dictionary* (2019) offers the following definition: 'Consumer behaviour involves the process by which consumers search for, select, purchase, use, and dispose of products and services, with the main purpose of satisfying their needs and wants'. Others refer to consumer behaviour as the 'study of individuals, groups, or organisations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society' (Hawkins & Mothersbaugh, 2010:6). In comparison to the *Business Dictionary*'s (2019) definition, Hawkins and Motherbaugh's (2010:6) definition signifies that consumer behaviour involves more than merely the purchaser and the seller, and that what consumers do in different contexts not only have an impact on themselves, but on society as well. The current study used the definition of Hawkins and Mothersbaugh (2010) as it encompasses a broader view of the consumer behaviour concept by including the social marketing context.

When exploring consumer behaviour, marketers can use effective communication methods to influence consumers' behaviour (Mihaela, 2015). As mentioned previously, to successfully communicate with consumers, marketers should have a comprehensive understanding of consumer behaviour, especially of the psychology behind consumers' decision-making processes. These decision-making processes relate to how consumers think, feel, reason, and make decisions accordingly. In fact, according to Stankevich (2017), the focal point of consumer behaviour research is the individual decision-making process, as it aids in understanding, predicting, and influencing consumers (Stankevich, 2017).

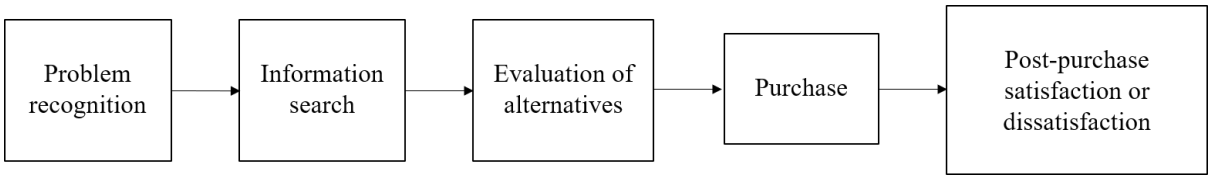
3.2.2 The consumer decision-making process

Decision-making represents a basic cognitive process of consumer behaviour (Wang & Ruhe, 2007). In commercial marketing contexts, consumer decisions generally involve deciding between products to purchase, or between services to acquire. For instance, against the

background of the current study, consumers might be confronted with the decision of purchasing a healthy food item versus an unhealthy, high-sugar-content product. However, irrespective of the context, the literature indicates that the decision-making process commences with consumers' recognition of a problem, followed by the subsequent movement through a series of stages until a decision is made. Figure 3.1 presents a graphic depiction of the traditional model of the consumer decision-making process.

The first stage is recognising a problem that should be addressed. Consumers are faced with different types of challenges during the day (Hawkins & Mothersbaugh, 2010). Often, these problems are solved by purchasing products or services. While some problems occur routinely, such as the need to fill petrol tanks, it takes longer to recognise other problems such as the desire for a new camera.

Figure 3.1: The consumer decision-making process



Source: Hawkins & Mothersbaugh (2010)

Problem recognition is the result of the discrepancy between consumers' perceived actual state and their desired state. For instance, a consumer may feel bored (actual state) on a Friday night, and because they want to be pleasantly occupied (desired state), the discrepancy results in experiencing a problem. To address the problem, the consumer may then decide to rent a movie or to visit a restaurant (Hawkins & Mothersbaugh, 2010). In many other cases, however, consumers do not recognise a problem, and it is the marketers' objective to enable problem recognition among consumers (Stankevich, 2017).

Once consumers become aware of a problem, they engage in an information search to determine what is necessary to resolve the problem. Consumers then do either an internal search, which refers to information from long-term memory, or they do an external search, which involves consulting external sources such as marketer-based information (Hawkins & Mothersbaugh, 2010). To illustrate, when a consumer decides to purchase a new laptop, he or she can retrieve information from friends' experience of the product, or they can access the Internet for information. After consumers gather appropriate information regarding the

problem and ways to solve it, the third step of the decision-making process is to evaluate the alternatives before selecting. During this stage, consumers evaluate the options by assessing each against specific criteria (Stankevich, 2017). Referring to the example of the consumer intending to purchase a new laptop, they will evaluate the different models according to factors such as the cost, design, operating system, and the battery life. Although consumers typically select the most appropriate option according to the evaluation criteria, they can also make decisions that are more emotional in nature, as opposed to making rational decisions. In the example under discussion, the consumer may decide on a specific laptop brand because it excites them, or the laptop may have received their friends' approval, despite of the laptop being too expensive.

Once the selection and purchase of a product or service has been made, consumers either experience post-purchase satisfaction, when they are satisfied and content with their decision; or dissatisfaction, when they experience disappointment with their purchase decision (Stankevich, 2017). It often happens that consumers are dissatisfied with their decision as they have doubt or experience anxiety after the purchase has been made. This disappointment is referred to as post-purchase dissonance. By way of explanation, the consumer who has purchased the new laptop might experience post-purchase dissonance after assessing whether the right decision has been made by purchasing the less expensive laptop versus the one with a better operating system (Hawkins & Mothersbaugh, 2010). Marketers typically address this phenomenon by follow-up communication, during which they will, for instance, conduct follow-up calls or send e-mails to the consumer, reinforcing the idea that the right decision has been made (Wilson, 2018).

However, not all decisions apply to the typical decision-making process. For instance, the decision to buy a chocolate bar will not necessarily involve an evaluation of alternatives when a consumer buys on impulse. Stankevich (2017) maintains that many purchase decisions are habitual in nature or part of a routine process, and require merely the recognition of a problem, selection, and purchase. For instance, frequently low-priced purchases, such as bread or milk, involve recognising the problem of having to restock, selecting the usual brand, and purchasing it. In such cases, the consumer devotes little or no effort to search for alternative evaluations (Belch & Belch, 2009 in Stankevich, 2017). Because of this discrepancy, the traditional decision-making model has been criticised by researchers (Solomon, Bamossy, Askegaard & Hogg, 2006), claiming that it is not an accurate portrayal of all consumer decisions. Moreover, the model's focus is reported to be on rational and analytical thinking, with the assumption that

consumers often engage in decisions without extensive thinking, attention, and evaluation (Hawkins & Mothersbaugh, 2010). To address these concerns pertaining to different types of decisions, two opposing cognitive process that consumers can go through when making decisions, have been developed.

3.2.3 The cognitive processes of decision-making

The literature distinguishes between two different cognitive processes that consumers use to reach a decision (Wolff & Crockett, 2019; Witteman, Van den Bercken, Claes, Godoy, 2009; Neys, 2006). Referred to as the 'dual-process models of decision-making', consumers engage either in intuitive or deliberative processing (Witteman *et al*., 2009). The intuitive process, also known as heuristic thinking (Neys, 2006), the emotional-response process (Maffetone & Laursen, 2019), or System 1 (Kahneman, 2011), involves little conscious thought, and decisions are made automatically and effortlessly (Wolff & Crockett, 2019). Intuition-based decisions involve little or no consideration of alternatives, and often encompass impulsive behaviour or spontaneous behaviour (Dillard & Shen, 2013). Typically, everyday decisions, which are made as part of a routine or habit, are guided by intuitive decision-making. Klein (as cited in Dillard & Shen, 2013) believes that intuition is responsible for 90 per cent of consumers' daily decision-making. Consumers might purchase certain food items subconsciously and with limited thinking and attention, as it forms part of a routine (Schwartz, 2018). Impulse buying, which refers to the sudden urge that consumers experience to purchase a product, is also considered to involve little thought. Impulsive buying is often triggered by specific emotions that consumers experience as well as subtle, in-store cues such as product placement (Swarnalatha & Soundhariya, 2018). With reference to the current study, many unhealthy food purchases have been linked to consumers' impulsive decisions (Schultz, 2014).

In contrast, consumers who engage in the deliberative process make decisions slowly and more consciously, using System 2 (Kahneman, 2011). The deliberative process is often referred to as analytical decision-making, as it involves additional assessment or thinking. In these cases, consumers typically analyse the costs versus the benefits before making a decision, which is based on logic (Van Gelder, 2009). The deliberative process in decision-making is generally evident in complex situations (Sutton, 2012), or related to important decisions, such as purchasing a house or setting out a plan to achieve a desired goal (Wolff & Crockett, 2019). Important decisions require more time to assess the costs and efforts versus the potential benefits associated with the decision. In lifestyle-related decision-making, consumers rely on

their conscious intellect to evaluate a specific diet or exercise plan (Maffetone & Laursen, 2019). It can be argued that consumers with healthy intentions might carefully consider whether they should purchase a product high in sugar content, thus following a deliberative process. In many instances, however, consumers lack sufficient health-related knowledge, and therefore social marketers and health practitioners are recommended to assist consumers in their decision-making process by considering consumers' individual preferences and situations (Evans & McCormack, 2008). To consider consumers in such a manner, an in-depth knowledge and understanding of consumer behaviour thus forms an integral part of creating effective social marketing strategies (Lamb, Dowrick, Burroughs, Beatty, Edwards, Bristow, Clarke, Hammond, Waheed, Gabbay & Gask, 2015). Against this background, various theories relating to behaviour can be explored in an attempt to understand how social marketers can encourage behaviour change.

3.3 BEHAVIOUR THEORIES

Theory can be defined as 'a set of interrelated concepts, definitions, and propositions that present a systematic view of events or situations by specifying relations among variables in order to explain and predict the events or situations' (Glanz, Rimer & Viswanath, 2008:26). Behaviour change theory is a fundamental element in health settings (Thackeray & Neiger, 2000).

3.3.1 The importance of theory

Early research implied that the lack of successful behaviour change interventions in practice can be attributed to the disconnection between theory and practice (Freudenberg, Eng, Flay, Parcel, Rogers & Wallerstein, 1995). More specifically, behaviour change interventions should be based on behaviour theory (Michie & Abraham, 2004). Ideally, theories present cumulated knowledge in a summarised manner (Michie & Johnston, 2012). In a behaviour change context, theories provide an explanation of how, when, and why change occurs, subsequently guiding social marketers in designing effective interventions (Thackeray & Neiger, 2000). Theories can be used as a foundation in developing the promotion element of the marketing mix (Luca & Suggs, 2013), and the use of theoretical components is especially effective in designing campaign messages (Weinreich, 2011). Theory implementation also enables researchers to understand the reasons behind successful and failed intervention. As a result, a plethora of research evaluating behaviour change interventions have placed emphasis on using behaviour

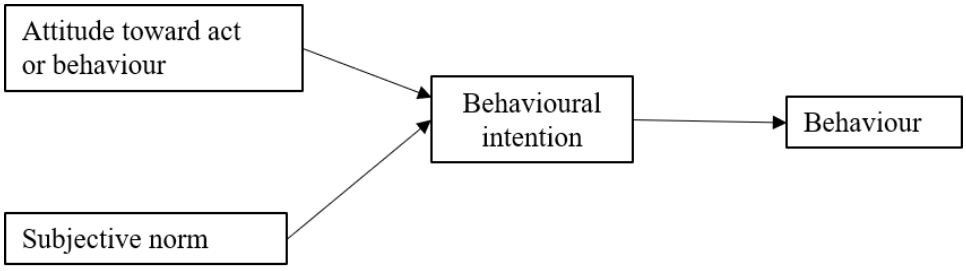
change theories as a foundation to designing interventions (Luca & Suggs, 2013; Weinreich, 2011; Collins, Baker, Mermelstein, Piper, Jorenby, Smith, Christiansen, Schlam, Cook & Fiore, 2011).

Existing literature suggests numerous theoretical models that can effectively assist in predicting and explaining a wide range of health intentions and behaviours (Michie & Abraham, 2004). These theories aim to identify factors that lead to the development of intentions towards engaging in healthy behaviours (Schwarzer & Fuchs, 1996). Among some of the most popular theories and models are social cognition models, the theory of reasoned action, the theory of planned behaviour, and the health belief model.

3.3.2 The theory of reasoned action and the theory of planned behaviour

The theory of reasoned action (TRA) has received considerable attention in the consumer behaviour literature. This theory posits that human behaviour is driven by consumers' *intention* to behave in a certain way. Stated differently, consumers' intention serves as a proxy to their actual behaviour (Dillard & Shen, 2013), and studies have shown that the ability of intention measures to predict actual behaviour is robust (Albarracin, Johnson, Fishbein & Mullerleile, 2001). According to the TRA, consumers' intention to engage in a certain behaviour is determined by their attitude towards the behaviour and consumers' subjective norms associated with the behaviour. Attitude can be described as a consumer's evaluation (favourable or unfavourable) of performing a specific behaviour (Kan & Fabrigar, 2017). Forming an attitude denotes an evaluation of the individual's belief about the outcomes of performing the behaviour. Subjective norms are determined by normative beliefs, which states whether the important referent consumers approve or disapprove of the behaviour in question (Dillard & Shen, 2013). Figure 3.2 depicts a visual representation of the theory of reasoned action.

Figure 3.2: The theory of reasoned action



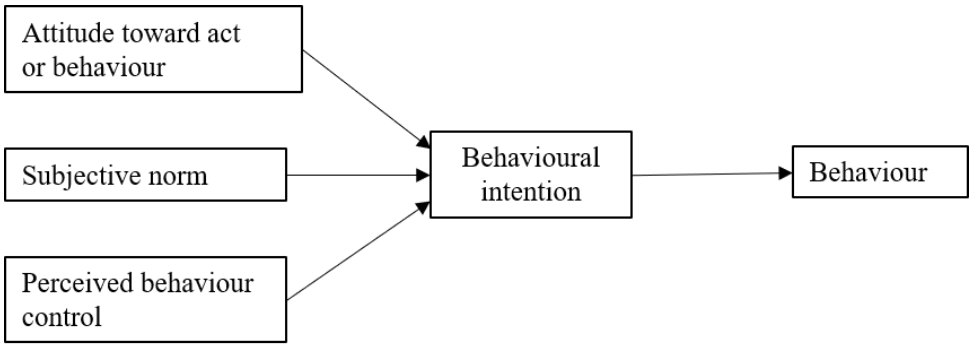
Source: Dillard & Shen (2013)

Early research demonstrated that the TRA is a significant predictor of consumers' health behaviours (Armitage, Conner & Norman, 1999). Hill, Gardner and Rassaby (1985) studied women's intentions to engage in breast self-examination, indicating that the TRA constructs explained 17–20 per cent of the variance in intention. Another study found that the TRA is an effective theory to use in predicting the intention to choose halal products, suggesting subjective norms as the most influential predictor (Lada, Tanakinjal & Amin, 2009). Other studies implied that consumers' attitudes are more significantly related to their intentions towards fruit and vegetable intake and physical activity (Kelly, Melnyk, Jacobson & O'Haver, 2011). Attitudes are specifically important because, generally, consumers with positive attitudes towards unhealthy behaviours are unwilling to change and vice versa for consumers with negative attitudes towards the unhealthy behaviour.

Despite substantial evidence supporting the use of the TRA for predicting health behaviours, the theory has received criticism for assuming consumers' volitional control over the behaviour (Manika & Gregory-Smith, 2017). The TRA's components do not account for contexts where behaviours are out of the individual's control. Resultantly, a theory was required to better predict and explain behaviours in contexts where volitional control cannot be assumed, and the TRA was expanded. Ajzen (1985) proposed the inclusion of perceptions of behavioural control as an additional predictor of intentions and behaviour. Perceived behavioural control accounts for the factors that are perceived as beyond individuals' control but might still affect their intention or behaviour (Montaño & Kasprzyk, 2015). By including the additional construct, the theory of planned behaviour was developed.

Since introducing it in 1985, the theory of planned behaviour (TPB) has become one of the most influential theories used in the prediction of human behaviour studies (Ajzen, 2011). Numerous studies reported the efficacy of the TPB in health behaviour contexts (Zoellner, Estabrooks, Davy, Chen & You, 2012; Armitage & Conner, 1999). Figure 3.3 shows a visual representation of the theory of planned behaviour. Perceived behavioural control is the perception of whether the behaviour in question is within the consumer's control. The construct involves consumers' belief that specific factors might facilitate or inhibit action, weighted by the perceived control the consumer has over these factors (Dumitrescu *et al.,* 2011).

Figure 3.3: The theory of planned behaviour



Source: Dillard & Shen (2013)

In summary, according to the TPB, whether consumers will perform a behaviour is determined by both intention and ability. The TPB has been implemented in a range of health behaviour contexts, including smoking cessation, exercise, HIV prevention and oral health (Montaño & Kasprzyk, 2015).

With reference to the context of sugar consumption, Zoellner *et al.* (2012) recommend the use of the TPB to guide interventions to reduce sugar-sweetened beverage (SSB) consumption. This recommendation is based on the notion that the constructs of the theory provide a moderate explanation of the consumption of sugar-sweetened beverages. More specifically, consumers' intentions showed the strongest relationship with SSB consumption, followed by attitudes, perceived behaviour control, and lastly, subjective norms (Zoellner *et al.*, 2012). These results are echoed by Åstrøm and Okullo (2004), who found that attitude and perceived behaviour control were the main influencing factors of sugar consumption intake. In their study, attitude appeared to be superior to perceived behaviour control. Dumitrescu *et al*. (2011) specifically highlighted the importance of attitude towards oral health behaviours. Indeed, a vast amount of studies using the TPB indicated that attitude is the strongest predictor of behaviour intention (Arvola, Vassallo, Dean, Lampila, Saba, Lähteenmäki & Shepherd, 2008; Åstrøm & Okullo, 2004; Åstrøm & Rise, 2001). Therefore, it is implied that, for consumers to act, their attitude towards the behaviour should be positive.

Despite several studies downplaying subjective norms as a predictor of health behaviours (Dumitrescu *et al.*, 2011; Rhodes & Courneya, 2003; Norman, Conner & Bell, 2000), some evidence points to its importance, albeit in certain contexts. For instance, a study investigating women's intentions to uptake the human papillomavirus vaccine (HPV), concluded that

subjective norms are a key predictor (Gerend & Shepherd, 2012). The importance of subjective norms for the decision towards HPV uptake, signifies the social nature of some health decisions. When faced with difficult decisions that could have an impact on their health, consumers tend to consider their friends' approval or they turn to healthcare providers for advice (Gerend & Shepherd, 2012).

Equally important is consumers' confidence in their ability to overcome perceived barriers to engage in a specific behaviour. Previous studies emphasised that health decisions are guided by consumers' perceived ability to implement the steps needed to perform the behaviour (Brewer & Rimer, 2008; Champion & Skinner, 2008). A study conducted on organic food labelling, for instance, highlighted the need of addressing the lack of proper information on labels, which was proven to be a critical barrier that impeded purchase decisions (Aitken, Watkins, Williams & Kean, 2020). Strategies aimed at encouraging healthy behaviours should thus focus on enhancing perceived behaviour control by, for example, identifying ways to overcome the perceived barriers (Kosma, Ellis, Cardinal, Bauer & McCubbin, 2007).

Both the TRA and the TPB provide a framework to identify the significant behavioural, normative, and control beliefs that influence health behaviour (Montaño & Kasprzyk, 2008). Based on these beliefs, researchers can design interventions specifically targeted at those beliefs that need to change, thereby affecting attitudes, subjective norms and perceived behaviour control. Hardeman *et al*. (2005) argue that beliefs should be targeted through persuasive messages. Ultimately, changing the beliefs will change intention that in turn will influence the actual behaviour displayed. Against this background, both theories, especially the TPB, have been extensively applied in health contexts to encourage healthy behaviour, and prompting people to change their unhealthy behaviours. In contrasts to the TRA and TPB that applies to a variety of settings, another model that specifically relates to understanding health-related behaviours, namely the health belief model, can also be referenced in an effort to understand consumer health behaviour.

3.3.3 The health belief model

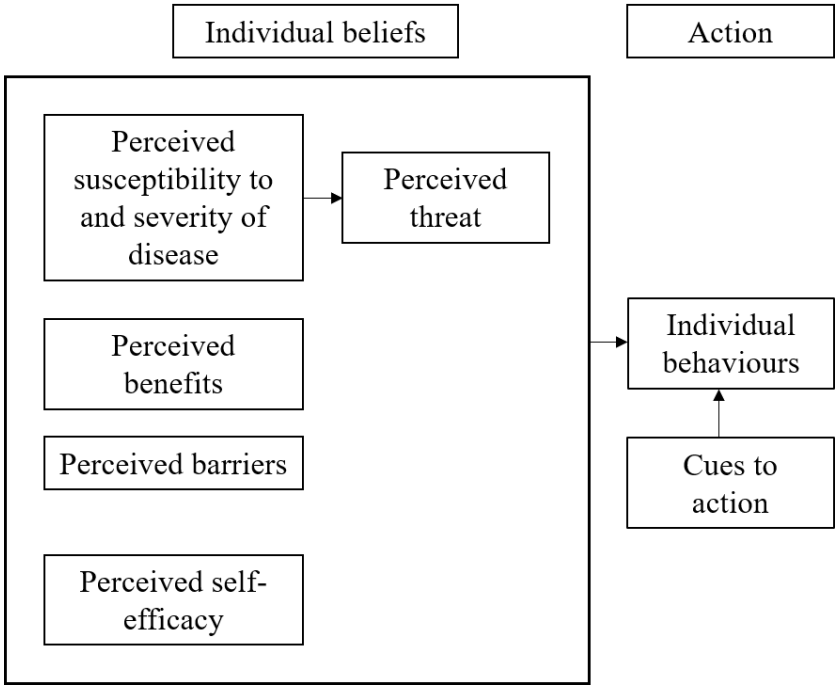
Originating in the 1950s, the health belief model (HBM) is one of the earliest health-related theoretical models established (Hochbaum, 1958, as cited in Champion & Skinner, 2008). The model was developed to understand why consumers were refusing medical treatment in the form of disease preventatives, screening tests, and clinic visits (Williams, 2012). In short, the

HBM postulates consumers' likelihood of engaging in a certain health behaviour (Manika & Gregory-Smith, 2017). The HBM incorporates six variables that explain certain conditions under which health behaviour change occurs: perceived susceptibility, severity, benefits and barriers, self-efficacy, and cues to action (Williams, 2012). The belief about the likelihood of experiencing the health issue or condition is explained by the construct perceived susceptibility, while perceived severity refers to the feelings associated with the seriousness of the health issue (Champion & Skinner, 2008). The two constructs combined are often labelled as consumers' perceived threat. Although perceived threat is essential for consumers to change their behaviour, the perception does not necessarily lead to behaviour change as the likelihood is influenced by consumers' beliefs about the benefits of the specific behaviour (Champion & Skinner, 2008). Similarly, the perceived barriers to the specific behaviour may impede undertaking recommended action. Barriers could include the costs associated with engaging in a behaviour or the lack of appropriate information regarding the behaviour in question (Aitken *et al*., 2020). Champion and Skinner (2008) argue that formative research is often required to identify behaviour-specific factors that may be considered as benefits or barriers by members of the target population. The last two components of the health belief model are cues to action and self-efficacy. Cues to action refers to specific strategies to activate consumers' readiness to change, such as providing information or raising awareness (Manika & Gregory-Smith, 2017), while consumers' confidence in their ability to engage in the recommended action is explained by self-efficacy (Champion & Skinner, 2008). The health belief model is depicted in Figure 3.4.

The HBM states that individuals take health-related action when the risky health condition is perceived to be avoidable, when they expect a positive situation when taking the recommended action, and lastly believe that they are able to successfully take the recommended health action (Health belief model, 2018). According to Manika and Gregory-Smith (2017), the health belief model has been applied in obesity prevention, breast self-examination, smoking cessation, alcohol consumption reduction and AIDS preventative behaviours. Meta-analyses show the successful use of the model for message and campaign design in different contexts (Luca & Suggs, 2013). By way of explanation, a campaign promoting the use of sunscreen should consider emphasising that consumers are at high risk for developing problems related to sun exposure, and that the consequences of such problems are severe. Then, cues to action can involve an advertisement reminding consumers how and when to use sunscreen to avoid sun-exposure consequences. Some consumers might believe that using sunscreen is not effective in

preventing skin cancer, and therefore require more benefits that will outweigh the need to spend time in the sun (Weinreich, 2011).

Figure 3.4: The health belief model



Source: Adapted from Champion and Skinner (2008)

Early academic research indicated perceived barriers to be the most powerful predictor of behaviours (Janz & Becker, 1984; Becker, 1974). More recent studies have confirmed the importance of reduced perceived barriers to behaviour action (Razmara, Aghamolaei, Madani, Hosseini & Zare, 2018; Yarbrough & Braden, 2001). Therefore, it can be assumed that when the levels of perceived barriers are low, the likelihood of consumers engaging in recommended health behaviours are stronger. Allen and Bazargan-Hejazi (2005) found that women's perceived barriers, logistical factors and costs in particular, have a substantial influence on whether they would engage in breast cancer screening. The authors suggest targeting the perception of barriers by using interventions that focus on bringing women in contact with community resources (Champion & Skinner, 2008), and to formulate persuasive messages to change women's perceptions of barriers to breast cancer screening. A different study, conducted in the same context, emphasised the importance of women's perceived ability that they can complete the necessary steps to engage in breast cancer screening (Jirojwong & MacLennan, 2003). Similarly, self-efficacy proved to be a significant contributor in consumers' behaviour to prevent infection with HIV (Janz & Becker, 1984), and was also found to play a key role in consumers' intentions to engage in healthy diet behaviours

(Deshpande, Basil & Basil, 2009). These studies signify the value of enhancing consumers' perceived ability that they can take a recommended action.

Although the use of the health belief model has shown success across a wide range of health problems, including obesity, smoking, and alcohol intake, several authors have questioned its value (Manika & Gregory-Smith, 2017; Das, De Wit & Stroebe, 2003). Perhaps one of the most significant criticisms relating to the health belief model is that, because the model is essentially a cognitive-based theory, it is assumed that consumers make rational decisions, thereby disregarding the possibility of irrational behaviour (Airhihenbuwa & Obregon, 2000).

Although concerns have been raised about the TRA, TPB and HBM, the value that these models contribute toward understanding consumer behaviour cannot be ignored. To summarise, the behaviour change literature acknowledges the significance of developing interventions with a theoretical foundation, and many suggest the consideration of concepts included in the models previously discussed. With reference to this study, marketers can leverage such literature on consumer behaviour theories in order to understand how to encourage consumers to reduce their consumption of high-sugar-products and participate in changed, healthier behaviours.

3.4 CHANGING CONSUMER BEHAVIOUR IN SOCIAL MARKETING

Because consumers' harmful behaviours contribute considerably to the current mortality and morbidity rate in the world, considering consumer behaviour components are critical to understand and influence consumers' health behaviours (Kelly & Barker, 2016). For example, as a balanced diet is necessary for the prevention of several diseases including type 2 diabetes, coronary heart disease, and even certain cancers (Van Kreijl, Knaap & Van Raaij, 2006), it is essential to first understand why consumers choose to engage in unhealthy eating habits.

Authors maintain that choices associated with healthy habits are fundamentally a complex decision-making process, comprising different biological, social, and emotional factors that influence consumers' decisions (Maffetone & Laursen, 2019; Schwartz, 2018). According to Schwartz (2018), decision-making regarding health is integrated in daily routines, and therefore forms a fundamental part of consumers' lives. Although decades of research highlights consumers' intentions to live healthier lives, their inability to translate their intentions into actual behaviour is still evident (Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2006), signifying that consumers struggle to change their health behaviour.

3.4.1 Understanding the complexities of behaviour change

Despite social marketers' efforts to promote healthy behaviours, consumers continue to engage in risky and harmful behaviours (Vargas-Garcia, Evans, Prestwich, Sykes-Muskett, Hooson & Cade, 2017). For instance, South Africans consume more than double the recommended daily sugar amount, notwithstanding the government advising against excessive sugar consumption (Neethling, 2019). Similarly, according to recent reports, approximately half of the South African population are not physically active (Neethling, 2019). Despite such discouraging results relating to the unhealthy behaviour practices of these consumers, theory suggests that unchanged behaviour does not necessarily indicate a lack of intent.

Even as some consumers are becoming more health-focused (Schwartz, 2018), substantial research shows that there is a gap between intentions to make healthy decisions and actual behaviour (Webb & Sheeran, 2006). Early research on this topic was mostly devoted to why consumers stop taking their medication, fail to adhere to healthy diets or exercise plans even though these behaviours are clearly harmful to their health (Ajzen, 1985; 1999). In line with previous research, literature continues to suggest that consumers fail to translate their knowledge and intentions into real behaviours (Webb & Sheeran, 2006). As mentioned previously, committing to change one's behaviour can be extremely challenging. Several authors also concur that the process of changing behaviour is a complex task, and not without various reasons (Boshoff & Toerien, 2017; Kelly & Barker, 2016; Thackeray & Neiger, 2000).

This complexity can be ascribed to the fact that certain problematic behaviours, such as smoking and alcohol consumption, are embedded in some people's everyday lives and often form part of a routine or a habit (Kelly & Barker, 2016). Over time, consumers' repeated behaviours lead to the development of patterns in the brain (Jaffe, 2019). Eventually, consumers engage in the behaviour automatically and a habit is formed. For instance, as a consumer starts to progressively smoke a cigarette, a pattern develops where the brain becomes accustomed to the behaviour. Repeated smoking eventually leads to the consumer removing a cigarette and start smoking without being consciously aware. Because of the automatic process, consumers struggle to break the habit or change the behaviour (Jaffe, 2019).

In addition to this complexity, Kelly and Barker (2016) maintain that the lack of successful efforts at behaviour change can further be ascribed primarily to the common assumption that behaviours are driven by information and knowledge. As some studies point out, providing

information alone does not necessarily ensure an actual behaviour to occur (Lundeen, Park, Pan & Blanck, 2018; Kelly & Barker, 2016), By providing information and increasing an awareness regarding a health concern, it is assumed that consumers will behave rationally by subsequently changing their unhealthy behaviour due to this information (Schwartz, 2018). Such efforts can be seen in calorie labelling on products and cigarette tax. Several authors argue that while consumers sometimes act rationally, that is, they do what they perceive as most sensible and logical after a rational assessment, health behaviours involve more than merely having knowledge and information (Schwartz, 2018). Even if a consumer is aware of the necessity to alter their diet to lose weight, most diets fail because knowledge and rational assessment alone do not drive behaviour change (Schwartz, 2018; Kelly & Barker, 2016). Changes in health behaviours such as to stop smoking, following a balanced diet, and engaging in physical activity, are all lifestyle practices embedded in consumers' lives or their routine. Simply providing information to encourage logical thinking is not always enough for consumers to decide to change their behaviour. Other studies regarding food choices concur with the notion that consumers tend to act more irrationally than rationally when making food-related decisions (Wansink, Just & Payne, 2009). Wansink and Sobal (2007) found that consumers engage in limited thought when making food-related choices and are either unaware of external factors that influences their decisions or are reluctant to acknowledge them. These findings reinforce the undermining of the common assumption to appeal to consumers' logic to encourage behaviour change. That being said, it does not necessarily mean consumers always make irrational decisions (Kelly & Barker, 2016). In an interesting study, Graham (as cited in Kelly & Barker, 2016) found that even in cases where women indicated that they had limited money, their purchasing of cigarettes still occurred. The reason cited was that they smoked only occasionally when they wanted to do something completely self-indulgent. Similarly, while the negative impact of alcohol consumption is generally acknowledged, studies have demonstrated that consumers still drink alcohol as they consider it as part of socialising and having fun (Immonen, Valvanne & Pitkälä, 2011). In fact, in many cases rationality cannot be assumed as other factors can also influence consumers' decision to engage in a certain behaviour (Kelly & Barker, 2016).

Given the notion that consumers' decision to change their behaviours may be influenced by various factors (Kelly & Barker, 2016), and that change is a complex process (Michie & Johnston, 2012), social marketers are challenged with developing communication campaigns that can assist in encouraging change. In developing successful communication strategies, the

behaviour of specific target markets should be understood (Hawkins *et al*., 2007). Stated differently, a thorough understanding of the target population is a prerequisite for designing successful interventions (Michie & Johnston, 2012). To increase the effectiveness of targeted communication campaigns, marketers typically employ segmentation techniques.

3.4.2 Using segmentation techniques to facilitate changed health behaviour

Similar to traditional marketing contexts, social marketers rely on understanding consumer behaviour when developing effective marketing strategies (Hawkins *et al.,* 2007). To understand the behaviours of consumers, social marketers conduct consumer research, or access existing data (Grier & Bryant, 2005). For example, successful anti-smoking campaigns often involve fear-based messages to discourage smoking habits. The use of fear-based messages is substantiated by consumer research about smokers' behaviour and how to influence their unhealthy decisions. Gathering consumer information enables social marketers to view behaviours from the consumer's perspective, rather than from their own perspective. Based on such research, it may become clearer why consumers behave the way they do, which benefits or barriers they experience, and which factors influence their behaviour (Hawkins *et al.,* 2007).

Research on consumer behaviour in a social marketing context is also necessary to determine whether social marketing campaigns are appropriate for specific homogenous groups. This can be demonstrated through the concept of formative research, as introduced by Thackeray and Neiger (2000). Similar to the process of market segmentation in commercial marketing, formative research is defined as the process whereby individual differences are identified among subgroups within a target population. Subgroups are targeted after their specific needs and wants have been identified, as well as other factors that influence their behaviour – for instance, benefits, barriers, and readiness to change (Thackeray & Neiger, 2000). Such segments can be grounded in geographic, demographic, psychographic, attitudinal, and behavioural factors (Weinreich, 2011). In relation to behavioural factors, social marketers can segment consumers based on their current behaviours, such as heavy versus light smokers. Such consumer information can also be useful for dividing the market into subgroups with similar wants, needs, lifestyles etc. (Evans & McCormack, 2008). Irrespective of the basis for segmentation, Grier and Bryant (2005) emphasise the importance of the process of segmentation to social marketing interventions, by stating that social marketers primarily devote their knowledge of consumers to the segmentation of the target population. This

dedication may be attributed to the fact that differentiating between the subgroups allows for easier design of appropriate health interventions with tailored marketing-mix elements (Lamb *et al.,* 2015). Moreover, interventions aimed at consumers with specific needs and wants will likely induce the desired responses (Grier & Bryant, 2005).

In addition to the previously mentioned traditional segmentation approaches, an effective segmentation tool that is gaining ground in the social marketing literature is consumers' readiness to change a specific harmful habit (Cho & Salmon, 2006; Prochaska *et al*., 1992). In this respect, the stages of change model comes to the fore. This model suggests that consumers progress through five stages in their attempts to change their behaviour. By identifying in which stage consumers are with regard to their willingness to change their behaviour, appropriate messages can be designed to encourage movement through the stages (Weinreich, 2011). Stages of change as a segmentation technique (further explored in depth in Chapter Five) has been implemented in various public health contexts, including smoking cessation and type 2 diabetes prevention (Luca & Suggs, 2013; Fennis, 2003). Because consumers in different stages of change posit distinct characteristics that influence their decisions and behaviours, studies have highlighted the importance of classifying consumers in their appropriate or specific stage of change for better intervention targeting (Manika & Gregory-Smith, 2017; Norcross *et al*., 2011). In light of the reasoning behind the value of segmentation, social marketers aim to develop interventions for an isolated target group that will persuade them to change their unhealthy behaviours.

3.5 BEHAVIOUR CHANGE INTERVENTIONS

It is well documented that public health is dependent on behaviour change interventions (Michie & Johnston, 2012; Hardeman, Sutton, Griffin, Johnston, White, Wareham & Kinmonth, 2005; Michie & Abraham, 2004). Behaviour change interventions can broadly be defined as coordinated combination of activities designed to change individuals' specific behaviour patterns (Michie *et al*., 2011). Evidently, the purpose of behaviour change interventions is to encourage and facilitate change. The success of interventions in the public health domain in particular depends on the guidance that is provided to health practitioners. Health practitioners, in turn, can influence behaviour more successfully and promote healthier lifestyles with the knowledge of what type of intervention would be more effective (Michie *et al*., 2011). The existing literature suggests various types of intervention methods. Typical examples include training, incentivisation, persuasion, and education (Michie *et al.*, 2011;

Hardeman *et al*., 2005). For instance, education may involve providing information to encourage healthy eating habits (Michie, *et al.*, 2011). Persuasion methods are argued to be the most dominant in public health contexts (Hardeman *et al.,* 2005). Intervention methods have been implemented to address public health issues, such as to encourage fruit and vegetable consumption (Anderson, Cox, McKellar, Reynolds, Lean & Mela, 1998), smoking cessation (Michie *et al*., 2011), and exercise adoption (Taylor, Conner & Lawton, 2012). These interventions have shown, over time, desirable effects on the behaviour of consumers (Hardeman *et al*., 2005).

The nature of behaviour change interventions is generally complex, as it consists of several different elements that interact with one another (Michie & Johnston, 2012). As Michie and Johnston (2012:2) point out, an understanding of the 'active ingredients' such as the technique used, the mode of delivery, the level of intervention, and the population targeted is critical in designing successful interventions. According to Taylor *et al*. (2012), an important technique that is used in health interventions is the behaviour change technique (BCT). Behaviour change techniques refer to those specific strategies that are used in the intervention to encourage behaviour change and that are 'observable and replicable components of behaviour change interventions' (Michie & Johnston, 2012:3). Similarly, Michie, West, Sheals and Godinho (2018) describe behaviour change techniques as the content of interventions that has the potential to change behaviour. Decades of research has enabled scholars to identify 93 behavioural change techniques (Michie, Richardson, Johnston, Abraham, Francis & Hardeman, Eccles, Cane & Wood, 2013). However, the application of these techniques depends on the context in which the behaviour occurs. Examples of BCTs are, amongst others, goal-setting, feedback, and motivational interviewing. Specific BCTs have shown effectiveness in the field of smoking cessation (Michie, Churchill & West, 2011) and alcohol consumption (Michie & Johnston, 2012). Behavioural change techniques can be used in isolation, but interventions often involve combinations of the techniques (Bull, McCleary, Dombrowski, Dusseldorp & Johnston, 2018). For instance, health-related diet interventions might combine goal-setting, self-monitoring as well as personal contact feedback to encourage healthy eating habits. Similarly, interventions promoting physical activity can involve providing appropriate instructions and information regarding emotional and physical consequences or benefits (Bull *et al.,* 2018). A study that investigated techniques to reduce sugar-sweetened beverage consumption indicated that modelling and demonstrating the

recommended behaviour effectively encouraged behaviour change (Vargas-Garcia *et al*., 2017), reinforcing the importance of developing interventions with an educational component.

Although social marketers' efforts of improved education, providing accessible information, taxation implementations and other regulatory factors prioritised the public's health (Schwartz, 2018), the progress remains disappointing and the health statistics worrisome (Schwartz, 2018). Considering the findings pertaining to educational and information-based communication messages, which may not solely be effective in engendering behaviour change, alternative persuasive communication techniques can be considered. This recommendation is based on the notion that public health interventions generally implement persuasion methods to engender behaviour change (Avis, 2016).

3.6 PERSUASION

Persuasion is a common behaviour change intervention method (Perloff, 2003). In the context of this study, a persuasion method was explored to understand its influence on consumers' responses regarding their sugar consumption behaviours. The current section will provide a comprehensive definition of the term, followed by a discussion of an important cognitive persuasion theory that is evident in the literature. Then, persuasive communication will be examined in both traditional marketing and social marketing contexts, where the significance of using persuasion methods to discourage excessive sugar consumption will come to light.

3.6.1 Understanding persuasion

The literature provides many definitions of persuasion (Perloff, 2003), with scholars mostly conceptualising the term in a communication context. In its simplest form, persuasion entails the process in which the communicator aims to elicit a desired reaction from the message receiver (Andersen, 1971). Miller (1980, as cited in O'Keefe, 2002) suggests that persuasive techniques should include a message that is designed to shape, reinforce, or change the responses of another in a marketing context. Persuasion typically targets a consumer's mental state (O'Keefe, 2002). That is, a persuasive message will affect a consumer through influencing their mental state, which in turn leads to influencing behaviour. According to the persuasion literature, the mental state that is influenced is often referred to as the consumer's attitude. Fishbein and Ajzen (1975:6) describe attitude as 'a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object'. Several persuasion definitions mention the role of consumers' attitude in behaviour change. For

instance, Simons (1975, as cited in O'Keefe, 2002), maintains that persuasion communication efforts are intended to influence others by modifying their beliefs, values, or attitudes. Essentially, persuasion involves a conscious communication effort aimed at influencing the attitudes of a specific target audience, with the end goal that the attitudes will have an impact on the actual behaviour (Cameron, 2009). A key factor of persuasion is the notion of consumer freedom. O'Keefe (2002) maintains that one can only refer to persuasion in contexts where consumers have a free choice. Stated differently, only in a situation where a consumer takes voluntary action after being exposed to a persuasive message, can it be said that the consumer has been persuaded.

Taking into account the different factors associated with persuasion, O'Keefe (2002:5) defines persuasion as 'a successful intentional effort at influencing another's mental state through communication in a circumstance in which a persuadee has some measure of freedom'. The notion of 'being persuaded' is further explained by Dillard and Shen (2013) as 'a situation where behaviour has been modified by symbolic transactions, such as messages, that appeal to the reason and emotions of the person(s) being persuaded' (Dillard & Shen, 2013:73). The current study concerns persuading consumers to change their unhealthy consumption of high-sugar-content products. As persuasion often goes hand in hand with behaviour modification (Perloff, 2003), in which consumers, in this study's context, are persuaded to change their sugar consumption habits, it is assumed that, firstly, consumers engage in excessive consumption to the extent that behaviour change is necessary. Secondly, the persuasion effort aims to induce consumers to cease their unhealthy behaviour and engage in reduced consumption, or in other words, to adhere to the recommended amount of sugar intake per day.

It is worth noting that in persuasion situations consumers essentially persuade themselves to change their attitudes or their behaviour (Perloff, 2003). Stated differently, it is not the communicators who change the consumer's mind, but rather the consumer who makes the decision on their own. Indeed, as Whalen (as cited in Perloff, 2003) points out: 'You can't force people to be persuaded – you can only activate their desire'. To this end, persuaders are focused on changing individuals' attitude. Even as the goal of a persuasion effort is that of behaviour modification, the goal is achieved through a process of attitude change (Dillard & Shen, 2013). It is well acknowledged that attitude influences thoughts and responses, and more importantly, attitudes guide human actions. Therefore, consumer attitude is essential for communicators interested in predicting and influencing behaviour (Perloff, 2003). In social marketing contexts

the basic purpose of persuasion efforts is to change consumers' attitudes regarding unhealthy behaviours (Boshoff & Toerien, 2017).

To successfully understand persuasive communication and its effects on behaviour modification, the processes by which messages affect attitudes should be reviewed. The literature suggests important cognitive persuasion theories that explain attitude change and subsequent behaviour change. A well-researched, comprehensive framework to understand persuasive communication is encapsulated in the elaboration likelihood model (Petty & Cacioppo, 1986).

3.6.2 The elaboration likelihood model

The elaboration likelihood model (ELM) has generated considerable research over the years (Perloff, 2003). The model describes two distinct ways, called routes, through which consumers process and interpret communication messages (Petty & Cacioppo 1986). These routes are called either the central or the peripheral route and differ depending on how thoughts and reactions are formed in response to messages (Perloff, 2003). The central route encompasses an extensive cognitive evaluation. That is, consumers place much focus on thinking about the key features of a message or a communicator. The features might include the message's arguments or the credibility of the communication source (O'Keefe, 2002). A comprehensive consideration of such features engenders either a positive or a negative consumer attitude towards the recommended behaviour – for example, reduced sugar consumption (Perloff, 2003). In contrast, the peripheral route involves less thinking. The peripheral route is characterised by consumers' quick examination of a message or concentrating on other simple cues to engender a decision. Key features consumers then examine are the communicator's physical appeal or their speaking style (Perloff, 2003).

Whether consumers engage in the central or peripheral route depends on their motivation and whether they are able to process a message (Manika & Gregory-Smith, 2017). Should a consumer experience a high level of motivation and ability, the chosen persuasion route will be central due to high elaboration (Perloff, 2003). Conversely, when motivation and ability is low, elaboration is also low, and the peripheral route of persuasion will be taken. Because the peripheral route of processing is believed to be automatic (Petty & Cacioppo 1986), and attitudes formed through the central route tend to be easier to recall; more resistant toward change; and a better prediction of actual behaviour, it is argued that the central route is more

effective in engendering desired outcomes (Vidrine, Simmons & Brandon, 2007; Petty & Cacioppo, 1986). Consequently, marketers are generally more focused on presenting persuasive messages that consumers process cognitively and systematically (Manika & Gregory-Smith, 2017; Toerien & Boshoff, 2007; Petty & Cacioppo, 1986).

Although a large body of research has shown the successful use of the ELM in designing health promotion campaigns and interventions related to, amongst others, smoking cessation (Vidrine *et al.,* 2007); physical activity (Rosen, 2000); and breast cancer screening compliance (Holt, Lee & Wright, 2008), ongoing research highlights the ELM's limitations (Manika & Gregory-Smith, 2017). Common criticisms that scholars have stipulated towards the ELM is that the model neglects an important consideration of consumers' processing and decision-making, namely the role of consumers' emotions (Dillard & Peck, 2000). Petty and Cacioppo (1986) have suggested that emotional arousal leads to high elaboration and thus the chances of attitude change are increased. Therefore, it has been proposed to incorporate emotional evocation in persuasive messages. Others believe appealing to consumers' cognition has more value in persuading them to engage in recommended behaviours (Johnson & May, 2015)

3.6.3 Types of persuasive messages

Persuasion attempts are present in consumers' daily lives (Shrum, Liu, Nespoli & Lowrey, 2013 as cited in Dillard and Shen, 2013). In marketing contexts, consumers are regularly bombarded with advertising efforts. All advertising comprises a persuasive element. In fact, a key purpose of advertising attempts is to persuade the target audience to engage in a specific action (Semenik *et al.,* 2012). In traditional marketing, advertisers are concerned with persuading consumers to buy their product or service or influence their preferences and opinions (Kotler & Keller, 2016). A typical example of a persuasive technique in marketing in general is the use of celebrities for product endorsement. A celebrity endorsing a make-up brand or a weight loss programme is more likely to persuade consumers to purchase (Semenik *et al.,* 2012). To influence consumers, social marketers use different types of message appeals to engender behaviour change. Typically, such persuasive messages are either informational or emotional in nature (Leonidou & Leonidou, 2009). Growing interest in evoking emotions to motivate action is evident in the advertising literature (Kotler & Keller, 2016). The arousal of emotions, such as fear, shock, and humour, is believed to attract consumers' attention and encourage them to take a specific action, such as purchasing a product (Kotler & Keller, 2016).

Informational messages appeal to consumers' rational thinking, with the focus on providing facts to consumers (Cutler, Thomas & Rao, 2000). Also referred to as rational appeals, these appeals are centred on consumers' need for cognition, and are based on the ELM's central route of persuasion (Petty & Cacioppo, 1986). Following the central route, social marketers believe that by providing consumers with meaningful information and facts, consumers will behave rationally and comply with the recommended action as stipulated in the message. Informational messages typically involve logical arguments by which consumers weigh the advantages and disadvantages against one another (Leonidou & Leonidou, 2009). To illustrate, by incorporating a concerning health statistic indicating the percentage of annual deaths linked to tobacco intake, social marketers believe that consumers will engage in systematic information-processing and subsequently quit their smoking behaviour (Schwartz, 2018).

In stark contrast to informational messages, the purpose of messages with emotional appeals is to persuade consumers to engage in a recommended behaviour by means of evoking emotions among the target audience. Emotional arousal is suggested to increase the memorability of a message and mental accessibility of related knowledge (Hendriks, Van den Putte & De Bruijn, 2014; Peters, Ruiter & Kok, 2014). A body of literature exists that examines emotionally loaded messages and their effects on compliance behaviour (Mantzari *et al*., 2018; Duhachek *et al*., 2012; Dillard & Peck, 2002). In the social marketing realm, communicators seem to rely on arousing emotions to persuade consumers to engage in healthy behaviours or cease their risky behaviours (Achar *et al.*, 2016; Hibbert, Smith, Davies & Ireland, 2007; Nabi, 2002). Social marketing campaigns often make use of negative emotional appeals with successful outcomes (Brennan & Binney, 2010). For instance, fear appeals are frequently used in campaigns aimed at encouraging consumers to quit smoking.

In sum, Cameron (2009) emphasises the significance of attracting consumers' attention to effectively persuade them towards some sort of action. As the growing body of research suggests, the best way to attract and maintain consumers' attention is to arouse their emotions (Peters *et al.*, 2014). Using emotions to persuade consumers has been extensively used in the marketing arena, for both commercial and social marketing purposes.

3.6.4 Persuasive marketing communication campaigns

As in traditional marketing, social marketers also rely on evoking certain emotions among consumers to persuade them to change their unhealthy behaviours (Brennan & Binney, 2010). Because emotional arousal is associated with increased attention, better recall, and memory

(Lin *et al.*, 2014; Lwin *et al.*, 2014) emotional appeals are dominating marketing campaigns in the public health domain (Mantzari *et al.*, 2018; Duhachek *et al.*, 2012). The effectiveness of these emotional appeals, which appear in health-related communication campaigns, advertisements, packaging and events, has been well acknowledged in the social marketing literature (Achar *et al.*, 2016). Academic evidence specifically supports the use of emotional appeals in campaigns towards health promotion and the prevention of harmful behaviours (Netemeyer *et al.*, 2016; Duhachek *et al*., 2012; Cho & Salmon, 2006).

In response to convincing academic support of communication campaigns utilising emotional appeals, and because campaigns can be cost-effective and have the ability to reach large audiences (Te, Ford & Schubert, 2019), public health practitioners and social marketers have designed campaigns to encourage healthier behaviours and reduce harmful habits among consumers. For instance, campaigns raising awareness of smoking cessation are extensively used in public health, some rendering promising results (Pechmann & Reibling, 2000). A successful example is that of the *Florida 'truth' anti-smoking* campaign in the United States, which implemented a fear appeal to motivate action (Hicks, 2001). Another social marketing campaign example with the motto of '*Friends don't let friends drive drunk*' successfully persuaded consumers to cease driving under the influence of alcohol by means of arousing guilt (Smith, Atkin & Roznowski, 2006). More specifically, 80 per cent of consumers who remembered the campaign message reported taking action in some manner, and a further 25 per cent indicated that they had stopped drinking and driving altogether (National Highway Traffic Safety Administration, 2006). In South Africa, the government also took action against the alarming rate of drinking under the influence with a campaign called '*Who's driving you home tonight*?' The purpose of this campaign was to shock consumers with the dire consequences of drinking and driving. Consumers reported that they had re-evaluated the question of 'who was going to drive' after seeing the campaign (Who's driving you home tonight, 2016).

With the growing consumption of sugary products worldwide, mass media advertising campaigns have been developed to persuade consumers to change their behaviour. *LiveLighter*, an Australian campaign promoting healthy weight and lifestyle habits, focused on decreasing consumption of sugar-sweetened beverages (SSBs) by implementing graphic fear appeals. The campaign successfully increased consumers' knowledge about SSB consumption and had a positive impact on their behaviour (Morley, Nivan, Dixon, Swanson, McAleese & Wakefield, 2018). Another campaign in Australia emphasised the substitution of sugary drinks with water.

The *H30 Challenge* campaign helped to engender healthier habits, with water becoming the main choice as opposed to choosing SSBs (Saunders, King, Reimers, Acker & Shill, 2015). The results of the campaign indicated that the consumers were more likely to scrutinise the nutritional labels for sugar content and that they were also more motivated to reduce their SSB consumption (Saunders *et al.*, 2015). To date, South Africa has not specifically addressed sugar consumption through mass media campaigns, but has rather addressed unhealthy food consumption overall. In 2019, the Healthy Living Alliance (HEALA) launched a campaign called, *#WhatsInMyFood*, with the purpose of raising awareness about the actual content of the foods South Africans consume (Mkize, 2019). This campaign was developed in response to consumers' diets comprising excessive amounts of processed foods, which are typically high in fat, salt, and sugar content.

In conjunction with launching advertising campaigns to raise awareness about unhealthy food consumption, the South African government has recently proposed a similar approach to that of the tobacco industry to address the growing health concerns relating to excessive sugar consumption. That is, the Department of Health has proposed to introduce regulations about front-of-package warning labels on junk food items, including high-sugar-content products (Cullinan *et al.*, 2019). Academic studies support the use of warning labels in reducing sugar consumption. For example, Van Epps and Roberto (2016) reported decreased choices of sugary beverages in cases where a warning label was present. Roberto *et al.* (2016) concur with these results by confirming that warning labels reduced parents' purchases of sugar-sweetened beverages for their children. While experimental studies have shown success in implementing warning labels on sugary products, it is still relatively unclear precisely how such labels should be designed (Grummon *et al.*, 2019). Given the substantial support for emotional appeals in the persuasion literature as well as its use in public health interventions (Bleakley et al., 2015; Hibbert *et al*., 2007; Nabi, 2002), incorporating an emotional element in the design of warning labels seems warranted. It is against this background that the current study investigated whether specific emotional appeals in the warning labels of high-sugar-content products are able to persuade consumers to change their behaviour.

3.7 CONCLUSIONS

Since changing consumer behaviour is a difficult task, scholars have emphasised the development of interventions that are grounded in sound knowledge of consumers. Moreover, existing literature offers various theoretical foundations on which behaviour change

interventions can be based. While interventions for behaviour change are considered central to public health strategies (Michie & Abraham, 2004), evidence remains scant regarding what type of intervention is the most applicable in persuading consumers to reduce their sugar consumption (Vargas-Garcia *et al*., 2017). Recently, in response to the effective use of warning labels on tobacco products to cease smoking, the South African government has proposed the implementation of warning labels on high-sugar-content products too. However, it remains relatively unclear how such labels should be designed to effectively engender behaviour change. The persuasion literature has shown emotionally loaded messages to be superior to merely providing informational content to encourage behavioural action. Therefore, the current study explored whether specific emotional appeal warning labels on a high-sugar-content product will effectively persuade consumers to change their sugar intake habits.

CHAPTER FOUR

CONSUMER EMOTIONS AND EMOTIONAL APPEALS

4.1 INTRODUCTION

The previous chapter highlighted the significance of having a sound understanding of consumer behaviour in the context of social marketing and public health. With reference to unhealthy sugar consumption, the South African government has suggested to implement warning labels to discourage consumers from excessive sugar consumption. Given the scarce evidence regarding how these warning labels should be designed to maximise their effectiveness (Grummon *et al.*, 2019), the current study explored how a popular means of persuasion, the use of emotionally loaded messages, can be utilised to encourage behaviour change. Because the literature has shown that the use emotionally appeals is especially effective in engendering behavioural action, the current study investigated fear appeals, and the combination of fear and guilt appeals, in warning labels for high-sugar-content products. To this end, the purpose of this chapter was to explore emotion elicitation in persuading consumers to engage in behaviour change, with the focus on negative emotional appeals.

The current chapter commences by highlighting the significant role that emotions play in determining consumers' behaviour, specifically referring to fear as a basic emotion and guilt as a self-conscious emotion. The use of emotional appeals will be discussed, during which the argument for using negative emotional appeals above positively valenced appeals will come to light. An in-depth discussion of fear, including its use in public health settings, warning labels, and its possible unintended consequences, will provide a thorough understanding of the emotion. Then, the growing support for the use of multiple-emotional appeals will be discussed, followed by the argument for the current study's investigation into fear and guilt as complementary appeals. Lastly, an attempt will be made to understand the use of guilt as a means of persuasion in public health, with reference to sugar consumption contexts.

4.2 UNDERSTANDING CONSUMER EMOTIONS

Much emphasis is placed on emotions in predicting consumer behaviour (Nabi, 2015; Izard, 1992). Defining emotions is arguably a difficult task (Niedenthal & Ric, 2017), with scholars and theorists highlighting different motivational, physiological, and subjective factors (Dillard & Shen, 2013). In general, however, emotions can be explained as an internal, mental state,

which represent evaluative and valenced reactions to specific events, individuals, or objects (Nabi, 2015). Scholars have distinguished between basic emotions and self-conscious emotions. Basic emotions are described as inherent neural and bodily states that are aroused rapidly and automatically, in response to a stimulus (Izard, 1992), and include fear and sadness. Self-conscious emotions, or self-evaluative emotions, require an individual to engage in elaborate cognitive processing by comparing or evaluating their behaviour versus another behaviour, principle or personal goal (Lewis, 1999). Self-conscious emotions include guilt, shame and pride.

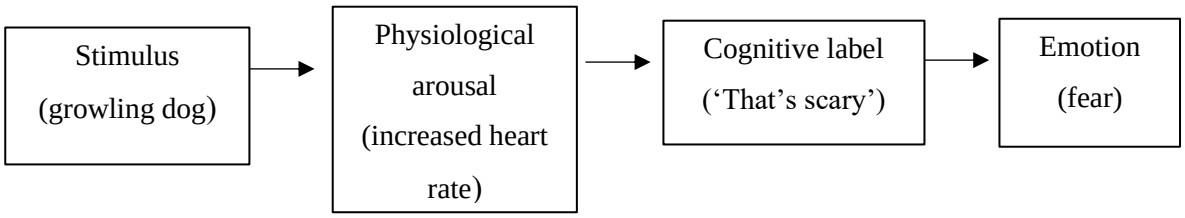
Nabi (2015) maintains that emotions are typically short-lived, vary in intensity, and that emotions are a response to an external factor or factors. Relative consensus exists in the literature that there are a few key components important in understanding emotions. Firstly, emotions can involve both a cognitive and affective evaluation of changes in the environment (Dillard & Shen, 2013). Secondly, emotions comprise a physiological and a motivational component. That is, emotions lead to physiological arousal, such as an increased heart rate, whereas it also has the ability to motivate consumers towards some sort of action. Lastly, and significant to the context of this study, emotions have a behavioural component. The behavioural component means that emotions often cause consumers to behave in a certain manner. Considering the aforementioned factors, Kleinginna and Kleinginna (1981:355) provide a comprehensive definition of emotions, referring to the term as a ‘complex set of interactions that can stimulate affective experiences, engender cognitive processes, activate widespread physiological adjustments to the arousing conditions, and initiate a behaviour that is often expressive and goal directed’.

According to Dillard and Meijnders (2002), the primary function of emotions is to guide consumer behaviour. Niedenthal and Ric (2017) suggest that emotions prepare consumers to act in response to certain situations. Emotions drive impulse to behavioural action and stimulate avoidance tendencies (Pounders, Lee & Royne, 2018). Stated differently, emotions can help consumers to behave in desirable ways and to protect themselves from harmful actions (Niedenthal & Ric, 2017). The general premise of emotional arousal is that if consumers feel negative about something, they will engage in avoidance behaviour. Similarly, if positive emotions are experienced, consumers tend to approach the situation with increased motivation (Wilkinson, 2016).

To understand consumers' emotions, Niedenthal and Ric (2017), highlight the importance of several pertinent theories on emotions. An early, well-acknowledged theory that has been extensively used in contemporary research is the two-factor theory of emotion.

The two-factor theory of emotion was developed in the 1960s by Schachter and Singer (1962, as cited in Niedenthal & Ric, 2017), who referred to the process of emotional arousal. These authors claim that emotions develop through a combination of two factors. Firstly, physiological arousal occurs, which can be in response to any stimulus. Secondly, a cognitive label is made, which describes consumers' cognitive appraisal of their experience in a current situation (Niedenthal & Ric, 2017). A specific emotion is aroused based on the cognitive label. For instance, an individual who walks past a growling dog (stimulus) will likely experience an increased heart rate (physiological arousal), after which the individual might label the situation as 'scary'. Consequently, the emotion fear will be aroused. This process, explained by the two-factor theory of emotion, is depicted in Figure 4.1.

Figure 4.1: The two-factor theory of emotion



Source: Niedenthal and Ric (2017)

The strongest evidence for distinguishing basic emotions is presented by facial expression research (Ekman, 1992). Ekman (1992) believes these facial expressions convey information regarding the potential antecedent(s) that caused the emotions, concomitant responses, and the possible subsequent behaviour that follows. By way of explanation, when a consumer reveals a facial expression of disgust, it is deduced that the expression is likely in response to an unpleasant stimulus, either literally or figuratively, and the consumer might express their emotion by saying 'yuck' rather than 'yum'. Moreover, it is highly likely that the consumer will subsequently avoid the source of stimulation (Ekman, 1992). When exposed to a fearful message presented on a warning label, it is expected that those consumers who feel scared, will subsequently avoid purchasing and consuming the product. Secondly, researchers have observed that other primates can produce similar facial expressions than those that humans

generate, such as anger (Ekman, 1992). The third criterion of basic emotions relates to the physiological aspects engendered by basic emotions. Emotions vary in their degree of physiological arousal (Niethenthal & Ric, 2017). Early evidence suggested that certain emotions (fear, anger, and disgust) generate distinct patterns of activity in the autonomic nervous system (ANS) (Levenson, Ekman & Friesen, 1990). Finally, fear, anger, sadness, disgust, surprise, and joy have been classified as basic emotions because of individuals' predictable assessments of their environment. That is, an emotion like anger can clearly be ascribed to a certain variable in the individual's environment.

An important consideration emphasised by Lewis (1999) is that the basic emotions, including fear, do not involve elaborate cognitive processing. It is believed that these emotions involve very little cognition (Lewis, 1999), because a direct, one-to-one correspondence between a stimulus and the specific emotional state can be observed (Zajonc, 1980 as cited in Niethenthal & Ric, 2017). However, with other, more complex emotions, such as guilt, shame, or empathy, it becomes difficult to identify a one-to-one correspondence between an environmental stimulus and the elicitation of such emotions (Lewis, 1999). Against this background, Plutchik and Kellerman (1990) identified another emotion category in addition to basic emotions, by specifically considering dependence on introspection, or cognition.

A category posited by theorists that involve elaborate cognitive processing of the self is known as self-conscious emotions (Plutchik & Kellerman, 1990). Self-conscious emotions, often referred to as self-evaluative emotions, are characterised by a dependence on cognition (Lewis, 1999). Self-conscious emotions include shame, guilt, embarrassment, and pride. In contrast to basic emotions, shame, guilt, embarrassment, and pride are emotions that are described as being complex as they require cognitive or mental abilities. Self-conscious emotions, in particular, require an individual to engage in elaborate cognitive processing by comparing or evaluating their behaviour versus some behaviour, rule or goal of the self (Lewis, 1999). Essentially, these emotions that are aroused are associated with the notion of self. In fact, it is claimed that the self is the object of self-conscious emotions and a prerequisite for these emotions to be elicited (Lewis, 1999; Tangney, 1999). For example, consumers might feel guilty when their self-evaluation results in feelings that they have failed.

Expanding on the notion of the self, it is evident that self-conscious emotions develop at a later stage than basic emotions. For self-conscious emotions to be aroused, a clear recognition of the self, separate from other individuals, should exist. In addition, one must develop a set of

standards against which the self is evaluated. Evidently, considerable cognitive elaboration is necessary. Children are not born with the cognitive abilities to engage in self-evaluation (Niedenthal & Ric, 2017), and therefore, self-conscious emotions are characterised by being expressed at a later stage in human development. Studies suggest that from approximately the age of two children start to develop a sense of self and can experience self-conscious emotions (Lewis, 1995). For instance, a baby can display distinct actions that express the emotion of joy, such as smiling and laughing, but it is impossible to recognise signs of guilt or pride. This is because children younger than two years old are not yet able to cognitively evaluate themselves.

To conclude, literature suggests that emotions engender corrective behaviours (Carcioppolo *et al.,* 2017; Niedenthal & Ric, 2017; Brennan & Binney, 2010; Kugler & Jones, 1992), and are extensively evoked in both traditional marketing and social marketing contexts to persuade consumers to engage in a specific action (Netemeyer *et al*., 2016; Mistry & Latimer-Cheung, 2014; Boudewyns *et al.,* 2013). When marketers elicit emotions in their persuasion efforts, the communication strategy is referred to as emotional appeals.

4.3 EMOTIONAL APPEALS IN SOCIAL MARKETING COMMUNICATION

Emotional appeals denote persuasion methods that attempt to elicit specific emotions among its target audience (Bhasin, 2018). Emotional appeals activate consumers' feelings or needs to the extent that they are persuaded to purchase a product or service, or behave in a specific behaviour (Arens, 2006). Researchers have demonstrated just how important it is to attract consumers' attention when persuading them to engage in a desired behaviour (Passyn & Sujan, 2006). It is argued that the most effective way to attract consumers' attention is through appealing to their emotions (Peters *et al*., 2014; Cameron, 2009). Because of the significance of eliciting emotions in persuasion efforts (Nabi, 2015), social marketers incorporate emotional components in their communication to promote healthier behaviour or discourage harmful habits. The general premise is that a message which arouses a specific emotion, will most likely lead to increased attention and behaviour change as recommended in the message (Opel *et al.*, 2009). For instance, smoking cessation campaigns typically evoke fear among consumers to encourage behaviour change (Belch & Belch, 2003), rendering successful results (Thompson, Barnett & Pearce, 2009).

Emotional appeals have been distinguished in the literature by their valence (Taute, McQuitty & Sautter, 2011). That is, emotional appeals can be described as negatively or positively valenced. In addition to the clear difference between the two appeals, i.e. the valence of the feelings elicited, the existing literature suggests that consumers' cognitive processing of such appeals also differ. Early research has shown that consumers engage in cognitive processes, as indicated by the elaboration likelihood model, and that consumers consider factors such as expertise and self-confidence when they are exposed to negative appeals (Petty & Cacioppo, 1986). Positive appeals, on the other hand, are more associated with classical conditioning (Taute *et al.*, 2011).

Although evidence exists that supports both negative and positive emotional appeals to strengthen desired responses in advertising efforts (Mays *et al.*, 2014), it is apparent that social marketers rely on negative appeals to encourage behaviour change (Duhachek *et al*., 2012). The following section will discuss the possible reasons for social marketers having disregarded the use of positive appeals.

4.4 POSITIVE EMOTIONAL APPEALS IN SOCIAL MARKETING

Positive emotional appeals involve messages that are designed to stimulate positive emotions among message recipients (Moore & Harris, 1996). Humour appeals, for instance, can generate a variety of emotions including joy and happiness (Bleakley *et al*., 2015). It is suggested that positive emotional appeals purposefully use positive affects to associate positive feelings with the issue outlined in the message (Turner, 2011).

Advertisers use positive emotional appeals to ensure brand awareness and purchase motivation (Panda, Panda & Mishra, 2013). There appears to be an emphasis on humour – an appeal evoking joy – in traditional advertising literature, where the objective is increased attention, awareness, and attitude towards a specific brand (Eisend, 2009). Indeed, the majority of studies that have shown the effectiveness of using humour is based on traditional marketing communication efforts (Lewis, Watson, White & Tay, 2007; Conway & Dubé, 2002). In such contexts, the emotion joy has proved to increase consumers' attention to the advertisement. However, the desired results humour produces might stop at increased attention. For instance, Nabi (2015) demonstrated a humour appeal to increase advertisement and brand liking had no effects on behavioural action. Notably, behavioural action is an important objective of

behaviour change interventions. Therefore, in social marketing contexts, which focus on persuading consumers to engage in healthy behaviours, the use of positive appeals is scarce.

In fact, much academic research has argued against the use of positive emotional appeals in persuasive message contexts (Strick, Holland, van Baaren, Knippenberg & Djiksterhuis, 2013; Conway & Dubé, 2002). Primarily, the debate against positive appeals relates to the cognitive processing of such emotional appeals. Griskevicius, Shiota and Neufeld (2010) contend that positive emotions facilitate heuristic-based processing, by which consumers rely on making decisions based on heuristics, such as source expertise. Essentially, consumers have little motivation to engage in effortful processing, which cause consumers to process messages in a careless manner (Griskevicius *et al*., 2010). This raises the question whether consumers pay attention to what the message communicates. In addition to this concern, growing evidence has indicated that positive emotional appeals tend to distract consumers from the message (Strick *et al*., 2013; Krishnan & Chakravarti, 2003), and that these appeals are thus unlikely to succeed in reaching the intended outcomes (Nabi, 2002).

In summary, overwhelming studies concur that the use of positive emotional appeals, such as humour, initiate limited information-processing among consumers and tend to be distracting. As a result, social marketers have devoted their attention to the use of negatively valenced emotional appeals.

4.5 NEGATIVE EMOTIONAL APPEALS

Negative emotional arousal has been found to significantly influence consumers' health-related decision-making (Han, Duhachek & Agrawal, 2014). Han *et al*. (2014) believe that health decisions are typically made in emotionally loaded contexts. For instance, cancer prevention treatment is often considered in highly fearful situations, or healthy diet decisions are made in response to guilty feelings about unhealthy intake habits (Zemack-Rugar *et al*., 2007). Because of the importance of these negative states in decision-making, much research has been devoted to eliciting negative emotions (Ruiter *et al*., 2014; Goldsmith *et al*., 2012; Brennan & Binney, 2010).

In social marketing research, negative emotions are typically evoked through using negative emotional appeals. It is suggested that negative emotions cause an emotional discomfort among consumers, and that this discomfort assists in the process of adopting the recommended behaviour as a solution (Brennan & Binney, 2010). Stated simpler, when eliciting a negative

emotion, consumers experience an unpleasant negative state and are increasingly motivated to reduce these feelings. Considering this notion, scholars have continued to demonstrate negative emotional appeals' persuasiveness in different contexts (Carcioppolo *et al*., 2017; Mays *et al*., 2014; Duhachek *et al.*, 2012; Brennan & Binney, 2010). Public health practitioners' noticeable reliance on negative appeals signifies its success in persuading compliance behaviour (Brennan & Binney, 2010). Such appeals are used in promoting healthy behaviours, encouraging precautionary or preventative action and cessation of harmful habits (Mays *et al*., 2014; Duhachek *et al.*, 2012).

When designing persuasive messages, negative emotional appeals provide a useful way to encourage behaviour change. The existing literature proposes three common negative emotional appeals that are mostly employed in social marketing contexts, namely fear, guilt, and shame (Duhachek *et al.*, 2012; Nabi, 2002). Notably, fear appeals have received considerable attention in the literature owing to its persuasiveness (Mongeau, 2013; Nabi, 2002). Researchers who investigate persuasion methods have also increasingly confirmed their support for the use of guilt appeals (Brennan & Binney, 2010). When experiencing guilt, consumers feel remorseful and have the urge to engage in corrective behaviours (Niedenthal & Ric, 2017). In addition to the increased attention and recall, guilt appeals have been found to effectively induce behaviour change efforts across a range of contexts (Brennan & Binney, 2010; Block, 2005). Shame-based emotions are generally avoided in communication efforts, as scholars have argued that this emotion produces negative effects among target audiences (Pounders *et al*., 2018; Skinner & Brewer, 2002).

The overwhelming majority of persuasion research in social marketing interventions emphasises the use of fear appeals (Carcioppolo *et al*., 2017; Ruiter *et al.*, 2014). Fear appeals have thus received preference in both the literature and in practice as emotions of fear are easily recalled, and more importantly, are associated with behavioural change (Maddux & Rogers, 1983). Therefore, the following sections are dedicated to developing a sound understanding of the important aspects related to the use of fear appeals in social marketing.

4.6 FEAR APPEALS IN SOCIAL MARKETING

Fear appeals are based on evoking fear among consumers in an effort to persuade them to some sort of behavioural action. Since decades of research has affirmed the persuasive power of fear appeals (Nabi, 2015; Ruiter *et al.*, 2014; Witte & Allen, 2000) and its potential influence on

positive behavioural change (Tay & Watson, 2002; Witte & Allen, 2000), social marketers are especially interested in implementing fear appeals in their public health communication to encourage healthier behaviours.

4.6.1 Fear appeals in public health communication

The emotion fear is said to engender precautionary behaviour and/or self-protection action (Witte & Allen, 2000; Rogers & Deckner, 1975). It is against this background that social marketers in the public health arena have long relied on evoking fear in their persuasive communication (Brennan & Binney, 2010; Ruiter, Verplanken, De Cremer & Kok, 2004). Common public health campaigns incorporating fear appeals include HIV/Aids prevention, promoting road safety practices, encouraging smoking cessation, creating an awareness of climate change, and discouraging driving under the influence of alcohol (Popova, 2016; Cho & Salmon, 2006; Tay & Watson, 2002). A South African campaign advocating the risks of drinking and driving showed images of prisoners with the message '*They'd love to meet you'*, evoking fear among viewers (MacLeod, 2011). The United States communicated a message '*This is your brain on drugs'* to warn consumers against substance abuse and, in Australia, the *Grim Reaper* campaign in the early 1980s showed the fatal effects of the HIV/Aids disease by exposing consumers to a series of scary images of the mythological character (Ruiter *et al.*, 2014:63). A successful smoking cessation campaign in Australia used graphic images of damaged lungs due to smoking habits (Thompson *et al*., 2009). Figure 4.2 shows an example of a campaign message aimed at arousing fear among smokers. These campaigns are based on the assumption that by demonstrating the negative consequences of engaging in a specific unhealthy behaviour, consumers will be motivated to modify their current harmful behaviour and adopt safer alternative ones (Thompson *et al.*, 2009).

Academic studies indicate that fear appeals can be effective in promoting healthier behaviours (Carcioppolo *et al.*, 2017; Bleakley *et al*., 2015; Cho & Salmon, 2006; Nabi, 2002; Witte & Allen, 2000). For example, Stephenson and Witte (1998) found support for using fear appeals in motivating sun-protective behaviours among students. Cho and Salmon (2006) confirmed these results, signifying the importance of communicating a threat to consumers' well-being for sun-protective behaviours to occur. The findings have been in favour of arousing fear to reduce consumers' intention to drive under the influence of alcohol and to rather engage in safer road practices (De Hoog, Stroebe & De Wit, 2007; Lewis, Watson & Tay, 2008).

Figure 4.2: Example of a fear appeal in smoking cessation

Source: Blog (2014)

Witte, Berkowitz, Cameron and McKeon (1998), as well as Carcioppolo *et al*. (2017), point out that consumers are more inclined to practise safe sexual behaviours under high fear-arousal circumstances. In promoting reduced alcohol consumption, results have demonstrated that consumers intend to engage in more responsible drinking behaviour after being exposed to a message threatening their health (Moscato, Black, Blue, Mattson, Galer-Unti & Coster, 2001). Research has shown that fear appeals are successful in persuading reduced purchase and consumption of sugary beverages (Bleakley *et al*., 2015; Jordan *et al*., 2015). Bleakley *et al*. (2015) reported that consumers are significantly motivated to cut back on their sugar consumption when exposed to an advertisement containing a fearful message. The authors further demonstrated that fear appeal effectiveness is mediated by consumers' perception of the argument's strength, revealing the importance of communicating a strong threat to consumers well-being. According to Ruiter *et al*. (2014), the success of fear appeals in health communication is best illustrated through the widespread use of warning labels.

4.6.2 Fear-based warning labels

Warning labels are essentially based on fear appeal communication (Das *et al.*, 2003). Because of its cost-effectiveness and its ability to reach large audiences, warning labels are considered a popular communication method to discourage certain unhealthy behaviours (Rosenblatt *et al.*, 2018). Warning labels are evident across a range of harmful products to discourage consumption, including certain cosmetics, alcoholic beverages, and cigarettes (Mostafa, 2015;

Williams, 2012). The popularity of warning labels stems from its ability to effectively inform consumers about the dangers related to the use or consumption of certain products, and subsequently to encourage safer behaviours (Mostafa, 2015). In fact, there is general consensus that warning labels have two purposes: firstly, to inform and educate consumers about the risks associated with certain product consumption and, secondly, to facilitate behaviour change (Rosenblatt *et al*., 2018; Mostafa, 2015). Donnelly *et al*. (2018) suggest that by providing consumers with suitable health information related to specific products, consumers will be more likely to make healthier decisions.

The success of warning labels is specifically evident on cigarette packaging. Countries across the world have implemented warning labels on tobacco products in an effort to inform consumers about the dire health risks related to smoking, and subsequently encourage quitting (Ruiter *et al.,* 2014). For instance, warning labels often warn smokers of the potential harm to their health by showing images of diseased lungs or rotten teeth. Considering communication research and psychology (O'Keefe, 2002), it is assumed that by communicating a threat, warning labels elicit fear among consumers that induces the motivation to engage in corrective behaviours. As a result of fear evocation through warning labels, consumers' corrective or precautionary behaviours are expected. In the context of sugar consumption, a warning label could contain a message communicating the effects of excessive sugar intake on weight gain or tooth decay, encouraging consumers to refrain from purchasing or consuming the product.

The literature also reports that warning labels can evoke fear by implementing either a textual message or a pictorial image, or using a combination of both (Purmehdi, Legoux, Carrillat, & Senecal, 2017; Mostafa, 2015). However, consensus has not yet been reached regarding which method is more effective. Indeed, scholars have provided contradicting findings over a number of years (Thrasher, Osman, Abad- Vivero, Hammond, Bansal-Travers, Cummings, Hardin & Moodie, 2015; Sabbane, Lowrey & Chebat, 2009). While some studies have shown text-based messages have the tendency to be forgotten over time (Thrasher *et al.*, 2015), others have demonstrated that textual messages enhance consumers' perceptions of risk and increases their knowledge about the health issue at hand (Fathelrahman, Omar & Awang, Borland, Fong, Hammond & Zain, 2009). Pictorial images are often recommended to enhance consumers' recall as researchers insist that images are easier to remember as opposed to a textual message (Mostafa, 2015). Much research is devoted to exploring the use of specifically graphic images on warning labels (Noar, Francis, Bridge, Sontag, Brewer & Ribisl, 2017; Purmehdi *et al*., 2017). Graphic images are often described as images that can include gruesome elements, and

because of the gruesomeness, this approach has been associated with greater attention and better recall (Purmehdi *et al*., 2017).

Despite support for graphic images exists, overwhelming evidence has demonstrated how such images on warning labels have unintended effects on consumers (Purmehdi *et al*., 2017). For instance, graphic images tend to interfere with consumers' message processing to such an extent that consumers are unable to comprehend the message (Kees, Burton, Andrews & Kozup, 2011). A meta-analysis conducted by Purmehdi *et al*. (2017) revealed that while graphic-based warning labels achieved high levels of affective arousal and attention, these images also led to weak effects on behavioural intentions. Sabbane *et al*. (2009) found increased negative effects when consumers were exposed to gruesome images of smoking-related diseases and that they also had lower intentions regarding quitting attempts. According to Halkjelsvik and Rise (2015), using graphic images in health warning communication contexts essentially induce other emotions, including anger and disgust. These emotions tend to induce unintended responses and inhibit desired behaviours. With reference to anger, Erceg-Hurn and Steed (2011) established that graphic images of tobacco-related diseases caused consumers to feel heightened anger as opposed to textual messages.

More importantly, however, is the emphasis on eliciting disgust during threat communication, since fear-arousing communication relying on graphic depictions often involves repulsive images (Netemeyer *et al*., 2016; Halkjelsvik & Rise, 2015; Gutierrez & Giner-Sorolla, 2007). For instance, an early study of Janis and Feshbach (1953) used gruesome images of decayed teeth to evoke disgust among consumers, with the main purpose of encouraging healthier dental care. However, some researchers subsequently found that gruesome, graphic images which engender disgust ultimately lead to defensive reactions (Netemeyer *et al*., 2016). As consumers underestimate their susceptibility of the negative consequences depicted, they often perceive themselves as immune to such gruesome illnesses (Netemeyer *et al*., 2016). As a graphic image stimulates perceptions of freedom being threatened, consumers tend to demonstrate unintended effects such as denial or message rejection. Given these unintended effects, researchers have advised practitioners to avoid the evocation of disgust through the use of graphic warning label images.

In light of the evidence aiding against the use of gruesome images in warning label contexts, the current study explored fear evocation. More specifically, a text-only message that elicit the emotion was investigated. Despite research undermining the use of text-based messages,

studies have proven its effectiveness regarding increased awareness and risk perceptions (Shankleman, Sykes, Mandeville, Di Costa & Yarrow, 2015; Hammond, 2011). In addition to this report, text-based warning labels are typically the first step in the process of implementing health warnings (Shanahan & Elliot, 2009 as cited in Hammond, 2011), and are reported to be more appropriate and feasible in the initial stages than graphic pictorial images (Rosenblatt *et al*., 2018). Regarding the suggested warning label implementation on sugary products, Popova (2016) asserts that graphic visuals perhaps take more time for consumers to adjust to, as they are not necessarily familiar yet with the health warnings related to sugar consumption. Indeed, as in the context of tobacco warning labels, text-based messages were initially implemented, and as consumers became familiar with the health warnings, more graphic images have been included to enhance compliance behaviour (Popova, 2016). It is against this background that the current study investigated text-only warning labels to caution South Africans against the health consequences related to excessive sugar consumption.

While evidence in the literature supports the use of warning labels in smoking cessation (Hammond, 2011) and reduced alcohol consumption (Wigg & Stafford, 2016), very little is known about warning labels in sugar-related contexts. Some experimental studies have demonstrated the effectiveness of warning labels on especially sugar-sweetened beverages (Rosenblatt *et al.*, 2018), but there is a general call for a better understanding of how warning labels should be designed to maximise their effectiveness in sugar consumption contexts (Grummon *et al.*, 2019). When considering the success of graphic images on tobacco products, it could be inferred that such images will potentially cause consumers to refrain from consuming too much sugar. However, Stewart and Martin (1994) have warned against this assumption, stating that warning labels cannot necessarily be generalised from one product to another. Indeed, as noted previously, the use of gruesome, disgust-induced images may evoke unintended effects among consumers. Against the background in favour of text-based fear appeals to change unhealthy behaviours, the current study aimed to design warning labels to appeal to consumers' emotion of fear, by specifically communicating the health-related risk in a textual message.

When considering the design of effective warning labels for sugary products, the literature suggests evoking fear among consumers. To understand the fear evocation process among consumers, this study investigated the theoretical components related to fear appeal perceptions.

4.6.3 Fear evocation and theoretical components

As previously defined, fear appeals are centred on the emotion of fear (Williams, 2012). Fear is a negative, unpleasant emotion that is evoked in response to a situation, and is characterised by anticipation of pain or great distress (Williams, 2012). For fear to be aroused, consumers should perceive a threat to their well-being (Leshner, Vultee, Bolls & Moore, 2010). A threat is described as a potential harm to a consumer as a result of some deviant behavioural action undertaken (Witte, 1992). For instance, many smoking cessation messages communicate the dangers of tobacco products to consumers' health, in an effort to encourage behaviour change. Similarly, should consumers feel threatened in other message contexts and subsequently experience fear, it is expected that they will be motivated to either engage in a recommended behaviour (e.g. wearing a seatbelt) or refrain from engaging in a harmful behaviour (e.g. excessive sugar consumption).

Scholars have specifically emphasised the motivating aspect of fear (Weigand, 2017). Consumers' need to avoid pain is believed to be a significant motivating force (Pfau, 2007). Therefore, when fear is experienced, consumers are highly motivated to reduce the negative feelings evoked (Williams, 2012; Nabi, 2002). Early research indicated that fear appeals are among the most frequently used motivators to 'get people to help themselves' (Bagozzi & Moore, 1994:56). It is further argued that motivation is a critical first step towards any action or change in behaviour and that, in general, consumers will not engage in a specific behaviour if they are not motivated to do so (DiClemente, Bellino & Neavens, 1999). When fear is evoked, a motivating state is induced in consumers that will ultimately lead to behavioural action (Hoog *et al*., 2007; Maddux & Rogers, 1983).

In addition to the importance of and motivation for the use of fear appeal research, two other components that are emphasised in the literature should be highlighted: perceived threat and perceived efficacy. A threat refers to an external stimulus (i.e. an individual, object, or a situation) that creates the perception among receivers that they are vulnerable (Maddux & Rogers, 1983). A perceived threat, which involves the thought of being threatened by a specific stimulus (Merriam-Webster, 2020), consists of two components: perceived susceptibility and perceived severity (Sheer & Chen, 2008). For a communicated threat to be effective, consumers should feel that the threat is severe, and that they are susceptible to experiencing the negative consequences. Perceived efficacy encompasses two components: perceived self-efficacy and perceived response efficacy. Perceived self-efficacy is described as the consumer's belief that

they have the ability to implement the message's recommended behaviour, and perceived response-efficacy refers to whether the recommended behaviour will effectively reduce the threat that is communicated (Maddux & Rogers, 1983). Both perceived threat and perceived efficacy has formed an important theoretical foundation upon which fear appeal research has evolved (Sheer & Chen, 2008).

The aforementioned fear appeal perceptions, namely perceived severity, susceptibility, response-efficacy and self-efficacy are well acknowledged in the fear appeal literature (Mongeau, 2013). More specifically, these variables have been argued to be a necessity for the successful use of fear appeal communication (Sheer & Chen, 2008). It is against this background that the variables formed part of this study's objectives. Resultantly, the subsequent section aims to provide a detailed elaboration on the cognitive outcomes of fear appeals, that is, perceived severity, perceived susceptibility, perceived response-efficacy, and perceived self-efficacy.

4.6.3.1 Perceived severity

Perceived severity refers to consumers' perceived magnitude of the negative consequences that will occur if the threat is experienced (Rintamaki & Yang, 2014). Consensus exists that if consumers encounter a severe threat, motivation to engage in behaviours to reduce or to avoid the negative consequences are significantly enhanced (Maddux & Rogers, 1983). If a consumer does not perceive the threat to their well-being as being severe, the motivation to engage in precautionary behaviours or to adopt healthier ones will be lacking. Assuming in a sugar consumption context a severe threat to consumers' well-being includes weight gain and developing tooth decay, the current study intended to communicate these negative consequences to consumers' health. However, Ruiter *et al.* (2014) have demonstrated that perceived severity is the least persuasive perception of a fear appeal message. Referring to the communication of the potential risks and diseases related to the behaviour, the authors claim that by eliciting intense feelings of fear, undesirable effects such as decreased attention and message denial will be induced. Against this background, perceived susceptibility should be highlighted.

4.6.3.2 Perceived susceptibility

Rintamaki and Yang (2014) conceptualise perceived susceptibility as consumers' evaluation of the likelihood of their experiencing a threat that is communicated to them. That is, consumers

feel susceptible to a communicated threat if they perceive the likelihood of occurrence is significant. Should consumers feel vulnerable to experiencing such negative consequences, an enhanced positive attitude towards the recommended behaviour, as well as increased motivation to engage in corrective behaviours can be expected (Das *et al.,* 2003). Essentially, if a consumer does not perceive themselves as susceptible to gaining weight because of sugar consumption, it is unlikely that the consumer will change their behaviour (Rintamaki & Yang, 2014). De Hoog *et al*. (2007) further describe the significance of susceptibility by pointing out that consumers would refrain from protective behaviours if susceptibility levels were low, regardless of their perceived severity. However, perceived severity remains important in fear appeal research as this component, along with perceived susceptibility, forms part of consumers' threat appraisal. Following threat appraisal is efficacy appraisal, of which perceived response-efficacy is key to successful fear appeals.

4.6.3.3 Perceived response-efficacy

Perceived response-efficacy refers to a consumer's perception of the effectiveness of the recommended protective behaviour to reduce or eliminate a communicated threat (Arthur & Quester, 2004; Witte, 1992). In other words, consumers will evaluate whether reduced sugar consumption will effectively diminish the possibility of gaining weight. Typically, health-promoting campaigns contain not only a communicated threat, but also how consumers should act to avoid or reduce the threat (Arthur & Quester, 2004). In fact, various researchers have argued that response-efficacy is a central element of fear appeals (Plotnikoff, Trinh, Courneya, Karunamuni & Sigal, 2009; Lewis *et al.,* 2008), highlighting the importance of consumers having to believe the recommended behaviour is appropriate and able to reduce the possible negative consequences. This notion also implies that the higher the response-efficacy perceptions are among consumers, the higher is the likelihood of message acceptance (Lewis *et al.,* 2008). Conversely, if consumers do not perceive the recommended behaviour to be effective in reducing the threat, message rejection is predicted to occur (Lewis *et al.,* 2008). As a result, perceived response-efficacy is a key variable to measure fear appeal effectiveness, and by extension, a powerful predictor in consumers' behaviour change (Plotnikoff *et al.,* 2009). Another essential variable that serves as a motivator for corrective behaviours is that of perceived self-efficacy (Arthur & Quester, 2004).

4.6.3.4 Perceived self-efficacy

A consumer's perceived ability to behave in a required way is described as self-efficacy (Witte, 1992). Perceived self-efficacy essentially refers to whether consumers feel mentally and physically capable of engaging in the recommended behaviour (Witte, 1994). For instance, the component involves a consumer's confidence in their ability to avert the threat of gaining weight or developing tooth decay by adopting healthier sugar consumption behaviours. In the event of a low level of perceived self-efficacy, that is, if a consumer does not believe in their ability to participate in corrective actions, no change in behaviour will occur (Arthur & Quester, 2004). Furthermore, Schwarzer and Fuchs (1996) maintain that perceived self-efficacy not only determines whether behaviour change will occur, but it also requires that consumers put an effort into their behaviour and persist to continue with these efforts, even though setbacks are experienced. Again, under the conditions of low levels of perceived self-efficacy, defensive reactions are more likely to occur. In sum, because scholars claim that self-efficacy is the deciding factor that either impedes or motivates behavioural action, it is critical that this component is included in fear appeal communication (Arthur & Quester, 2004; Schwarzer & Fuchs, 1996).

Lately, perceived severity, perceived susceptibility, perceived response-efficacy, and perceived self-efficacy have become central to a number of theoretical models developed to understand fear appeals (Williams, 2012). The aforementioned components have evolved from years of research and theory development (Maddux & Rogers, 1983; Rogers, 1975). Known theoretical models addressing fear appeals have been developed as early as the 1950s (Hovland, Janis & Kelley, 1953, as cited in Keller and Block, 1996). Collectively known as the drive models (Beck & Frankel, 1981), these models originally focused on the motivating factors for behavioural action. As the emotion fear continued to receive support as a viable means of persuasion (De Hoog *et al*., 2007), scholars have continued their research on the emotion and improved the earlier models. To this day, one of the most cited models is known to be the protection motivation theory (Weston & Amlôt, 2020; Rogers & Maddux, 1983), which was developed in the 1980s. This theory was the first to incorporate perceived severity, perceived susceptibility, perceived response-efficacy, and perceived self-efficacy (Sheer & Chen, 2008). A more recent model, the extended parallel process model (Witte, 1992), also containing the four components, has received considerable attention in the literature to understanding the

effectiveness of fear appeals. Owing to their widespread use to assess fear appeal effectiveness (Dillard & Shen, 2013), the two models will be discussed in the subsequent sections.

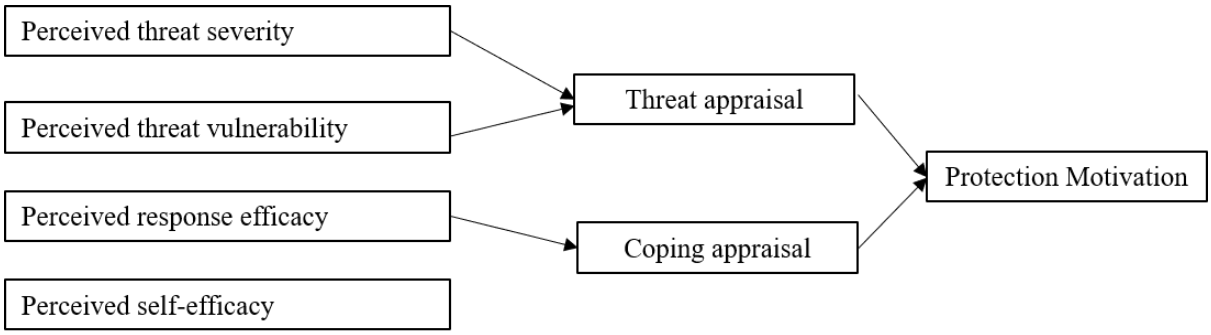
4.6.4. The protection motivation theory

The protection motivation theory (PMT) was developed by Rogers (1975) in an effort to improve the explanation behind how consumers respond to fear appeals, and more importantly, how their responses influence behavioural action (Norman, Boer & Seydel, 2000). The model specifically emphasises the motivating aspect of fear arousal, positing that as consumers experience fear, they are increasingly motivated to reduce their negative feelings (Rogers, 1975). As a result of this heightened motivation, the model suggests that consumers usually engage in behavioural action as recommended in the message. More specifically, the PMT refers to consumers implementing protective behaviours (Floyd, Prentice-Dunn & Rogers, 2000), or experiencing protection motivation (Rogers, 1975). Rogers (1975) defines the term as an intervening variable that 'arouses, sustains and directs activity' (Rogers, 1975:94). Protection motivation influences behaviour change directly (Mongeau, 2013). Consumers' protection motivation is a function of perceptions of both threat and efficacy (Mongeau, 2013; Rogers, 1975).

While the key theoretical constructs have previously been discussed in the literature (Hovland *et al.*, 1953 as cited in Keller and Block, 1996), the PMT provides essential systematic descriptions of each component (Mongeau, 2013). More specifically, the model suggests recipients to evaluate the fear-based message according to each component, and when low levels of perceived threat or efficacy are experienced, behaviour change is not expected (Rogers & Deckner, 1975). Thus, the PMT model emphasises consumers' cognitive rather than intuitive processing, based on the emotion fear (Rogers & Decker, 1975). This cognitive process includes an assessment of the two theoretical components of fear appeals, namely threat appraisal and coping appraisal (Maddux & Rogers, 1983). Threat appraisal denotes the perceived magnitude (severity) of a threat and the probability of occurrence (susceptibility), whereas coping appraisal involves the efficacy of the recommended response to reduce the threat (Leshner *et al.*, 2010) Fundamentally, threat appraisal involves the evaluation of the threat while efficacy appraisal concerns considering the appropriate coping mechanism to reduce the specific threat (Floyd *et al.*, 2000). While they originally excluded self-efficacy, Maddux and Rogers (1983) later revised the model by including the construct after it became clear that consumers' ability to respond was crucial for behaviour change. The two appraisals

and the four components discussed earlier are illustrated in Figure 4.3. As shown in the figure, protection motivation is initiated under high levels of perceived threat and efficacy circumstances.

Figure 4.3: The protection motivation theory



Source: Adapted from Rogers (1975)

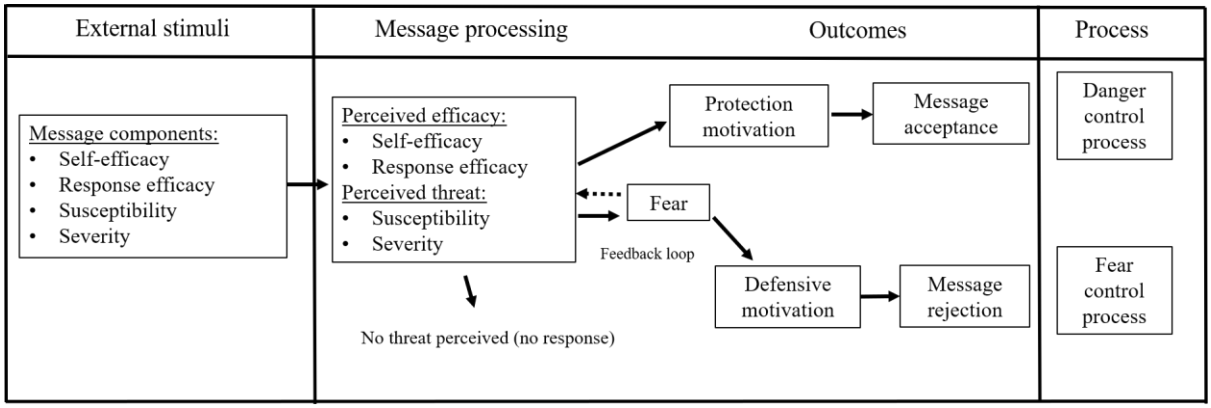
It should be noted that the PMT was the first theory that referred to all four important fear appeal variables to understand fear appeals (Sheer & Chen, 2008). However, in the light of the aforementioned emphasis on cognitive processing, scholars have criticised the theory, arguing that too little attention is given to the emotional state that a consumer experiences in response to fear appeals (Witte, 1992; Tanner, Hunt & Eppright, 1991). In fact, the theory only incorporates cognitive determinants, and the emotion of fear is ignored (Lewis *et al.*, 2007; Tanner *et al.*, 1991). The affective processing of fear appeals should also be taken into consideration in fear appeal research (Tanner *et al.*, 1991). To this end, Witte (1992) developed the widely recognised extended parallel process model.

4.6.5 The extended parallel process model

The extended parallel process model (EPPM) provides another historically important fear appeal explanation (Witte, 1992). The EPPM, graphically depicted in Figure 4.4, also explains how consumers process and respond to fear appeals (Rintamaki & Yang, 2014). Differing from the PMT, however, the EPPM considers both cognitive and affective processing in fear appeal research. While the PMT posits that consumers engage in protection motivation (i.e. a danger control process) based on their evaluations of perceived efficacy and perceived threat, the EPPM claims that consumers can also engage in a fear control process. In fear control, internal affective responses (e.g. physiological arousal) are interpreted as an indication of fear (Mongeau, 2013). After further cognitive evaluation suggests that nothing can be done to avoid

the threat, it is proposed that consumers consider internal routes to reduce the negative feelings of fear (Witte & Allen, 2000). Following this route, consumers implement maladaptive coping strategies, such as denial or avoidance, in an effort to manage the negative feelings evoked by the fear appeal (Rintamaki & Yang, 2014). The EPPM also suggests that fear appeals can elicit no response. That is, under low levels of susceptibility or severity perceptions, consumers do not perceive a threat to their well-being. Subsequently, the fear appeal is considered unsuccessful as further processing is not engendered (Basil *et al.*, 2008). Communicating a strong threat is thus essential to an effective fear appeal message (Witte & Allen, 2000).

Figure 4.4: The extended parallel process model



Source: Adapted from Witte (1992)

Based on certain consumer perceptions, the EPPM makes provision for specific outcomes of a fear appeal. When the perceptions of a threat are considered high, consumers are expected to experience fear, and will subsequently be motivated to search for ways to avoid or reduce the negative feelings (Mongeau, 2013). At this stage, consumers will further engage in efficacy appraisal (Witte & Allen, 2000). That is, consumers will evaluate the efficacy of the recommended behaviour to reduce the threat (response-efficacy) and their individual ability to facilitate the behaviour (self-efficacy). When the efficacy level is high, in other words, when consumers perceive the threat to be controllable, protection motivation behaviours will be employed to address the threat, and the danger control process will be initiated (Rintamaki & Yang, 2014). Essentially, fear appeals should strive to communicate a severe threat to which consumers would feel susceptible to, accompanied by an appropriate recommended behaviour that the consumer would feel able to engage in (Witte & Allen, 2000). According to the EPPM, if these circumstances are present, consumers will accept the message and engage in appropriate behaviours. If perceived efficacy is lacking, however, fear control processing will

commence (Rintamaki & Yang, 2014). Under fear control circumstances, the desired behavioural action – as recommended in the message – is unlikely because consumers are more focused on their emotional reactions (Mongeau, 2013). These reactions are in response to the fact that fear increases significantly and, as a result, consumers are predicted to engage in defensive reactions (Mongeau, 2013; Tay & Watson, 2002; Witte & Allen, 2000). Since the current study investigated protection motivation behaviours in response to a fear appeal, it is appropriate to examine consumers' defensive reactions and how communicators can avoid giving rise to this response.

4.6.5.1 Consumers' defensive reactions

A substantial challenge especially presented to public health communicators is consumers' tendency to resist a persuasive message (Sweeney & Moyer, 2015). Some scholars assert that this resistance stems from consumers' inherent objection to being told what to do and how to act (Blanc & Brigaud, 2014). Considering that fear appeals are centred on persuading consumers to change their behaviour (Witte, 1992), it is possible that fear-based messages can elicit defensive reactions. In fact, scholars have reported that when a threat is perceived as intense and the levels of efficacy perceptions are low, defensive responses are still likely to occur (Witte & Allen, 2000). Another important consideration related to defensive reactions is presented through consumers' perceived personal relevance (van 't Riet & Ruiter, 2013; Jemmott, Ditto & Croyle, 1986). Snipes, La Tour and Bliss (1999) state that whether fear enhances or impedes persuasion depends on specific characteristics of the target message recipients, including the perceived relevance of the nature of the threat communicated. Evidently, consumers should appraise a threat as relevant to their own well-being to engage in corrective behaviours. As Lewis *et al*. (2007) explain, if a consumer does not drive under the influence, a threat communicated through a fear appeal message will not be perceived as personally relevant to them, thus neither severity nor susceptibility perceptions will be engendered. As consumers do not consider themselves vulnerable to the threat, message rejection could occur (Rintamaki & Yang, 2014; Williams, 2012).

Despite this argument, however, studies have proved that in some instances where consumers perceive threats to be highly personal relevant to them, defensive reactions are induced (van 't Riet & Ruiter, 2013; Good & Abraham, 2007). An early study reported that individuals with high personal relevance to a communicated threat resulted in perceptions of low seriousness, which could be ascribed to individuals' increased defensiveness (Jemmott *et al*., 1986). Indeed,

defensive reactions are specifically evident for consumers who are most at risk (Ruiter *et al.*, 2014), and under conditions where severe consequences are communicated and no clear recommendations are provided to avoid this threat (Ruiter, Abraham & Kok, 2001; Witte, 1992;1994). The literature suggests that consumers employ several defensive mechanisms towards communicated threats, of which a few will be elaborated on in the subsequent section.

4.6.5.2 Specific defensive mechanisms

Message avoidance is a common occurrence under fear control processing (van 't Riet & Ruiter, 2013). Message avoidance has been explained as the process whereby consumers direct their attention away from the threatening stimulus, and instead focus on other stimuli, or they engage in unrelated behaviours (van 't Riet & Ruiter, 2013). Essentially, consumers refrain from thinking about the threat (Ruiter *et al.*, 2004). Witte (1992) demonstrated that feelings of hopelessness (low efficacy levels) engender increased feelings of fear, which causes consumers to reduce the negative feelings by avoiding the message. However, because consumers are repeatedly exposed to persuasive messages and are unlikely to be able to avoid it, Wiebe and Korbel (2003, as cited in van 't Riet & Ruiter, 2013) argue that avoidance is an irrelevant defensive mechanism that does not need to be considered a threat to behaviour change efforts. These authors believe that message denial is more prominent in impeding message adoption. Message denial, which refers to consumers' tendency to curb the negative emotions aroused from a fear appeal, involves consumers engaging in behaviours that counteract the effects of the persuasive message (Kelly & Block, 1996). It has been reported that consumers dismiss the threat communicated, or actively search for errors in the message (van 't Riet & Ruiter, 2013). In drinking-and-driving contexts, a consumer might neutralise the threat by convincing themselves that they never exceed the alcohol limit when driving. Keller and Block (1996) theorise that especially when a threat is perceived as too severe, consumers tend to deny the existence of the problem or the importance of the problem. Again, this notion emphasises the potential maladaptive consequences to occur when fear arousal is considered too intense.

Another defensive mechanism well-documented in the literature is cognitive reappraisal, which refers to the notion where consumers interpret emotional arousal in a non-emotional manner (Gross, 2002). Stated differently, responses to a threat can involve a cognitive evaluation of the situation to the extent that the threat is minimised. Smokers, for instance, often downplay the relevance of the threat to their health, suggesting that enjoying life and socialising is more important than practising healthy habits (van 't Riet & Ruiter, 2013). Cognitive reappraisal has

been argued to be a significant impeding factor to message adoption and behaviour change attempts (van ‘t Riet & Ruiter, 2013).

Suppression**,** on the other hand, is more subconscious in nature, and involves an emotional response as well as actions inhibiting threatening information (van ‘t Riet & Ruiter, 2013). Suppression behaviours may include consumers hiding their fear or using substances such as alcohol to calm the emotions evoked. The final defensive mechanism is that of psychological reactance.

Psychological reactance occurs in circumstances where consumers perceive that they have a set of free behaviours, of which one of these behaviours is threatened (Fogarty, 1997). In such cases, consumers engage in a motivational state that is aimed to restore the specific threatened behaviour (Fogarty, 1997). Against the background of the current study, a consumer might feel that purchasing and consuming a high-sugar-content product is a freedom they are able to partake in. However, when the behaviour is threatened through a fear appeal message, the consumer might engage in reactance to restore the freedom under threat (Grandpre, Alvaro, Burgoon, Miller & Hall, 2003). Essentially, the behavioural outcome of psychological reactance is unintended as the consumer increases their participation in the undesirable behaviour. Again, scholars have emphasised the role of threat severity in determining the defensive reaction (Shen, 2014; Fogarty, 1997). More specifically, when threats to a specific behaviour are perceived to be severe, the psychological reactance is proven to be even more severe (Shen, 2014).

To conclude, the literature concurs that consumers implement several defensive mechanisms under fear appeal circumstances (Shen, 2014; Williams, 2012; Fogharty, 1997). Because of these defensive reactions, the effectiveness of fear appeal messages has not been universally accepted (Williams, 2012). In fact, a large number of fear appeal studies in various disciplines have yielded mixed results regarding the success of these appeals (Brennan & Binney, 2010; Ruiter *et al.,* 2001; Burnett & Lunsford, 1994), inducing a topic of dispute among scholars (Rayner, Baxter & Ilicic, 2015).

4.6.6 Inconclusive fear appeal findings

As mentioned in the preceding paragraph, the overall effectiveness of fear appeals has been contradicted by scholars for decades. Much of the dispute relates to the level of fear evoked (high, moderate, or low) and the general use of fear appeals versus other appeals, such as

informational appeals and other emotion-oriented appeals. Consensus has also not yet been reached in the literature regarding the recommended level of fear to arouse among consumers. Some authors believe that intense fear (i.e. a high level of fear) should be aroused to shock consumers (Rayner *et al.*, 2015; Borland *et al*., 2009; De Hoog *et al*., 2007; Witte & Allen, 2000), whereas others argue that a lower or moderate level of fear arousal is more efficient to reduce defensive reactions (Kessels, Ruiter & Jansma, 2010). Early studies have found a negative relationship between the level of fear aroused and the desired outcomes (Krisher, Darley & Darley, 1973). This line of research has demonstrated that the higher the fear evoked in a message, the weaker the intention to change their behaviour. Buller, Borland, and Burgoon (1998) established that consumers had lower intentions to engage in sun-protection behaviours when exposed to a strongly worded fear message about the development of skin cancer. It has also been reported that too much fear aroused causes consumers to implement defensive mechanisms as mentioned in the previous section (van 't Riet & Ruiter, 2013).

In contrast, Witte and Allen (2000) found strong support for high levels of fear reporting better attitudes, intentions, and behaviour changes among consumers. Studies in support of strong fear-arousing messages have shown intense fear to induce superior message recall, suggesting the shocking nature of the message to be ingrained in consumers' minds (Rayner *et al*., 2015). In a study on HIV/Aids prevention, Terblanche-Smit and Terblanche (2011) found that the use of high-level fear appeals engendered a greater perceived risk among consumers. These authors furthermore noted that consumers experienced an increased awareness of the dangers related to the illness, and that they were subsequently more motivated to engage in protective behaviours.

Tay and Watson (2002) concur with these results, but only to a certain extent. While also recommending the use of a strong fear-arousing message, Tay and Watson (2002) emphasise the importance of response-efficacy in conjunction with the emotion. More specifically, the authors imply that the effectiveness of a high-level fear appeal depends on the message's ability to promote response-efficacy. In other words, a strong fearful message should be accompanied by an emphasis on the effectiveness of reducing the threat. Others have also highlighted the importance of enhancing self-efficacy among consumers (Peters *et al.*, 2014; Terblanche-Smit & Terblanche, 2011; Witte & Allen, 2000), suggesting that consumers should feel able to reduce the threat as recommended in the message. In sum, while some evidence points to the use of lower- to moderate-level fear appeals, scholars in general support high-intensity fear

arousal accompanied by strong efficacy appraisal (Wong & Cappella, 2009; De Hoog *et al.*, 2007; Witte & Allen, 2000; Witte *et al.*, 1998).

Some researchers support the use of rational appeals in certain contexts (Keshari & Jain, 2016; Zhang, Sun, Liu & Knight, 2014), but there is overwhelming evidence that fear appeal messages induce greater and more frequent advertisement recall than the use of appeals without emotional components and that are more informational or rational in nature (Santa & Cochran, 2008; Hyman & Tansey, 1990). For instance, Santa and Cochran (2008) found consumers to be more motivated to refrain from driving under the influence of alcohol after being exposed to a fearful message than an informational appeal. Yet, other research supports investigating and implementing alternative emotion-based appeals, such as guilt (Brennan & Binney, 2010) or humour (Lewis *et al.*, 2013; Lewis *et al*., 2008), as opposed to evoking fear among consumers in an effort to persuade behavioural action. While the literature report contradicting evidence on fear appeals' effectiveness, the evocation of the emotion is supported in unhealthy food consumption contexts and its value should not be ignored (Bleakley *et al.*, 2015). Resultantly, it is suggested to not illuminate the use of the emotion, but rather to improve or strengthen fear appeal interventions. Some researchers have recently introduced a different strategy to influence behaviour change more effectively, and to minimise the defensive responses: the use of multiple emotional appeals (Myrick & Oliver, 2015; Carrera *et al*., 2010).

4.7 MULTIPLE EMOTIONAL APPEALS IN SOCIAL MARKETING

Recently, several authors have hinted at the potential value of creating content that evokes multiple emotions simultaneously when designing messages (Carcioppolo *et al*., 2017; Brennan & Binney, 2010; O'Keefe, 2000). Given the inconclusive findings of fear appeals, researchers have started to explore other ways in which to enhance the use of fear appeals. Growing evidence has shown the potential of incorporating an additional emotional component in a fear appeal framework (Carcioppolo *et al*., 2017; Brennan & Binney, 2010). The existing literature suggests including a positive emotion with a fear appeal, thus evoking emotions on the opposite of the continuum.

4.7.1 Evoking emotions on the opposite of the continuum

Research provides evidence that positive emotional appeals can be effectively incorporated into a negative appeal framework (Myrick & Oliver, 2015; Carrera *et al*., 2010). The combination of emotions on opposite ends of the continuum can increase motivation and the

ability among consumers to process the message in the advertisement (Mukherjee & Dubé, 2012). Furthermore, the positive emotion engendered is believed to reduce the defensive responses provoked from the negative emotional arousal (Myrick & Oliver, 2015; Carrera *et al*., 2010). In social marketing-related studies, scholars have argued that under intense negative feelings, evoking a positive emotion has the potential to engender desired outcomes (Mukherjee & Dubé, 2012; Carrera *et al.*, 2010; Martin, 2008). Social marketers have specifically focused on using humour appeals, evoking joy, in their communication efforts as studies have shown that humour appeals can reduce intense negative emotional states (Jäger & Eisend, 2013). For instance, Mukherjee and Dubé (2012) reported a fear advertisement with an element of humour to be significantly more effective than one without humour. The positive emotional arousal has been argued to lessen the effects of a negative emotion, thus increasing message adoption. Yoon (2018) found that when communicating about sexually transmitted diseases (STD), consumers experience high levels of shame, whereas evoking the emotion of joy has proven to enhance message compliance. Studies have also recommended the inclusion of humour to reduce the embarrassment that males experience in testicular cancer awareness campaigns (Chapple & Ziebland, 2004) and discussions of safe sex practices (De Visser, 2005).

In a similar vein, Martin (2008) argues that humour is an adaptive coping strategy that is effective in consumers' approach to negative arousal. Carrera *et al.* (2010) suggest adding a humour appeal after evoking fear results in lower levels of discomfort provoked from the fear-based message. In addition, it was found that consumers perceived the recommended action in a more positive light, reducing their defensive responses, which are often evident in fear appeal research (Carrera *et al.*, 2010). Against this background, the authors reported lower intentions of engaging in excessive alcohol intake among consumers after being exposed to an appeal communicating a threat with an element of humour.

However, despite the potential of multiple emotional appeals reported in marketing research, some scholars argue that eliciting emotions on the opposite of the continuum, such as humour and fear, contributes to conflicting physiological states, to the extent that individuals feel uncomfortable and torn (Hong & Lee, 2010; Williams & Aaker, 2002). Indeed, authors have argued that by including a second emotion in an appeal it often acts as a distractor or deterrent of processing the message presented (Carrera *et al*., 2010). In addition to this potential interference, combining fear and humour in a persuasive message tends to be perceived as inappropriate (Lewis *et al*. 2013). It is theorised that the perceived inappropriateness in fearful

contexts can be explained by the fact that a serious health issue is presented from a humorous perspective, thereby perhaps offending those with the disease or suggesting that those at risk do not have to worry (Nabi, 2016). In a breast cancer awareness context, Dobrenova, Grabner-Kräuter, Diehl and Terlutter (2019) assert that humour elements have the potential of downplaying the seriousness of the disease. In such events, a lower compliance to the message can be expected (McGraw, Schiro & Fernbach, 2015).

In the light of the arguments about opposite emotions, Rossiter and Percy (1997) contend that, to enhance persuasiveness of an emotion-based message, the added emotion must be credible and appropriate given the overall emotional orientation of the message. That is, if the message is primarily negatively motivated by using fear, and a humour element is included, the message will not be perceived as credible or appropriate (Lewis *et al.,* 2013). Subsequently, message adoption will be unlikely. Consequently, in the case of fear appeal communication, it is recommended to combine different negative emotions when designing messages. In other words, a fear appeal or threat-based message should be coupled with similar negatively valenced emotions, such as guilt, shame, or anxiety (Rossiter & Percy, 1997; Lewis *et al.,* 2013).

4.7.2 Multiple negatively valenced emotional appeals

Recently, fear appeal researchers have concluded that a significant approach to reduce consumers' defensive responses and enhance message effectiveness is an added negative emotional appeal in a fear appeal framework (Carcioppolo *et al*., 2017; Morales, Wu & Fitzsimons, 2011; Passyn & Sujan, 2006). For instance, connecting fear with disgust in an appeal was found to be successful in motivating protective behaviours (Shimp & Stuart, 2004). Like fear appeals, a disgust appeal is specifically focused on creating intense discomfort among consumers, to such an extent that they feel the necessity to take behavioural action to reduce the feelings evoked (Pechman & Reibling, 2006). Disgust appeals specifically incorporate elements that emphasise the relevant health threat, such as fatty arteries as a result of smoking habits (Halkjelsvik & Rise, 2015). Because feelings of regret is induced by disgust, social marketers are interested in implementing the latter emotion in their health communication efforts to motivate behaviour change (Curtis, 2011).

Scholars aptly suggest that fear and disgust are complementary appeals, as fear appeals are often associated with disgust (Lupton, 2013; Morales *et al.,* 2011; Woody & Teachman, 2000).

The design of fear appeals tends to include graphic images portraying the harmful consequences of risky behaviours, which arouses disgust (Halkjelsvik & Rise, 2015; Hendriks *et al.*, 2014). As an exemplar, smoking cessation campaigns typically include images of damaged lungs or tooth loss in an effort to engender fear and disgust (Halkjelsvik & Rise, 2015). It is believed that consumers' disgust of the images accompanied by the fear of experiencing such consequences, are more likely to lead to behaviour adoption or behaviour modification (Morales *et al*., 2011; Jones & Owen, 2006).

However, feelings of disgust have also shown to engender defensive responses (Humphris & Williams, 2014) decreased attention (Halkjelsvik & Rise, 2015), and have not been associated with sustained behaviour change (Lupton, 2013). The notion of fear and disgust producing negative undesired effects is supported by empirical evidence specifically in smoking contexts (Leshner, Bolls & Wise, 2011; Leshner *et al.*, 2010; Leshner, Bolls, & Thomas, 2009). For instance, Leshner *et al*. (2009) found that increasing fear by including a disgust-related image will produce decreased persuasiveness, as consumers are discouraged to encode the message. Subsequently, marketing practitioners advised against combining fear and disgust in their communication efforts (Lupton, 2013; Leshner *et al*., 2010).

Shame appeals, another emotion evident in the social marketing literature, have been found to motivate consumers to improve themselves (Duhachek *et al*., 2012; Tangney & Dearing, 2002; Tangney, 1999). Because of the association with increased motivation, scholars have implemented the negative emotion in health promotion contexts including tobacco smoking (Amonini, Pettigrew & Clayforth, 2015) and alcohol consumption (Duhachek *et al*., 2012). The general argument is that consumers who feel ashamed will be motivated to reduce the negative feelings by modifying their behaviours. Despite the support of shame appeals in certain contexts, overwhelming research points to the ineffectiveness of this emotion for motivating corrective behaviours (Brennan & Binney, 2010). Other authors furthermore showed that shame is more disturbing for consumers than other negatively valenced emotions (Tangney, Miller, Flicker & Barlow, 1996), perhaps indicating that consumers demonstrate maladaptive responses. Indeed, when consumers experience shame, they tend to develop negative attitudes towards the message as well as their behaviour (Abe, 2004; Bennett, 1998). These unintended outcomes could be ascribed to shame contributing to feelings of hopelessness, where consumers feel unable to make amends (Niedenthal & Ric, 2017; Brennan & Binney, 2010). Furthermore, studies have shown consumers to justify their shameful behaviours by

considering acceptability (Brennan & Binney, 2010). That is, consumers will 'protect' themselves from feeling ashamed by justifying their inappropriate or risky behaviours. For instance, speeding is allowed as long as it is done 'safely', or driving under the influence is admissible because 'everyone does it' (Brennan & Binney, 2010:144). This maladaptive coping process that consumers experience implies that shame is an ineffective emotional appeal when considering behaviour change communication.

In summary, although studies have signified that consumers who feel ashamed may *desire* to change, these feelings often cause maladaptive consequences and do not necessarily lead to behaviour change efforts (Niedenthal & Ric, 2017; Gausel & Brown, 2012). Therefore, shame has been regarded as an ineffective method to persuade consumers towards healthier behaviours and is not considered complementary to a fear appeal (Brennan & Binney, 2010). Given the growing evidence cautioning the use of shame or disgust in fear appeals, scholars have recently proposed that the combination of the negatively valenced emotions of fear and guilt be investigated to determine whether persuasive outcomes could be improved (Schindler-Ruwisch *et al.*, 2018; Carcioppolo *et al.*, 2017; Brennan & Binney, 2010). Since limited research has attended to this suggestion in social marketing contexts, the current study addressed the research gap by specifically considering this hybrid appeal in sugar consumption contexts.

4.7.3 Fear and guilt as complementary appeals

When exposed to fearful situations, consumers' responses depend on the additional emotions they experience (Passyn and Sujan, 2006). More specifically, Passyn and Sujan (2006) argue that although evoking fear is necessary to capture consumers' attention and awareness, consumers' motivation to act depends on their feelings of accountability and responsibility. These authors emphasise that the use of guilt, a self-accountability emotion, is an appropriate added emotion to a fear appeal framework to enhance behavioural intentions. That is, consumers must feel responsible to be motivated to translate their intentions into action. Guilt, an emotion high in self-accountability, has been found to lead to corrective behaviours (Roseman, Wiest & Swartz, 1994). Because guilty feelings motivate consumers to redress their wrongful behaviours (Passyn & Sujan, 2006), scholars have emphasised its potential to induce preventative or corrective behaviours (Mayne, 1999; Roseman *et al.*, 1994). In their fear communication study, Passyn and Sujan (2006) discovered that fear appeals were most effective when combined with a guilt-induced message, which in turn directed consumers to a

solution. More specifically, the authors claim that the high self-accountability emotion of guilt in the fear appeal was needed for consumers to take responsibility and to act.

In this growing body of literature of combining the emotions of fear and guilt, Schindler-Ruwish *et al.* (2018) demonstrated that pregnant smokers required messages containing both fear and guilt for preventative behaviours to occur. The authors found that guilt messages, which describe the harm one causes to oneself or to others, were effective in motivating women to reduce their smoking whilst pregnant. Similarly, Carcioppolo *et al*. (2017) speculated that by combining these two negative motivational emotional appeals, the persuasive outcomes of the message increased. More specifically, the latter authors found that a guilt-fear appeal engendered stronger intentions to adopt HPV vaccination practices than a single fear appeal. Again, the guilt element in the message emphasised the potential harm the behaviour could cause to themselves and others, which subsequently motivated behavioural action.

The recommendation of implementing guilt-fear appeals in persuasive health communications can be based on the findings suggesting that fear and guilt complement each other. However, limited research has addressed this recommended combination in a social marketing domain and, to the knowledge of the researcher, none has been conducted in a sugar consumption context. To investigate whether the combination of fear and guilt appeals may prove effective in deterring consumers from harmful behaviours, the literature focusing on guilt-fear appeals must be reviewed. However, considering the scant research on the combination of fear and guilt appeals, the literature focusing on guilt appeals only will be examined next in an effort to elaborate on the potential combination of these two emotions in appeals.

4.8 GUILT APPEALS IN SOCIAL MARKETING

Guilt evocation is a well-known strategy in commercial marketing, social marketing, and consumer behaviour literature. Early consumer behaviour research has demonstrated that the emotion motivates purchase decisions (Burnett & Lunsford, 1994; Pinto & Priest, 1991). A common example of guilt evocation in traditional marketing is where food communicators use the emotion to ensure consumers their product are ‘guilt-free’, so that the consumer can enjoy consumption without experiencing the negative consequences of the negative emotion (Burnett & Lunsford, 1994). The phrase ‘All the pleasure, none of the guilt’ has been used to persuade consumers to purchase products that contain fewer unhealthy ingredients, such as sugar or fat (Burnett & Lunsford, 1994). More subtle uses of guilt are also evident in communication

efforts. As an exemplar, advertisers often indicate a specific behaviour to be the 'right thing to do', subtly persuading consumers to feel guilty. Essentially, by implementing a guilt-driven message, communicators expect consumers to comply with the message, since the anticipation of guilty feelings induces behavioural action (Burnett & Lunsford, 1994). The following section aims to provide a deeper understanding of guilt as a consumer emotion.

4.8.1 Understanding guilt

Scholars have defined guilt as a negative, self-conscious emotion that is evoked because of negative evaluations of the self or something related to the self (Niedenthal & Ric, 2014). More specifically, early explanations of guilt suggest that the emotion is evoked as a result of consumers' appraisal that they have violated their own moral or ethical standards with their behaviours (Miller, 1985 as cited in Niedenthal & Ric, 2017). Burnett and Lunsford (1994) integrated various definitions to provide a comprehensive explanation of the emotion. The authors also argue that guilt is aroused when consumers perceive that a violation of personal or ethical standards occurs. Because the negative appraisal is related to the self, consumers' self-esteem lessens. As guilt helps consumers in keeping their behaviour in line with their standards, the emotion often prevents consumers from engaging in a specific behaviour (Burnett & Lunsford, 1994). Furthermore, guilt has been considered an adaptive emotion, suggesting guilt-laden consumers to engage in action or problem-solving behaviours to rectify or fix the situation (Pounders *et al.*, 2018). Given this notion, guilt provides an understanding of consumers' compliance behaviour (Burnett & Lunsford, 1994), corrective action (Tangney *et al.*, 1996) and the shaping of future behaviours (Niedenthal & Ric, 2014).

As the significance of guilt became increasingly evident in explaining consumers' behaviour, much research has been devoted to the emotion (Duhachek *et al*., 2012; Brennan & Binney, 2010; Burnett & Lunsford, 1994). The literature suggests numerous important facets in understanding guilt. Among these facets, the presence of responsibility and remorse among guilt-laden consumers has been emphasised (Tangney & Dearing, 2002). Most psychologists argue that remorse is central to the experience of guilt (Tangney, Stuewig & Hafez, 2011; Lewis, 1971 as cited in Niedenthal & Ric, 2014). Indeed, as consumers feel guilty, they are inclined to ruminate over their unacceptable behaviour, regretting that they have not behaved differently (Pounders *et al*., 2018). Because of this appraisal, consumers feel responsible to set things right, and are motivated to 'make amends' (Niedenthal & Ric, 2014). These amends often take the form of apologies, confessing mistakes, learning lessons, or modifying

behaviours (Niedenthal & Ric, 2014). Against the background of guilt potentially engendering favourable behaviours, social marketers are especially interested in the use of this emotion (Coulter & Pinto, 1995).

4.8.2 Types of guilt

The persuasion literature provides three types of guilt that marketers can appeal to: reactive, existential and anticipatory guilt (Huhmann & Brotherton, 1997). The three types of guilt can be distinguished according to the antecedents of the guilt experienced. Reactive guilt is evoked when consumers perceive a violation of their own acceptable standards (Huhman & Brotherton, 1997). Consumers experience anticipatory guilt when they believe a personal standard will potentially be violated if a specific behaviour is undertaken (Hibbert *et al*., 2007). Existential guilt involves the perception of being more fortunate compared to others, leading to heightened empathy (Lwin & Phau, 2014; Hibbert *et al*., 2007). The nature of existential guilt makes it specifically applicable in charitable non-profit organisation communication or donation studies (Lwin & Phau, 2014; Lwin & Phau, 2008). Reactive guilt is evoked following the action (or inaction), while anticipatory guilt precedes the action (or inaction) (Hibbert *et al.*, 2007). Since anticipatory guilt exists prior to a decision made (Renner, Lindenmeier, Tscheulin & Drevs, 2013), scholars have suggested that most persuasive messages are based on anticipatory guilt (Carcioppolo *et al*., 2017; Brennan & Binney, 2010). Given the nature of this study, anticipatory guilt is applicable as the aim of warning label messages is to evoke guilt before consumers purchase and consume high-sugar-content products.

In addition to considering the types of guilt suggested in the literature, research has indicated the importance of differentiating between what the guilty feelings are directed at. Some have argued guilt to be a strong others-focused emotion (Xu & Guo, 2018; Han *et al*., 2014), which means that the emotions involve consumers' thoughts regarding how others are affected; i.e. how they feel, or what they think (Xu & Guo, 2018). The support for using others-focused guilt appeals stems from the emotion's persuasiveness, especially when consumers are aware of the negative impact that their action or inaction can have on others in their immediate environment (O'Keefe & Figgé, 1999). To illustrate, many smoking cessation messages induce guilt by emphasising the harmful effects that second-hand smoke inhalation can have on the smokers' loved ones (Nabi, 2015).

A different line of research suggests that guilt is a strong self-conscious and self-focused emotion (Niedenthal & Ric, 2014; Cohen, Wolf, Panter & Insko, 2011) because it essentially involves evaluations of the self. Social marketers have implemented self-focused guilt to encourage consumers to engage in healthier eating habits (Burnett & Lunsford, 1994), adopt exercise routines (Mistry & Latimer-Cheung, 2014) and reduce excessive alcohol consumption (Duhachek *et al.*, 2012). The effectiveness of self-focused guilt can be explained by consumers experiencing remorse about their unhealthy behaviours, and subsequently are motivated to engage in corrective behaviours (Netemeyer *et al.*, 2016). Often, these actions entail changing or modifying current behaviours. In the light of the notion that guilt engenders corrective behaviours based on evaluations of the self, the current study adopted a strong self-focused view of guilt. Indeed, consumers considering purchasing and consuming high-sugar-content products are likely to experience guilt directed at their own behaviour and the impact on themselves, rather than the impact on others.

To conclude, in the domain of this study, guilt was considered anticipatory because it is engendered and experienced prior to deciding to purchase a sugary product. In addition, guilt is viewed as self-focused based on evaluations of consumers' own behaviour and its effect on their health. To this end, this study investigated whether a high-sugar-content warning label that elicits both guilt and fear will be effective in encouraging decreased sugar intake. This specific multiple emotional appeal has received limited attention in the literature, despite studies suggesting its potential complementary effects on behaviour change intentions (Carcioppolo *et al*., 2017; Brennan & Binney, 2010). In order to determine the value of a guilt-fear warning label, it is necessary to identify relevant constructs to measure its effectiveness.

Numerous theoretical models have been developed to predict and explain fear-based communication (Witte, 1992; Maddux & Rogers, 1983). With reference to guilt appeals, however, little is known how guilt may influence consumers' corrective behaviours (Basil *et al.*, 2008; O'Keefe, 2002). In light of the need for theoretical models to explain the effects of guilt appeals (Xu & Guo, 2018), some scholars have noted that fear appeal models may be used to measure the effectiveness of guilt appeals too. More specifically, the extended parallel process model, a prominent model in the fear appeal literature as discussed in Section 4.7.5, has shown potential for explaining the effects of both fear and guilt appeals (Becker-Olsen & Briones, 2009; Basil *et al*., 2008).

4.8.3 The extended parallel process model and guilt appeals

As highlighted earlier, the extended parallel process model is an established theoretical model that has been developed to explain fear appeal communication (Witte, 1992). Although designed specifically in the domain of fear, some scholars have hinted at its potential to explain guilt appeals as well (Carcioppolo *et al*., 2017; Kubany & Watson, 2003). The EPPM's key constructs, namely perceived severity, susceptibility, response efficacy, and self-efficacy, are applicable in guilt arousal contexts too.

Essentially, guilt is aroused when consumers perceive their behaviour to be harmful to themselves or harmful to others (Sinh, 2017). Given this perspective on guilt, a guilt appeal can be described as containing an element of threat communicated to the recipient. To illustrate, Carcioppolo *et al*. (2017) developed a guilt-arousing message to encourage individuals to engage in HPV vaccinations. In these guilt-driven messages, the authors directed the guilt towards the potential harm individuals could cause to their partners. The communicated message explained a threat to others because of their own behaviour. In another context, Hoek, Gifford, Maubach and Newcombe (2014) examined guilt by communicating the smoking-related illnesses that can develop for both the mother and her unborn baby. Against this background, it is theorised that perceived threat could be applicable in guilt appeal contexts. More specifically, susceptibility is significant since consumers essentially need to perceive they are susceptible to the communicated threat, otherwise they would not experience guilt. Similarly, if the harm to oneself or others is not perceived as severe, consumers will not feel guilty about their existing behaviour.

In fear appeal research, the EPPM posits that consumers should perceive the recommended behaviour as effective to reduce the fear aroused (Witte, 1992). The same principle can be valid to guilt appeals. As an exemplar, Brennan and Binney (2010) have argued that for guilt to be an effective motivator, consumers must perceive the recommended action as necessary and that they are capable of making the required change. Response efficacy is essential to such an extent that if it is not believed that the recommended behaviour will be effective, consumers will experience shame rather than guilt (Boudewyns *et al*., 2013). In addition to response efficacy, researchers have also argued that guilt is associated with self-efficacy (Basil *et al*., 2008). As consumers experience guilt, they are highly motivated to rectify their behaviours and take action to manage the undesired feelings (Pounders *et al*., 2018). In addition to this coping behaviour, guilty consumers tend to feel capable of rectifying their behaviours. That is, guilty

consumers tend to appraise that they are in control of the undesired situation, and believe that they are able to rectify it, even if it is merely intending to change their future behaviour (Niedenthal & Ric, 2014). Again, if consumers do not perceive themselves to have the ability to engage in the recommended behaviour to reduce the guilty feelings, their intentions to engage in corrective action seem unlikely. For this reason, Brennan and Binney (2010) emphasise that self-efficacy elements should be incorporated in guilt appeals. Given the evidence that fear constructs can be used to understand guilt evocation, measuring a guilt-fear appeal with the EPPM constructs seems warranted.

In addition to the argument for the same theoretical constructs to explain both fear and guilt appeals, researchers have also reported similarities in consumers' coping strategies following exposure to the emotional appeal. This line of research has found that, similar to fear appeals, guilt appeals also engender either adaptive or maladaptive behaviours among recipients (Bessarabova *et al.*, 2015; Brennan & Binney, 2010). More specifically, consumers employ similar pathways to lessen the negative motivations evoked by the emotional appeal. That is, under certain circumstances, guilt appeals may engender desired, intended effects, but also unintended effects under other situations. When intended outcomes are evident, consumers decide to reduce their guilt by engaging in corrective behaviours (Brennan & Binney, 2010). Similar to the danger control process that is evident in fear appeal studies, this pathway is typically known as guilt reduction (Basil *et al.*, 2008). When consumers follow this coping strategy, it is believed that they will 'accept' the message, and intend to adopt the behaviour as recommended to reduce their guilt feelings. Stated differently, guilt reduction denotes that the guilt appeal has stimulated the outcome intended by the communicated message (Basil *et al*., 2008). To illustrate, when exposed to a guilt-laden warning label message, consumers might avoid purchase and consumption to reduce the anticipatory guilt.

Similar to fear appeals, consumers may also exhibit maladaptive behaviours in response to guilt evocation. That is, as in fear appeals, consumers can 'reject' the communicated message by refusing to engage in the recommended behaviours (Block, 2005). When guilt induces these maladaptive consequences, the process is referred to as guilt avoidance, as consumers deny the guilt aroused (Block, 2005). Again, guilt avoidance shares clear similarities with the process of message acceptance or message rejection as stipulated in the EPPM. Similar to the fear control processing, guilt avoidance introduces the pathway whereby guilt appeals are ineffective and subsequently produce unintended effects.

4.8.4 Unintended effects of guilt arousal

Despite the promising evidence that guilt is an effective emotion to incorporate in a fear appeal, eliciting guilt has been cautioned against as this view is not univocal. Early research has shown that guilt appeals could backfire and produce maladaptive responses from consumers (Ghingold, 1990, as cited in Coulter & Pinto, 1995). McGuire (1969, as cited in Coulter & Pinto, 1995) demonstrated that guilt arousal can cause consumers to suppress the message and deny the negative feelings experienced. In fact, consumers can decide to avoid the guilt evoked, rather than engage in attempts to dissolve it (Ghingold, 1990, as cited in Coulter & Pinto, 1995). This maladaptive consequence of guilt appeals is especially evident when consumers' self-efficacy levels are low (Boudewyns *et al.*, 2013). Another stream of guilt research points to guilt evocation that can induce other negative emotions which essentially interfere with the persuasion process (Boudewyns *et al*., 2013; Coulter & Pinto, 1995). Coulter and Pinto (1995), for instance, indicated in their study that guilt-laden consumers felt irritated with the communicated message, and Hibbert *et al*. (2007) concur with these findings, reporting increased levels of annoyance among guilt appeal recipients. Moreover, feelings of irritation or annoyance have been found to further evoke anger towards the source of the message, whereas feelings of shame and sometimes even disgust among consumers have also been reported (Coulter & Pinto, 1995). Once consumers experience more than the intended guilt, motivation to engage in corrective behaviours are unlikely (Boudewyn *et al*., 2013).

Similar to fear appeal research, the majority of reported unintended effects relate to the level of guilt aroused (Bessarabova *et al*., 2015; Turner & Underhill, 2012; Coulter & Pinto, 1995). In particular, the literature suggests a curvilinear effect of the intensity of guilt aroused and intentions (Turner & Underhill, 2012; O'Keefe, 2000). While intense guilt appeals have shown to cause strong feelings of guilt, the evocation simultaneously spurs anger among consumers, which essentially interferes with the persuasiveness of the message (Coulter & Pinto, 1995; Pinto & Worobetz, 1992). This anger stems from the consumers' perception of a blatant attempt to evoke guilt among them (Coulter & Pinto, 1995). Thus, when guilt appeals are considered excessive, consumers deem the communicated message to be inappropriate and unintended behaviours might follow (Coulter & Pinto, 1995). Such behaviours can include message rejection, message denial, and decreased motivation to modify current harmful behaviour. Bessarabova *et al*. (2015) assert that high levels of guilt evocation tend to threaten consumers' perception of freedom, which in turn triggers reactance behaviours. These authors argue that,

as the level of guilt increases, the perceived discrepancy between consumers' actual and desired behaviours increases. When this happens, consumers become aware of the guilt intending to be persuasive, causing reactance behaviours.

Despite the potential of unintended effects, many researchers maintain their support for implementing guilt to encourage healthier behaviours (Ruwish *et al*., 2018; Netemeyer *et al*., 2016; Boudewyns *et al.,* 2013; Duhachek *et al.,* 2012). This support for the inclusion of guilt is largely based on the emotion's effects on consumers' thought-processing and subsequent decision-making. Brennan and Binney (2010) describe the emotion as a punishing state, accompanied by distinct feelings of remorse and subsequent action tendencies. Typically, when consumers recognise they have engaged in an action that can harm themselves or others, or if consumers perceive a personal or society standard has been violated, feelings of guilt arises and consumers tend to feel they have to engage in corrective behaviours (Kugler & Jones, 1992). Some scholars suggest the action tendencies associated with guilty feelings are consumers' desire to engage in corrective behaviours (Niedenthal & Ric, 2017). Wicker, Payne and Morgan (1983, as cited in Niedenthal & Ric, 2017) maintain that consumers desire to make amends are often tendencies to change their behaviour in the future. That is, in the context of the current study, to purchase and consume less sugary products.

4.8.5 Guilt appeals in public health

As mentioned previously, guilt appeals are considered persuasive as it evokes negative feelings that consumers typically strive to minimise, as well as providing the prospect of reducing the negative emotion by adopting the recommended action in the communicated message (Boudewyns *et al.,* 2013). Given this notion, studies have found guilt to effectively encourage consumers to adopt exercising habits (Mistry & Latimer-Cheung, 2014), to reduce excessive alcohol intake (Duhachek *et al*., 2012) and to cease cigarette smoking (Netemeyer *et al*., 2016). Guilt is especially effective when consumers perceive their behaviour to potentially harm others (O'Keefe & Figgé, 1999). Because of this notion, public health practitioners often frame guilt-based message in a manner that consumers perceive they have to change their behaviour to stop harming others. As an exemplar, Carcioppolo *et al*. (2017) developed a message that emphasised the health effects that consumers could have on their partners should they not engage in HPV vaccinations. In a similar vein, Schindler-Ruwish *et al. 's* (2018) guilt evocation demonstrated how pregnant smokers could compromise the health of their unborn babies. In an excessive alcohol intake context, a guilt message read: '"But I was drunk" doesn't repair

the friendship' (Duhachek *et al*., 2012:939). Because the message implied that consumers damaged their friendships with their current behaviour, recipients were inclined to reduce their alcohol intake. These guilt-based messages have led recipients to rethink their behaviours in relation to others, essentially leading to behaviour change intentions and efforts.

Anti-smoking messages often use guilt appeals to engender cessation attempts (Burnett & Lunsford, 1994). Amonini *et al*. (2015) explained how the habit could cause dire long-term effects on smokers' health, and referred to the emotional pain children could experience should the parent develop cancer. Considering the consequences of their behaviour on themselves as well as their children, more than 50 per cent of the smokers in Amonini *et al*.'s (2015) study indicated that they did not want to smoke in the future. Block (2005:2031) developed an effective guilt-based message to discourage drinking under the influence:

> The more you drink, the more coordination you lose. That's a fact, plain and simple. Still you drink too much, then go out, and expect to handle a car. When you drink too much, you can't handle a car. You can't even handle a pen. If you drink and drive, you risk losing everything.

Based on Block's (2005) findings, who reported increased recall when guilt is self-focused, Sinh (2017) investigated such self-focused guilt appeals to reduce binge drinking among students. Sinh (2017) concurred with Block's (2005) results, suggesting the significance of guilt evocation towards the self when attempting to encourage consumers to adopt healthier behaviours.

Important to the current study is the development of a guilt message specifically in a food consumption setting. The existing literature suggests that warning labels evoke anticipatory guilt, prior to purchasing and consuming high-sugar-content products (Burnett & Lunsford, 1994). Given that guilt is an emotion consumers feel compelled to reduce, and in response to the significant support in the existing literature (Carcioppolo *et al.,* 2017; Antonetti *et al.,* 2018; Netemeyer *et al.,* 2016; Duhachek *et al.,* 2012; Brennan & Binney, 2010), the evocation of guilt that is intended to discourage excessive sugar consumption seems appropriate (Chedotal *et al*., 2017). To understand the relevance of the emotion in consumption settings, the subsequent section will elaborate on the role it plays in sugary consumption settings.

4.9 GUILT APPEALS IN SUGARY CONSUMPTION CONTEXTS

Traditional marketers have long relied on guilt evocation to persuade consumers into a specific action (Coulter & Pinto, 1995). Given the motivational nature of the emotion, advertisers have used guilt appeals to encourage consumers to purchase their products and services. Much of these persuasion efforts were specifically in food consumption-related contexts (Durkin *et al*., 2012; Burnett & Lunsford, 1994; Pinto & Priest, 1991). Scholars have ascribed marketers' reliance on guilt evocation to the known association between the emotion and food consumption.

4.9.1 The association between guilt and food consumption

Much research has been directed at understanding the relationship between consumer guilt and food consumption (Conzen, 2017). Because of consumers' tendency to engage in specific behaviours in order to avoid or lessen the negative emotion, traditional food marketers prefer to incorporate hints of the emotion in their efforts to increase purchases. To illustrate, marketers have communicated fat-free or sugar-free products as being 'guilt free'. By signifying the consumption is essentially healthy and would not give rise to the negative emotion, consumers are encouraged to purchase the product. Notably, consumers are drawn to the possibility of consuming healthy foods, as such foods do not evoke feelings of guilt.

As consumers become increasingly aware of the health consequences related to the food choices they make, consuming foods that are considered unhealthy are often perceived as forbidden (Kuijer, Boyce & Marshall, 2015). When consumption occurs, consumers perceive they have given into the temptation, and guilty feelings are experienced. The guilt evocation could be ascribed to consumers' perception of the discrepancy between their actual behaviour (giving in to the temptation) and their goals or standards (avoiding consumption to be healthy) (Conzen, 2017). Since purchasing and consuming unhealthy food items could be considered as a behaviour initiated by the consumer, the action leads to a negative evaluation of the self, spurring feelings of guilt. Given the notion that guilt leads to reparative or corrective behaviours (Niedenthal & Ric, 2017), evoking the emotion in sugar consumption contexts seem warranted. Indeed, studies have found that the mere anticipation of guilt arousal encourages consumers to make healthier food- related choices (Zemack-Rugar *et al.*, 2007; Giner-Sorolla, 2001). As consumers anticipate the negative emotion, consuming high-sugar-content products are expected to be avoided altogether. However, studies have also shown that food

consumption is not solely related to feelings of guilt (Rozin *et al.*, 2003), but that it can also evoke pleasure and enjoyment (Kuijer & Boyce, 2014). In their study on chocolate cake intake, Kuijer and Boyce (2014) demonstrated that even as consumers perceived the consumption as unhealthy, which provoked feelings of worry and guilt, consumers also experienced heightened pleasure from consuming the 'forbidden' food item. These ambivalent feelings are common among sugary foods, as these foods are often considered 'guilty pleasures' (Goldsmith *et al*., 2012).

4.9.2 High-sugar-content products as guilty pleasures

Despite the beneficial association between guilt and food consumption which could engender healthier food decision-making, scholars have also reported maladaptive consequences to occur because of guilt arousal (Conzen, 2015; Goldsmith *et al*., 2012; Rozin *et al*., 2003). Guilt, in particular, has engendered feelings of hopelessness, loss of control over the situation (Hofmann & Fisher, 2012) and lower levels of self-efficacy (Kuijer & Boyce, 2014). Because of these unintended feelings, Kuijer and Boyce (2014) reported that consumers have less positive attitudes towards healthy eating habits when guilt is experienced.

Another line of guilt research indicating maladaptive consequences has shown that the emotion can essentially lead to increased unhealthy food consumption (Goldsmith *et al*., 2012). More specifically, studies have indicated that feelings of guilt can lead to increased enjoyment during consumption, subsequently prompting increased consumption (Goldsmith *et al*., 2012; Vong, 2012). This heightened enjoyment is evident in both hedonic and utilitarian contexts (Goldsmith *et al*., 2012), but is especially studied in terms of sugary products intake (Conzen, 2015; Kuijer & Boyce, 2014; Rogers *et al*., 2011). Studies have shown that consumers purchase and consume sugary foods, such as chocolate cake, and although guilty feelings are experienced, the feelings essentially spur heightened pleasure from consumption (Kuijer & Boyce, 2014). Kuijer *et al*. (2015) explain this prototypical forbidden food item, chocolate cake, as being favoured by consumers for its taste and texture, but that the consumption is also accompanied by feelings of concern regarding its fat and sugar content. As consumers feel good and bad at the same time, scholars refer to such consumption as a 'guilty pleasure' (Conzen, 2015; Goldsmith *et al*., 2012). Given the cognitive association between guilt and pleasure, guilt evocation in sugar-related contexts could essentially engender unwanted increased purchases or consumption. Considering the contrasting findings regarding guilt evocation in food-related choices, and given researchers' suggestion to investigate guilt-fear

appeals, incorporating the emotion in a fear appeal warning label should be investigated. To this end, the current study explored whether a guilt-based message would facilitate behaviour change as reported in the literature (Zemack-Rugar *et al*., 2007; Giner-Sorolla, 2001) or whether a guilt-based message would remind the consumer of the enjoyment they would experience during consumption, subsequently prompting unwanted increased consumption (Goldsmith *et al.*, 2012).

4.10 CONCLUSIONS

Since the South African government has suggested the implementation of warning labels on junk food items, including high-sugar-content products, the persisting problem is how these warning labels should be designed to maximise their effectiveness. While a plethora of evidence supports the use of fear appeals to discourage health-risk behaviours, some scholars argue that the evocation of fear may result in maladaptive consequences. In response to the contrasting information in the fear appeal literature, some scholars support the use of multiple emotional appeals. In this respect, the combination of fear and guilt in a persuasive message has been recommended to enhance message effectiveness. Although fear and guilt appeals have received considerable attention as separate constructs, the combination of the two negative emotions is still relatively underexplored, especially in a sugar consumption context. Given the association between guilt and unhealthy food consumption, which could encourage consumers to reduce their unhealthy food consumption, eliciting guilt in a high-sugar-content product setting seem reasoned. However, studies have demonstrated that the evocation of guilt may amplify the anticipated pleasure that consumers expect to experience through actual consumption. Seeing as high-sugar-content products are considered guilty pleasures, the evocated guilt may trigger associations of pleasure, and hence induce unwanted increased consumption. Given the inconclusive findings in the fear appeal literature and the limited research regarding guilt-fear appeals, this study investigated the use of both appeals for the government's newly suggested high-sugar-content warning-label interventions. When considering implementing behaviour change interventions, social marketers typically segment their target audience based on specific factors to improve effectiveness, and it has been suggested to distinguish between consumers' level of readiness to change the specific harmful behaviour. Given that consumers differ in their readiness to change their behaviour, the effects of emotion-based warning labels may vary depending on the consumers' readiness to change.

Consequently, the current study explored the well-documented consumers' stages of change, which will be discussed in depth in the next chapter.

CHAPTER FIVE

STAGES OF CHANGE

5.1 INTRODUCTION

A key objective in the planning of effective behaviour change campaigns is identifying and applying appropriate interventions based on theory (Michie *et al.*, 2009; Nutbeam & Harris, 2004). A significant body of research has indicated that the process of behaviour change entails a long-term progression through multiple stages of change (Prochaska & Velicer, 1997; Prochaska *et al*., 1992). According to Manika and Gregory-Smith (2017), the effectiveness of behaviour change interventions depends on accurately identifying at which stage consumers are in the process of change. Research indicates that there are distinct differences between these stages, including how ready consumers are to change their existing behaviour (Armitage, 2009), and more relevant to the current study, how different stages of change will respond to communications messages (Noar *et al.*, 2017). Stated differently, it has been suggested that consumers in different stages on the continuum of change will not respond in the same way to behaviour change messages (Cho & Salmon, 2006). However, despite the evidence in support of the development of behaviour change interventions considering the stages of change, little has been done to further explore the suggestion in public health contexts, prompting the current study to address this gap in knowledge.

To explore the utility of stages of change in public health contexts, the remainder of this chapter is structured as follows: it will commence with a discussion of the trans-theoretical model, the prominent behaviour change theory that, amongst others, encompasses the stages of change construct. After reviewing the processes of change, decisional balance, and self-efficacy, the chapter will provide an in-depth discussion of each stage of change. Then, an introduction will follow of the significance of tailored communication efforts based on the stages of change, which will be elucidated specifically in the health behaviour change domain. Next, the three stages of change relevant to this study will be explored against the background of emotion-based communication. It is in this section that the identified knowledge gap in the current literature will come to light. The measurement methods of the stages of change will be introduced, followed by a discussion on its critique and how it was addressed in the current study. Lastly, concluding thoughts will be offered.

5.2 THE TRANS-THEORETICAL MODEL

The trans-theoretical model (TTM) emerged from extensive consideration of the prominent theories in psychotherapy and, more importantly, behaviour change (Norcross *et al*., 2011; Prochaska & Velicer, 1997). The TTM provides an explanation as to how and when consumers consider and eventually decide to change their current behaviour (Prochaska, 2008). With this model, the authors argue that behaviour change is not a single event, but rather involves a progression through a series of stages as consumers increasingly become ready to modify their behaviour (Prochaska Velicer, Guadagnoli, Rossi & DiClemente, 1991). More specifically, the model suggests that behaviour change occurs over time, involving movement through five different stages (Prochaska *et al*., 1992). The general assumption is that consumers perceive increased benefits when modifying their existing behaviour or adopting a positive behaviour, prompting progress through the stages of change (Han *et al*., 2015).

The trans-theoretical model was originally designed in clinical contexts (Prochaska *et al*., 1992), especially regarding addictive behaviours such as smoking and and alcoholism (Sutton, 2001), but the model has since been widely adopted beyond the clinical field (Lacey, 2017; Di Noia & Prochaska, 2010; Cho & Salmon, 2006; Povey *et al*., 1999). Health promotion research, in particular, has employed the model to assist in understanding and predicting health behaviours. The TTM with its constructs, in particular, presents health communication designers with a plausible basis to identifying and designing appropriate behaviour change interventions. For instance, in a weight management study, Johnson, Paiva, Cummins, Johnson, Dyment, Wright, Prochaska, Prochaska and Sherman (2008) presented overweight participants with tailored feedback reports based on key TTM constructs. The study's results included improved healthy eating habits, increased exercise efforts and better management of emotional distress among participants over a period of 24 months. The effectiveness of the TTM in health behaviour contexts has been proven throughout the years, including in diet-related behaviours (Bowen, Meischke & Tomoyasu, 1994), sun exposure (Cho & Salmon, 2006) and exercise habits (Kosma *et al*., 2007).

The TTM identifies four core constructs related to the processes of behaviour change: stages of change, processes of change, self-efficacy, and decisional balance. Firstly, the stages of change is arguably the most important construct as it presents a temporal aspect necessary for change to occur (Brug *et al.,* 2005). That is, this temporal dimension signifies a period of time that consumers go through to progress to the next stage as their readiness to change increases.

Five stages of change have been identified (Prochaska *et al.,* 2008). The first stage, pre-contemplation, entails consumers who have no intention to change their behaviour. As consumers start to acknowledge that their problematic behaviour requires modification, they proceed to the contemplation stage. The contemplation stage involves consumers who seriously consider changing, but they are not ready to make plans to engage in behavioural action. Then consumers progress to the preparation stage during which they intend to change their behaviour and make concrete plans to do so. The action stage involves consumers who are consistently engaging in behavioural action, and these consumers subsequently advance to the final stage, maintenance, when the behavioural action exceeds six months or longer (Armitage, 2009). Each stage distinguishes between consumers' readiness to change their current behaviour or to adopt a new behaviour (Prochaska *et al.,* 2008). Because of the difference in consumers' readiness to change across the stages, it has been argued that communication interventions are not necessarily appropriate to all stages.

According to Noar *et al.* (2017), messages designed towards the earlier stages of change should focus on engagement and recommending small steps forward, while the later stages should incorporate more explicit messages to maintain behavioural action. The different communication approaches are based on the notion that individuals in the pre-contemplation or contemplation stages are more in need of information about the behaviour and its effects, whereas those in the action or maintenance stage are more inclined to respond to specific behaviour recommendations given that they have already developed through the process of committing to change (Noar *et al.,* 2017). Resultantly, responses to certain communication messages will be different against the background of readiness to change. To illustrate in the context of the current study, a fear-based communication intervention might encourage behaviour change among consumers that are already prepared to change, but those consumers who are reluctant might reject the same fear-based communication strategy. Cho and Salmon (2006) concur with this speculation, finding that fear appeal responses were not uniform across the stages of change. Apart from this study, very little research has been devoted to understanding emotion-based communication for consumers in their different stages of change.

Despite this lack of stages of change research concerning specifically emotion-based communication, numerous studies have based their behaviour change intervention design on the stages of change construct (Cornacchione & Smith, 2012; Sealy & Farmer, 2011; Cho & Salmon, 2006). Jones, Edward, Vallis, Ruggiero, Rossi, Rossi, Greene, Prochaska and Zinman (2003) compiled individual feedback reports and provided individual counselling based on

participants' specific stage of change regarding their diet-related consumption. The study reported reduced total fat intake, increased fruit and vegetable consumption, and also that participants in the earlier stages of change progressed to the maintenance stage over a period of 12 months. Renger, Steinfelt and Lazarus (2002) studied a campaign promoting physical activity, which was specifically designed with the earlier stages of change in mind. The campaign involved consciousness-raising, by primarily informing individuals about the facts and benefits of physical activity and providing guidelines regarding certain exercises. The results proved to be successful as individuals reported strong behavioural intentions to exercise.

Given the importance of the construct in developing behaviour change interventions (Cho & Salmon, 2006), the stages of change was central to the current study, and will be discussed in depth in Section 5.3. Before this this discussion, however, the other constructs of the TTM that generate progress through the different stages, namely the processes of change, decisional balance, and self-efficacy, will be elaborated upon, to improve the understanding of the stages of change.

5.2.1 Processes of change

The processes of change, the second major construct of the TTM, present a set of important tasks that are needed for a person to progress from one stage to the next (Norcross *et al*., 2011). According to Prochaska *et al.* (2008), the processes of change enable researchers to understand *how* consumers modify their behaviours. The processes of change construct was originally identified in the field of psychotherapy, but the construct has since received considerable attention in behaviour change contexts, especially with regard to health (Prochaska *et al.,* 2008; Prochaska & Velicer, 1997). The processes of change entail overt and covert activities that consumers implement when modifying their existing behaviours (Norcross *et al.,* 2011). Based on principal component analysis, ten categories of the processes of change have been identified (Prochaska & DiClemente, 1982), with each category consisting of different techniques and functions (Prochaska *et al*., 1992). These ten processes of change categories are consciousness-raising, dramatic relief, self-revaluation, environmental re-evaluation, self-liberation, social liberation, counter-conditioning, stimulus control, contingency management, and helping relationships (Prochaska *et al*., 2008). The processes of change categories and their functions are summarised in Table 5.1.

Table 5.1: The processes of change categories and their functions

Processes of change categories	**Functions**
Consciousness-raising	The focus is on knowledge and awareness about the problem behaviour
Dramatic relief	Techniques that evoke emotions are used, along with communicating possible treatments and solutions that will address the emotional arousal
Self-revaluation	Individuals' cognitions and emotions regarding their problem behaviour are re-evaluated
Environmental re-evaluation	The impact and repercussions of the individual's problematic behaviour on their environment are re-evaluated
Self-liberation	Attempts are made to decrease the prevalence of the individual's former problem behaviour in society
Reinforcement management	Involves rewarding individuals' positive behavioural changes
Helping relationships	Supporting individual(s) provide trust and open discussions about the problem behaviour
Counter-conditioning	The individual's problem behaviour is replaced by another positive and healthier alternative behaviour
Stimulus control	Any stimulus that may trigger a relapse to the problem behaviour is removed, or methods are given by facilitators to cope with the reminders or cues
Self-liberation	Deciding on a course of action to modify or abstain from the problem behaviour, and committing to that decision

Source: Prochaska, Redding & Evers (2008)

The following section will explore three processes of change to illustrate its relevance in the context of consumers' health behaviours. Firstly, helping relationships is essential in the process of change as it combines, amongst others, trust, caring, and support to another individual who adopts a healthier habit. Prochaska and Velicer (1997) identified what they called 'buddy systems' and counsellor calls as important sources of behaviour change efforts. More recently, Stonerock and Blumenthal (2017) have highlighted the importance of social support from close individuals when an individual is considering to adopt exercise behaviours,

especially when the consumer is considered ready to change. Consciousness-raising is another popular method to produce movement from one stage to the next, as consumers are educated regarding the unfavourable consequences and associated problems with their behaviour in question (Prochaska *et al*., 2008). Stonerock and Blumenthal (2017) have stressed the significance of using consciousness-raising when consumers are unaware of their problematic behaviours. In relation to this process mass media campaigns aiming to raise awareness among consumers who engage in unhealthy eating habits have shown potential towards increased behaviour change efforts (Wakefield *et al.,* 2010). Finally, counter-conditioning implies that consumers learn healthier behaviours that can substitute unhealthy ones. As an exemplar, nicotine replacements are often evident in cigarette smoking interventions. The techniques and methods provided by the processes of change present important guidelines for intervention designers, as consumers must apply them to progress through the stages (Prochaska *et al.,* 2008; Prochaska & Velicer, 1997).

Research indicate that different processes are required to assist consumers to move from one stage to the next (Norcross *et al*., 2011). Against the background that the stages of change require different processes, it is argued that similar communication message might not be effective for each stage of change. Resultantly, the current study will investigate emotional appeal messages for each stage of change.

Another construct of the trans-theoretical model is described as decisional balance. The following section will elaborate on the construct.

5.2.2 Decisional balance

Along with the processes of change and the stages of change, Prochaska *et al*. (1992) emphasised the significance of consumers' evaluation of the advantages and disadvantages associated with the modification of their behaviours. Referred to as decisional balance, this construct facilitates an understanding of how consumers decide to change their behaviour. The concept decisional balance was originally developed based on Janis and Mann's (1977) conceptualisation of decision-making, which referred to the comparative analysis of potential gains (benefits) and losses (costs) (Prochaska & Velicer, 1997). The trans-theoretical model incorporated two constructs of decisional balance, namely the advantages and disadvantages of behaviour modification. Essentially, decisional balance can be described as consumers' reflection of both the advantages (pros) and the disadvantages (cons) of continuing their current behaviour or adopting a new behaviour (Prochaska & Velicer, 1997). The authors argue that,

as movement through the stages of change occurs, decisional balance alters in significant ways. For instance, consumers who progress from the pre-contemplation to the contemplation stage signify that the perceived advantages of behaviour change outweigh the disadvantages. Contemplators, however, tend to perceive the advantages and disadvantages of behaviour modification as being equal, resulting in consumers' ambivalence towards adopting a new behaviour (Trans-theoretical model, n.d.).

While decisional balance is an important construct to understand in the process of behaviour change, some researchers have asserted that decisional balance is a reflection of the stages of change theory (Collins, Eck, Torchalla, Schröter & Batra, 2010; Williams, Anderson & Winett, 2005). Studies have reported a consistent pattern, that is, because pre-contemplators have no intention to change their current behaviour, their perceived disadvantages outweigh the advantages in this stage (Di Noia & Prochaska, 2010). Contrastingly, those in the contemplation or preparation stage, who are planning to change, consider the benefits higher than the costs (Cunningham, Sobell, Gavin, Sobell & Breslin, 1997). Since decisional balance is thus considered relevant across all the stages of change, the construct was not explicitly included in this study.

5.2.3 Self-efficacy

The TTM also highlights self-efficacy, a well-known concept in the behaviour change literature (Dallow & Anderson, 2003). Originally developed as part of Bandura's (1982) self-efficacy theory, the construct has become critical in understanding and modifying consumer behaviour. Self-efficacy reflects consumers' perceived confidence in their ability to maintain the desired behaviour or to adopt a new behaviour. As discussed in the previous chapter, self-efficacy refers to consumers' perceptions about their ability to perform a specific action, and not necessarily whether they possess the skills to execute the action (Dallow & Anderson, 2003). Bandura (1982) argues that in instances where consumers doubt their ability, the probability of consumers avoiding difficult tasks and making minimal commitment to their goals increase significantly. Conversely, those with strong self-efficacy levels are more driven to remain committed to their goals, approach tasks as challenges and feel more in control of their situation. Given this argument, intervention developers should strive to develop high levels of self-efficacy among target consumers.

Consensus in the literature suggests that self-efficacy levels increase linearly across the stages of change (Brug, Glanz & Kok, 1997; Marcus & Owen, 1992). The pre-contemplation, contemplation, and preparation stages are all characterised with low levels of self-efficacy, whereas the action and maintenance stages include consumers with high levels of self-efficacy (Prochaska *et al*., 1991). Given that self-efficacy is also a significant construct of the extended parallel process model – one of the models developed in fear appeal research – self-efficacy was included in this study. Also important to the current study was the construct central to the TTM, namely the stages of change.

5.3 STAGES OF CHANGE

The TTM is often referred to as the stages of change approach, which signifies the centrality of the construct in the model. The stages of change construct is central to the TTM model as it clarifies *when* specific progress through the stages occurs, and when shifts in attitudes, intentions and behaviours happen (Prochaska *et al*., 1992). Often considered the most applied construct of the TTM (Whitelaw, Baldwin, Bunton & Flynn, 2000; Greene, Rossi, Rossi, & Velicer, 1999), the stages of change model was developed specifically to better understand why and when consumers engage in behaviour change (Slater, 2009). More specifically, the model states that consumers are in different stages of readiness to change their behaviour (Prochaska & Velicer, 1997; Prochaska *et al*., 1992), and that consumers progress through the stages as they become more ready to engage in behaviour modification. Furthermore, the stages of change suggest that consumers' readiness to change evolves through five distinct stages (Nigg *et al*., 1999; Prochaska *et al*., 1992). Based on their willingness to change, consumers are classified into either the pre-contemplation, contemplation, preparation, action, or the maintenance stage. The first three stages are motivational in nature and the remaining two are action-based (Povey *et al.*, 1999).

5.3.1 The pre-contemplation stage

Pre-contemplators represent those consumers who have no intention of changing their current behaviour (Prochaska, 2008; Cho & Salmon, 2006). A pre-contemplator will indicate that they have not thought of or considered quitting or adopting a new behaviour, typically in the following six months. Stages of change studies have described this stage as individuals who do not think they have any problem behaviour that needs to change (McConnaughy, DiClemente, Prochaska & Velicer, 1989). For instance, in a diet-related study, respondents were categorised

in the pre-contemplation stage when indicating they did not eat a low-fat diet and did not think about starting to do so either (Armitage, Sheeran, Conner & Arden, 2004).

Often, but not always, pre-contemplating consumers are unaware of their problematic behaviour, and therefore have no plans of changing in the future (Norcross *et al*., 2011). Scholars have further described pre-contemplators as resistant, unmotivated, or not ready to acknowledge or address their problematic behaviour (Prochaska, 2008; Armitage *et al.*, 2004). However, some pre-contemplators may *wish* that they can change, but Prochaska and DiClemente, (1982) argue that it is significantly different to really considering change. DiClemente and Velasquez (2002) add that consumers often wish that they can change their behaviour, but when confronted to do so, they find excuses or reasons not to. In fact, most smokers wish they could quit, but are not serious enough to actually considering change (DiClemente & Velasquez, 2002).

Pre-contemplators' attitude of indifference could be owing to not being sufficiently informed of the consequences of their unhealthy behaviour (Armitage *et al.*, 2004). On the other hand, Prochaska (2008) ascribes the indifference of this stage to consumers assessing behaviour change to produce little benefit and high costs. This trade-off places emphasis on the disadvantages of behaviour change for consumers who are in the pre-contemplation stage. Given these abovementioned characteristics, pre-contemplators are arguably part of the key target market of behaviour change interventions (Lacey & Street, 2017).

Specifically in addiction contexts, DiClemente (1991) further classifies pre-contemplators to provide an accurate description of these consumers. Reluctant pre-contemplators are those individuals who lack sufficient knowledge to such an extent that change is deemed unnecessary, whereas resigned pre-contemplators feel hopeless about changing or overwhelmed with the perceived effort it will require (Zimmerman, Olsen & Bosworth, 2000). Those individuals who are so involved in their unhealthy behaviour that they are afraid they will lose control if behaviour change occurs, are referred to as rebellious contemplators. Lastly, consumers are classified as rationalising pre-contemplators when they justify their unhealthy behaviour or habit (DiClemente, 1991).

Given the difficulty to encourage behaviour change among pre-contemplators, DiClemente (1991) emphasises the importance of getting consumers in this stage to progress to the next stage where they can start contemplating change.

5.3.2 The contemplation stage

Contemplators denote consumers who are seriously considering modifying their current behaviour (Prochaska *et al*., 1992). Consumers in this stage of change recognise their behaviour is unhealthy, and typically devote more thought and consideration to the pros and cons associated with behaviour change (Prochaska *et al*., 1992). However, contemplators are not ready to make specific plans to undertake action, and lack commitment (Nigg *et al.*, 1999). Consumers can remain stuck in the contemplation stage for years (Nigg *et al*., 1999), regardless of their increased contemplation to change.

Despite being fully aware of their problematic behaviour, consumers in this stage consider the effort, energy and/or costs of changed behaviour as too significant to make concrete plans (Prochaska *et al*., 1992). Per definition, however, contemplators are one step closer to behaviour cessation or adoption in comparison to those in pre-contemplation. While pre-contemplators place emphasis on the disadvantages to change, thus feeling helpless and resistant to change, contemplators seriously consider the advantages thereof and want to overcome their problem behaviour. According to Dijkstra, De Vries and Bakker (1996), consumers' perceived pros and cons of change are relatively balanced in this stage. Furthermore, contemplating consumers demonstrate higher self-efficacy levels, signifying that these consumers begin to gain confidence in their ability to change.

Against this background, Gorely and Bruce (2000) specifically investigated contemplating consumers. These authors suggest that consumers have different characteristics in this stage, categorising contemplating consumers into three subtypes. These are middle-contemplation consumers who have low self-efficacy levels and who perceive that the pros and cons of behaviour change are equal. The pre-preparation subtype represents consumers with higher self-efficacy levels, who perceive fewer cons to the process of changing their behaviour. Lastly, early contemplators reflect a high-risk of relapse as they have low self-efficacy levels and perceive that there are many disadvantages and few benefits to behaviour modification (Gorely & Bruce, 2000).

Even as contemplators posit desired characteristics to change, they are still hesitant towards actual change (Principe, Marci, Glick & Ablon, 2006). Smoking cessation studies, in particular, have reported that consumers remain in the contemplation stage for years (Prochaska & DiClemente, 1983). Given this tendency, it is argued that contemplators are also critical to

target in health interventions. Furthermore, theory states that contemplators should be motivated to advance to the preparation stage (Prochaska *et al*., 1992).

5.3.3 The preparation stage

Preparation, described as the transitional stage, is an important stage to understand as it combines both intentional and behavioural aspects in behaviour change (Slater, 2009; Prochaska *et al.,* 1992). The preparation stage represents consumers who intend to take action in the immediate future, usually reported as within the following month (Prochaska, 2008; DiClemente, Prochaska, Fairhurst, Velicer, Velasquez & Rossi, 1991). In addition, it has been reported that these consumers made small attempts to make behaviour changes in a preceding year, albeit unsuccessful (Nigg *et al*., 1999; Prochaska *et al*., 1992). Prochaska *et al*. (1992) originally referred to the preparation stage as 'decision-making', but later changed it to 'preparation' to capture more accurately the level of readiness of consumers' taking behavioural action.

Typically, the preparation stage is characterised by consumers who make small behavioural changes towards action, such as delaying the first cigarette of the day by a few minutes (Prochaska *et al*., 1992). Consumers will generally have a plan of action, such as participating in a recovery group, consulting a counsellor or doctor, or implement a self-change approach. Those considered to be in the stage of preparation tend to demonstrate higher levels of motivation and commitment to abstain from their problematic behaviours and to adopt healthier ones (DiClemente *et al*., 1991). With reference to the additional TTM constructs, researchers have found that consumers in the preparation stage perceive that the benefits of changed behaviour outweigh the disadvantages. The researchers furthermore reported higher self-efficacy levels among consumers in this stage compared to those in the previous stages (DiClemente *et al*., 1991).

Although early research (e.g. Prochaska & DiClemente, 1986 as cited in Prochaska *et al.,* 1992) failed to recognise preparation as a stage of change, there is consensus in recent literature that preparation is a critical stage between those consumers who contemplate change, and those in the action stage where consumers actively modify their behaviour (DiClemente *et al.,* 1991). According to Prochaska *et al*. (1992), in terms of measurement, preparation-stage consumers score high on both the contemplation and action stages. This finding corroborates other research (Prochaska & DiClemente, 1992; DiClemente *et al.,* 1991) that supports preparation

as a fifth stage of change. As an exemplar, in their smoking cessation study, DiClemente *et al*. (1991) found that the contemplation stage can be divided into two different types of consumer: the contemplating consumer and the chronic contemplator who has immense difficulty to quit smoking. The study's findings reinforce the suggestion that preparation includes consumers who remain confined between the contemplation and action stages.

In summary, while those consumers in the preparation stage are making concrete plans to take action, and may indicate some reductions in their problematic behaviours, additional steps need to be implemented to ensure that the action occurs eventually (Prochaska *et al.,* 1992).

5.3.4 The action and maintenance stages

When consumers successfully and consistently perform the desired and healthier behaviour, they are classified into the action stage of the stages of change model (Armitage, 2009; Prochaska, 2008). Progression to the maintenance stage follows when this behaviour (in the action stage) consistently occurs throughout a period of six months or longer (Armitage, 2009; Prochaska *et al.,* 1992). The action stage concerns consumers who act upon their behavioural intentions (Manika & Gregory-Smith, 2014) and who requires considerable time and effort to make changes. Given that the action stage is considered the least stable stage (Nigg *et al*., 1999), these consumers are at high risk for relapse. However, if behaviour change is sustained over a long period, progress to the maintenance stage follows.

During the maintenance stage, consumers show increased confidence to continue performing the behaviour in question and they are less tempted to relapse (Prochaska, 2008). As expected, consumers anticipate greater pros to the behaviour change than cons, in both the action and maintenance stages (Dijkstra *et al*., 1996). Similarly, self-efficacy levels are significantly higher among consumers in these stages than those in the previous stages where consumers are less motivated and confident in their ability to perform changes (Prochaska *et al.,* 1991).

Given that the last two stages of the model, action and maintenance, represent sustained changes already made (Prochaska *et al*., 1992), the current study excluded consumers who were classified as being in these stages. The emphasis was thus placed on the first three motivational stages, as these stages are considered sedentary and still require behavioural action (Gorely & Bruce, 2000). Early health researchers have argued the best improvements in healthcare are obtained when individuals progress from being sedentary to some level of regular behavioural action (Powell & Blair, 1994). It is against this background that the current study concentrated

on those inactive consumers who essentially need to be motivated to modify their behaviours. These inactive consumers are classified to be either in the pre-contemplation, contemplation, or the preparation stage.

In the light of the first three stages being considered as sedentary, public health interventions are mostly targeted at pre-contemplators, contemplators, and those in the preparation stage. Although all three stages are inactive, they are considered inherently different (Prochaska *et al*., 1992) and communication messages should be tailored to the specific stage in which consumers are categorised (Noar *et al.,* 2017; Herzog & Komarla, 2011; Cho & Salmon, 2006). Effective health communication relies on creating and delivering messages to the public that are perceived as relevant, interesting, and ultimately persuasive (Noar, Benac & Harris, 2007), and therefore it requires tailoring messages uniquely to each stage.

5.4 COMMUNICATION INTERVENTIONS AND STAGES OF CHANGE

As mass communication messages that target a broad population are often perceived as irrelevant to certain consumers in the same population, generic messages are considered less valuable and, more importantly, less persuasive (Manne, Jacobsen, Ming, Winkel, Dessureault & Lessin, 2010). Tailored messages are more likely to be read, understood, recalled and perceived as personally relevant (Kreuter & Wray, 2003; Kreuter & Holt, 2001). Manne *et al*. (2010) reported tailored messages to prompt consumers to consider changing their unhealthy behaviour more than generic messages did. Indeed, a vast amount of studies suggest that tailored communication is more effective, specifically in health preventative behaviours (Noar *et al.,* 2007). Against this background, tailored messages are considered important to behaviour change communication attempts and can be achieved by accounting for the different stages of change. A vital motive for considering a consumer's specific stage of change in health-related communication is the notion of personal relevance.

5.4.1 Perceived personal relevance and stages of change

Early research has demonstrated that the way in which consumers respond to health-promoting messages depends significantly on perceived personal relevance (Jemmott *et al*., 1986). Some researchers have argued that health threats which are considered personally relevant to consumers engender defensive reactions (van 't Riet & Ruiter, 2013; Good & Abraham, 2007), whereas others have asserted that personal relevance induces message adoption (Noar *et al*., 2007; Petty & Cacioppo, 1986). These opposing responses can be explained by taking into

consideration that, despite the relevance of the message, consumers are also in different stages of *readiness* to change their behaviour. That is, while a contemplator may perceive a health threat message as personally relevant, defensive reactions are engendered as they are not ready to modify their problematic behaviour or to adopt a healthier one.

An early study reported that individuals with high personal relevance to a disease that was communicated to them resulted in individuals rating the threat as not serious, which were ascribed to individuals' heightened defensiveness (Jemmott *et al*., 1986). A study on the link between caffeine and breast cancer confirmed that consumers who regularly drank coffee were not persuaded to change their behaviour (Good & Abraham, 2007). It could be asserted that, despite these individuals' high personal relevancy to the topic in question, the individuals were in the early stages of change, and thus posited defensiveness as they were not ready to take action. In fact, defensive reactions are specifically evident for consumers who are most at risk (Ruiter *et al*., 2014), and under conditions where severe consequences are communicated and no clear recommendations are provided to avoid this threat (Ruiter *et al*., 2001; Witte, 1992; 1994). Given this argument, health intervention designers should not underestimate the importance of tailoring communication messages to consumers' stages of change. Indeed, a long-standing argument in support of the stages of change model in the realm of behaviour change interventions has been the suggestion that matching intervention design to consumers' appropriate readiness to change stage is more effective in facilitating sustained behaviour change (Sealy & Farmer, 2011; Noar *et al*., 2007). Slater (1999) also considers the stages of change model as an important segmentation tool upon which tailored messages for each stage should be created.

5.4.2 Message targeting for stages of change

As previously emphasised, the stages of change model focuses on the notion of consumers' readiness to change. More specifically, the model highlights that consumers differ in their level of readiness to engage in behaviour change efforts. Because of the difference in readiness, it is claimed that generic, 'one-size-fits-all' messages aimed at a broad population are often unsuccessful (Herzog & Komarla, 2011; Cho & Salmon, 2006). A population of consumers who engage in the same unhealthy behaviour of, for example, excessive sugar consumption, should not be considered similar, as the stages of change model suggests critical differences (Noar *et al*., 2007; Prochaska *et al.,* 1992). These differences are: motivation to change, willingness to consider change, and intention to change (Noar *et al*., 2007), signifying

consumers will not necessarily respond to communication efforts in the same way. Indeed, intervention messages should be sensitive to where consumers are in the process of behaviour change, as studies have reported significant opposing responses to message designs across the different stages of change (Cornacchione & Smith, 2012; Cho & Salmon, 2006; Wong & McMurray, 2002). Cornacchione and Smith (2012), for instance, concluded that gain-framed messages were more effective for contemplators, whereas those in the preparation stage preferred loss-framed messages. Given the argument for using tailored interventions in the existing literature, the current study addressed warning-label interventions with tailored message designs. More specifically, based on the stages of change model, the current study explored tailored messages by considering at which phase consumers were in the process of changing their behaviour.

The current study was specifically interested in consumers' responses towards emotion-based messages, given the widespread use of emotional appeals in the health domain. Although limited research has investigated emotional appeals' effects across the stages of change, the theory of emotion elicitation on its own suggests that consumers can respond either favourably or unfavourably to the extent that unintended effects could occur. It was reasoned in this study that the differing responses could partly be explained by the notion of readiness to change, as consumers across the stages posit distinct characteristics that influence the manner in which they process and respond to messages. The study attempted to address this speculation by investigating the stages of change and consumers' responses to specific emotional appeals.

5.5 STAGES OF CHANGE AND EMOTIONAL APPEALS

Several authors have argued that the effectiveness of emotional appeals in persuasive communication depends significantly on the match between the emotion and the target audience (Bleakley *et al*., 2015; Turner, 2007). That is, the emotion that is elicited by the communication should be appropriate for the specific target audience to avoid message rejection (Turner, 2007).

The effectiveness of fear elicitation, for instance, often depends on the recipient's characteristics, most notably the personal relevance to the message topic (van 't Riet & Ruiter, 2013; Snipes *et al.*, 1999). Given that pre-contemplators generally are unconcerned about their problematic health behaviour, it is implied that these consumers feel little personal relevance to the health issue in question. Against the background of fear appeal literature, when exposed

to a fearful message, consumers with low perceptions of relevance tend to simultaneously demonstrate low perceptions of susceptibility (Block & Williams, 2002). In these circumstances, consumers do not consider themselves vulnerable to the communicated threat, and defensive reactions in the form of message avoidance or denial could occur (Rintamaki & Yang, 2014; Williams, 2012). Pre-contemplators' tendency towards defensive reactions could be ascribed to them being unaware of their problematic behaviour (Prochaska, 2008), the argument that they have little or no motivation to engage in behavioural action (Hardcastle, Hancox, Hattar, Maxwell-Smith, Thøgersen-Ntoumani & Hagger, 2015) or that pre-contemplators are typically uninterested in changing their current behaviour (Kristal, Glanz, Curry & Patterson, 1999). Other scholars have suggested that consumers in the pre-contemplation stage are typically in a state of denial, suggesting that emotionally loaded messages are not perceived as personally relevant (Zimmerman *et al*., 2000).

In fact, previous research has reported that pre-contemplators tend to engage in defensive behaviours in general as they are resistant towards change (Carrera *et al.*, 2010; Nigg *et al.*, 1999). It could be derived that messages that elicit strong negative emotions, including fear and guilt, may not always lead to the intended consequences among pre-contemplators. In this regard, Cho and Salmon (2006) found that consumers in the pre-contemplation stage exhibit defensive thinking when exposed to a fear appeal message. Williams (2012) observed that pre-contemplators ignore and reject messages that emphasise the dire consequences of a specific health problem.

However, some researchers have suggested that pre-contemplators often *wish* they could change their unhealthy behaviour (Prochaska & Velicer, 1997). Given this notion, one can argue that perhaps a fearful message will be successful in convincing consumers to convert their desire to change into serious consideration or action. Pelletier and Sharp (2008) suggest that fear-arousing information is a key drive for those consumers who are unaware of their problematic behaviour. In light of this speculation and contradicting evidence, the current study explored pre-contemplators responses when exposed to different emotion-based messages.

As already outlined, contemplators are characterised as being in the stage of considering change (Prochaska & Velicer, 1997). Owing to their considering change, it can be argued that contemplators perceive the health issue in question as relevant to their own behaviour. Similarly, consumers in the preparation stage are seriously intending to change their behaviour in the near future, which signifies that they are aware of their current unhealthy behaviour and

that they acknowledge the need to change. It is widely accepted that a personally relevant message results in extensive processing of the message, which in turn increases the likelihood of behaviour change (Block & Williams, 2002). Therefore, when considering the existing literature, an emotionally loaded message could engender desirable responses from both contemplation and preparation consumers (Wong & Cappella, 2009). For instance, in a fear appeal case, contemplators may develop feelings of fear as a result of considering the threat as applicable to their own behaviour. In such cases, consumers will be persuaded to take behavioural action and adopt a healthier habit. Wong and Cappella (2009) and Wong and McMurray (2002) reported that consumers with a moderate level of readiness to quit (contemplation and preparation stages) need threatening messages to increase their intentions to change their behaviour. However, a threat-based message could also engender defensive reactions, as reported previously (Cho & Salmon, 2006). Furthermore, Pelletier and Sharp (2008) believe that communicating the related risks to consumers who are already aware of their problem have little impact on their subsequent behaviour. Cornacchione and Smith (2012) recommend the use of positively framed messages as opposed to negatively framed messages when targeting consumers in the contemplation and preparation stages. Against the background of the contradicting viewpoints in the literature, the current study aimed to shed light on whether contemplators and those in the preparation stages respond favourably or negatively to emotional appeals.

When examining the effectiveness of applying the stages of change, scholars have highlighted the importance of appropriate measurement methods (Casey, Day & Howells, 2005; Coulson, 2000). Since stage-based interventions require reliable and valid indicators of consumers' specific stage of change (Norcross *et al.*, 2011), authors have scrutinised the latest measurement methods (Casey *et al*., 2005; Povey *et al.*, 1999).

5.6 IMPROVING STAGES OF CHANGE LIMITATIONS

The importance of accurately measuring and classifying consumers into their appropriate stage of change has been emphasised (Casey *et al*., 2005). The current section will elaborate on the latest measurement methods available in the stages of change literature, the subsequent limitations of these measurements and how the current study attempted to improve the measurements by means of response latency.

5.6.1 Measuring the stages of change

The existing literature reports a variety of ways researchers have used to measure consumers' stages of change. Numerous studies adopt a categorical measurement approach to classify consumers into a stage of change (Wright, Whiteley, Laforge, Adams, Berry & Friedman, 2015; Cho & Salmon, 2006; Coulson, 2000; Grimley *et al*., 1993). West (2005) points out that when consumers are presented with a multiple-choice questionnaire, they tend to engage in compliance behaviour, choosing an answer without necessarily giving much thought about the content of the question. Studies have demonstrated how consumers consider themselves as complying with health recommendations with regard to complex behaviours, including low levels of fat intake (Bogers, Brug, van Assema & Dagnelie, 2004) and physical activity (Ronda, Van Assema & Brug, 2001), while their actual behaviours are not in line with the recommendations (Brug *et al.*, 2005).

As an alternative to categorical measures of classification, authors have developed scales that employ continuous levels of measurement in the classification instrument. Among the most frequently used methods are the University of Rhode Island Change Assessment (URICA) (McConnaughy *et al.*, 1989) and the readiness to change questionnaire (RCQ) (Rollnick *et al.* 1992).

Despite the support for the available measurement methods for the stages of change in healthcare settings (Harris, Walters & Leahy, 2008), authors have highlighted key problems. Predominantly, the criticism of the stages of change model is centred on the current measurement instruments' ability to accurately classify consumers into their appropriate stage (Povey *et al.*, 1999).

5.6.2 Stages of change classification critique

Since the current stages of change measurement instruments rely on consumers' self-assessment of their behaviours, their reported answers are subjected to inaccuracy (Casey *et al*., 2005; Coulson, 2000; Povey *et al.*, 1999). Early health-related studies have reported a discrepancy between self-assessed, subjective behaviours and actual, objective assessment (Lechner, Brug & De Vries; 1997). This discrepancy could be ascribed to the presence of bias. In fact, critiques have highlighted the high possibility of response bias to occur because consumers are expected to evaluate their own health behaviours (Wright *et al.*, 2015).

Often, consumers tend to demonstrate optimism when assessing their health habits, as reported by Adams and White (2004). This notion essentially causes biased answers, which may result in consumers being inaccurately classified in a certain stage of change. According to Devenish, Ytterstad, Begley, Do and Scott (2019), all diet-related assessment methods have limitations owing to its sensitivity, and these limitations are often specifically related to social desirability bias (Coulson, 2000). Social desirability bias refers to respondents' tendency to present themselves in a positive light that is not necessarily an accurate representation of the reality (Andersen & Mayerl, 2019). In their study, Wright *et al*. (2015) noted that participants overestimated their healthy eating habits in an effort to meet perceived health criteria. Social desirability bias may thus result in an over-representation of consumers in the action or maintenance stages, and fewer consumers considering themselves in the stages (Povey *et al.*, 1999). According to this theory, it can be deducted that those consumers that should be considered at risk will not be accurately identified.

To illustrate, a consumer who is merely contemplating changing their sugar intake habits (contemplation stage), may be prompted to present themselves in a socially desirable manner and, as a result, indicate that they are already making changes regarding their sugar consumption (preparation stage). Essentially, consumers' self-assessment and report may lead to inaccurate classification of stages of change, and targeted interventions may render without successful results. Social desirability bias is a common appearance in self-report studies, especially when the behaviours under investigation are deemed sensitive (Adong, Fatch, Emenyonu, Cheng, Muyindike, Ngabirano, Kekibiina, Woolf-King, Samet & Hahn, 2019; De Noia *et al.,* 2016). With regard to sugar consumption, consumers may be reluctant to admit that they are not ready to change their sugar intake. Studies have shown underestimated reported sugar intake and the authors have partially ascribed this finding to the presence of social desirability bias, as consumers aim to present themselves as more socially acceptable (Devenish *et al*., 2019). Furthermore, as consumers' sugar consumption has repeatedly been shown to relate to guilty feelings (Kuijer *et al.*, 2015, Kuijer & Boyce, 2014; Goldsmith *et al.*, 2012), it is theorised that when consumers are expected to report on their sugar intake habits, they may report inaccurate information to conceal the guilty feelings associated with their actual behaviour.

Against this background, although quick and inexpensive (Adong *et al*., 2019), self-report measurements are subject to biased answers that cannot be ignored in the stages of change

classification domain. As a result, the current study attempted to address this critical measurement limitation by incorporating response latency.

5.6.3 Response latency

The validity of responses to sensitive survey questions has been questioned for decades, mostly owing to the introduction of social desirability bias (Andersen & Mayerl, 2019, 2017). Various attempts have been made to address bias in survey research, and one of these techniques involves considering the time it takes for participants to respond to survey questions (Andersen & Mayerl, 2019; Matukin & Ohme, 2016).

Referred to as response latency or reaction time, this technique is a general measure of the time a participant takes to answer a survey question, and essentially evaluates participants' information-processing (Presser, Couper, Lessler, Martin, Martin, Rothgeb & Singer, 2004; Bassili & Scott, 1996). Response latency measures the actual time respondents take to read, interpret, and report an answer to a question, in order to address the accuracy of the responses given. Using this technique, scholars can identify self-reported answers that contain bias. More specifically, response latency addresses bias responses by assuming that the longer a participant takes to answer a question, the likelihood of uncertain, biased answers increases (Presser *et al.*, 2004). In fact, several authors have suggested that delayed responses indicate that respondents consider more information before making a judgement, or stopping to alter their responses specifically in a socially desirable way (Andersen & Mayerl, 2017; Mayerl, 2013; Holden & Hibbs, 1995). It is accepted that response latencies are accurate proxies for the degree of respondents' elaboration, whereby fast responses suggest little elaboration and more spontaneous and accurate answers (Mayerl, 2013). Conversely, slower responses indicate deliberate, controlled answers where the respondent engages in thoughtful processing before answering, signalling inaccuracy and bias (Mayerl, 2013). Incorporating response latency in studies would thus be considered valuable as it provides results in a more objective manner, which enhances both validity and reliability of the research (Matukin & Ohme, 2016).

Response latency was initially introduced in telephone surveys, where the interviewer computed the time between the end of a question and the participant's reported answer (Mulligan, Grant, Mockabee & Monson, 2003; Bassili & Scott, 1996). As the measurement gained increased attention, scholars have suggested the use of computer technologies to assist in the measurement of response latency (Andersen & Mayerl, 2019, 2017; Matukin & Ohme,

2016). For instance, Andersen and Mayerl's (2017) study included a website-based survey where timestamps were taken between questions. Using computer technologies to measure response latency has proven to be an effective, low-cost, low-maintenance and widely available method to incorporate in survey research (Mulligan *et al.*, 2003).

As mentioned before, the rationale that consumers might be hesitant to report on their sugar consumption habits or to admit their unhealthy behaviours, introduces the possibility of social desirability bias. Socially desirable answers produce the likelihood classifying consumers into a stage of change that inaccurately reflects that of the respondent's reality. Given the importance of correctly and accurately classifying consumers into the appropriate stage of change for interventions to be effective (Brug *et al.*, 2005), scholars have highlighted the need to eliminate social desirability bias. Response latency presents a relatively novel method to address this criticism of the stages of change. Against this background, this study considered response latency as a possible means to identify inaccurate responses, and subsequently to accurately classify consumers into their appropriate stage of change.

5.7 CONCLUSIONS

It is well acknowledged that for behaviour change efforts to be effective, intervention designers should base their communication on theoretical foundations. A prominent theory in the behaviour change literature, the stages of change model, suggests that consumers differ in their readiness or willingness to change their behaviour, and based on this readiness, consumers are classified into different stages of change (Prochaska, 2008). Given that each stage presents unique, distinct characteristics that influences how consumers respond to communication messages, it is argued that consumers should be targeted separately, i.e. according to the specific stage of change they are in, to effectively influence behaviour change (Manika & Gregory-Smith, 2017). Because not all consumers are ready to change their behaviour, it is theorised that consumers will process and respond differently to emotionally loaded messages. As a result of these differences, attempts to measure the effectiveness of a commination message cannot be consider the stages of change as one homogenous group. Therefore, message effectiveness should therefore be determined by considering the responses of each stage of change individually. This study explored this theory by assessing how consumers in the different stages of change specifically respond to fear, and guilt-fear appeal messages. However, stages of change studies predominantly implement self-classification methods, and this notion has led numerous scholars to criticise the method given the possible introduction of

social desirability bias, especially in health behaviour contexts. The current study attempted to minimise this limitation by incorporating response latency, a theory that addresses survey bias, to ensure that self-classification into the different stages of change is accurately reflected.

CHAPTER SIX

RESEARCH DESIGN AND METHODOLOGY

6.1 INTRODUCTION

After examining the literature on both fear and guilt-fear appeals, inconclusive findings introduced various gaps this study attempted to address. These gaps presented the opportunity for the current study to investigate how fear appeals, and the addition of guilt within fear appeals, influence consumers who are at different stages of change when considering their sugar consumption habits. The study was conducted specifically with reference to the newly suggested warning label implementation on products high in sugar content in South Africa.

This chapter firstly reviews the problem statement as explained in the previous chapters. Then, the formulated objectives and hypotheses are presented, followed by an in-depth discussion of the research design. The focus of this section is on the primary research conducted, which entailed both qualitative and quantitative phases. Next, the measurement instrument is explored in detail followed by a thorough description of the sampling method and process. The final section of the chapter elaborates on the statistical techniques and procedures used to analyse the empirical data.

6.1.1 Problem statement revisited

In response to South Africans' alarming daily sugar consumption statistics (Villines, 2019), the government has announced an investigation into placing warning labels on sugary products to discourage excessive consumption (Tswanya, 2019). Since warning labels caution consumers against the risks related to product use, scholars have suggested warning labels to be a plausible way to persuade consumers to decrease their sugar intake (Mantzari *et al*., 2018; Rosenblatt *et al*., 2018). When designing such labels, there is overwhelming support for evoking fear among consumers (Rosenblatt *et al.,* 2018; Mostafa, 2015; Ruiter *et al.,* 2014). However, despite the widespread use of fear appeals, research has also shown its potential unintended effects, including message avoidance and denial. To combat these unintended outcomes, some studies have investigated the potential of including guilt in a fear appeal to strengthen persuasive outcomes (Schindler-Ruwisch *et al*., 2018; Carcioppolo *et al*., 2017).

Combining guilt with a fear appeal to discourage the consumption of sugary products seems warranted considering the association of guilt with consuming unhealthy foods (Chédotal *et al*., 2017; Conzen, 2015). Furthermore, empirical evidence suggests that the use of guilt aids consumers' choices to reduce unhealthy consumption (Kuijer & Boyce, 2014). Given this information, the recommended combination of guilt and fear seems promising when considering combatting excessive sugar consumption by means of warning labels. Nevertheless, although guilt and fear has shown promising outcomes for health situations, the evocation of guilt in the context of high-sugar-content products should be considered with caution. This caution is based on a contrasting line of research suggesting guilt to intensify the pleasure consumers experience through actual consumption, therefore leading to unhealthy actions (Goldsmith *et al*., 2012). Considering that sugary products are often perceived to be 'guilty pleasures', the added guilt evocation within a fear appeal may in fact increase consumption, resulting in an unintended outcome of the communicated message. This underexplored ambiguity presented in the current literature is addressed in this study by specifically investigating fear appeals and the complementary recommended use of guilt-fear appeals in the effectiveness of high-sugar content product interventions.

However, the effectiveness of emotional appeals cannot be investigated accurately without considering the stages of change. More specifically, the effectiveness of a communication message depends on which stage of change individuals are currently at (Norcross *et al.,* 2011; Herzog & Komarla, 2011; Cho & Salmon, 2006). In light of this suggestion, the same emotional appeal may produce the intended effects for consumers in one stage of change, but yet unintended effects for others in a different stage of change (Wong & Cappella, 2009). This study was conducted to assess the effectiveness of different negative emotional appeals on important cognitive and emotional responses, across the different stages of change, with regard to the recently suggested sugary product warning-label interventions.

6.1.2 Research objectives and hypotheses

Against the background of the literature review and problem statement, the current study developed six primary objectives and 24 secondary objectives. Research suggests that message effectiveness depends on consumers' readiness and willingness to change their behaviour (Herzog & Komarla, 2011; Cho & Salmon, 2006). Owing to this difference in readiness, researchers have advised against a 'one-size-fits-all' approach when targeting consumers, arguing that the different stages should be addressed separately (Norcross *et al.,* 2011; Cho &

Salmon, 2006). Therefore, consumers' responses to negative emotional appeals should be assessed *within* each stage of change, to understand each stage individually. Seeing as the study aims to determine which emotional appeal warning label is best suited for each stage of change, this study did not compare the stages with one another, but rather assessed each stage of change separately. Finally, given that the first three stages of change are considered sedentary and therefore often the primary focus of public health interventions, the current study only included pre-contemplators, contemplators, and those in the preparation stage. Consequently, the primary objectives were formulated as follows:

(1) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the pre-contemplation stage.
(2) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the pre-contemplation stage.
(3) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the contemplation stage.
(4) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the contemplation stage.
(5) To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the preparation stage.
(6) To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the preparation stage.

In accordance with the above objectives, the study formulated six main hypotheses which were measured and tested empirically. The hypotheses corresponded directly with the primary objectives, therefore:

H_0^1: There is no difference in the cognitive responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^2: There is no difference in the emotional responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^3: There is no difference in the cognitive responses of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^4: There is no difference in the emotional responses of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^5: There is no difference in the cognitive responses of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^6: There is no difference in the emotional responses of consumers in the preparation stage between different negative emotional appeal warning labels.

The secondary objectives of the study pertained specifically to the cognitive and emotional responses that the literature suggests are important to measure when conducting fear appeal research. More specifically, the extended parallel process model (EPPM) stipulates the various cognitive responses that may unfold when exposed to such emotional interventions. By taking into consideration the framework of the EPPM, the secondary objectives investigated how emotional appeals (fear and guilt-fear) influenced the respondents' perceived self-efficacy, response-efficacy, severity, susceptibility, and behavioural intention. These cognitive responses were investigated in each stage of change to assess whether different emotional appeals result in differing outcomes within a specific stage of change. Considering that literature suggests emotional evocation to engender increased attention and recall, relevant emotional responses were also assessed. The emotional responses of consumers included feelings of fear, guilt, and anticipated pleasure, as identified in the study's literature review. The following secondary objectives were formulated specifically for the pre-contemplation stage, but each is also applicable to the contemplation and preparation stage.

(1) To investigate the impact of negative emotional appeal warning labels on the behavioural intention of consumers in the pre-contemplation stage.
(2) To investigate the impact of negative emotional appeal warning labels on response efficacy of consumers in the pre-contemplation stage.
(3) To investigate the impact of negative emotional appeal warning labels on self-efficacy of consumers in the pre-contemplation stage.
(4) To investigate the impact of negative emotional appeal warning labels on severity of consumers in the pre-contemplation stage.
(5) To investigate the impact of negative emotional appeal warning labels on susceptibility of consumers in the pre-contemplation stage.

(6) To investigate the impact of negative emotional appeal warning labels on feelings of fear of consumers in the pre-contemplation stage.
(7) To investigate the impact of negative emotional appeal warning labels on feelings of guilt of consumers in the pre-contemplation stage.
(8) To investigate the impact of negative emotional appeal warning labels on feelings of anticipated pleasure of consumers in the pre-contemplation stage.

Refer to Appendix A for an outline of all of the objectives of the three stages of change and Appendix B for the corresponding hypotheses. The following section will elaborate on the research design that enabled the study to address the objectives and make a pronunciation on the hypotheses.

6.2 RESEARCH DESIGN

The current study was carried out in two consecutive phases. First, secondary research was conducted with the purpose of gaining a deeper understanding of the relevant constructs, including concepts such as multiple emotional appeals, warning labels, and stages of change. Thereafter, primary research was conducted to address the specific objectives and hypotheses of the study as outlined in the previous section. The following section will elaborate on the selected research paradigm for the study.

6.2.1 Research paradigm

According to Mackenzie and Knipe (2006), a researcher's purpose and motivation to conduct a specific study is determined by the research paradigm adopted. Selecting a research paradigm is a critical first step in the research process as it has a strong influence on how information and data are collected, analysed, and interpreted (Dudovskiy, 2016).

A research paradigm can be described as a combination of assumptions about the social world that ultimately provides the study with a conceptual framework (Ponterotto, 2005). The current study adopted a positivistic research paradigm which reflects a scientific approach to conducting research. Researchers who follow positivism believe that knowledge can only be considered trustworthy when it is obtained through objective observation and quantifiable measurement (Dudovskiy, 2016). Against this background, the role of researchers in collecting and interpreting data objectively is emphasised. Researchers are considered completely independent of the research conducted (Wilson, 2010). Stated differently, a focal point in

positivism is to maintain minimal interaction with respondents when data are collected. For the primary phase of the current study, data were collected and interpreted objectively, and findings were observable and quantifiable, thus reflecting a positivist approach. In summary, the study adopted a positivism paradigm that is based on the idea that science is the only way to learn the truth about phenomena (Dudovskiy, 2016).

6.2.2 Secondary research

Secondary research entails the gathering and analysing of existing information that was collected for some purpose other than the current study (Malhotra, 2004). Conducting secondary research is valuable as it enables researchers to gain a deep understanding of the constructs on which the primary research will be built (Malhotra, 2010). Essentially, secondary research enables primary research to be conducted more efficiently and effectively (Bhasin, 2018). The current study made use of various search domains to conduct an extensive literature review. The Stellenbosch University Library, in conjunction with its online research databases, was mostly used to access relevant books, journal articles, newspaper articles etc. Online search engines included EBSCOhost, Emerald and SAGE Open. Google and Google Scholar were also consulted to gather news articles and journal articles, and to access certain websites. Journal articles utilised originated from a host of publications, including the *Journal of Consumer Behaviour*, *Journal of Business Research*, *Psychology and Marketing* and the *Journal of Marketing*. The search domains were used with appropriate keywords such as ‘sugar consumption in South Africa’, ‘emotional appeals’, ‘warning labels’ and ‘stages of change model’ among several others.

Secondary research provided the researcher with an understanding of various concepts related to the study, and how these concepts may interact with one another. Furthermore, upon conducting the in-depth literature review, a gap in the current literature relating to the use of multiple emotion-based warning labels in the context of sugar consumption came to light, which prompted the current investigation by means of primary research.

6.2.3 Primary research

Primary research entails collecting new data to address detailed research objectives unique to a specific study (Kotler & Keller, 2012). Primary research is valuable as it presents original data and information about the relevant research topic. This research method can be conducted through qualitative techniques, quantitative techniques, or both (Zikmund & Babin, 2010). The

current study employed both qualitative and quantitative methods to address its research objectives. A qualitative method, namely personal interviews, was the first phase of primary data collection. In addition to the information obtained in conducting the literature review, this technique had the further purpose of understanding appropriate emotional appeal messages in the context of warning labels on sugary products and to assist in developing a suitable message to investigate in the quantitative phase.

6.2.3.1 Qualitative technique: In-depth personal interviews

Since the South African government has announced an investigation into placing warning labels on sugary products to discourage consumption (Tswanya, 2019), the ongoing problem has been how to design the warning labels to maximise their effectiveness. Alongside conducting in-depth secondary research on warning labels and emotional appeals, the study conducted in-depth personal interviews to explore different effective warning label messages and designs. The in-depth interviews enabled the researcher to identify and design appropriate warning labels to investigate in the quantitative experiment.

The qualitative data obtained in this study were collected by means of eight in-depth personal interviews. This qualitative technique offered unique advantages. Firstly, conducting interviews can provide detailed information that is impossible or unlikely to attain with other data collection methods (Boyce & Neale, 2006). Detailed information is attainable as researchers can probe participants, on a one-on-one basis, for complex answers (Zikmund & Babin, 2010). In the case of this study, discussions surrounding fear and guilt elicitation required more probing to understand why participants feel a certain way. Probing was considered essential given that both emotions are relatively underexplored in a warning label sugar intake context.

Secondly, given the privacy of personal interviews, interview participants are generally more inclined to be comfortable to speak about their behaviours, as opposed to when they are part of a larger group (Boyce & Neale, 2006). Since authors have specifically suggested how diet-related questions could engender self-consciousness or participants feeling ashamed due to the sensitivity of the topic (Knox, Oddo, Walkinshaw & Jones-Smith, 2018; Lissner, Heitmann & Lindroos, 1998), the study considered one-on-one interviews to maintain participants' privacy.

Finally, interviews enabled the researcher to present visual aids to participants that could be discussed in depth. This phase of the research study relied on visual elements to gain an

understanding of participants' perspective on warning labels placed on sugary products. Conducting personal in-depth interviews in the qualitative phase had one main purpose: to develop appropriate stimuli for the quantitative experiment of the study.

(a) Process and interview sequence

The in-depth personal interviews were conducted with participants who adhered to the target population criteria of the study, specifically those who consume sugary products on a weekly basis. As the Covid-19 pandemic forced South Africa into a national lockdown from March 2020 (Brown, 2020), this phase of data collection was facilitated through *online communication* platforms and was not conducted in person. Five females and three males, between 24 and 60 years old, were approached and invited to take part in the interview via e-mail as this was a convenient communication platform for the researcher. The e-mail invitation included instructions about the study along with two documents, should the participant agree to take part.

Participants were first instructed to open the consent form, read it thoroughly, and to indicate whether they agree to take part in the interview. Upon agreeing, participants had to send the signed document back to the researcher, along with a preferred date and time for the interview to commence. Participants were also required to indicate which online communication platform (such as Zoom or Microsoft teams) they preferred to use for the interview. The e-mail invitation can be seen in Appendix C and the participant consent form in Appendix D.

The document with participant material included stimuli that were referred to during the interview, and therefore participants were instructed to only open and view the document once the researcher would specifically ask them to do so. The participant material was divided in three sections, each section containing different stimuli with the intent to arouse fear and guilt. The researcher referred to each section with specific questions as outlined in the interview guide.

The interview process followed a specific structure to ensure that all relevant topics were discussed without leading the participant into a certain direction. The interview commenced by welcoming participants and thanking them for their willingness to take part in the study. Then participants were reminded of the participant material and consent form that were sent to them prior to the interview. Once participants had the documents on hand, the researcher again emphasised the matter of confidentiality to participants.

To ease participants into the process, the interviewer commenced with introducing the context in which the discussion would take place. That is, the consumption of sugary products with which a list of examples was provided. Participants were encouraged to discuss their consumption habits of such products in-depth, and the interviewer probed this discussion with questions such as 'Can you tell me a bit more about why you eat sugary products?' and 'Would you give me an example of situations where you purchase and consume this product?'.

After the introductory phase, the interviewer mentioned the South African government's suggestion to incorporate warning labels on sugary products. Warning labels and their purpose were briefly explained to participants by specifically referring to those evident on cigarette packaging and alcoholic beverages. Once participants had a thorough idea of what warning labels are, they were required to write a warning label message they deemed appropriate for the use of sugary products. The purpose of asking participants to write down a warning label message before any further discussions or exposure to stimuli, was to identify what core message participants would suggest organically. Each participant was probed to discuss their individual message. More specifically, the interviewer asked probing questions such as 'Can you explain why you included "Warning" in your message?' and 'Tell me more about how you decided on your message'.

After discussing their own label designs, participants were exposed to three different sets of warning labels, as provided in the participant material document. The first section entailed warning labels that appear on current cigarette packaging in South Africa. The purpose of discussing current cigarette warning labels was to get a general idea of what participants thought of the fonts, colour, placement as well as the message conveyed. The next section included warning labels with specifically a fear-based message as placed on current cigarette packaging in South Africa. The fear appeal warning labels were either obtained from previous academic studies, or they were designed based on fear appeal theories. The final section contained examples of guilt-fear warning labels. Given the limited use of guilt-fear messages in the literature, the researcher developed warning label messages for this section based on previous guilt research specific to the context of sugar intake. In all three sections participants were asked specific questions pertaining to the warning label messaging and were probed to elaborate on their answers. These questions included the following: 'Would you reconsider purchase and consumption of the product? Why/why not?', 'Do you feel scared after looking at this label? Why/why not?', and 'What changes would you make to these warning labels?'.

Subsequent to the warning label discussions, participants were introduced to the definition of high-sugar-content products. The purpose of the discussion was to identify whether participants knew the sugar content of the products they consume, whether they cared about the health consequences, and why they continued to engage in its consumption. In addition, participants were again probed to explain whether they ever felt guilty when consuming sugary products. Finally, participants were referred to their original warning label message they had written down. Participants were asked, based on all previous discussions – including the sugar content of products, warning labels evident on cigarette packaging etc. – whether they would like to make any amendments to their message.

In summary, since the interview was considered a semi-structured conversation, the researcher followed an interview guide with questions to ensure that important topics were discussed in depth. Questions regarding sugary product habits, such as how often sugar consumption took place, were asked to gain a better understanding of participants' behaviours. Questions regarding whether participants ever experienced guilt before, during and/or after sugar intake were asked and then probed as to what led to the emotion. The interview guide also referred to the stimuli as presented in the participant material document, along with specific questions and possible probing questions. The interview guide can be reviewed in Appendix E.

(b) Stimuli presented in participant material

The first section of the participant material included warning labels currently placed on cigarette packaging in South Africa. Such warning labels were considered the best example of current warning labels that are prevalent on consumption products in South Africa. Consequently, this section had the purpose of introducing participants to how warning labels are typical designed. All three of the cigarette warning labels presented were text-based and referred to the health consequences related to smoking. The health consequences, along with the word 'DANGER', intend to induce fear among smokers and subsequently discourage cigarette consumption.

The second section presented an example of a unique warning label message placed on a Coca Cola can. Refer to Figure 6.1 for the warning label presented to participants in this section. The warning message was developed by the researcher and was based on the review of current fear appeal literature. In particular, the message was designed considering research stipulating that fear elicitation occurs through mentioning the serious health consequences associated with

product consumption (Ruiter *et al.*, 2014; Thompson *et al.*, 2009; Das *et al.*, 2003). The second section also included two other examples of warning labels on sugary drinks as developed in previous research studies (Mantzari *et al*., 2018; Rosenblatt *et al*., 2018).

Figure 6.1: Example of fear appeal warning label presented to interview participants

These messages too intended to evoke strong feelings of fear by referring either to specific health complications associated with sugar consumption, or by indicating that the product contained a high sugar content. While the first two sections specifically addressed fear appeals, the last section focused on guilt-fear appeals.

The researcher has no knowledge of guilt-fear messages that have ever been considered specifically in a warning label context. Therefore, for the final section, this study developed guilt-fear stimuli based on suggestions from guilt-fear appeal literature, while also drawing from guilt evocation research. According to researchers who investigate guilt, this emotion could be experienced once the message receiver considers his behaviour to have violated his own moral standards (Niedenthal & Ric, 2017), or when behaviour results in harming oneself or others (Xu & Guo, 2018; Duhachek *et al.*, 2012; Burnett & Lunsford, 1994). Sugar intake behaviours result in harming one's health, and therefore consumers could experience

remorseful feelings (Netemeyer *et al*., 2016). To this end, the message was developed to potentially evoke guilt by referring to the harm one causes to one's health by consuming sugary products (Burnett & Lunsford, 1994).

In all three sections of the participant material document, the researcher asked participants the same questions, for example: 'When you look at this label, does it scare you to think about the products you eat? Why/why not?' and 'Would you reconsider purchase and consumption of the product? Why/why not?'. These questions had the purpose of probing participants and subsequently identifying what elements in the message may be specifically responsible for evoking the emotion in question (refer to Appendix F for the participant material containing the relevant stimuli). Each interview was recorded and was transcribed into a single summarised Word document for identifying relevant themes and analysis (refer to Appendix G for summary of the interview findings).

(c) Stimuli development, testing and selection

As mentioned before, the main purpose of the personal interviews was to gather information to develop appropriate stimuli for the quantitative phase of the study. Upon analysing the transcription of interviews, the researcher identified various themes about emotional elicitation and responses that led to the development of six warning labels. A prominent theme related to the importance of including the word 'Warning' to attract consumers' attention and generate awareness of the importance of the subsequent message. The fear and guilt-based themes are outlined in Table 6.1.

Table 6.1: Identified themes and participant quotes

THEME(S) IDENTIFIED		**CORRESPONDING QUOTE**
Fear appeal message		
1.	Amount of sugar content	'It is really scary knowing exactly how much sugar you eat in just one serving.'

Table 6.1: Identified themes and participant quotes (cont.)

Fear appeal message		
2.	Dire, specific health consequence	'The health consequence communicated should be severe for me to relate to, just "health problems" are too vague.'
THEME(S) IDENTIFIED		**CORRESPONDING QUOTE**
Guilt-fear appeal message		
3.	Harming one's own health	'It makes me feel guilty knowing I could harm my health.'
4.	Being responsible for one's own health	'I feel guilty because I know it is my own responsibility to eat less sugary products.'

Based on the two recurring fear themes, two separate fear appeal warning labels were designed. Both messages emphasised the *amount* of sugar contained in the product and highlighted a dire *health consequence*(s). For the purposes of selecting a fear appeal message that can be used in the experimental phase, these two messages were later tested through manipulations checks.

To select an appropriate the guilt-fear appeal message, one of the fear appeal messages were selected by the researcher. The two guilt information points identified in Table 6.1 were then used in conjunction with the fear appeal to create the guilt-fear appeal. In other words, the information responsible for conveying fear remained constant, to ensure the emotion can be compared between the fear and guilt-fear appeal message. Four guilt-fear messages were developed based on the two information points identified previously. Firstly, participants felt guilty when they considered that they are *harming their health* by consuming sugary products and secondly, knowing they are *responsible to make the healthier choice*. The separate messages designed from the personal interviews can be seen in Table 6.2.

These messages were subjected to manipulation checks to determine which fear and guilt-fear message elicited the highest level of emotion. One fear appeal warning, and one guilt-fear appeal warning were selected for the main quantitative phase of the study. The testing was

conducted in Qualtrics and distributed to 21 respondents who adhered to the criteria set for the target population of the study. Refer to Appendix H for the warning label test questionnaire.

Table 6.2: Fear and guilt-fear appeal warning label messages

Fear appeal	**Guilt-fear appeal**
Warning. This product contains seven teaspoons of added sugar and may cause obesity.	Warning. This product contains seven teaspoons of added sugar and may cause obesity. Your health is your responsibility.
Warning. This product is high in sugar and may cause obesity and tooth decay.	Warning. This product contains seven teaspoons of added sugar and may cause obesity. Your health is your choice.
	Warning. This product contains seven teaspoons of added sugar and may cause obesity. Choose to not harm your health.
	Warning. This product contains seven teaspoons of added sugar and may cause obesity. Don't harm your health.

For each of the six warning labels, respondents were required to indicate to what extent the label made them feel (1) scared and (2) guilty, on an eight-point Semantic scale. To avoid order effect bias, the questions were randomised (Zikmund & Babin, 2010). Individuals were also asked to indicate which labels (fear or guilt-fear) would make them reconsider product purchase the most. The researcher analysed the mean values for fear (measured by scared) and guilt (measured by guilty) and considered additional factors such as responses to purchase reconsideration. A longstanding argument in the literature exists that indicates an inverted-U fear curve to positively predict persuasion (Janis & Feshbach, 1953). In other words, this argument states that moderate fear evocation engenders superior persuasion results than that of high fear appeals (Tay & Watson, 2002). Against this line of research, the study accepted moderate scores on the eight-point scale as sufficient fear and guilt evocation. Table 6.3 contains the mean values of each warning label message.

Table 6.3: Emotional appeal warning label messages and mean values

	EMOTIONAL APPEAL MESSAGE	**MEAN VALUE**	
	Fear appeal message	**Scared**	**Guilty**
1.	Warning: This product contains seven teaspoons of sugar and may cause obesity.	3.57	4
2.	Warning: This product is high in sugar and may cause obesity and tooth decay.	3.86	3.67
	Guilt-fear appeal message	**Scared**	**Guilty**
1.	Warning: This product contains seven teaspoons of sugar and may cause obesity. Your health is your responsibility.	3.91	5.1
2.	Warning: This product contains seven teaspoons of sugar and may cause obesity. Your health is your choice.	3.43	4.95
3.	Warning: This product contains seven teaspoons of sugar and may cause obesity. Choose to not harm your health.	3.29	3.86
4.	Warning: This product contains seven teaspoons of sugar and may cause obesity. Don't harm your health.	3.48	5

Considering the two fear appeal messages, results show respondents to be moderately scared when exposed to the warning labels messages. However, numerous fear appeal studies have suggested moderate fear evocation to engender superior persuasion results compared to high-level fear appeals (Tay & Watson, 2002; Elliot, 1996; Janis & Feshbach, 1953). Fear is considered most effective when experienced moderately because, as it increases to higher levels, defensive reactions are induced and persuasion reduces (Keller & Block, 2005). Therefore, against the background of optimal level of fear evocation, the current study considered a score of 3.57 and 3.86 as moderate and adequate for persuading behaviour change.

As the mean values of the fear appeal messages do not seem to differ (3.57 versus 3.86), respondents seemed to be scared more or less to the same extent. While fear message 2

indicates a slightly higher level of scared, message 1 was chosen for the following reasons: First, as mentioned previously, the values of fear messages 1 and 2 do not seem to differ significantly in terms of scared. Secondly, 81 per cent of respondents indicated that fear message 1 will make them reconsider product purchase the most. Finally, considering that fear should be held constant between the two warning labels, fear appeal message 1 was chosen to be the fear appeal message to be used on the study's warning labels. Upon viewing the data of the guilt-fear warning labels, message 1 has resulted in the highest mean values for both guilt and fear. See Figure 6.2 and Figure 6.3 for the final warning labels that were chosen for the final quantitative phase of the study.

Figure 6.2: Final fear appeal warning label

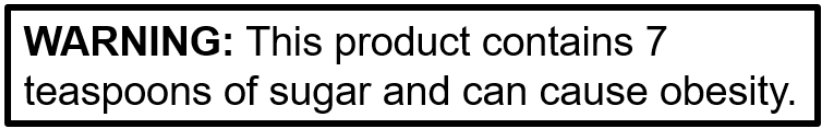
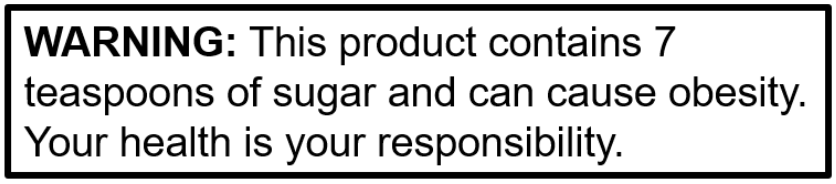


Figure 6.3: Final Guilt-fear appeal warning label



The two warning label messages were placed individually on each of the identified branded products. Then the study commenced with a pilot study which is discussed in Section 6.4.

In summary, during the interviews, in-depth elaboration was required from respondents to gain a better understanding of how warning labels should be designed for the quantitative phase of the study. To this end, specific questions were asked regarding fearful and guilt-laden messages. After transcribing and analysing each individual interview, the researcher identified themes that led to the design of two fear appeal warning labels and four guilt-fear warning labels. The six warning labels were tested for their effectiveness in arousing the relevant emotions, upon which one appropriate fear-based warning label and one appropriate guilt-fear warning label were selected for the main experiment.

6.2.3.2 Quantitative technique: Experiment

The purpose of the study was to investigate the influence of the different warning label designs on consumers' responses and, as the warning labels were manipulated to examine the cognitive and emotional effects of each message appeal, conducting an experiment was selected as the appropriate research technique. More specifically, the quantitative research technique selected for the purpose of this study was a true experimental post-test-only control group design. The reasoning for selecting a post-test only control group design will be discussed later in this section.

The experiment was executed to collect the necessary data to address the main objectives and hypotheses as outlined in Section 6.1.2. In true experimental designs, test units and treatments are assigned to groups randomly (Malhotra, 2010). In this study, randomisation was considered critical to control for extraneous variables and, as respondents were randomly allocated to one of the experimental groups, extraneous factors were assumed to be equal in each group (Malhotra, 2010). The post-test-only control group approach explains the control group as one that excludes a treatment element, and no pre-test measure is taken (Malhotra, 2010). A between-subjects design was selected as results are easier to report (Zikmund & Babin, 2010). The experimental design can be depicted in the following notation:

Experimental group 1:	R	X^1	O1
Experimental group 2:	R	X^2	O2
Control:	R		O3

The letter 'R' reflects the randomisation process that was implemented to ensure control over extraneous influences in the study. The 'X' refers to the experimental stimuli that respondents in each group were exposed to. The stimuli were presented as emotional appeal warning labels, where one group viewed a fearful message, and the other group was shown a guilt appeal message. O1, O2 and O3 explain similar questionnaires that respondents in different groups had to complete. The experiment intended to determine whether the different warning label stimuli had the ability to influence cognitive responses – including behaviour intentions – as well as whether the warning labels had differing effects on responses based on respondents' stages of change.

An important consideration when designing and executing experiments is validity. The current study assessed the trade-off between external and internal validity.

(a) External and internal validity

Validity refers to the accuracy of a measure, which in turn determines the quality of results of a study (Zikmund, Babin, Carr & Griffin, 2013). Experiments attempt to draw valid conclusions pertaining to the effects of the independent variables on the dependent variables (internal validity), and to make generalisations regarding the larger target population (external validity) (Malhotra, 2017). Although it is desirable to possess both types of validity in experiments, a trade-off often exists between the two types of validity (Zikmund *et al*., 2013).

External validity determines whether results can be generalised beyond the experiment's findings. External validity is desirable in studies as researchers can argue that their study's results are also highly likely to occur in the real world (Malhotra, 2007). However, because experiments tend to be conducted in an *artificial environment* to enhance internal validity, external validity is often compromised due to the problem of generalisability (Malhotra, 2017). Given that this study was not executed in a realistic setting, external validity was compromised. Nonetheless, the current study aimed to increase external validity through the implementation of warning labels on actual branded products to reflect realistic representations of in-store packaging.

Internal validity can be claimed in instances where changes in the dependent variable are attributed to manipulation or stimulus (Malhotra, 2017). Enhanced internal validity is typically associated with experiments (Zikmund *et al.*, 2013) and it is therefore a focal area in the current study. The possible threats to internal validity were specifically addressed by identifying and controlling extraneous variables.

(b) Controlling for extraneous variables

Extraneous variables refer to any variable, other than the independent variable, that could influence the result of the experiment (McLeod, 2019). Extraneous variables can have a considerable influence on the accuracy of experimental conclusions, and therefore pose a significant threat to internal validity (Zikmund & Babin, 2010). Consequently, it was important to identify possible extraneous variables in the current study and to attempt to control their effects. The study strived to increase internal validity by following a randomisation approach during the experimental condition assignment process. Randomisation can be defined as the

random assignment of respondents to treatment groups (Malhotra, 2004). The study's respondents were randomly allocated to either the fear group or the guilt-fear group, or they were assigned to the control group. Randomisation is critical to control extraneous variables, and as respondents were randomly allocated to one of the three groups, extraneous factors could be assumed to be equal in each group (Malhotra, 2010).

The experimental design also incorporated a between-subject design where each respondent was exposed to only one condition (Budiu, 2018). The validity of a between-subject design is usually high as respondents are exposed to only one treatment condition, therefore reducing demand characteristics (Zikmund *et al.*, 2013). More specifically, a between-subject design results in shorter individual sessions, reducing the possibility of *subject fatigue*. In addition, a between-subject design also attempts to decrease *learning effects* that could potentially confound results (Budiu, 2018). The purpose of the control group is to eliminate the possibility that other variables, external to the variables included in the study, could influence the findings (Bryman & Bell, 2015). The control group, which receives no experimental manipulation, is used as a baseline to compare the different experimental groups and to assess the actual effect of the manipulation (Shuttleworth & Wilson, n.d.).

According to Zikmund and Babin (2010), internal validity in experiments depends largely on the success of the conditions. It was therefore necessary to ensure that the manipulations in the current study produced the desired effects. Manipulation checks refer to the validity test of an experimental manipulation to ensure the produced differences in the independent variable are due to the manipulation (Zikmund & Babin, 2010). Manipulation checks were first administered during the qualitative phase (after the personal interviews) to ensure that the designed warning labels were indeed producing the desired emotions. After the measurement of the dependent variables, manipulation checks were again performed at the end of the questionnaire (designed for the quantitative phase) to avoid possible demand characteristics being induced. The structuring of the questionnaire is discussed in depth in Section 6.3.1.

In summary, to understand the potential influence of emotional appeals on the respondents' cognitive responses, an experimental design was selected. The experimental design allowed the researcher to manipulate emotional appeals and to determine how the experimental manipulation affected respondents' evaluation of the relevant cognitive variables. The study carefully constructed the measurement instrument to ensure validity, and its outline and process will be discussed next.

6.3 MEASUREMENT INSTRUMENT

To address the primary objectives of the research, a measurement instrument had to be implemented. This section explains the measurement instrument developed for the main phase of the study. An online self-administered questionnaire was designed for the quantitative experimental groups. The measurement instrument was developed and tested during a pilot study, which will be discussed in Section 6.4. The current section will first elaborate on the structuring of the questionnaire, followed by the questionnaire development and procedure. This will be followed by a discussion of the selected scale items and scales. Finally, the classification of consumers' stages of change will be discussed along with how the instrument addressed reliability and validity concerns.

6.3.1 Structuring of the questionnaire

The literature suggests incorporating a funnel technique when considering the sequence of questions in the questionnaire (Zikmund & Babin, 2010; Malhotra, 2004). According to this technique, respondents are more likely to maintain involvement throughout the rest of the questionnaire when presenting opening questions that are interesting, simple to comprehend and easy to answer. For this reason, the current study commenced with demographic related questions to ease respondents into the answering process, followed by interesting questions about sugar consumption habits to maintain their attention.

To address the possibility of order bias, the study carefully considered the sequence of the remaining questions relating to stages of change, exposure to experimental conditions, and subsequent dependent variables measurement. Considering that respondents are required to report on their intention to change their current unhealthy behaviour (sugar intake), it could be argued that the stages of change should be presented first, before being exposed to fear or guilt-based messages. In other words, an emotion-based warning label, followed by questions relating to guilt (or other emotions) experienced, may influence their answers to their stage of readiness to change. By way of explanation, if respondents are to be exposed to a message that induces guilt, it may prompt them to indicate that they are planning to change their sugar intake habits, when in fact they have no such intention. In addition, given that the purpose of the experiment was to understand how consumers in different stages of change react to emotion-based messages, it was important to first establish consumers' stage of change before the measures of the dependent variable could follow. Therefore, to avoid order bias that would

confound results, the study first presented respondents with stages of change questions before assigning them to an experimental condition containing a warning label.

The general layout of this study's questionnaire was purposefully chosen so that it would be easy to answer, follow a logical flow, and have an overall impression that would motivate respondents to complete the questionnaire. Moreover, by identifying the necessity to avoid order bias, the sequence of the questionnaire ensured that respondents were not influenced to answer questions differently based on previous questions.

6.3.2 Questionnaire development and procedure

An online self-administered questionnaire was designed for the experimental phase of the study. Refer to Appendix I for the questionnaire outline, and Appendix J for the cover letter. The questionnaire was developed on two separate online platforms, Qualtrics and iCode. Qualtrics is a popular web-based survey tool that enables quick and easy data collection (What is Qualtrics, 2020). Qualtrics was used to design most of the questionnaire, including questions pertaining to sugary consumption habits, and the measurement of the dependent variables. The core reason for utilising Qualtrics was the platform's ability to randomise experimental conditions – a key strategy to control extraneous variables and increasing the validity of the study's results. The second platform, iCode, is an online platform for designing and analysing short surveys (iCode, 2018). What sets iCode apart from other survey platforms is that it incorporates reaction time technologies (iCode, 2020). These reaction time technologies, which are based on response latency research, enable researchers to measure respondents' implicit responses, which extend beyond respondents' declarative answers (Ohme *et al*., 2020). In line with response latency research, inaccurate responses could be identified through the argument that, the longer a respondent takes to answer a question, the higher the uncertainty, and the higher the possibility of biased answers (Mayerl, 2013; Presser *et al*., 2004; Holden & Hibbs, 1995). Response latency measures were utilised for the measurement of respondents' stages of change, and the specifics will be discussed in depth later in this chapter.

The questionnaire layout was divided into three sections. Starting with Qualtrics, respondents were required to answer demographic questions relating to their age, gender, and education level in Section 1 of the questionnaire. Respondents were also asked to indicate whether they believe themselves to maintain healthy eating habits. Once the demographic information had been captured, the questionnaire then broadly explained the study's domain. That is, respondents were informed that the study was interested in the intake of products that contain

sugar. After viewing an image providing respondents with examples of numerous sugary products relevant to the context of the study, respondents were asked whether they had consumed such products in the past year. The purpose of this screening question was to eliminate those respondents who do not consume sugar at all – that is, those who are intolerant or allergic. Section 1 also included a second, more detailed screening question, which had the purpose of identifying and excluding those respondents who did not adhere to the specific target population. To this end, respondents were required to indicate precisely how much sugary products they consumed in a typical two-week period. Sugary products included were rusks and yoghurts, but also high-sugar-content products (exceeding 10g per 100g) such as ice-cream sticks, sugar-sweetened beverages, muffins etc. Respondents had to indicate on a numerical scale how often they consumed the product, beginning from 'Never' to '10+ times', in the two weeks. If respondents indicated that they had consumed any of the high-sugar-content products in the past two weeks, they were considered part of the target population and were prompted to continue with the questionnaire.

The next question required respondents to indicate which sugary product category they consider themselves to consume most often. Respondents had to choose between six product categories which included examples as listed in Table 6.4. Depending on their product category choice, respondents were exposed to an experimental condition later in the questionnaire, containing an example image of the specific category.

Table 6.4: Product category and corresponding branded product examples

Product category	**Examples provided**
Sugar-sweetened beverages	Fanta, Coke, Iced Tea, pre-made smoothies
Chocolates or granola bars	Bar One, Lunch Bar, Crunchie, Jungle Oats Bar
Sweets	Jelly Tots, Speckled Eggs, Jelly Babies, Rascals,
Cookies	Oreos, Jolly Jams, Zoo Cookies, Romany Creams, Tennis Biscuits
Sugar-sweetened dairy	Magnum, King Cone, Paddle Pop, Cornetto
Candied chocolates	Smarties, Astros, Whispers, Woolworths Chuckles, M&M

For example, should a respondent have indicated sugar-sweetened beverages to be the product they consumed most often, he or she would have been exposed to a Coca-Cola image in the experimental group design. The matching had the purpose of attempting to make the warning label more relevant to the respondent. Refer to Figure 6.4 for the fear appeal Bar One image as an example, and Figure 6.5 for the guilt-fear appeal. Each branded product warning label for the fear appeal, guilt-fear appeal, and control group, can be seen in Appendix K, Appendix L and Appendix M, respectively.

Figure 6.4: Fear appeal warning label presented on Bar One

Figure 6.5: Guilt-fear appeal warning label presented on Magnum

Then, because the study was completed on two different platforms, the data had to be merged. This was facilitated by asking respondents to answer two arbitrary questions on both platforms. The two questions were simple and easy to answer so that respondents could provide the same responses on both platforms. The first question required respondents to state their favourite

type of food, and the second question was to provide the name of the respondent's childhood pet. Once respondents had completed the matching questions, they were required to click on a hyperlink that directed them to the second platform, iCode, to answer Section 2 of the questionnaire.

Section 2 entailed the measurement of respondents' stage of change. Once landing on the iCode platform, the same matching questions were asked: favourite food and childhood pet. Respondents were reminded to provide the same answers as they did previously. For the measurement of respondents' stage of change, response latency technology was required. This technology was assessed and made available to the researcher by the online platform iCode. Once respondents clicked on the hyperlink and were directed to the iCode page, a series of warm-up questions were presented to respondents. These warm-up questions had the sole purpose of measuring respondents' average reaction time (Poławska, 2020). iCode uses the time taken to answer each warm-up question to establish how long each individual respondent typically takes to read and answer statements. The warm-up phase also aims to ensure that respondents are paying sufficient attention to the tasks of the questionnaire (Ohme *et al.*, 2020). To this end, after a series of statements are shown, respondents are required to indicate which statement was presented last. This exercise aims to warn respondents should they not be focusing on the questions.

After the warm-up phase, inducing a benchmark time to assess the accuracy of subsequent responses, respondents were presented with five statements. The five statements represented each stage of change: pre-contemplation, contemplation, preparation, action, and maintenance. Respondents were required to read each statement carefully and to indicate whether the statement was applicable to their own behaviour. To do this, respondents had the option of selecting 'Yes' (when the statement was applicable) or 'No' (when the statement did not describe their behaviour).

The final section entailed the exposure to an experimental condition, and subsequent questions measuring the dependent variables. Respondents were randomised to be exposed to either a fear group, a guilt-fear group, or they were assigned to the control group. Depending on the product category they consumed most often (as indicated in Section 1 of the questionnaire) respondents were exposed to a warning message on a designated branded product that falls in the specific category. Branded products were chosen based on the following characteristics: First, products had to be classified as a 'high-sugar-content product' for containing the harmful

free sugars that the warning label suggestion was targeted at (Tswanya, 2019). The nutritional information of the products thus had to indicate a sugar content that exceeds 10g per 100g (Elliot, 2008). Secondly, each product had to contain more or less seven teaspoons of sugar to accumulate an average of 28g of sugar, which would exceed the daily intake recommendation the World Health Organization has stipulated (Kidd, 2018). Finally, considering available AMPS data of South Africans' sugary product intake (Eight20, 2015), the products chosen ranked in the Top 10 category of products consumed most often in seven days. The identified branded products per category chosen for this study are listed in Table 6.5 and the branded product images used in the study can be seen in Appendix K-M.

Table 6.5: Product categories and corresponding branded products identified

Product category	**Branded product identified for experimental conditions**
Sugar-sweetened beverages	Coca Cola Coke
Chocolates or granola bars	Nestlé Bar One
Sweets	Beacon Jelly Tots
Cookies	Bakers Zoo Cookies
Sugar-sweetened dairy	Ola Magnum Classic Ice Cream
Candied chocolates	Cadbury Astros

Once assigned to a specific experimental group, respondents were asked to view the image in its entirety and to keep their favourite product in mind when answering the subsequent questions. The subsequent questions entailed the dependent variables measurement, i.e. questions related to emotional arousal and constructs of the EPPM. Responses to emotional arousal, more specifically fear, guilt, and anticipated pleasure, was first investigated through a series of statements that respondents had to read, indicating to what level they agreed or disagreed with the statements.

Following the emotional responses, the cognitive variables relating to the EPPM were measured. This also entailed a series of statements respondents had to read, indicating to what level they agreed or disagreed with the statements. Lastly, manipulation checks were

incorporated to test whether the differences produced in the independent variables were due to the designed warning label messages. To this end, respondents had to view each warning label individually, indicating to what extent the label made them feel (1) scared and (2) guilty. The questionnaire concluded with respondents being given the opportunity to provide their contact details should they want to stand a chance of winning one of two Takealot vouchers.

The following section will elaborate on the measurement of the dependent variables. This will include a discussion on the selected scale items and type of scale used.

6.3.3 Measurement of dependent variables

The selected scale items included in the questionnaire to measure the dependent variables originated from published academic studies. These academic studies typically dealt with topics relating to the EPPM and emotional arousal. The measurement items were considered across a range of different domains, including the measurement of smoking behaviours, alcohol abuse, and sunscreen usage in skin cancer studies (Wright *et al*., 2015; Cho & Salmon, 2006; Arthur & Quester, 2004). Finally, scale items that were identified from pre-designed and pre-tested previous studies were adapted to comply with the current study's domain, namely sugar consumption behaviours. In addition, a pilot study was conducted to ensure all items were easy to read and understood by respondents. The items of the EPPM variables and emotional arousal were considered across a range of different domains. All items were subjected to a pilot study to review whether items made sense to respondents, which will be discussed in Section 6.4. See Appendix N for the original and the adapted items.

Regarding the scales used, a numerical scale was implemented to measure emotional responses. More specifically, in line with previous studies (Cho *et al.*, 2018; Cameron, Pepper & Brewer, 2015; Cho & Salmon, 2006; Coulter & Pinto, 1995), a seven-point numerical scale was chosen according to which respondents had to rate how much they experienced specific emotional adjectives ranging from 1 ('not at all') to 7 ('very much so'). For instance, respondents were required to indicate to what extent they felt anxious, where 1 signified 'not at all', and 7 'very much so'. The scale contained five emotional adjectives for each emotion measured in the study: fear, guilt, and anticipated pleasure.

In accordance with previous recommendations (Chen & Yang, 2019; Ooms, Jansen & Hoeks 2015), a Likert scale was employed for the measurement of the EPPM variables. The popularity of the Likert scale in survey research stems from its ability to compare reported attitude scores

along a continuum (Matukin & Ohme, 2016). As the reliability and validity of scales with between five and seven response categories are much higher than that of fewer than five response categories (Preston & Colman, 2000), the current study included a seven-point Likert scale measurement, specifically with regard to the questions pertaining to the EPPM constructs (Ooms *et al*., 2015; Lewis *et al*., 2013; Hong, 2011). The Likert scale ranged from strongly disagree to strongly agree and produced interval data.

Finally, respondents had to be classified into their appropriate stage of change to investigate the different cognitive responses. The study followed a relatively novel approach to classify respondents' stages of change, but first the following section will elaborate on the measurement of the stages of change construct.

6.3.4 Measurement of stages of change

Numerous methods exist to measure respondents' stages of change (Wright *et al*., 2015; Coulsen, 2000). Depending on the context of the research, the stages of change are typically measured either through categorical or through continuous measurement methods. The University of Rhode Island Change Assessment (URICA), a frequently used instrument in addiction behaviours, encompasses a series of 32 statements which capture the precontemplation, contemplation, action, and maintenance stages. Each of the four stages is assessed with eight items, to which respondents indicate their level of agreement, one (1) being a lower association with the behaviours and attitudes of the particular stage, and five (5) representing a greater endorsement with the corresponding stage (Amodei & Lamb, 2004). Another measurement method is the readiness to change questionnaire (RCQ), which was specifically developed to assess excessive alcohol drinkers' stages of change (Rollnick *et al*., 1992). The questionnaire contains 12 statements to measure consumers' stage of change, and statements relate to the pre-contemplation, contemplation, and action stages – also on a continuous scale.

Despite the popularity of continuous methods, authors have called for an instrument that is shorter, and easier to administer (Rollnick *et al.*, 1992). Given the limited time available in healthcare interventions, many researchers adopt categorical measurement methods to classify respondents according to their stages of change. (Cho & Salmon, 2006; Coulson, 2000; Grimley *et al*., 1993). Respondents are presented with five distinct statements, one representing each stage of change, from which they are required to select one that they feel is applicable to

their current behaviour (Coulson, 2000). For instance, Cho and Salmon (2006) categorised respondents in the pre-contemplation stage with the single item 'I did not use sunscreen consistently when going out in the sun and do not intend to start using it consistently within the next six months'. Because it is recommended to keep questionnaires as short as possible to limit respondent fatigue (Zikmund & Babin, 2010) and the fact that continuous measures can take longer to read and answer, this study implemented categorical measures to assess the stages of change. Categorical measurement methods have been criticised for possibly introducing social desirability bias and acquiescence bias, but in this study the former bias was specifically addressed through response latency which will be discussed in Section (a) under the subheading *'Social desirability bias'*.

Given that the study limited social desirability bias, and because of its short and easy process to administer, a categorical, single-item approach was implemented to measure respondents' stage of change. After consulting the stages of change literature, the study identified five statements previously developed and tested by authors who focused on the construct in the context of healthy eating habits, including vegetable intake (Lacey & Street, 2017; Wright *et al*., 2015). Originally, all five items of Lacey and Street (2017) were identified as appropriate to include when measuring stages of change. However, during the pilot testing, the item of pre-contemplation proved to be confusing for respondents to read and to answer. Also, upon consultation, the maintenance item was perceived by response latency experts as too lengthy in order to implement the reaction time technology (Poławska, 2020). As a result, the two items were replaced by statements by Wright *et al*. (2017) as tested in their study on fruit and vegetable intake. All the items were adapted to fit into the current study's context of sugar eating habits. Table 6.6 contains the adapted items.

Five statements, each representing a stage of change, were presented to respondents to which they had to indicate whether the statement accurately reflects their current behaviour. Although the last two stages of change did not form part of the study's main objectives and empirical analyses, those in the action and maintenance were accounted for to perform additional analyses. The statements were measured on a two-point scale where respondents had to indicate 'Yes', when the statement is accurate to their behaviour, or 'No', when the statement incorrectly describes their behaviour. The scale therefore produced categorical data.

Table 6.6: The adapted items of stages of change

Stage of change	Adapted item	Source
Pre-contemplation	I do not intend to reduce the number of sugary products I eat in the next six months	Wright *et al.* (2015)
Contemplation	I am seriously intending to reduce my sugar eating habits in the next six months	Lacey and Street (2017)
Preparation	I have definite plans to reduce my sugar eating habits in the next month	Lacey and Street (2017)
Action	For the past six months, I have been doing something to reduce my sugar eating habits.	Lacey and Street (2017)
Maintenance	I have been reducing the number of sugary products I eat for longer than six months	Wright *et al.* (2015)

Although many previous stages of change studies have included a pen-and-paper approach to measure the stages, the ability of this method to classify consumers accurately in the appropriate stage has been criticised (Povey *et al.*, 1999). Because these measurement instruments rely on consumers' self-assessment of their behaviours, reported answers are subjected to inaccuracy (Coulson, 2000; Povey *et al.*, 1999). Health-related studies have reported a discrepancy between self-assessed, subjective behaviours and actual, objective assessment (Brug *et al*., 1994). In fact, all diet-related assessment methods have limitations because of sensitivity, and these limitations are often specifically related to social desirability bias (Devenish *et al*., 2019; Coulson, 2000). Given the sensitivity surrounding diet-related research, and the consequential social desirability bias, this study proposed a methodological improvement to the measurement of self-reported pen-and-paper methods in the context of stages of change. The following section will elaborate on the nature of socially desirable responses, followed by how this study proposed to limit the bias.

(a) Social desirability bias

Social desirability bias refers to a specific response bias that occurs when respondents provide false answers to questions (Zikmund *et al*., 2013). While social desirability bias is often as a result of respondents deliberately answering with a slant to create a positive impression or to

protect their esteem or reputation, distorted answers could also be unconsciously motivated (Zikmund & Babin, 2010). Specific to self-report measures, Klesges, Baranowski, Beech, Cullen, Murray, Rochon and Pratt (2004:78) describe social desirability as respondents' 'tendency to overestimate desirable behaviours and underestimate undesirable ones'. In essence, the presence of social desirability bias introduces error that threatens the accuracy of a study's results and subsequent interpretations. Given that social desirability bias occurs when respondents feel a need to provide responses what they believe to be acceptable or consistent with social norms and expectations, it is reasonable to assume that it is a significant concern in studies addressing health risk behaviours (Crutzen & Göritz, 2010). Indeed, many studies have shown the existence of social desirability bias when respondents had to report on their physical activity levels, attempts to quit smoking, the use of substances, and their diet-related behaviours (Latkin, Edwards, Davey-Rothwell & Tobin, 2017; Wright *et al.*, 2015; Klesges *et al.*, 2004). Essentially, respondents appear dishonest as they present themselves in a healthier manner that is not necessarily an accurate representation of their actual behaviour.

Considering this information, the request to disclose sugar-intake habits could enhance respondents' tendency to inaccurately report behaviours in a way they would deem to be acceptable (Wright *et al*., 2015). Based on this information, the possibility of introducing social desirability bias in this study was assumed. Moreover, given that stages of change inherently require respondents to report on their readiness or willingness to change their unhealthy behaviour, based on Klesges *et al*. (2004), it could be theorised that respondents might underestimate their unhealthy habits and overestimate their intention to change their behaviour. Consequently, socially desirable responses may result in an over-representation of respondents in the action or maintenance stages, and fewer respondents considering themselves in the motivational stages (Povey *et al.*, 1999).

In summary, the need to address social desirability bias in the case of self-reporting on unhealthy habits is essential. In this study, the necessity to address social desirability bias is especially true given the importance of accurately classifying consumers in the appropriate stage of change for interventions to be effective (Brug *et al*., 2005). The current study addressed the threat of socially desirable answers affecting the validity of results by considering response latency measures.

(b) Response latency

As discussed in the previous chapter, response latency is a technique that addresses possible bias by measuring the time a respondent takes to answer a survey question (Presser *et al.*, 2004). Essentially, slow answers indicate uncertain and biased answers while faster responses signify strong and easily accessible attitudes (Ohme, Matukin & Wicher, 2020). The implication of easily accessible attitudes is its enhanced potential to guide actual behaviour, a desired outcome in many behaviour change studies (Matukin & Ohme, 2016). The survey platform iCode was used to measure stages of change since the platform incorporates reaction time technologies. These technologies enable researchers to identify actual attitudes and intentions of respondents more precisely than the explicit declarations provided by traditional self-reported answers. By studying respondents' response times, researchers can draw conclusions about respondents' true intentions, which enhance the accuracy and validity of the particular study.

To accurately measure individual response times, iCode incorporates unique algorithms in its procedure. Moreover, the platform controls many aspects that could influence response time outcomes, including speed of reading, familiarity with computer devices, (in)voluntary carelessness, fatigue or distraction to name but a few (How iCode measures response times, 2019; Matukin & Ohme, 2016). When designing a questionnaire on the iCode platform, the layout and button placement of the answers on the relevant scale has been strategically designed to enhance the process of reaction time measurement. Respondents' reported answers are standardised and an individual baseline per respondent is created that is used to develop a confidence index for each respondent (How iCode measures response times, 2019). According to Ohme *et al.* (2020:447), the confidence index is a 'standardised index in which declarative responses are weighted by their response time. It reflects how confident an attitude is'. This merge of explicit and implicit measures enabled more advanced statistical computations.

Essentially, the confidence index is an integration of consumers' implicit and explicit answers and provides an indication of the extent to which consumers' answers might be slanted or biased. Thus, the confidence index allows for more accurate understanding and conclusions of the emotional uncertainty behind consumers' stated opinions (Ohme *et al.*, 2020), and is more accurate in understanding and predicting actual behaviours (Matukin & Ohme, 2016).

The use of response latency is justified in this particular study as respondents might provide socially desirable answers when reporting on their stage of change. In other words, as

respondents are required to indicate their intention to change their current sugar intake behaviours, they might be inclined to misrepresent their actual willingness to change in order to appear 'healthier'. As a result, the inclination (either consciously or subconsciously) to provide a socially desirable answer may induce inaccurate classification of stages of change, and targeted interventions may render no results. For instance, a consumer who is merely contemplating changing their sugar intake habits (contemplation stage), may be triggered to present themselves in a socially desirable manner and, as a result, indicate they are already making changes regarding their sugar consumption (preparation stage). By incorporating response latency technologies for the measurement of stages of change in response to criticism against self-reported and self-classification of stages of change, the current study was able to identify inaccurate and possibly biased answers, which ultimately enhanced the accuracy of stage of change classification.

6.3.5 Classification of the appropriate stage of change

A focal point of the study was to ensure that the process followed to classify respondents into different stages of change was done in a reliable manner that would mitigate biases like social desirability. For this reason, the study considered respondents' explicit and implicit responses to the stage of change statements. The explicit and implicit reactions were facilitated through the iCode platform that provides a unique confidence index score for each respondent.

Given that categorical measures of stages of change require respondents to read and indicate whether the stages of change statements reflect their current behaviour, the focus of the current study was on identifying the stages where respondents indicated a 'Yes'. In such cases, respondents agree that the statement describes their current behaviour, and they subsequently self-classify themselves into that specific stage. For example, a respondent who selects 'Yes' to the statement 'I have definite plans to reduce my sugar eating habits in the next month' indicates on an explicit level that he/she plans to change their sugar intake in the next 30 days (preparation stage). Similarly, if a respondent selects 'Yes' as an agreement to the statement 'I do not intend to reduce the number of sugary products I eat in the next six months', the respondent explicitly maintains that they have no intention to change their behaviour any time soon.

However, given the sensitive context of reporting on healthy behaviours and the inclination to provide socially desirable answers, it cannot be assumed that the self-classified stage is an

accurate reflection of true attitudes or intentions. Therefore, considering the implicit answers of respondents via response latency, each respondent's 'Yes' answers to the five stages of change statements were analysed individually to identify whether the indicated 'Yes' was reported with certainty and, more importantly, without bias. Confidence index scores, as based on the response latency theory, offer an indication of the extent of certainty and accuracy for each given answer.

According to Fazio, Sanbonmatsu, Powell and Kardes (1986), responses expressed with a fast response time have a stronger link to actual behaviour than those with a slower response time. Following on Fazio's research, Ohme *et al*. (2020) conducted a study to measure the response times of sales agents to evaluate their performance. Response times were measured in milliseconds, and after adjusting the data to account for outliers in the response times (too long or too slow), the values were standardised to a scale of 0–100 per respondent. At the lower end, the values indicated the slowest reaction and hesitation, while the top value implied fast responses and higher certainty (Ohme *et al*., 2020). Finally, confidence index scores for every respondent were calculated, providing a score between -100 and +100, where the valence is an indication of the declarative answer. As mentioned before, the confidence index score merges implicit and explicit responses, enabling researchers to assess consumers' certainty of responses.

Therefore, when responding to a question, declared or explicit answers were classified as highly certain, unsure, or highly uncertain, based on the confidence index that related to the time respondents took to answer the questions. iCode provides an individual implicit score that specifies to what extent the respondent is certain (or uncertain) about their given answers. Scores standardised between 0 and 399 signify low certainty, scores between 400 and 599 show moderate certainty, and scores of 600 to 1 000 indicate a high certainty of declared attitudes (Poławska, 2020). Table 6.7 provides descriptions of the scores.

For instance, continuing with the previous example, the respondent who explicitly indicated they plan on changing their sugar intake in the next 30 days, may be classified in the preparation stage. However, the respondent will ultimately only be officially classified in their declared stage upon viewing the confidence index that incorporates the implicit scores to identify certain answers. More specifically, confidence index scores should be between 600 and 1 000, because according to the response latency theory, a high certainty of answers can then be assumed.

Therefore, the respondent's reported answer is considered accurate, without bias, and is a true reflection of actual intentions (Matukin & Ohme, 2016; Mayerl, 2009).

Table 6.7: Level scoring system used to interpret responses

IMPLICIT SCORE	DESCRIPTION
0–199	Extremely slow/extremely low certainty of declared attitude
200–299	Very slow/very low certainty of declared attitude
300–399	Slow/low certainty of declared attitude
400–449	Average minus/moderate certainty with negative tendency
450–459	Average/moderate certainty
550–599	Average plus/moderate certainty with positive tendency
600–699	Fast/high certainty of declared attitude
700–799	Very fast/very high certainty of declared attitude
800–1 000	Extremely fast/extremely high certainty of declared attitude

Source: Poławska (2020)

Although consumers' stages of change could be identified with enhanced certainty through considering response latency measures, two additional key elements to consider when developing a measurement instrument, are reliability and validity (Zikmund & Babin, 2010). Both reliability and validity need to be addressed in an experimental study to ensure the quality of results.

6.3.6 Reliability

Reliability refers to a measurement's internal consistency, which in turn concerns whether identified items accurately measure the same underlying construct (Zikmund *et al*., 2013). A common indicator of a measurement's internal consistency is Cronbach's alpha coefficient (CA). Considering the importance of ensuring reliability (Furlong, Lovelace & Lovelace, 2000), a Cronbach alpha value was calculated for each variable relevant to the current study.

Following the recommendations of Zikmund *et al*. (2013), Cronbach alpha values of between 0.8 and 0.95 were considered to indicate very good reliability, and values between 0.6 and 0.7 were deemed adequate. The study also ensured a certain degree of reliability by including established items pre-tested in previous studies. While items were adapted to fit the context of the study, the adaptation was done in a way that did not deviate from its original meaning. Lastly, a pilot study was conducted to examine the reliability of items and constructs before commencing with the final data collection. Although it is necessary to consider the reliability of the measurement instrument, assessing the reliability alone is deemed a limited claim to good measurement, as the validity of the measurement should be established as well (Furlong *et al.,* 2000) However, according to Peter (1979), reliability is regarded as a necessary condition for validity. In other words, reliability must first be ensured. As a result, once reliability was ensured in this study, validity was addressed.

6.3.7 Validity

Validity has been described as the accuracy of the measure or, more specifically, the extent to which a score truthfully represents the construct (Zikmund *et al*., 2013). Content validity, which refers to the degree in which items cover the domain of the construct being measured (Zikmund & Babin, 200), was addressed by including pre-determined items tested, used, and recommended in several academic journal articles. In addition, to establish face validity, two academic researchers at the Department of Business Management at Stellenbosch University reviewed the items and regarded each as adequate given previous knowledge and the context of the study.

Because internal validity depends largely on successful manipulations in experiments (Zikmund & Babin, 2010), manipulation checks were conducted. The next section will elaborate on the validity test conducted to ensure manipulation effectiveness.

6.3.8 Manipulation checks

Manipulation checks denote a validity test of an experimental manipulation to ensure that the manipulation produces differences in the independent variables (Zikmund & Babin, 2010). The current study implemented manipulation checks throughout the primary research phase to ensure that the selected and designed manipulations would elicit different responses in order to conclude the effects thereof on the independent variables. During the qualitative interviews, the pilot study and the final quantitative experiment, manipulation checks were included by

requiring respondents to indicate their level of emotional arousal to the different emotional appeals. More specifically, for each emotional appeal warning label designed, respondents were required to indicate to what extent they experienced fear (measured by 'scared') and guilt (measured by 'guilty') and responses were measured on a seven-point scale. The manipulations were analysed for efficacy and results are presented in the next chapter.

Once the questionnaire design was considered complete, the study reached the data collection phase. However, an essential step prior to the collection of data is to conduct a pilot study.

6.4 PILOT STUDY

A pilot study can be defined as a small study conducted to test and assess research protocols, measurement instruments for data collection, sampling strategies, and other techniques and elements in preparation of the larger, main study (Hassan, Schattner & Mazza, 2006). Conducting a pilot study enables researchers to identify potential problems and it allows for appropriate adaptions to be made before commencing with the final study (Lancaster, Dodd & Williamson, 2004).

Against this background, the current study conducted a pilot study to assess whether the proposed procedure and subsequent analysis would be feasible (Thabane *et al*., 2010). More specifically, the pilot study served two main purposes. The first purpose was to identify and eliminate possible reading or interpretation issues that could generate response error. Secondly, and more importantly, the goal was to assess whether the measurement instrument is effectively designed to achieve the research objectives. As a result, the study tested the draft questionnaire on 30 respondents.

Sample units for the pilot study were selected by means of convenience – individuals known and easily accessible to the researcher. Individuals were contacted via e-mail and asked to complete a questionnaire by clicking on the provided hyperlink. The pilot study had the sample size objective of 10 respondents per experiment cell, in line with previous recommendations (Hertzog, 2008; Julius, 2005). Hertzog (2008) indicates that between 10 and 15 respondents per cell are effective to conduct proper analyses, whereas Julius (2005) argues that a minimum of 12 respondents per cell is adequate. Given that the primary purpose of the pilot study was to assess the measurement instrument reliability, the study included 10 respondents per stimuli group. Therefore, the three groups – fear, guilt-fear, and the control group – each contained 10 respondents.

In general, however, formal sample size calculations are not a necessity for pilot studies. What is considered critical is ensuring that sample units are an adequate representation of the target population (Thabane *et al*., 2010). To this end, the researcher made sure to include only the data of respondents indicating a daily sugar intake exceeding 18g. After removing respondents who consumed less than 24g per day, the final completed questionnaire responses resulted in a sample size of 30, which represented 10 per experimental group. Considering the recommendations for conducting pilot studies (Thabane *et al*., 2010; Hertzog, 2008; Julius, 2005), the final sample size was deemed adequate to conduct analyses and to make useful conclusions.

Analyses of the pilot study results included standard deviations, calculations, and reliability measurements of the scales used. Standard deviation scores provided the researcher with a description of the spread of the data, which is considered fundamental to understanding sampling error (Yeo & Cacciatore, 2018). Also, the researchers encouraged respondents to provide feedback on the questionnaire process, layout, and the phrasing of items. Respondents were asked to inform the researchers of anything they might have struggled with, or recommendations on how to optimise the questionnaire for the next phase of data collection.

Once the data collection for the pilot study was completed, the researcher considered the feedback of respondents and altered the questionnaire accordingly. Minor changes were made, such as shortening certain items and replacing certain words with alternatives that read easier (e.g. ‘consumption of sugar’ was replaced with ‘eating sugar’). The results, analyses and conclusions made are discussed in subsequent chapters.

6.5 SAMPLING DESIGN

The sampling process entails selecting a smaller subset of the total population for data collection (Zikmund & Babin, 2010). Sampling is critical to any research study because, if executed correctly, it can generate more accurate and reliable results than a census (Zikmund & Babin, 2013). Considerations regarding the sampling process included defining the target population, selecting the appropriate sampling method, as well as deciding on an appropriate sample size.

6.5.1 Target population

The target population was defined as individuals who consume high-sugar-content products. High-sugar-content products are products containing more than 10g of sugar per 100g (Diabetes New Zealand, 2016; Elliot, 2008) and are recommended to be avoided (Todd, 2019). Since the WHO's daily intake recommendation is 24g of free sugar (Kidd, 2018), consuming a product with a high sugar content can easily result in exceeding daily recommendations (Dickenson & Matwiejczyk, 2016; Lindmeier & Davies, 2016) and ensuing risky sugar consumption behaviours. Consequently, individuals who consume high-sugar-content products are considered to exhibit risky behaviours and require encouragement to change their sugar eating habits.

Existing studies analysing food intake typically incorporate food frequency questionnaires or require respondents to complete food diaries (McGuirt, Jilcott Pitts & Gustafson, 2018). This route was considered to fall outside the scope of the purpose of the current study and was therefore not used to measure respondents' sugar intake. In contrast to this 'lengthy' approach of measuring food intake behaviours, other studies employ a notably lenient method. More specifically, some studies include respondents based on whether they consume sugary products (Nakhooda & Wiles, 2020) or have consumed sugary products in previous months (Bollard *et al.*, 2016). As this latter approach was considered to be too relaxed, and food diaries too complex and beyond the scope of the current study, a different approach was needed to ensure that individuals who exhibit risky sugar intake behaviours were included. The approach entailed asking respondents to evaluate their consumption of high-sugar-content products in a typical two-week period. Based on this feedback, respondents who indicated that they consumed any of the high-sugar-content products were included in the study.

The rationale for including only those individuals who consume high-sugar-content products can be explained by the nature of the objective of the current study. First, emotion-based warning labels are intended to discourage consumption or to initiate behaviour change. Even though warning labels can be effective in ensuring that consumers who do not consume unhealthy amounts of sugar maintain this behaviour, the primary objective of this study was to discourage those who currently display excessive sugar consumption behaviours. Against this reasoning, this study focused on those consumers who form part of the group who needs to reduce their existing sugar consumption.

In addition, as stages of change are centred on the necessity to change individuals' current unhealthy behaviours (Norcross *et al*., 2011), it seems unwarranted to include consumers who do not exhibit unhealthy sugar intake habits. In fact, such individuals may be incorrectly classified in the pre-contemplation stage as they do not require or intend to reduce their intake. In this case, individuals would be wrongfully targeted, and results would be confounded. Against this background, it was critical to identify individuals who are at risk, or who consume an unhealthy amount of sugar, in order to include them in the study's target population.

Furthermore, the target population included both males and females and, because adults are the main purchasers of food and beverages (Bleakley *et al*., 2015), the target population excluded individuals under the age of 18. Older adults were included as weight gain due to lifestyle factors (including sugar consumption) occurs throughout consumers' lives (Vorster *et al.,* 2014). Therefore, the ages of respondents in the target population were between 18 and 75 years. Although information about ethnicity was not required in the questionnaire, the target population considered individuals of all races. In summary, the importance of this target population lay with identifying those individuals who, according to the WHO's guidelines, consume unhealthy amounts of sugar.

6.5.2 Sampling method

As the researcher did not have access to a list of all population elements with their contact details, the absence of a sampling frame restricted the study to the use of a non-probability sampling technique. Therefore, a convenience sampling technique was implemented to access a sample of the target population. Convenience sampling is inexpensive to administer, less time-consuming than other methods and a large number of responses can be obtained in a prompt manner (Zikmund *et al*., 2013; Malhotra, 2010). For the purpose of convenience, the study obtained a sample of the target population by using Stellenbosch University's Alumni database, current Stellenbosch University students, and by distributing the link on social media platforms as respondents were easily accessible to the researcher.

Once ethical clearance was confirmed and permission granted by Stellenbosch University, the questionnaire link was distributed. Potential respondents were presented with a cover letter that invited them to take part in the research study. The cover letter also provided a brief description of the purpose of the study and introduced the lucky draw component according to which

respondents could win one of two Takealot vouchers worth R500 each. The cover letter can be viewed in Appendix J.

For social media distribution, information was posted on the Instagram account SUJustKidding, an account specifically created for Stellenbosch University students to access a wide variety of information ranging from advertising and accommodation to services and products for sale. The account posted an invitation image, along with the survey's hyperlink. SUJustKidding agreed to post the image on its Instagram Story twice, which resulted in the image being available for 48 hours. In addition, the survey link was also distributed on the personal social media accounts of the researcher and her supervisor.

6.5.3 Sample size

A study's sample size refers to the total number of respondents who form part of the specific research study. The size of the sample influences sampling error and it has been found that larger sample sizes, *ceteris paribus*, result in decreased sampling error (Zikmund & Babin, 2010). The quality of the data and interpretations thereof are therefore dependent on the size of the sample (Van Jaarsveld, 2010). In experimental designs, Hair, Bush and Ortinau (2008) recommend no fewer than 30 subjects per experimental cell. Following recommendations for large sample sizes (Zikmund & Babin, 2010) and a suggested minimum of 30 subjects per cell (Hair *et al*., 2008), the current study aimed at 50 respondents per cell. That is, a total sample size of 450. The final sample size amounted to 460 respondents. Of the 460 responses, 149 respondents were assigned to the control group, 165 to the fear group and 146 to the guilt-fear experimental group. Furthermore, after examining the confidence index scores, a total of 118 respondents were classified in the pre-contemplation stage, 180 in the contemplation stage and 162 in the preparation stage.

6.6 DATA ANALYSIS

Subsequent to the completion of data collection, the raw data were exported and saved in Excel where it was coded and prepared. Then, SPSS, a statistical software package, was used to conduct both descriptive and inferential analyses.

6.6.1 Preliminary analysis

Preliminary analysis included descriptive analyses as well as checking the reliability of the scales used. Descriptive analyses are necessary to describe the data in a simple and

understandable manner (Zikmund *et al*., 2013). To this end, the analysis included a description of the sample's gender and age distribution, and employment status. Furthermore, the study also described the sample's indication of whether they maintain healthy eating habits or whether they are at risk of developing health issues. To describe the study's dependent variables, descriptive analyses were conducted. For each dependent variable, basic 'summary' statistics were analysed, such as standard deviations, the distribution of scores, as well as normality assessment. The next chapter includes the report of the descriptive statistics.

Reliability analyses were conducted to ensure that the scales used to measure variables posited internal consistency. Therefore, the items identified to measure the variables needed to measure the same underlying construct (Pallant, 2010). In order to claim internal consistency of scales, the study calculated Cronbach alpha coefficients for each variable. The results and analyses of the reliability of the chosen scales are discussed in the following chapter.

6.6.2 Inferential analysis

The objectives of the study were addressed through inferential data analysis. More specifically, because the study sought to discover the difference in responses between respondents in different stages of change, the appropriate statistical test identified was an analysis of variance (ANOVA). However, conducting an ANOVA requires certain assumptions, and the current study addressed the assumption of normal distribution and homogeneity of variance.

After the ANOVA assumptions were addressed, the study continued to analyse the stages of change data as produced by iCode. iCode provided a dataset with confidence index scores as based on reaction time technologies, which enabled the researcher to identify where respondents responded with certainty and where inaccurate responses were present. Those responses containing certainty were highlighted in green, while red indicated highly uncertain or biased answers. Responses that were moderate in certainty were highlighted in yellow. Based on the speed of answers to the stages of change questions, the researcher was able to classify respondents according to their appropriate stage of change. Importantly, the researcher was able to allocate respondents in the stage of change that was a *more accurate representation* of the truth than that provided explicitly by the respondent. To this end, respondents were allocated to the specific stage to which they answered 'Yes' with high certainty. Those who did not answer with high certainty were removed from the sample. Once the allocation of stages of change was completed, each individual respondent's data were matched with their

corresponding Qualtrics data. The final dataset was then subjected to the statistical test ANOVA, to address the main objectives of the study.

One-way ANOVAs are conducted when an independent variable has three or more levels and one dependent continuous variable (Pallant, 2010). In this study, the independent variable, emotional appeals, consisted of two 'levels', namely fear and guilt-fear, in addition to the control group. The objective of conducting one-way ANOVAs was to determine whether there is differences in the dependent variables (intent, perceived severity, susceptibility, self-efficacy and response efficacy) for respondents exposed to the emotional appeal warning labels: fear appeal, guilt-fear appeal, and no appeal (control group). One-way ANOVAs were conducted individually for each of the stages of change groups (pre-contemplation, contemplation, and preparation). For instance, the test determined whether pre-contemplators report higher intent to change their sugar consumption behaviour when exposed to a fear or a guilt-fear appeal. Important considerations before analysing data through one-way ANOVAs are the assumptions of no significant outliers present in the data, normal distribution, and homogeneity of variances. These assumptions were checked in SPSS before analysis commenced (Laerd Statistics, 2018; Pallant, 2010).

One-way ANOVAs were also performed to determine whether feelings of fear, guilt, and anticipated pleasure differed between the stages (pre-contemplators, contemplators, and those in the preparation stages), when exposed to a fear appeal warning label versus a guilt-fear warning label. The inferential statistics provided in this phase of the study were analysed and are reported on in the subsequent chapter.

6.7 CONCLUSIONS

This chapter offered an in-depth discussion of the methodology and research design that the study followed. After extensive secondary research was conducted, a gap in the literature became evident which the study addressed with primary research. Primary research commenced with both qualitative and quantitative techniques to achieve the objectives and to develop the hypotheses. The chapter also included a detailed description of the measurement instrument that was designed, including selected items and the types of scales that were used. The sampling design and execution were also discussed, as well as the data analysis techniques that were identified and employed.

In the following chapter, the empirical results will be discussed, elaborating on the procedure that was explained in the current chapter. More specifically, Chapter Seven will explain both the qualitative and quantitative results in detail, to which pronunciations of the objectives and hypotheses will be made.

CHAPTER SEVEN
DATA ANALYSIS AND RESULTS

7.1 INTRODUCTION

The previous chapter described the study's research design and the methodology that was followed to address the objectives and hypotheses. Once data collection was completed, the study commenced with the analysis and reporting on the results. As the data collection was twofold, this chapter provides the insights gained during the qualitative phase of the study, followed by the results from the statistical tests that were conducted for the quantitative phase. These results enabled the researcher to address the objectives of this study and to make pronouncements regarding the hypotheses.

7.2 QUALITATIVE FINDINGS

The objective of the qualitative phase of the study was to gain insights in order to design appropriate warning labels for conducting experiments in the quantitative phase. The qualitative technique implemented in the study was that of personal interviews. The reasoning behind selecting personal interviews was to facilitate in-depth discussions pertaining to the study's identified constructs. In addition, since both fear and guilt emotions are relatively underexplored in the context of warning labels regarding sugar intake (Bollard *et al.*, 2016), personal interviews allowed for probing to better understand fear and guilt elicitation after exposure to warning label messages.

The current section will elaborate on the interview findings, commencing with the demographic profile of the sample and general findings that can be reported on warning labels given the in-depth discussions.

7.2.1 Demographic profile of interview respondents

As mentioned previously, interviews were conducted with eight individuals who adhered to the target population criteria. Five females and three males were interviewed, ranging between the ages of 22 and 60. The group was a combination of students, full-time employees, and unemployed individuals, who were all fond of consuming sugary products. The objective of conducting personal interviews was to gain insights to support the design of appropriate stimuli

used in the quantitative phase of the research study. The following section will provide an in-depth discussion of the insights gained from the personal interviews.

7.2.2 In-depth interview insights

Although qualitative research was not part of this study's primary methodology in order to address the stated objectives, the basic interpretations of the topics that were discussed served to identify important themes that assisted in the design of the quantitative phase of the study. These interpretations were based on personal interviews which were conducted to develop appropriate stimuli used in the quantitative experiment phase. This section will elaborate on the interview findings, including those pertaining to general sugar consumption and warning labels respectively.

7.2.2.1 General sugar consumption findings

To ease participants into the interview, sugar consumption in general was first discussed. Questions such as 'how often do you eat sugary products' and 'when do you typically eat or buy sugary products' were asked to get an idea of participants' sugar intake habits, and to determine whether they realised the problematic health consequences associated with sugar intake. From the discussion, it was clear that participants thoroughly enjoyed consuming sugary products, despite also being fully aware of its negative health consequences. Many indicated that sugar consumption was a rewarding, as well as a pleasurable experience for them. Two participants indicated that they eat a sugary item at least once a day and admitted that it was a habit that had been acquired over many years. Other participants regarded their sugar intake as more related to social events, such as going out for drinks or enjoying ice-cream or cake with friends. All participants specified that they knew sugary products typically have a high sugar content, but when the researcher informed them of the exact amount measured in terms of teaspoons, many were surprised at the high amount of sugar they were consuming per single product.

The reasoning behind sharing the exact sugar contents of the products was to identify whether consumers are aware of, or are interested, in the sugar they consume. The poor knowledge displayed in terms of exact sugar content suggests that consumers are not as concerned about the sugar content of the products they consume.

7.2.2.2 Warning label findings

Participants were asked to create a warning label message that they would consider to be effective in convincing them to reduce their current sugar intake. Refer to Table 7.1 for the suggested warning labels and the corresponding insights gained. From participants' suggestions and subsequent discussions, three overarching insights were drawn. These related to the importance of including a harmful consequence for participants' health, a factual statement in the form of sugar content, and the necessity to begin the message with 'warning' or 'beware'.

Table 7.1: Suggested warning label messages and subsequent insights

Participant No	**Warning label message**	**Significant keyword/insight(s)**
1	Be careful. This product, if taken too often, can harm your health.	Careful, harmful effect on health
2	BEWARE. This product is high in sugar.	Beware; sugar content
3	Warning. This is a high sugar content product and can cause skin problems and tooth decay.	Warning; specific health consequence
4	Beware. High sugar product consumption can cause diabetes.	Beware; specific health consequence
5	Warning. Eating products high in sugar could contribute to weight gain.	Warning; specific health consequence
6	This product has serious long-term health effects.	Long-term effects
7	This product contains a high amount of sugar and can cause obesity.	Sugar content; specific health consequence
8	This product should be consumed in moderation.	N/A

Most participants included a health consequence in their recommended warning label message and, through probing it became clear that this emphasis on possible health issues was because it made participants feel scared and vulnerable. Secondly, the majority of participants indicated that they included a short attention-grabbing word like ‘warning’ or ‘beware’ on their warning label design to attract attention specifically to the message and to enhance the seriousness of the message. Finally, most participants designed a warning message that included the words ‘high in sugar’, maintaining that this attracts attention and awareness of the unhealthy aspect of sugar consumption. In addition, it was also clear from the initial sugar intake discussion that all participants showed a lack of awareness of the exact sugar content in the products they tended to consume – they were all shocked to hear how much sugar they were consuming when measured and translated in terms of teaspoons. By considering the information from the discussions surrounding sugar contents and participants’ own warning label designs, it was concluded that a factual representation of the sugar content is an important element to include in a warning label message.

After designing their own warning label messages and discussing it, participants were asked to comment on the warning labels currently placed on cigarette packaging, as well as those designed for sugary drinks found in some academic studies. These discussions reiterated some of the insights derived from their own warning label messages. It was mentioned again how the word ‘warning’, in particular, was necessary to attract attention to the message, and to suggest danger associated with the product. Indeed, without the word ‘warning’ included in the message, participants felt the message lacked severity. One participant commented, ‘I think without the “fear” of what comes with the word *warning*, the message might not be taken seriously or receive much attention’. Furthermore, multiple participants suggested the word to be typed in bold font style and capital letters to attract sufficient attention, as well as to highlight the severity of sugar consumption. Based on the warning label information, it could be concluded that participants require a short, attention-grabbing warning label that provide them with sufficient information of the product content and its harmful effects.

7.2.2.3 Fear and guilt-fear evocation findings

Fear and guilt-fear appeal insights were obtained throughout the interview discussions, including discussions about participants’ own warning label designs, as well as discussions surrounding the available warning labels in the tobacco and alcohol industry and those found in the academic literature. As part of initial sugar intake discussions, participants were informed

about the amounts of sugar content in the products they consume. Once participants knew the products' total sugar content specified in numbers of teaspoons, it became clear that fearful feelings had been evoked. According to respondent 2: 'I can't believe I eat so many teaspoons of sugar in one go', while participant 3 reported, 'I am now looking differently at my Lunch Bar'. Phrasing the sugar content in terms of teaspoons made the health concern more 'real' and credible, and most participants indicated that, because they experience fearful feelings, they would reconsider their purchase and consumption of sugary products.

In conversations relating to current fear appeal warning labels in the tobacco industry, specific questions aimed at understanding effective fear evocation and fear appeals were asked, such as 'When you look at this label, does it scare you to think about the products you eat? Why/ Why not?' and, 'What specifically makes you feel scared?'. Participants emphasised the importance of including a reference to severe consequence of product consumption for fearful feelings to ensue. As one respondent mentioned in response to a sugar-sweetened beverage warning label used in an academic study, merely indicating the product to cause 'serious health problems' was not effective as it was too vague. It was evident participants required a more specific health concern to feel susceptible and scared. Health concerns relating to high-sugar- content products specified by participants were primarily weight-gain related, including obesity and diabetes.

In terms of guilt felt and guilt evocation, most participants indicated that they experienced guilt when consuming sugary products, confirming the established association between unhealthy food consumption and guilt as suggested in the literature (Kuijer & Boyce, 2014). Participants elaborated on these guilty feelings, their realisation that sugary products were unhealthy, but yet still engaging in consumption as they simply enjoyed the experience too much. Participants felt that their inability to refrain from sugar consumption, despite its negative consequences, elicited guilt as they knew they were harming their health. Moreover, in response to the guilt-fear appeal warning labels, the participants indicated how the use of 'your health' and 'your choice' made them feel guilty as they were reminded that they are in control of making the right choice (not purchasing or consuming the product). Participants 7 commented that it made them feel more guilty: 'Now I know it is bad for me, and I know I am supposed to make the right choice'. Considering participants' responses to the existing guilt-laden messages present in the literature, as well as overall discussions regarding the emotion in sugar intake settings, the suggestion to emphasise individuals' personal responsibility came to light. Many participants indicated how guilt is evoked when they are reminded that consuming a sugary

product is their own choice, and that it remains their own responsibility to make the correct choice. These findings confirm existing literature that states the importance of emphasising personal responsibility for guilt to effectively lead to healthier behaviour change decisions (Burnett & Lunsford, 1994). The notion of emphasising 'you' and 'yourself' is a more personal approach that amplifies the guilt experienced. This finding can be explained by a quote from participant 8: 'It is entirely my own decision when purchasing a sugary product, I feel guilty when I have only myself to blame'. Other conclusions that became apparent included the value of mentioning the harm individuals cause to their health, as respondent 5 stated: 'I know I am harming my own health when I drink my Coke… It makes me feel guilty that I am doing it by myself'.

In summary, the fear appeal discussions produced two recurring themes. First, for fear to be evoked, specifying the amount of sugar contained in the product was suggested, and secondly, a severe health consequence because of sugar consumption should be mentioned. In-depth conversations relating to guilt evocation also highlighted two themes: First, respondents felt guilty when considering that they are *harming their health* by consuming sugary products and secondly, knowing that they are *responsible to make the healthier choice*. Based on the identified themes, the study developed six messages that were subjected to testing to ensure that the most applicable message was selected for the quantitative phase. As mentioned in the previous chapter, after analysing mean values, two warning label messages were selected and placed individually on each of the identified branded products. Refer to Figure 6.2 and Figure 6.3 in the previous chapter for the final fear appeal warning label and the final guilt-fear appeal warning label, respectively.

After the selection of the stimuli for the quantitative experimental phase was concluded, the warning label messages were placed on the identified branded high-sugar-content products so that the study could commence with a pilot study.

7.3 PILOT STUDY RESULTS

A pilot study was conducted to assess whether the methodology, research design, and subsequent analysis would be feasible (Thabane *et al.*, 2010). The pilot study data proved to be valuable for several reasons. It was indicated by respondents that some items could be stated differently to enhance respondent comprehension. Those items were slightly reworded without deviating from its original meaning. For instance, 'consuming sugary products' were changed

to ‘eating sugary products’ to improve ease of reading. For enhanced comprehensiveness, final items were once again approved by a senior academic expert at Stellenbosch University. In response to several missing values present in the slider questions that measured emotional arousal, the instruction and format were changed from requiring respondents to drag the slider to their desired response, to clicking on the chosen response number. Furthermore, the data from the pilot study highlighted that many respondents failed to continue with the questionnaire once they returned from iCode to the Qualtrics platform. It was deduced that respondents were perhaps unsure about what to do next or uncertain about what came next. Consequently, an additional sentence was added to clarify instructions and to effectively guide respondents in completing the final section of the questionnaire.

The pilot study was also conducted to assess respondents’ responses to the variables and was executed by calculating standard deviations. Standard deviations indicate how wide or how spread out the distribution of the data are (Allen, Bennett & Heritage, 2014). The study calculated standard deviations on the data collected during the pilot study to investigate consistency in respondents’ interpretation of the items. Typically, standard deviations should not exceed 2, as a standard deviation in excess of that would signify inconsistent interpretations of items between respondents (Pallant, 2010). Ideally, standard deviations should be around 1, which is considered an indication of similar understanding and comprehension of items between respondents. The study considered the standard deviation scores of each item for each experimental group. Because the different emotional stimuli could result in different cognitive and emotional responses, the control group, as well as the fear and guilt-fear group, were investigated separately. None of the items significantly exceeded the value of 2, and items were deemed fit for the quantitative phase of the study. Once the necessary changes were made to the measurement instrument, the study commenced with the quantitative experiment. The results of the quantitative phase will be discussed next.

7.4 QUANTITATIVE FINDINGS

The completion of the qualitative interviews and pilot study led to the commencement of the quantitative phase. The quantitative phase consisted of a between-subjects experiment with three groups. Respondents in the first group, the control group, were not exposed to the manipulated stimulus. The second group was exposed to a fear stimulus, and the final group to a guilt-fear stimulus. The current section will report on the various statistical tests conducted to address the objectives and subsequent hypotheses as outlined in the research study.

7.4.1 Data preparation

Following data collection, the first step was to prepare the raw data for statistical tests and analysis. Consequently, the researcher searched for any errors or outliers, and missing values included in the data set. Originally, 1715 responses were collected. However, the finalised sample size used in the quantitative analysis was 460. Of the 1715 responses, 930 responses had to be removed due to a large number of missing values present in the data, or due to incomplete questionnaires on both the Qualtrics and iCode platforms. Additionally, after analysing the stages of change responses, 410 respondents were removed from the data set as they did not form part of the study's target population. More specifically, the 410 respondents were classified in either the action or maintenance stages of change, which do not form part of the risky consumption behaviours as outlined in the target population. Therefore, these respondents were removed from further analysis. Based on the confidence index scores, another 375 responses had to be removed as respondents could not be classified according to any of the five stages of change. This was ascribed to their response time being too lengthy to accurately interpret, suggesting the possibility that respondents got distracted. The exact process of stage classification will be discussed in depth in the following section. The final distribution of respondents across the stages of change and experimental groups can be seen in Table 7.2.

Table 7.2: Final distribution of sample

Stage of change	**Control**	**Fear**	**Guilt-fear**	**TOTAL**
Pre-contemplation	36	42	40	**118**
Contemplation	53	66	61	**180**
Preparation	60	57	45	**162**
TOTAL	**149**	**165**	**146**	**460**

As can be seen from Table 7.2, the distribution in each experimental group is relatively equal, with 149 respondents in the control group, 165 in the fear appeal group, and 146 respondents in the guilt-fear group. The final sample size was 460 respondents. The following section will

elaborate on the process of how respondents were classified into the pre-contemplation, contemplation, and preparation stages of change.

7.4.2 Stages of change classification

Respondents were classified into a stage of change after considering response latency measures. As mentioned in preceding chapters, response latency is a technique that addresses possible bias by measuring the time a respondent takes to answer a survey question (Presser *et al.*, 2004). Practically, response latency, or reaction time, measures the actual time respondents take to read, interpret, and report an answer to a question. Based on the time measured, the accuracy of the responses given can be assessed. More specifically, when implementing this technique, scholars can identify self-reported answers that potentially contain bias by considering that, the longer consumers take to respond to questions, the higher the likelihood that inaccurate and biased answers are provided (Mayerl *et al.,* 2013). According to theory, response latency considerations reflect accessible attitudes, which are more predictive of future behaviours (Matukin & Ohme, 2017). In this section, the reaction time data are analysed, which enabled the researcher to identify whether considering response latency is of significance in self-report or self-classification studies. In addition, the data also assisted in evaluating whether respondents are inclined to provide biased answers in sugar consumption settings.

Respondents' declarative answers that produced confidence index scores between 600 and 1000 for a given stage were classified as in that declared stage, given that high certainty of answers can be assumed (Matukin & Ohme, 2016). Indeed, high certainty of respondents' reported answers is considered to be more accurate, and possibly without bias (Mayerl, 2009). However, the interest was also in identifying respondents' *uncertain* declarative answers to stages of change questions, which essentially signalled untruthful or biased responses. To this end, all the responses to the stages of change questions were analysed, including the action and maintenance stages, to assess whether respondents' explicit classification matched the implicit classification, as indicated by the confidence index scores. The purpose was to understand how many respondents were possibly biased when classifying themselves into a stage of change, as declared responses are often inaccurate. To do this, the confidence index scores of 1481 completed responses captured by iCode were analysed. After removing 546 responses due to noise and duplicated scores across the stages, 935 responses remained that could be analysed.

Based on considerations of the response latency theory explained in the previous chapter, uncertainty is reflected by confidence index scores between 0 and 399, while scores between 600 and 1000 indicate certainty. Respondents' explicit self-classifications were analysed in terms of the confidence index scores and, based on the scores, these were considered as classifying themselves into a stage either with certainty or with uncertainty. For example, a respondent who explicitly classified himself into the contemplation stage, but has a confidence index score of 299, was classified as uncertain about his self-classification. Table 7.3 shows the dispersion of the number of respondents who were certain and uncertain about their stage classification.

Table 7.3: Certain versus uncertain self-classification in stages of change

STAGE	**TOTAL IN STAGE**	**CONFIDENCE INDEX**	**TOTAL**
Pre-contemplation	366	CERTAIN	118
		UNCERTAIN	248
Contemplation	398	CERTAIN	180
		UNCERTAIN	213
Preparation	350	CERTAIN	162
		UNCERTAIN	188
Action	351	CERTAIN	252
		UNCERTAIN	101
Maintenance	343	CERTAIN	158
		UNCERTAIN	185

From Table 7.3, it can be seen that most of the study's sample provided uncertain answers. According to theory (Matukin & Ohme, 2017; Mayerl *et al.*, 2013), uncertain answers reflect biased answers, and therefore it could be concluded that respondents possibly provided biased

answers when responding to stages of change questions. Considering the nature of sugar consumption, it comes as no surprise that respondents might have slanted their answers to appear more socially acceptable. Indeed, this finding could confirm the theory that suggests that, when respondents are required to report on their healthy behaviours, unhealthy habits are usually underestimated, while the intention to change this is overestimated (Klesges *et al*., 2004).

By way of explanation, out of the total of 393 respondents who classified themselves as contemplating change, 54% were uncertain whether they really belonged in the stage. In other words, the other 213 respondents were possibly distorting their responses to appear socially acceptable, and most likely belonged in an earlier stage. Similarly, 188 respondents declared that they were making plans to change, but according to the confidence index scores, these answers were doubtful and possibly an inaccurate representation of actual feelings and behaviours. However, respondents seemed considerably more confident when they indicated that they belong in the action stage. This means that, in this study sample, many respondents were indeed actively moving towards eating less sugar and had been doing so for six months. This finding may signify that, as respondents are more willing and ready to change their unhealthy behaviour, their certainty and confidence in their explicit answers are reflected by enhanced scores.

In addition, the study also considered the responses on the opposite side of the stage of change continuum – where consumers had implemented behaviour change plans or were currently maintaining the change. Considering the nature and health consequences of sugar consumption, the action and maintenance stages could both be considered desirable stages of classification, as those consumers are characterised by either having made healthy changes, or by having sustained healthy changes for a few months. A total of 286 respondents classified themselves either in the action or maintenance stage with low certainty, suggesting possible social desirability bias. In other words, these respondents might have indicated they had already reduced their sugar intake in the last few months or that they were sustaining their behaviour change for more than six months, but given the low certainty in answers, these declarative responses might be slanted to provide a positive impression of their health, or to protect their self-esteem. Interestingly, more respondents were uncertain than certain in their self-classification into the maintenance stage, albeit a small difference. Given that the maintenance stage is characterised by sustained behaviour change for a period of six months or more

(Prochaska *et al*., 1992), it could be that respondents were possibly uncertain for how long they have sustained their behaviour change or have possibly 'relapsed' during the period.

In summary, given the value of incorporating response latency measures in survey research, and in order to specifically address the criticism of self-reported stages of change classification, the study analysed the response latency data beyond the main objectives. Towards this end, confidence index scores of all stages of change responses were considered, including the action and maintenance stages which were excluded in the main study. Respondents' certain and uncertain declarative answers were identified, analysed and inferences were made based on the stage into which respondents classified themselves. It was found that, although most respondents provided uncertain answers in the earlier stages (pre-contemplation, contemplation, preparation), those who were in the action stage were notably more confident in their self-classification.

To reiterate, the declarative answers with high certainty realised a final sample of 460 respondents. The demographic profile of the sample will be discussed in the subsequent section.

7.4.3 Demographic profile of the sample

The sample of the study was obtained from the Stellenbosch University student database, social media platforms pertaining to the university's alumni and current students, as well as the researcher's personal social media platforms. After consulting the confidence index scores, a total of 118 respondents were classified in the pre-contemplation stage, 180 in the contemplation stage and 162 in the preparation stage.

7.4.3.1 Gender distribution

Amongst the final total sample size of 460 respondents, 151 male respondents and 309 females completed the survey. The gender distribution per stage of change can be viewed in Table 7.4.

The gender distribution showed inequality, with more female respondents (67%) than male respondents (33%). Considering that social media platforms were used to distribute the questionnaire, the inequality could be ascribed to the difference in social media usage patterns between the two genders. Males are generally more interested in collecting information when using their social media platforms, while females tend to use the platforms for its more mainstream functionalities where they can express themselves (Budree, Fietkiewicz & Lins,

2019). Against this background, and given the distribution method followed, it could be speculated that participating in the study might have appealed less to males than to females, who were, in turn, willing and interested to share their responses to the study's questions.

Table 7.4: Gender distribution per stage of change

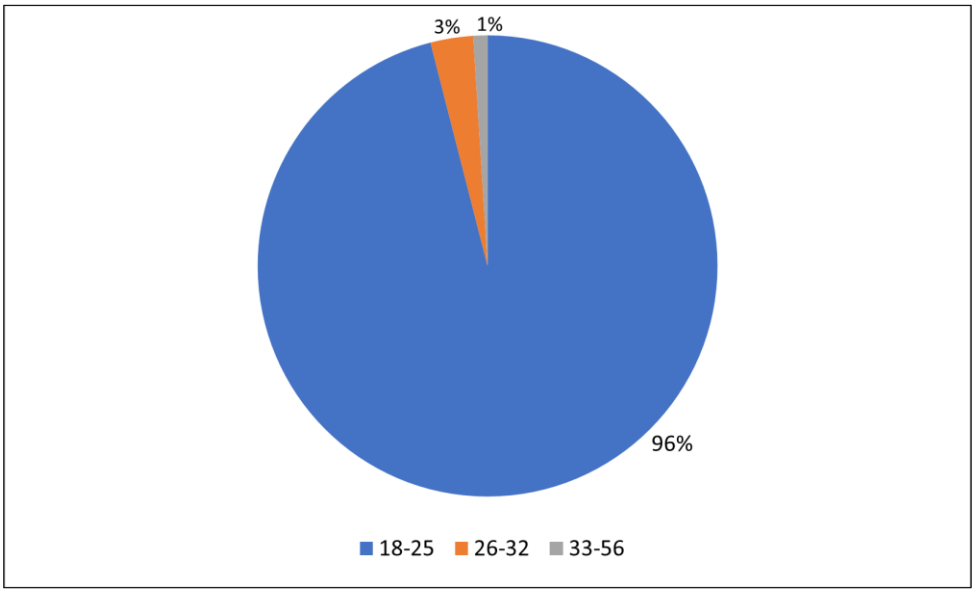
STAGES OF CHANGE	**GENDER**	
	Male	**Female**
Pre-contemplation	52	66
Contemplation	56	124
Preparation	43	119
TOTAL	**151**	**309**
PERCENTAGE OF TOTAL SAMPLE	**33%**	**67%**

To conclude, the gender inequality of the current study's sample was expected given the nature of the sampling method followed. Next, the age distribution of the sample will be discussed.

7.4.3.2 Age distribution

While the study's target population in terms of age was consumers between 18 and 75 years, the majority of final respondents were aged between 18 and 25 (96%). Figure 7.1 graphically depicts the age distribution of the sample. According to a recent social media usage report, 40.4 per cent of South African social media users fall between the ages of 18-25 (Social Media Statistics, 2020). Seeing as most of the sample was distributed through Stellenbosch University's database and social media platforms, the distribution of the age demographic seems realistic, indicating students or younger adults.

Figure 7.1: Sample age distribution



The age distribution analysis was followed by the employment distribution analysis. The results are reported on in the following section.

7.4.3.3 Employment distribution

Respondents were required to report their employment status, and the data obtained were used to describe the sample characteristics. Employment distribution can be seen in Table 7.5.

Table 7.5: Employment distribution of the study

Employment status	**Frequency**	**Percentage (%)**
Student	419	91.1
Unemployed	5	1.1
Employed part-time	8	1.7
Employed full-time	22	4.8
Self-employed	3	0.7
Other	3	0.7
TOTAL	460	100

As can be seen in Table 7.5, the sample predominantly consisted of students. This was expected as the study relied on the University of Stellenbosch's student database, as well as social media accounts such as SUJustKidding, which are primarily used by current students.

7.4.3.4 Stages of change healthy eating habits

Research has shown how consumers in each stage of change exhibit distinct differences, including responses to communication messages (Noar *et al.*, 2017; Cho & Salmon, 2006) and also in terms of their readiness to change their existing behaviour (Armitage, 2009). In this study respondents were asked to indicate whether they considered themselves to be maintaining healthy eating habits as it is argued that the stages might report differently on their behaviour. For instance, pre-contemplators are generally unaware that they engage in unhealthy behaviours, while preparation consumers acknowledge that they have unhealthy habits. To assist with this investigation, Table 7.6 captures the responses of respondents for each stage of change separately.

Table 7.6: Healthy habits indications per stage of change

Stage of change	**Do you consider yourself as someone who maintains healthy eating habits?**		
	Yes	**Sometimes**	**No**
Pre-contemplation	42	57	19
Contemplation	69	95	16
Preparation	71	81	10

The majority of those in the pre-contemplation stage indicated that they occasionally maintain healthy eating habits, while very few respondents admitted that they do not maintain healthy eating habits at all. The majority of contemplators indicated that they sometimes maintain healthy eating habits, which highlights the notion of not being completely ready to change, but merely contemplating behaviour change. Those in the preparation stage, who are planning to make changes in the near future, consider themselves as sometimes maintaining healthy eating habits, with very few respondents reporting they do not.

To further investigate respondents' responses in the different stages of change, the current study considered the average sugar intake per stage of change as indicated by respondents per period of two weeks. The results can be seen in Table 7.7.

Table 7.7: Average sugar intake (g) per stage of change

Stage of change	**AVERAGE SUGAR INTAKE (g)**	
	Per two weeks	**Per day**
Pre-contemplation	612	44
Contemplation	525	38
Preparation	505	36

Even though pre-contemplating respondents stated that they engage in healthy eating habits, scrutiny of the average sugar intake suggests otherwise. Indeed, considering the average sugar intake in grams, pre-contemplators clearly posit an unhealthy sugar intake – that is, 20g more than the recommended daily amount (Kidd, 2018). Given that a very small number of consumers have admitted that they do not maintain healthy eating habits, and the majority of pre-contemplators maintain they do maintain healthy eating habits, it is clear that respondents in this stage may be uninformed or oblivious to the fact that they consume too much sugar. Alternatively, pre-contemplators may be in denial about their health, which might have prompted these respondents to provide slanted answers. The lack of indicating unhealthy habits reinforces the pre-contemplation stage characteristics of denial or unawareness of the unhealthy behaviour undertaken, as reported in the literature (Norcross *et al*., 2011).

Respondents in the contemplation stage consume slightly less sugar than the pre-contemplators, which confirms the stance that contemplators are closer to behaviour modification in comparison to pre-contemplators. Furthermore, the reduced intake per day may signify that contemplators are more conscious about their sugar intake and that they therefore attempt to consume less sugar as they recognise their unhealthy intake. However, the daily amount still exceeds WHO's recommendations, and this finding reiterates that contemplators are lacking commitment and that they are not ready to make concrete plans to change their behaviour (Nigg *et al*., 1999).

Finally, according to existing literature, the preparation stage is characterised by consumers who are making concrete plans to implement change in the near future, with some already making small behavioural changes (Prochaska *et al.*, 1999). According to Table 7.6, most respondents in the preparation stage are convinced that they are maintaining healthy eating habits. However, considering their daily intake in Table 7.7, they are still consuming an unhealthy amount of sugar per day. Nevertheless, they consume the least amount of sugar per day compared to the other two stages, and this finding might be an indication that those in the preparation stage are taking small behavioural actions towards consuming less sugar, as reported in current literature (Slater, 2009).

The average sugar intake of respondents indicates that respondents consume excessive amounts of sugar measured against the recommendations outlined by the World Health Organization. The data confirms that respondents included in the study are likely to be at risk of developing health consequences associated to their sugar intake in the future, and that the need for behaviour modification is essential.

After analysing the demographics of the sample, the study considered the effectiveness of the manipulations. Manipulation checks were conducted to ensure the validity of the experimental results.

7.4.4 Manipulation checks

Manipulation checks were conducted throughout the study. The emotional appeal messages identified through the qualitative interviews were tested before selecting the appropriate ones to be used in the quantitative experiment, as discussed in section 7.2.2. In the pilot study conducted with 30 respondents, a manipulation check was included for both emotional appeals. In the final experimental phase of the study, manipulations checks were conducted again, with the purpose of confirming that the manipulated emotional appeals produced the desired effect. In summary, the manipulations were analysed to ensure that the manipulations elicit different responses, in order to conclude the effects thereof on the independent variables. Manipulations were checked by asking respondents to indicate to what extent they experienced fear (measured by ‘scared’) and guilt (measured by ‘guilty’). Responses were measured on a 7-point scale and the averaged results can be seen in Table 7.8.

Table 7.8: Manipulations checks for the pilot study and the quantitative phase

PILOT STUDY PHASE		
Emotional appeal	**Fear**	**Guilt**
Fear appeal	3.36	4.00
Guilt-fear appeal	3.65	4.05
QUANTITATIVE PHASE		
Emotional appeal	**Fear**	**Guilt**
Fear appeal	3.78	4.33
Guilt-fear appeal	3.85	4.43

As can be seen from Table 7.8, the fear appeal manipulation evoked moderate fear amongst respondents. Against the background of moderate fear evocation research (Keller & Block, 2005; Tay & Watson, 2002), the fear appeal manipulation was considered effective in ensuring the induction of different responses in the independent variables. Scores for the guilt appeal manipulation were slightly above 4 on a 7-point score, suggesting that the manipulation effectively elicited guilt amongst respondents. However, as can be viewed in the table, the emotion guilt was not notably higher in the guilt-fear group compared to the fear group. The similarity in the guilt scores can be explained by existing literature that suggest that guilt evocation often occurs naturally in sugar consumption settings (Kuijer *et al*., 2015). Indeed, as consumers realise that sugary products are unhealthy, when consumption occurs, consumers tend to believe that they have given in to the temptation, and guilt feelings are then experienced (Conzen, 2017). Given the known association between guilt and sugar consumption (Kuijer & Boyce, 2014), it could be assumed that guilt evocation cannot be excluded from a fear appeal given the sugar consumption contexts. Although higher levels of guilt within a guilt-fear appeal would have been ideal, the scores were considered an indication that the emotion had been effectively induced in both of the negative emotion appeals. Against this background it was concluded that the guilt appeal manipulation was valid in producing different responses in the independent variables.

To summarise, there was sufficient evidence of manipulation effectiveness. Following this conclusion, the reliability of the measurement instrument needed to be considered.

7.4.5 Reliability of the measurement instrument

A reliability analysis of the measurement instrument was conducted to determine the scales' internal consistency. To do this, Cronbach Alpha (CA) coefficients were calculated for each variable, in each experimental group. That is, for each emotional arousal variable, as well as for each extended parallel process model variable, a CA was calculated. These scores are displayed in Table 7.9.

Table 7.9: Cronbach Alpha for experimental groups

Variable	**FEAR**	**GUILT-FEAR**	**CONTROL**
Behavioural Intent	0.859	0.876	0.841
Response efficacy	0.801	0.870	0.871
Self-efficacy	0.924	0.928	0.903
Severity	0.729	0.687	0.773
Susceptibility	0.876	0.845	0.888
Fear	0.911	0.933	0.892
Guilt	0.912	0.905	0.890
Anticipated pleasure	0.941	0.942	0.926

As depicted in Table 7.9, the majority of constructs demonstrated a Cronbach Alpha score above 0.8, which is considered to be a good indicator of a scale's reliability. Severity is the only construct to have produced a lower CA value, however, scores above 0.6 are still deemed adequate to claim reliability (De Vellis, 2012; Zikmund & Babin, 2010). After considering the above-mentioned Cronbach alpha coefficients, it was concluded that the measurement instrument, its components and scales demonstrated very good internal consistency.

Once the reliability of the scale was analysed and confirmed, the descriptive and inferential analysis commenced. The following section will firstly report on the descriptive results.

7.4.6 Descriptive analyses

The current section provides an analysis of the descriptive statistics of the study, which includes an elaboration on the central tendency and normality of distribution. This analysis was done for each experimental group (fear, and guilt-fear) and the control group, and for each variable relevant to the study. The descriptive statistics for each group are displayed in Table 7.10, Table 7.11, and Table 7.12, respectively.

Table 7.10: Descriptive statistics: Control group

	Fear	**Guilt**	**Anticipated Pleasure**	**Behavioural intent**	**Response efficacy**	**Self-efficacy**	**Severity**	**Susceptibility**
Mean	1.49	2.16	3.32	4.48	5.64	5.85	5.70	3.78
Std. Deviation	.96	1.44	1.61	1.33	1.14	0.96	0.97	1.59
Minimum	1	1	1	1	1	1	1	1
Maximum	7	7	7	7	7	7	7	7
Skewness	2.75	1.40	0.24	-0.72	-1.10	-1.04	-0.74	0.18
Kurtosis	7.91	1.26	-0.74	.07	1.00	0.86	0.17	-1.00
Kolmo-gorov Smirnov	0.000	0.000	0.042	0.000	0.000	0.000	0.000	0.006
Shapiro Wilk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001

Considering the scores depicted in Table 7.10, the normality of distribution is analysed first. To claim normal distribution, the Kolmogorov Smirnov and Shapiro Wilk values should not be significant and should be above 0.05. As can be seen in the table, these scores in the control group are all below 0.05, indicating the data are not normally distributed and thus violates the assumption of normality.

An additional method to assess the spread of the data is to examine the skewness and kurtosis scores. The skewness of the emotional responses is shown by positive scores, indicating scores are clustered to the left at the low values (Pallant, 2016). For the EPPM variables, skewness scores are clustered at the high end. Considering that most of the kurtosis scores are positive, the distribution of data in the control group is relatively clustered to the centre.

Table 7.11: Descriptive statistics: Fear group

	Fear	**Guilt**	**Anticipated Pleasure**	**Behaviour intent**	**Response-efficacy**	**Self-efficacy**	**Severity**	**Susceptibility**
Mean	2.32	2.32	2.61	4.47	5.87	5.62	5.72	3.99
Std. Deviation	1.52	1.83	1.47	1.34	0.88	1.17	0.93	1.53
Minimum	1	1	1	1	1	1	1	1
Maximum	7	7	7	7	7	7	7	7
Skewness	1.09	1.09	0.66	-0.61	-1.19	-1.31	-0.96	-0.2
Kurtosis	0.17	-0.95	-0.40	-0.27	2.16	2.14	1.00	-0.77
Kolmo-gorov Smirnov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062
Shapiro Wilk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019

Again, as can be seen in Table 7.11, the Kolmogorov-Smirnov and Shapiro Wilk scores in the fear group are all below 0.05 (except susceptibility), indicating the data are not normally distributed and thus violates the assumption of normality. Assessing the skewness values, as in the control group, emotional responses appear clustered to the left at the lower values, while the distribution of EPPM is clustered at the high end.

Table 7.12: Descriptive statistics: Guilt-fear group

	Fear	**Guilt**	**Anticipated Pleasure**	**Behaviour intent**	**Response-efficacy**	**Self-efficacy**	**Severity**	**Susceptibility**
Mean	2.29	3.18	2.75	4.54	5.85	5.58	5.74	4.00
Std. Deviation	1.53	1.83	1.55	1.36	1.23	1.22	0.84	1.43
Minimum	1	1	1	1	1	1	1	1
Maximum	7	7	7	7	7	7	7	7
Skewness	1.21	0.54	0.69	-0.67	-1.23	-1.19	-0.48	-0.09
Kurtosis	0.59	-0.86	-0.32	-0.30	1.90	1.23	-0.53	-0.69
Kolmo-gorov Smirnov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028
Shapiro Wilk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059

As depicted in Table 7.12, all the variables' Kolmogorov Smirnov scores are significant, indicating that the assumption of normality has been violated. Susceptibility, however, appears

to be normally distributed with a non-significant p-value of 0.059. The skewness scores of the EPPM variables are all negative, suggesting that the data are clustered at the high end, while the emotion variables are more distributed to the left at the low values.

Following the descriptive analysis, the data were subjected to inferential analyses. The inferential analyses were conducted to address the objectives and hypotheses of the current study.

7.5 INFERENTIAL ANALYSES

The inferential analyses of the study consisted of an analysis of variance (ANOVA) test. Respondents' cognitive and emotional responses (continuous, dependent variables) were examined across three emotional appeals (categorical, independent variable) to identify whether there are any differences in responses depending on the emotional appeal to which the respondents were exposed. Therefore, ANOVA was identified as the appropriate test to conduct given that the study examined whether there were any significant differences in the mean scores of the dependent variables (e.g. self-efficacy) across the three groups (fear, guilt-fear, and control group). ANOVAs were conducted for each stage of change to examine differences between the responses across the emotional appeals *within* each individual stage. More specifically, using a confidence level of 95%, one-way ANOVAs were calculated on each dependent variable for the respective pre-contemplation, contemplation, and preparation stages. Before analysing the data from the ANOVA tests, the assumptions of the statistical test needed to be assessed.

7.5.1 ANOVA assumptions

Conducting ANOVAs require specific assumptions to be met (Pallant, 2010). In this study, the assumptions of normal distribution and homogeneity of variance were addressed. As discussed previously, normality was examined using skewness and kurtosis scores, as well as performing Shapiro-Wilk tests, for each dependent variable. Even though the assumption of normality was largely violated, the study's sample size was considered large enough (30+) so that the violation should not cause significant problems (Sawyer, 2017; Pallant, 2010; Malhotra, 2010).

The second assumption pertaining to ANOVAs is homogeneity of variance. To conduct ANOVAs, it is assumed that the sample for the study has been obtained from a population with equal variance (Pallant, 2010). To address this assumption, homogeneity of variance was

assessed by conducting a Levene's test to determine equality of variance for each dependent variable (95% confidence level). Refer to Table 7.13 for Levene's test scores.

Table 7.13: Levene's test for equality of variance

Dependent variable(s)	**Significant score**
Behaviour intent	0.028
Self-efficacy	0.003
Response-efficacy	0.008
Severity	0.756
Susceptibility	0.631
Fear	0.000
Guilt	0.000
Anticipated pleasure	0.349

When groups are relatively similar in size, ANOVAs are reasonably robust to violations of variance equality assumptions (Pallant, 2010). Due to the overall large sample size of the study (Kidd, 2014 as cited in Smit, 2016), and the similarity in size of the groups, it was deemed acceptable to continue with the ANOVA analysis, even though some variances were not homogeneous.

The remainder of this section reports on the data and analyses per stage of change. Therefore, the pre-contemplation, contemplation, and preparation stages of change are addressed separately, as stipulated in the study's objectives and hypotheses. To address the hypotheses, one-way ANOVAs were calculated on each dependent variable for each stage of change separately, commencing with the pre-contemplation stage of change.

7.5.2 Pre-contemplation stage

According to theory, consumers in the pre-contemplation stage are unaware or in denial of their unhealthy habits (Prochaska, 2008; Cho & Salmon, 2006; Prochaska *et al*., 1992). Studies have shown that pre-contemplators are resistant towards change and tend to demonstrate defensive

behaviours (Carrera *et al*., 2010; Nigg *et al*., 1999). It could be argued that messages that elicit strong negative emotions – including fear and guilt – may not necessarily lead to the intended response consequences among pre-contemplators. Thus, the objective was to investigate whether pre-contemplators have differing responses when exposed to a fear appeal warning label, a guilt-fear appeal warning label, or a product with no warning label. Pre-contemplators' cognitive responses were investigated, as based on the extended parallel process model, as well as their emotional responses.

7.5.2.1 The differing effects of negative emotional appeals on the cognitive responses of consumers in the pre-contemplation stage of change

The first one-way ANOVA was conducted to determine whether pre-contemplators have different cognitive responses when exposed to a fear appeal, guilt-fear appeal or no appeal. The statistical test addressed the following hypothesis:

H_0^1: There is no difference in the cognitive responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

The result of this analysis can be seen in Table 7.14. The testing of each dependent variable of the EPPM serves as a sub-hypothesis and is denoted by the letters A-E.

As illustrated in Table 7.14, none of the p-values were statistically significant, nor approaching significance. As a result, H_0^1 cannot be rejected, and it is concluded that the different negative emotional appeals did not have differing effects on pre-contemplators. Considering the mean scores, perceptions of severity and susceptibility seem to be higher in the guilt-fear group, while self-efficacy levels are the highest in the control group. Response-efficacy scores were highest in the guilt-fear group and behavioural intent in the control group.

Although no statistically significant differences were found, descriptive results relating to the variables may still prove insightful. More specifically, when evaluating the mean scores of each variable in all three groups, it appears that pre-contemplating respondents realise what they need to do to change their sugar consumption (response-efficacy), that they consider themselves as having the ability to change (self-efficacy), and that they are aware that the consequences of sugar consumption are severe (severity).

Table 7.14: Cognitive responses of respondents in the pre-contemplation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Behavioural intention	$H_0{}^{1A}$	0.002	0.998	3.062	3.005	3.072
Response efficacy	$H_0{}^{1B}$	1.099	0.337	5.324	5.385	5.039
Self-efficacy	$H_0{}^{1C}$	1.281	0.282	5.591	5.255	5.644
Severity	$H_0{}^{1D}$	1.166	0.315	5.300	5.590	5.450
Susceptibility	$H_0{}^{1E}$	2.169	0.119	3.414	3.610	2.939

However, despite the positive indications, pre-contemplators do not seem to feel susceptible to the health consequences associated with sugar consumption (susceptibility) and have little intention to change (behavioural intent). This data are in line with pre-contemplation research that indicates that pre-contemplators are often in denial of their unhealthy behaviours and therefore do not intend to change their behaviour (Prochaska, 2008; Block & Williams, 2002). Behavioural intent scores are low given that the variable was measured on a 7-point scale. Behavioural intent mean scores were all around 3 (control= 3.072, fear appeal= 3.062, guilt-fear appeal= 3.005), indicating strong disagreement with the statements measuring intent to change behaviour. As reported in the literature (Prochaska, 2008; Cho & Salmon, 2006; Armitage et al., 2004), the low behaviour intent scores found in this study confirm pre-contemplators' unwillingness to change their behaviour. Interestingly, susceptibility scores were notably low on the 7-point scale (control= 2.939, fear appeal= 3.414, and guilt-fear appeal= 3.610), indicating that pre-contemplators do not feel susceptible to the health concerns associated with sugar consumption. Since susceptibility perceptions play an important role in the acceptance of fearful messages (De Hoog *et al*., 2007), the results should be considered. Given that the susceptibility items referred to as 'health problems' related to their sugar consumption, it can be speculated that the phrasing of 'health problems' was too vague for

respondents to feel that they would be susceptible to these. Insights gained from the study's qualitative phase hinted at the importance of communicating specific health threats for respondents to feel scared. Thus, it could be argued that 'health problems' as a measure of susceptibility was not specific enough for consumers to respond strongly to the construct. Furthermore, since susceptibility items were phrased in a way that addressed consumers' own behaviour, the low scores of pre-contemplators' susceptibility perceptions reinforce the notion that they remain in denial that their sugar consumption behaviours are worrying and need changing.

Another potential explanation for the cognitive responses, especially low intent, can be explained by the extended parallel process model. According to this model, if respondents experience appropriate levels of severity and susceptibility to a fear appeal, the overall threat will be considered effective. Subsequently, according to the model, respondents are expected to experience fear and should thus feel motivated to explore ways to avoid or reduce the negative feelings by changing their behaviour (Mongeau, 2013). However, because pre-contemplators' perceptions of susceptibility were low, it could be concluded that the threat of the fear appeal was not strong enough for respondents to feel motivated to change their behaviour in order to reduce the fearful feelings. Irrespective of the high severity perceptions recorded, the low susceptibility perceptions resulted in ineffective threat appraisal, which possibly led to the low behavioural intent scores. Again, given that pre-contemplators are often in denial or unaware of their behaviour (Norcross *et al.,* 2011), the study's results seem plausible as pre-contemplators are inherently unwilling to admit that they are either susceptible to health consequences, or that they need to change their behaviour.

Although not significantly different when considering the mean scores, it appears that the guilt-fear appeal elicits the highest scores amongst pre-contemplators for response efficacy, severity, and susceptibility. Against this background, when targeting pre-contemplators, the guilt-fear appeal may be the most effective in terms of producing desired cognitive responses.

7.5.2.2 The differing effects of negative emotional appeals on the emotional responses of consumers in the pre-contemplation stage of change

ANOVAs were also conducted to examine the emotional responses of pre-contemplators when exposed to the negative emotional appeals. Since pre-contemplators tend to be resistant, unmotivated, or not ready to acknowledge or address their problematic behaviour (Prochaska,

2008; Armitage *et al.,* 2004), it was theorised that negative emotional appeals may have little effect on respondents' emotions as they are unaware of their problem behaviour. In addition, given the cognitive association between guilt and pleasure (Kuijer & Boyce, 2014), it was theorised that guilt evocation in a sugar related setting could essentially engender the unintended outcome of enhanced anticipated pleasure from consumption. However, due to a plethora of evidence supporting the use of negative emotional evocation in behaviour change contexts, the ambiguity in the literature and speculation of responses towards negative emotional appeals were investigated. The following hypothesis was addressed:

H_0^2: There is no difference in the emotional responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

The results are presented in Table 7.15. Each emotion serves as a sub-hypothesis and is illustrated through the letters A-C.

Table 7.15: Emotional responses of respondents in the pre-contemplation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Fear	H_0^{2A}	3.889	0.023	1.648	1.720	1.156
Guilt	H_0^{2B}	5.132	0.007	2.357	2.325	1.472
Anticipated pleasure	H_0^{2C}	2.549	0.083	2.691	3.070	3.556

As can be seen in Table 7.15, both fear and guilt produced statistically different p-values, while anticipated pleasure was approaching significance. As such, H_o^{2A-B} was rejected. For both fear and guilt, the *post hoc* test results were consulted to determine where the differences occurred between groups.

Table 7.16: Tukey's *post hoc* test results for emotional responses in the pre-contemplation stage

EMOTIONAL RESPONSE	**EXPERIMENT GROUP (mean)**	**NEGATIVE EMOTIONAL APPEAL (mean)**	**SIGNIFICANCE LEVEL**
FEAR	Control (1.156)	Fear appeal (1.648)	0.064**
		Guilt-fear appeal (1.720)	0.030*
	Fear appeal (1.648)	Control (1.156)	0.064**
		Guilt-fear (1.720)	0.937
	Guilt-fear appeal (1.720	Control (1.156)	0.030*
		Fear (1.648)	0.937
GUILT	Control (1.472)	Fear appeal (2.357)	0.013*
		Guilt-fear appeal (2.325)	0.020*
	Fear appeal (2.357)	Control (1.472)	0.013*
		Guilt-fear appeal (2.325)	0.994
	Guilt-fear appeal (2.325)	Control (1.472)	0.020
		Fear appeal (2.357)	0.994

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 7.16: Tukey's *post hoc* test results for emotional responses in the pre-contemplation stage (cont.)

EMOTIONAL RESPONSE	EXPERIMENT GROUP (mean)	NEGATIVE EMOTIONAL APPEAL (mean)	SIGNIFICANCE LEVEL
ANTICIPATED PLEASURE	Control (3.556)	Fear appeal (2.691)	0.066**
		Guilt-fear appeal (3.070)	0.425
	Fear appeal (2.691)	Control (3.556)	0.066**
		Guilt-fear appeal (3.070)	0.567
	Guilt-fear appeal (3.070)	Control (3.556)	0.425
		Fear appeal (2.691)	0.567

* p< 0.05

** p< 0.01

*** p< 0.001

As illustrated in Table 7.16, for the emotion of fear, a significant difference can be observed between the control group and the guilt-fear group (p= 0.030). For guilt, the difference was between the control group and the fear appeal group (p= 0.013), as well as between control and guilt-fear group (p= 0.020) Anticipated pleasure was approaching significance between the control and fear group (p= 0.066).

Considering the significant differences in emotional responses of respondents in the pre-contemplation stage, an emotional appeal is notably effective in eliciting emotions amongst consumers. In particular, both fear and guilt are significantly higher in the experimental groups than the control group. Furthermore, pre-contemplators appear to experience similar guilt feelings when exposed to a fear appeal (guilt= 2.357) and guilt-fear appeal (guilt= 2.325). This finding could confirm the known association between sugar consumption and guilt (Kuijer *et al.*, 2015; Goldsmith *et al.*, 2015), according to which consumers experience guilt because of the sugary product itself being perceived as unhealthy, not necessarily due to the guilt message. Stated differently, respondents may feel guilty about consuming the sugary product *before* being exposed to the warning label message.

When assessing feelings of fear, a non-significant difference can be seen between the fear appeal (mean= 1.648) and guilt-fear appeal (mean= 1.720), suggesting that the added guilt message within the fear appeal does not significantly strengthen fear evocation specifically. However, a significant difference in feelings of fear can be seen between the guilt-fear group (mean= 1.720) and the control group (mean= 1.156), which suggests that fear evocation is more intense in a guilt-fear appeal setting in comparison to no appeal at all.

There were no significant differences between the negative emotional appeal warning labels on respondents' anticipated pleasure. On a descriptive level, anticipated pleasure produced the highest mean score in the control group (mean= 3.556), followed by the guilt-fear group (mean= 3.070), and the lowest mean score in the fear appeal group (mean= 2.691). Therefore, as the scores have lowered due to the apparent reduction in respondents' anticipated pleasure when exposed to the fear or guilt-fear warning label, it is clear that respondents in the pre-contemplation stage do not expect heightened enjoyment from consumption associated with negative warning labels. This result suggests that the pleasure respondents anticipate experiencing from consumption will not differ between the different emotional appeals. Overall, when evaluating the emotional responses amongst pre-contemplators, a fear appeal warning label appears to be most effective in engendering desired emotional responses. That is, on a descriptive level, fear appeals produce reduced anticipated pleasure and the strongest feelings of guilt. Given that there were no significant differences in the emotion fear between the fear appeal and the guilt-fear appeal, a fear appeal may be most applicable for consumers in the pre-contemplation stage.

Despite the reported statistically significant differences, the mean scores of the felt emotions should be placed in context. More specifically, fear and guilt experienced by pre-contemplators were quite low considering that the emotions were measured on a 7-point scale. The low levels of felt emotions reported by respondents specifically in the pre-contemplation stage may suggest that the negative emotional evocation had limited impact on them as they are resistant, unmotivated, and unaware of their unhealthy behaviour (Armitage *et al.*, 2004). Alternatively, the negative emotional appeals might have been ignored by respondents as they are in denial of needing to change their behaviour (Zimmerman *et al*., 2000). Since pre-contemplators reported low susceptibility to the threat communicated, it can also be theorised that defensive reactions occurred in the form of message avoidance (Rintamaki & Yang, 2014; Williams, 2012). According to Witte (1992), feelings of hopelessness, or low levels of self-efficacy induce increased feelings of fear, but consumers reduce the negative feelings by avoiding the

message altogether. Finally, pre-contemplators are typically uninterested in changing their current behaviour (Kristal *et al*., 1999), which could explain why they did not experience the emotions as strongly as desired.

To summarise, considering the different responses to the negative appeal warning labels pertaining to emotional and cognitive responses, the suggestion will differ depending on whether the social marketer is attempting to trigger cognitive or emotional responses. In other words, if the cognitive responses are considered most important to achieve amongst pre-contemplators in a sugar consumption setting, a guilt-fear appeal appears to be slightly more effective (but not statistically significant) in engendering cognitive responses than that of the fear appeal. However, considering emotional responses on a descriptive level, the most effective warning label design to evoke the appropriate levels of the three emotions, is a fear appeal.

7.5.3 Contemplation stage

The contemplation stage of change refers to those consumers who recognise their unhealthy behaviour and are thinking about changing it in the future (Prochaska *et al*., 1992). Researchers have argued that communication messages that are perceived as relevant to the message receiver, are more likely to result in actual behaviour change (Block & Williams, 2002). Because contemplators are aware of their unhealthy habits, it is argued that they may perceive a message emphasising a health threat as relevant to themselves, which in turn could engender desirable responses. For instance, in response to a fear appeal, a contemplator may develop feelings of fear as a result of appraising the threat as applicable to their own behaviour. In this instance, consumers will be persuaded to take behavioural action and to adopt a healthier habit. The speculation surrounding contemplators' possible responses towards negative emotional appeals was addressed in this study. As with the pre-contemplation stage, ANOVAs were conducted to determine whether there are any differences in contemplators' responses when exposed to different negative emotional appeals.

7.5.3.1 The differing effects of negative emotional appeals on the cognitive responses of consumers in the contemplation stage of change

For the contemplation stage, the first ANOVAs were conducted to assess the cognitive responses of the contemplators in this study. The statistical test addressed the following hypothesis:

H_0^3: There is no difference in cognitive responses of consumers in the contemplation stage between different negative emotional appeal warning labels

The summary of this analysis can be seen in Table 7.17. Again, the testing of each dependent variable of the EPPM serves as a sub-hypothesis and is displayed by the letters A-E.

Table 7.17: Cognitive responses of respondents in the contemplation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Behavioural intention	H_0^{3A}	1.099	0.335	4.761	5.023	4.823
Response efficacy	H_0^{3B}	1.240	0.292	6.018	5.912	5.736
Self-efficacy	H_0^{3C}	1.041	0.355	5.661	5.587	5.906
Severity	H_0^{3D}	0.177	0.890	5.818	5.810	5.743
Susceptibility	H_0^{3E}	0.100	0.905	4.079	4.184	4.083

As reported in Table 7.17, none of the differences in EPPM variables between the different warning label messages are statistically significant. Consequently, H_0^3 is not rejected, as it is concluded that the cognitive responses of contemplators are not different when exposed to negative emotional appeals.

Even as no significant differences were found, results were analysed on a descriptive level and proved to be insightful. Upon evaluating the mean scores of all the variables, it seems that contemplators are aware of the severity of the health consequences associated with sugar consumption (severity); they feel they are able in changing their behaviour (self-efficacy); they know what they need to do to change their current sugar intake behaviours (response-efficacy); and they intend to change their behaviour in the near future (behavioural intent). However, while susceptibility scores are higher in comparison to the pre-contemplation stage, it appears

as if contemplators are still relatively unwilling to admit they are susceptible to the health consequences related to their sugar intake. Since contemplators are more aware of their unhealthy behaviour and its consequences, the cognitive responses as shown in this study seem reasonable as they are increasingly contemplating to change.

Considering the mean scores of the EPPM variables, behavioural intent and perceptions of susceptibility are the highest in the guilt-fear group (behavioural intent= 5.023 and susceptibility= 4.184), while response-efficacy and severity scored highest in the fear group (response-efficacy= 6.018 and severity= 5.818). According to Djikstra *et al*. (1996), contemplators demonstrate high self-efficacy levels as they begin to gain confidence in their ability to change their behaviour. Self-efficacy levels appear to be the highest in the control group (mean= 5.906), signifying that emotional evocation reduces respondents' confidence in their ability to undertake reduced sugar consumption. It appears that, even though contemplators perceive the threats associated with their sugar consumption as severe, perceptions of susceptibility remain low. Given that the susceptibility items referred to 'health problems' associated with sugar consumption, again it could be concluded that the lack of a specific health concern made respondents feel less vulnerable to experiencing the threat themselves. Furthermore, susceptibility items were phrased in a manner that addressed their own sugar intake behaviours. Since scores were relatively average, it is concluded that contemplators are not entirely convinced that they will develop the health problems as a result of their own behaviour.

In a further effort to explain contemplators' cognitive responses, the extended parallel process model will be discussed. As mentioned before, the model proposes that the overall threat of the fear appeal can only be considered effective when perceptions of both susceptibility and severity are high. In this instance, respondents are expected to experience fear and feel motivated to search for ways to reduce the feelings of fear by engaging in behavioural change (Mongeau, 2013). As in the pre-contemplation stage, contemplating respondents exhibited relatively low levels of susceptibility, which may explain the average levels of behavioural intent reported. Indeed, contemplating respondents did not feel highly susceptible to the threats communicated in the negative emotional appeal, which may explain the moderate levels of intention to change their behaviour reported. Despite recording high severity perceptions, the lack of adequate susceptibility perceptions resulted in low overall threat, which possibly made contemplators posit low behavioural intent. However, behavioural intent scored slightly higher

in the guilt-fear appeal group (not significantly), which may indicate that contemplators respond more favourably to guilt-evocation.

Considering the responses to the guilt-fear appeal, these results suggest that adding guilt within a fear appeal may strengthen behavioural intentions amongst contemplators, albeit not statistically significant. Against the background of the EPPM responses, contemplators who are thinking about changing their sugar intake will respond favourably to both fear appeal and guilt-fear appeal warning labels.

7.5.3.2 The differing effects of negative emotional appeals on the emotional responses of consumers in the contemplation stage of change

Consumers in the contemplation stage are aware of their unhealthy behaviour and contemplate to change (Prochaska, 2008). Therefore, it could be argued that an emotionally loaded message will engender desirable responses from contemplators as they realise their behaviour is unhealthy. For example, in terms of fear appeals, contemplators may develop feelings of fear as a result of considering the threat as applicable to their own behaviour. Furthermore, according to existing literature, guilt evocation in a sugar related setting should be cautioned as it could engender the unintended outcome of enhanced anticipated pleasure from consumption (Kuijer & Boyce, 2014). This speculation was investigated by considering contemplators' emotional responses towards fear- and guilt-fear appeals. This section provides the results of the emotional responses of contemplators when exposed to negative emotional appeals. The following formulated hypothesis was addressed:

H_0^4: There is no difference in the emotional responses of consumers in the contemplation stage between different negative emotional appeal warning labels

The results of the ANOVAs are reported in Table 7.18. Each emotion serves as a sub-hypothesis and is illustrated using the letters A-C.

As can be observed in Table 7.18, all the p-values were statistically significant, indicating that contemplators' emotional arousal differs across the various negative appeals. Hence, H_0^4 was rejected. According to the *post hoc* test results, the differences in fear and guilt feelings are seen between the control group and the fear group (p= 0.001 for both), as well as the control group and the guilt-fear group (p= 0.001 for both). Anticipated pleasure values differed between the control group and the guilt-fear group (0.022).

Table 7.18: Emotional responses of respondents in the contemplation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Fear	$H_0{}^{4A}$	9.126	0.000	2.418	2.439	1.457
Guilt	$H_0{}^{4B}$	8.576	0.000	3.424	3.479	2.306
Anticipated pleasure	$H_0{}^{4C}$	3.916	0.022	2.749	2.584	3.347

Given the significant scores evident in emotional responses, the *post hoc* test results were consulted. The results of the *post hoc* test can be viewed in Table 7.19.

Table 7.19: Tukey's *post hoc* test results for emotional responses in the contemplation stage

EMOTIONAL RESPONSE	**EXPERIMENT GROUP (mean)**	**NEGATIVE EMOTIONAL APPEAL (mean)**	**SIGNIFICANCE LEVEL**
FEAR	Control (1.457)	Fear appeal (2.418)	0.001***
		Guilt-fear appeal (2.493)	0.001***
	Fear appeal (2.418)	Control (1.457)	0.001***
		Guilt-fear appeal (2.493)	0.996
	Guilt-fear appeal (2.493)	Control (1.457)	0.001***
		Fear appeal (2.418)	0.996

* p< 0.05

** p< 0.01

*** p< 0.001

Table 7.19: Tukey's *post hoc* test results for emotional responses in the contemplation stage (cont.)

EMOTIONAL RESPONSE	EXPERIMENT GROUP (mean)	NEGATIVE EMOTIONAL APPEAL (mean)	SIGNIFICANCE LEVEL
GUILT	Control (2.306)	Fear appeal (3.424)	0.001***
		Guilt-fear appeal (3.479)	0.001***
	Fear appeal (3.424)	Control (2.306)	0.001***
		Guilt-fear appeal (3.479)	0.982
	Guilt-fear appeal (3.479)	Control (2.306)	0.001***
		Fear appeal (3.424)	0.982
ANTICIPATED PLEASURE	Control (3.347)	Fear appeal (2.749)	0.085
		Guilt-fear appeal (2.584)	0.022*
	Fear appeal (2.749)	Control (3.347)	0.085
		Guilt-fear appeal (2.584)	0.814
	Guilt-fear appeal (2.584)	Control (3.347)	0.022*
		Fear appeal (2.749)	0.814

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Similar to the pre-contemplation stage, an emotional appeal warning label induces increased feelings of fear and guilt, suggesting that incorporating either of the warning label appeals are more effective than no warning label. Furthermore, considering the levels of anticipated pleasure, contemplators expect significantly *less* enjoyment to be experienced when exposed to the guilt-fear group versus control group (guilt-fear= 2.584 and control= 3.347). These

finding contrasts current research that argues that guilt evocation will enhance anticipated pleasure (Goldsmith *et al.*, 2012).

On a descriptive level, contemplators reported relatively low fear and guilt felt, considering that the emotions were measured on a 7-point scale. It is possible that contemplators might have engaged in cognitive reappraisal, which refers to the process of respondents interpreting emotional arousal in a non-emotional manner (Gross, 2002). Cognitive reappraisal in particular occurs when respondents evaluate the threat to the extent that the emotions are minimised. For example, studies have shown that smokers often downplay the relevance of the threat to their health, suggesting that socialising is more important than practising healthy habits (van 't Riet & Ruiter, 2013). Furthermore, researchers have argued that contemplators typically consider the effort, energy and/or costs of changed behaviour too significant to make concrete plans (Prochaska *et al*., 1992). Against this background, it could be theorised that, despite contemplators being aware of their problematic behaviour, because they consider changing to be too much effort, the conflicting feelings lead to downplaying the threat to their health.

To summarise, when considering emotional arousal, given that guilt-fear appeals produce the highest mean score of both guilt and fear, and the lowest for anticipated pleasure, targeting contemplators with a guilt-fear warning label can be expected to be most effective in evoking the appropriate level of the emotions. Should cognitive responses be prioritized to achieve amongst contemplators in a sugar consumption setting, a fear appeal appears to be slightly more effective (but not statistically significant) in engendering cognitive responses.

7.5.4 Preparation stage

Consumers can be classified into the preparation stage when plans are being made to change their unhealthy consumption behaviours (Prochaska, 2008). Researchers have argued that consumers with a moderate level of readiness to change, including the preparation stages, respond favourably to threatening messages by reporting increased intentions to change their behaviour (Wong & Cappella, 2009; Wong & McMurray, 2002). However, studies have also shown fear appeals to engender defensive reactions amongst consumers (Pelletier & Sharp, 2008; Cho & Salmon, 2006). This ambiguity and speculation of preparers' possible responses to emotional evocation were addressed in this study. As with the previous stages, ANOVAs were conducted to determine whether there are any differences in these consumers' responses when exposed to different emotion-loaded messages.

7.5.4.1 The differing effects of negative emotional appeals on the cognitive responses of consumers in the preparation stage of change

ANOVAs were conducted to assess the cognitive responses of those in the preparation stage. The statistical test addressed the following hypothesis:

H_0^5: There is no difference in cognitive responses of consumers in the preparation stage between different negative emotional appeal warning labels

The results of the statistical test that led to the outcome of H_0^5 are depicted in Table 7.20. The testing of each dependent variable of the EPPM serve as a sub-hypothesis and these are displayed by the letters A-E.

Table 7.20: Cognitive responses of respondents in the preparation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Behavioural intention	H_0^{5A}	0.552	0.577	5.165	5.214	5.030
Response efficacy	H_0^{5B}	0.937	0.394	6.105	6.073	5.907
Self-efficacy	H_0^{5C}	1.863	0.159	5.607	5.873	5.930
Severity	H_0^{5D}	0.343	0.710	5.926	5.782	5.817
Susceptibility	H_0^{5E}	0.512	0.600	4.302	4.114	4.017

As can be seen in Table 7.20, none of the EPPM variables revealed to be statistically significant between the groups. Against this background, H_0^5 cannot be rejected, as there is no significant difference in the responses of those in the preparation stage when exposed to the different negative emotional appeals.

When evaluating the mean scores of the cognitive responses, it appears that preparers, similar to contemplators, realise the severity of the health consequences associated with sugar consumption (severity); they believe that they have the ability to change their behaviour (self-efficacy); and they know what they need to do to change their current sugar intake behaviours (response-efficacy). Moreover, preparers are intending to change their behaviours in the near future (behavioural intent). However, similar to the contemplation stage of change, it also appears that preparers are relatively unconvinced that they are susceptible to the health consequences related to their sugar intake. As mentioned previously, the susceptibility findings amongst preparers seem sensible given that consumers in the preparation stage are planning to change their behaviour in the near future to decrease the risks of developing the health consequences as a result of their sugar intake (Cho & Salmon, 2006; Prochaska *et al*., 1992).

On a descriptive level, respondents in the preparation stage seem to be more committed to change when exposed to a guilt-fear appeal (behavioural intent mean= 5.214), but have the highest perceptions of severity (mean= 5.926), response-efficacy (mean= 6.105), and susceptibility (mean= 4.302) in the fear appeal group. Interestingly, perceptions of susceptibility appear lower in comparison to the other variables, which suggests that preparers were not completely convinced of their susceptibility to the health threats associated with their sugar consumption behaviours. These findings are plausible as, according to theory (Cho & Salmon, 2006; Prochaska *et al*., 1992), consumers in the preparation stage are actively planning to change their behaviour in the near future to lower the health risk consequences of their behaviours. In fact, the preparation stage has been described as consumers who make small behavioural changes towards action (Prochaska *et al*., 1992). Preparers might not feel as susceptible to the health problems anymore *because* they are making plans and small behavioural changes.

Upon evaluating the response-efficacy and self-efficacy responses, preparers scored high on both these constructs in each group, which is consistent with the characteristics of the stage as described in the literature (Prochaska *et al.,* 1992). Response-efficacy items included phrases that hint at consumers having adequate knowledge about their unhealthy sugar intake. For instance, ‘eating fewer sugary products now will lessen my chances of developing health problems’. Since preparers responded strongly to these items, it could be an indication towards preparers being more informed about their behaviour and what needs to be done to avoid developing the health problems associated to excessive sugar consumption. Indeed, as

preparation consumers are making concrete plans to change their behaviour in the near future to avoid developing health problems (Prochaska, 2008), their strong response to perceptions of the efficacy of the recommended protective behaviour to reduce the threat, would seem reasonable (Arthur & Quester, 2004; Witte, 1992). Moreover, consumers in this stage are also more motivated to change their behaviour, which is potentially reflected by their enhanced perceptions of self-efficacy.

Considering the argument presented by the extended parallel process model, preparers demonstrated high levels of severity perceptions, but low perceptions of susceptibility. These responses potentially led to ineffective threat appraisal of the fear appeal, as the model states that both severity and susceptibility need to be high for the threat to be considered effective. Since respondents in the preparation stage lacked susceptibility, it can be concluded that the threat communicated to them was considered to be uncontrollable, and the fear appeal therefore unsuccessful as further processing was not engendered (Basil *et al.*, 2008). Communicating a strong threat that would make preparers feel susceptible is thus essential to an effective fear appeal message (Witte & Allen, 2000). However, preparation respondents' readiness is reflected by their behavioural intent scores, which is notably high on a 7-point scale. That is, respondents in the preparation stage of change are seriously planning to change their behaviour in the near future (Prochaska, 2008).

The overall findings of the cognitive constructs of the EPPM may suggest that, because preparation stage consumers are ready to take action in changing their behaviour in the immediate future (Prochaska, 2008), a fear appeal is enough to evoke the desired responses as opposed to adding a guilt message within the fear appeal. Indeed, when examining the differences in cognitive responses on its own, even though not significant, it appears that the fear appeal warning label would produce the most desired cognitive responses amongst those in the preparation stage.

7.5.4.2 The differing effects of negative emotional appeals on the emotional responses of consumers in the preparation stage of change

As mentioned before, consumers in the preparation stage of change are characterised by the intention to change their behaviour in the immediate future (Prochaska, 2008). Furthermore, such consumers often make small attempts towards behaviour change, albeit not always successful (Nigg *et al*., 1999). Given that preparers are making plans to change (Prochaska *et*

al., 1992), however, it could be argued that the negative emotional appeals may induce slight emotional arousal since they do not feel they are in danger. However, studies have also shown support for emotional arousal amongst preparation consumers (Cho & Salmon, 2006). It is against this background of ambiguity and speculation that preparers' emotional responses towards fear and guilt-fear appeals were investigated. This section provides the results of the ANOVA that examined whether the emotional responses of those in the preparation stage differed when exposed to the negative emotional appeals. The following hypothesis was addressed:

H_0^6: There is no difference in the emotional responses of consumers in the preparation stage between different negative emotional appeal warning labels

The results of the ANOVAs are displayed in Table 7.21. Each emotion serves as a sub-hypothesis and is illustrated through the letters A-C.

Table 7.21: Emotional responses of respondents in the preparation stage

Variable	**Hypothesis**	**F statistic**	**p-value**	**Mean (X)**		
				Fear appeal	**Guilt-fear appeal**	**Control**
Fear	H_0^{6A}	7.523	0.001	2.698	2.582	1.710
Guilt	H_0^{6B}	7.229	0.001	3.604	3.524	2.450
Anticipated pleasure	H_0^{6C}	4.320	0.015	2.379	2.693	3.163

As shown in Table 7.21, all the p-values were statistically significant, suggesting that those in the preparation stage report different emotional responses across the negative appeals. As a result, H_0^6 was rejected.

Considering the *post hoc* test results in Table 7.22, the differences in fear was seen between the control group and the fear group (p= 0.001), as well as the control group and the guilt-fear group (p= 0.010). Guilt feelings differed between the control group and the fear group (p= 0.002) and the control group and guilt-fear group (p= 0.009). Anticipated pleasure values

differed between the control group and the fear group (0.011). Refer to Table 7.21 for the *post hoc* tests results for the preparation stage.

Table 7.22: Tukey's *post hoc* test results for emotional responses in the preparation stage

EMOTIONAL RESPONSE	**EXPERIMENT GROUP (mean)**	**NEGATIVE EMOTIONAL APPEAL (mean)**	**SIGNIFICANCE LEVEL**
FEAR	Control (1.710)	Fear appeal (2.698)	0.001***
		Guilt-fear appeal (2.582)	0.010**
	Fear appeal (2.698)	Control (1.710)	0.001***
		Guilt-fear appeal (2.582)	0.920
	Guilt-fear appeal (2.582)	Control (1.710)	0.010**
		Fear appeal (2.698)	0.920
GUILT	Control (2.450)	Fear appeal (3.604)	0.002**
		Guilt-fear appeal (3.524)	0.009**
	Fear appeal (3.604)	Control (2.450)	0.002**
		Guilt-fear appeal (3.524)	0.974
	Guilt-fear appeal (3.524)	Control (2.450)	0.009**
		Fear appeal (3.604)	0.974

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 7.22: Tukey's *post hoc* test results for emotional responses in the preparation stage (cont.)

EMOTIONAL RESPONSE	EXPERIMENT GROUP (mean)	NEGATIVE EMOTIONAL APPEAL (mean)	SIGNIFICANCE LEVEL
ANTICIPATED PLEASURE	Control (3.163)	Fear appeal (2.379)	0.011*
		Guilt-fear appeal (2.693)	0.232
	Fear appeal (2.379)	Control (3.163)	0.011*
		Guilt-fear appeal (2.693)	0.525
	Guilt-fear appeal (2.693)	Control (3.163)	0.232
		Fear appeal (2.379)	0.525

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

As in the previous stages of change, anticipated pleasure produced the highest mean score in the control group (mean= 3.163). In the preparation stage, respondents were expecting the lowest enjoyment from consumption when exposed to the fear appeal warning label (mean= 2.379). This finding may suggest that because preparers are characterised by already making plans to change their unhealthy behaviour (Slater, 2011), a fear appeal is enough to evoke desired responses.

On a descriptive level, fear and guilt experienced by respondents in the preparation stage were relatively low considering that the emotions were measured on a 7-point scale. The low emotional levels reported by preparers could point to preparers' concrete planning to change in the near future. Stated differently, the negative emotional evocation may have had little effect on respondents in the preparation stage as they had already made plans to change their sugar intake habits. Therefore, the emotional arousal might have been ineffective as they do not feel it is necessary to be scared or to feel guilty about their sugar consumption behaviours. Given that the highest levels of fear arousal and guilt arousal are present in the fear appeal group (fear= 2.698 and guilt= 3.604), and anticipated pleasure is at its lowest (anticipated

pleasure= 2.379), it can be concluded that the fear appeal warning label will evoke the desired emotional levels for consumers in the preparation stage.

To summarise, in instances where emotional responses are considered most important to achieve amongst consumers in the preparation stage of change, a fear appeal appears to be more effective in engendering emotional responses. Similarly, a fear appeal seems to be slightly more effective (but not significantly) in inducing the desired cognitive responses amongst preparers.

In conclusion, cognitive and emotional responses were analysed in each stage of change to evaluate whether changes occur between the different negative emotional appeal warning labels. Significant differences were predominantly present in the emotional responses of consumers in all three stages, while the cognitive responses did not differ significantly in any of the stages.

7.5.5 Summary of hypotheses assessment

This study investigated the impact of negative emotional appeal warning labels on the cognitive and emotional responses of consumers in different stages of change. Negative emotional appeal warning labels were assessed for each stage of change, in order to determine whether any difference in responses occur when exposed to the negative emotional appeals. Towards this end, the effectiveness of the appeals was examined and the appeal that engenders the most appropriate levels of cognitive and emotional responses for each stage of change was identified. In Table 7.23, the main hypotheses and the outcomes are presented.

Table 7.23: Main hypotheses and outcomes

No	**Main hypotheses**	**Reject/Not reject**
H_0^1	There is no difference in the cognitive responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels	Not rejected
H_0^2	There is no difference in the emotional responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels	Rejected

Table 7.23: Main hypotheses and outcomes (cont.)

No	Main hypotheses	Reject/Not reject
H_0^3	There is no difference in the cognitive responses of consumers in the contemplation stage between different negative emotional appeal warning labels	Not rejected
H_0^4	There is no difference in the emotional responses of consumers in the contemplation stage between different negative emotional appeal warning labels	Rejected
H_0^5	There is no difference in the cognitive responses of consumers in the preparation stage between different negative emotional appeal warning labels	Not rejected
H_0^6	There is no difference in the emotional responses of consumers in the preparation stage between different negative emotional appeal warning labels	Rejected

As can be seen from hypotheses findings, the cognitive responses of respondents in the pre-contemplation, contemplation and preparation did not differ amongst each other, while the emotional responses differed significantly in each stage. The following chapter will explore the possible reasons behind these findings in the context of the current stages of change, and the emotional appeal literature.

7.6 CONCLUSION

The purpose of this chapter was to provide the results and analyses of both the qualitative and quantitative phase of the study. Accordingly, the chapter provided an in-depth discussion of the insights gained during the qualitative personal interviews that were necessary to complete the experimental phase. Statistical tests were conducted in the final phase to address the objectives, and results were provided that made pronouncements on the hypotheses possible. Along with the results and analyses of data, the chapter provided an outline of the final sample and reliability of the measurement and also offered a discussion of the pilot study results and findings.

In summary, several of the formulated hypotheses were rejected, indicating that consumers in different stages did not respond differently to the negative emotional appeals. The following chapter will delve deeper into the possible reasons behind the findings of the study, with emphasis on the implications it can have for social marketers and the design of behaviour change interventions in the future. Limitations of the study will also be explored, along with possible avenues for future research opportunities that have been prompted by the research findings of this study.

CHAPTER EIGHT

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

South Africans consume more than double the amount of free sugar daily compared to the amount recommended by the World Health Organization (WHO) (Bhardwaj, 2016). This alarming statistic contributes to the concerning rise in non-communicable diseases, such as obesity, in the country (Neethling, 2019). To persuade consumers to change their unhealthy behaviour, academic researchers have suggested the use of emotional appeals in public health interventions (Achar *et al.*, 2016; Mays *et al*., 2016). Studies in the public health domain have shown specifically that negative emotional arousal induces desirable effects relating to changes in health behaviours (Popova, 2016; Bleakley *et al.*, 2015; Witte & Allen, 2000). However, although such evidence exists, research suggesting that negative emotional arousal can also lead to unintended responses among consumers is equally apparent (Hall *et al*., 2018; Ruiter *et al*., 2014). The ambiguity regarding the effectiveness of negative emotional appeals could be attributed to the argument that a 'one-size-fits-all' approach is often ineffective as consumers' are not all similar in their readiness to change and therefore respond differently to communication messages (Cho & Salmon, 2006). Indeed, an emotional appeal may produce intended effects for consumers in one stage of change, and unintended effects for others who have been exposed to the same emotional appeal, but have a different level of readiness to change (Wong & Cappella, 2009). Thus, the current study investigated the effects of negative emotional arousal on consumers who are in different stage of changes.

The current chapter will report on the results as outlined in the previous chapter. First, a summary of the empirical results will be provided to contextualise the chapter into context. Then, the conclusions made regarding both consumers' cognitive and emotional responses will be presented for each stage of change. Thereafter, the managerial implications and recommendations emanating from the findings will be discussed, followed by the limitations of the study and the subsequent suggested areas for future research.

8.2 SUMMARY OF EMPIRICAL RESULTS

To address the gap in the research pertaining to the use of negative emotional appeals in sugar consumption settings, and in response to the importance of considering stages of change in

intervention design, the impact of negative emotional appeal warning labels on the cognitive and emotional responses of consumers in different stages of change was investigated. Negative emotional appeal warning labels were assessed for consumers in the pre-contemplation, contemplation, and the preparation stage of change, to determine whether any difference in their responses occurred in a stage when they were exposed to the different negative emotional appeals. The effectiveness of the appeals was examined considering both cognitive and emotional responses. In all three stages, namely the pre-contemplation, contemplation and preparation stages, respondents' cognitive responses did not differ between the different negative emotional appeal warning labels. This finding means that consumers will respond similarly to labels containing a fear appeal, a guilt-fear appeal, and a product with no-warning label. For all three stages of change, the emotional responses, however, differed significantly across the appeals. Interestingly, in contrast to research maintaining that guilt evocation induces enhanced anticipated pleasure from consumption (Goldsmith *et al*., 2012; Vong, 2012), the consumers in the current study experienced reduced anticipated pleasure from sugar consumption when emotional appeals were presented.

These findings offer important contributions to the existing literature, and furthermore suggest vital conclusions pertaining to the use of emotional appeal warning labels for consumers in different stages of change, which are discussed in depth in the following sections.

8.3 CONCLUSIONS

The following section will offer the conclusion that was made for each stage of change separately regarding consumers' cognitive and emotional responses to the negative emotional appeal warning labels. Firstly, the section will commence with a discussion of consumers classified into the pre-contemplation stage, followed by the contemplation stage, and then the preparation stage. Finally, conclusions made with regard to incorporating response latency to improve the accuracy of stages of change measurement will be presented.

8.3.1 The pre-contemplation stage

Consumers in the pre-contemplation stage are characterised by having little or no intention to change their behaviour (Norcross *et al.*, 2011). In many cases, these consumers are oblivious or unaware of their unhealthy behaviour (Prochaska, 2008). The current study reiterated existing pre-contemplation research findings, as those classified in the pre-contemplation stage indicated the highest sugar consumption levels in a two-week period. Thus, although pre-

contemplators consume unhealthy amounts of sugar and are therefore more at risk for developing sugar-related health problems, few admit that they engage in unhealthy eating habits. Given pre-contemplators' lack of awareness and intention to change their behaviour, the use of warning labels seem to be applicable to increase their attention (Mostafa, 2015). Given the notion that warning labels typically involve fear appeals (Williams, 2012), and that the use of guilt evocation within these fear appeals may improve behavioural outcomes (Carcioppolo *et al.*, 2017), the current study assessed whether negative emotional arousal had any differences in pre-contemplators' cognitive responses.

8.3.1.1 Cognitive responses of pre-contemplators

The first primary objective was to investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the pre-contemplation stage. For this reason, measures of the extended parallel process model (EPPM) responses were compared for the fear appeal, the guilt-fear appeal, and no-appeal warning label groups. The results revealed that the different negative emotional appeals did not influence the responses of consumers in the pre-contemplation stage differently. In other words, a fear, guilt-fear, or no appeal did not influence pre-contemplators differently.

Similar results are seen in the emotional appeal literature (Cho & Salmon, 2006; Wong & McMurray, 2002). For instance, although the study included a positive emotional appeal as well, Jordan *et al*. (2015) found that consumers' cognitive responses towards fear-, nurturance, or humour-based advertisements did not differ, whereas consumers' intentions to cut back on sugar-sweetened beverages were similar across the emotional appeals. However, these authors found that advertisements were most effective in increasing intention to reduce consumption when positive emotions, such as feelings of hope, were used. Similarly, Wong and McMurray (2002) conducted a study to examine smokers' responses between positively and negatively framed messages and established that smokers who had no intention to quit responded similarly between the two message designs and that they lacked fear perceptions in the negatively framed message. Cho and Salmon (2006) found that not only were pre-contemplators resistant to fear appeal messages, but they also engaged in avoidance behaviours in response to fear evocation. In summary, existing evidence in the literature indicate pre-contemplators are unwilling to change their behaviour across a variety of emotional appeals, which are corroborated by this study's findings.

The findings of the current study could be explained by pre-contemplators' inherent reluctance to change their behaviour, as well as their inability to understand the consequences of their unhealthy behaviour. Indeed, research has shown that pre-contemplators are reluctant to change their behaviour because they are often not aware that they are engaging in a harmful behaviour in the first place (Prochaska, 2008). Even if pre-contemplators were aware of the severity of the consequences of excessive sugar intake in general, recognised how to change consumption behaviours, and considered themselves as capable of changing their sugar intake, they would still have no intention to change. As suggested in the current study, the low intention level to change may be ascribed to the lack of perceived susceptibility among pre-contemplators.

Numerous studies have shown that consumers tend to be unaware or unable to admit they posit behaviours that may harm their health. Nigg *et al*.'s (1999) study across ten health behaviours indicated that the majority of respondents were resistant or in denial of their unhealthy behaviour and its connection to dangerous health outcomes. In a smoking cessation study, Weiss *et al.* (2010) concluded that pre-contemplators are resistant to accept the fact that smoking might have an impact on ageing and their beauty. Huffman and West (2006) found that consumers in the pre-contemplation stage had very little knowledge about the nutritional properties and harmful effects of sugar consumption, reiterating pre-contemplators' obliviousness to the health consequences of the behaviour in question. These findings emphasise the need to sufficiently raise awareness among pre-contemplators during behaviour change interventions. Against this background, it is theorised that pre-contemplators in this study were not significantly affected by a fear, a guilt-fear appeal warning label, or no appeal, because of their unawareness and inherent resistance to change.

Pre-contemplators' cognitive responses towards the negative emotional appeals can also be explained by considering the theory behind the EPPM. According to this model, consumers will appraise a communicated threat as severe and will feel susceptible to experiencing the threat themselves (Rintamaki & Yang, 2014). Only in these circumstances will the threat be considered effective. Thus, without adequate levels of severity and perceived susceptibility, threat appraisal will be inadequate and consumers will not experience feelings of fear (Mongeau, 2013). When threat appraisal is ineffective, consumers will not be motivated to engage in corrective behaviours (Das *et al.,* 2003). In the current study, since pre-contemplators demonstrated low-level perception of susceptibility, it was assumed that they did not experience fear to the extent that they were persuaded to change their behaviour. Even though

pre-contemplators acknowledge the severity of the threat, perceptions of severity alone are insufficient in persuading behaviour change. In fact, according to De Hoog *et al*. (2007), consumers will refrain from engaging in protective behaviours when susceptibility levels are low, regardless of their perceived severity of the threat. Resultantly, because they did not feel susceptible to the communicated threat, pre-contemplating consumers indicated that they had little intent to change their sugar intake behaviours.

Pre-contemplators' responses to fear evocation can be explained by perceived personal relevance. According to the current literature, consumers should appraise the communicated threat in a fear appeal as relevant to their own well-being to engage in corrective behaviours (Rintamaki & Yang, 2014; Lewis *et al*., 2007; Snipes *et al*., 1999). Given that consumers in the pre-contemplation stage are unaware of their unhealthy behaviour (Prochaska, 2008), a message that highlights the unhealthy intake of sugar with a threat could have been appraised as irrelevant by pre-contemplators. Considering fear appeal research, when exposed to a message containing a fear appeal, consumers with low perceptions of relevance tend to simultaneously demonstrate low perceptions of susceptibility (Block & Williams, 2002). Indeed, it was concluded that pre-contemplators do not feel susceptible to the health consequences of sugar consumption, implying their inability to acknowledge their unhealthy sugar intake. According to Rintamaki and Yang (2014), when consumers do not feel susceptible to the threat communicated, defensive reactions occur, and behavioural intentions are not realised.

Assuming that pre-contemplators are defensive in their response to fear evocation, the reasoning behind these reactions could be explained by the high level of severity perceptions. According to Keller and Block (1996), when consumers perceive a threat as too severe, defensive mechanisms take effect and consumers tend to deny the existence or importance of the problem. Similarly, Williams (2012) found pre-contemplators to ignore and reject the message that emphasise the dire health consequences of the behaviour in question. Indeed, pre-contemplators typically considered the fear appeal threat to be too intense and given that they did not feel susceptible to the health problems of sugar consumption, the fear appeal message was potentially rejected, or rendered unsuccessful results. Consequently, it stands to reason that with high-level perceptions of severity and low-level perceptions of susceptibility, the effectiveness of a fear appeal cannot be realised in the pre-contemplation stage.

The added emotion of guilt in a fear appeal message has previously been found to enhance behavioural intentions (Passyn & Sujan, 2006). More specifically, research suggests that guilt added to an existing fear appeal framework reduces consumers' defensive responses and enhances overall message effectiveness (Passyn & Sujan, 2006). However, contrasting results were found in this study, as consumers in the pre-contemplation stage responded similarly to the fear- and guilt-fear appeal warning labels. Again, it could be theorised that because pre-contemplators are unaware or in denial of their unhealthy sugar intake behaviours, a guilt-fear appeal is ineffective in influencing behavioural intention because these consumers do not think they consume unhealthy amounts of sugar and do not consider the need to modify their behaviour. Indeed, in contrast to Passyn and Sujan's (2006) findings, the added guilt did not direct consumers to intentions to act.

In essence, because pre-contemplators potentially did not perceive either of the negative emotional appeal warning label messages as relevant to their behaviour and well-being, the messages produced similar responses, and it is deemed inconsequential which appeal to use to effectively target pre-contemplation consumers' cognitive responses. Pre-contemplators are inherently unwilling to alter their behaviours (Carrera *et al*., 2010), and according to the current study, appeals attempting to elicit different emotions would not induce a change or convince these consumers otherwise.

8.3.1.2 Emotional responses of pre-contemplators

The second primary objective was to investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the pre-contemplation stage. The findings indicated that the negative emotional appeal resulted in differences in the emotional responses of consumers in the pre-contemplation stage. In other words, emotional elicitation was more effective when using emotional appeals than using no appeal. This means that despite pre-contemplators potentially being unaware of their unhealthy sugar intake, being unconvinced that they are susceptible to the threat communicated and their inherent unwillingness to change, it was found that both fear and guilty feelings among these consumers were enhanced when fear and guilt-fear appeals were used.

The current study found that for the pre-contemplation stage, the combination of guilt and fear evocation in one appeal induced similar feelings of fear compared to a single fear appeal. However, feelings of fear among the pre-contemplators were the strongest with the guilt-fear

appeal. Essentially, the guilt-fear appeal is a superior alternative when targeting pre-contemplators through emotional evocation. Researchers have cautioned against evoking guilt in sugar consumption settings as the emotion could enhance anticipated pleasure from consumption, leading to unhealthy consumption behaviours (Kuijer & Boyce, 2014; Goldsmith *et al*., 2012). In turn, increased anticipated pleasure is an unintended effect of guilt elicitation, as it has shown to lead to unhealthy consumption of sugary products (Kuijer & Boyce, 2014; Vong, 2012). However, in the current study, the added emotion of guilt in the fear appeal did not engender higher levels of anticipated pleasure, contrasting the prevailing stance on the risk of guilt elicitation in sugar consumption contexts. In fact, consumers in the pre-contemplation stage anticipated less pleasure from consumption when negative emotional appeals were present, than no appeal. In other words, for pre-contemplators, the emotional arousal of fear and guilt essentially induced the positive effect of reduced anticipated pleasure from sugar consumption.

In summary, the lack of significant differences regarding cognitive responses to negative emotional appeals could be ascribed to pre-contemplators' inherent unwillingness to change or their unawareness of their unhealthy behaviour. However, the negative emotional appeals did induce significant differences in their emotional responses, suggesting that pre-contemplators are not as resistant to the elicitation of negative emotions compared to their cognitive responses. According to these significant emotional responses, implementing a fear appeal on high-sugar-content products may be more appropriate to produce an emotional reaction among consumers in the pre-contemplation stage.

8.3.2 The contemplation stage

Consumers in the contemplation stage are seriously considering changing their unhealthy habits (Cho & Salmon, 2006; Prochaska *et al*., 1999). In contrast to the pre-contemplation stage, contemplators are characterised by their awareness that their behaviour is unhealthy and that it needs modification. The current study's findings were in line with research on the contemplation stage, as those classified in this stage indicated significantly less sugar consumption levels in a two-week period compared to those in the pre-contemplation stage. Given that contemplators are aware of their unhealthy behaviour and are seriously considering changing, the study investigated whether negative emotional appeals resulted in differences in contemplators' cognitive responses.

8.3.2.1 Cognitive responses of contemplators

The third primary objective was to investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the contemplation stage. The results revealed that the negative emotional appeal warning labels did not influence contemplators' cognitive responses differently, signifying that not one of the appeals were significantly more effective than the other. Stated differently, cognitively, contemplators responded similarly to both fear- and guilt-fear appeals.

Research relating to the contemplation stage of change indicate similar findings to the current study. For instance, Corella *et al.* (2019) found that interventions, such as raising awareness, did not enhance physical activity levels among contemplators. These authors theorise that because behaviour change is complex and requires more time, contemplators need more time to consider changing. According to Norcross *et al.* (2011), initiating behaviour change takes place over a period of six months or longer. Therefore, although consumers in this stage are contemplating change, research maintains that contemplating consumers can remain in this stage for years as they are not yet ready to make specific plans (Nigg *et al*., 1999; Prochaska *et al*., 1992). Therefore, a possible explanation for the cognitive responses found in this study is that contemplators responded similarly to the negative emotional evocation *at that point in time*. Furthermore, the lack of differing responses to negative emotional appeal warning labels could reinforce contemplators' readiness to change. Although contemplators are aware of their unhealthy behaviour and the need to change, contemplators lack commitment and are reluctant to make change (Prochaska *et al*., 1992). Essentially, contemplators are not ready to make concrete plans to change, and evoking a specific negative emotion was not more effective in inducing cognitive responses than the other emotion.

Since contemplators had low perceptions of susceptibility, it can be concluded that the communicated threat in the appeal was ineffective as these consumers did not feel susceptible to experiencing the threat themselves. As mentioned before, when either severity or susceptibility perceptions are at a low level, threat appraisal is considered ineffective. Considering the EPPM, it was theorised that contemplators in the current study would not feel motivated to change their sugar intake behaviour because they would not think they were susceptible to the threats associated with their sugar intake. However, behavioural intentions among contemplators were found to be slightly higher than they were among pre-contemplators

– a finding which confirms that contemplators are more inclined to change their behaviour in the future.

As mentioned before, the added emotion of guilt in a fear appeal is speculated to strengthen consumer intentions to quit their harmful habits (Carcioppolo *et al.*, 2017). Passyn and Sujan (2006) confirm this argument with their findings that feelings of guilt motivate consumers to engage in corrective behaviours. However, the current study did not find significant support for this notion, implying that the added emotion of guilt did not affect contemplators considerably in comparison to the single fear appeal. Given that contemplators are aware of their unhealthy behaviour and seriously consider changing, they might already feel responsible for their behaviour, and the added guilt has no effect on their responsibility perceptions (Tangney & Dearing, 2002).

Another potential explanation to contemplators' cognitive reactions relates to their focus on the *benefits* of behaviour change. Pelletier and Sharp (2008) argue that as consumers consider a modification of their behaviour, they respond better to positively framed messages that emphasise the benefits or the desired outcomes of changing and/or adopting a new behaviour. Similarly, Cornacchione and Smith (2012) found that contemplators respond more positively to gain-framed messages than loss-framed, explaining that contemplators are relatively motivated to quit their smoking habit, and loss-framed messages do not sufficiently address their need for self-efficacy. These findings are supported by early stages of change research, which maintains that contemplators consider the advantages of the behaviour change more than those in the pre-contemplating stage (Prochaska *et al*., 1992). In light of this information, it may be that the negative emotional appeals included in this study were not appropriate to assist the contemplation stage of change.

In the current study it was found that contemplators had moderate levels of behavioural intentions, and that their responses were indifferent to the fear, guilt-fear, and no emotional evocation. This finding suggests that neither the threat of sugar consumption health consequences nor the guilt of responsibility perceptions was notably different in influencing contemplators' cognitive responses.

8.3.2.2 Emotional responses of contemplators

The fourth objective was to investigate whether negative emotional appeal warning labels on high-sugar-content products influenced the emotional responses of consumers in the

contemplation stage. It was found that the negative emotional appeals resulted in differences in the emotional responses of contemplating consumers. More specifically, evoking negative emotions through the appeal warning labels was more effective in inducing emotional responses than with no appeal. Fear and guilt-fear appeal warning labels were thus successful in evoking negative emotions among contemplators.

Contemplators were indifferent to the added emotion of guilt in a fear appeal in comparison to a single fear appeal. Stated differently, the emotions evoked, and fear in particular, were similar in strength when guilt was added in a fear appeal compared to a single fear appeal. It could be deduced that, in line with previous research, feelings of guilt were experienced as attacks to oneself, and resulted in irritation or anger (Coulter & Pinto, 1995). The unintended effects of irritation could have led consumers to deny the enhanced emotional arousal. These reactions to the guilt-fear appeal could reinforce the fact that consumers in the contemplation stage were aware that their sugar intake was harmful to their health, and that the added negative emotion of guilt to enhance the fear appeal was not as effective. However, given that negative emotional appeal warning labels were more successful in inducing the desired emotions than no-warning labels, it could be concluded that to evoke negative emotions among contemplators by using either fear or guilt-fear appeals is indeed an effective route.

With regard to anticipated pleasure, the current study's findings contradict the growing body of research that maintains that guilt evocation can induce enhanced anticipated feelings of joy and pleasure among consumers (Goldsmith *et al*., 2012). Given that sugar consumption is often seen as a pleasurable experience (Kuijer & Boyce, 2014), the enhanced feelings of pleasure may lead to increased unhealthy behaviours to achieve heightened enjoyment (Kuijer *et al.*, 2015). However, similar to the pre-contemplation stage, and in contrast to the existing literature, the guilt-fear appeal among contemplators engendered the desired effect of reduced anticipated pleasure from sugar consumption. Considering these findings, it could be concluded that as contemplators are typically aware of their unhealthy behaviour (Cho & Salmon, 2006; Prochaska *et al*., 1999) and seriously considering change, they experienced less anticipated pleasure from consumption when they were exposed to a guilt-fear appeal as succumbing to consumption would deviate from their current contemplation to change their sugar intake. In other words, the guilt appeal in the fear appeal might have reminded them of the health consequences associated with their unhealthy sugar intake, and therefore led to the reduced anticipated pleasure from consumption.

In summary, contemplators are regarded as consumers who are aware of their unhealthy behaviour yet are reluctant to make concrete plans to change their behaviour, and lack the commitment to change (Prochaska, 2008; Cho & Salmon, 2006). It was found that the cognitive responses of contemplators were similar across the negative emotional appeals, suggesting that the negative appeals were not specifically effective in engendering enhanced cognitive responses. However, since the negative emotional appeals induced significant differences in contemplators' emotional responses, they engaged in affective processing relating to their sugar consumption, and emotional responses differed significantly between the fear appeal and the guilt-fear appeal. Furthermore, contemplators anticipated less pleasure from consuming sugary products with guilt-fear appeals in comparison to fear appeals, which suggests favourable responses from guilt evocation in sugar intake settings. Indeed, merely considering emotional arousal, guilt-fear appeals may be most effective when targeting consumers in the contemplation stage of change.

8.3.3 The preparation stage

Consumers in the preparation stage of change are intending to change their behaviour and take action in the immediate future (Prochaska, 2008; Cho & Salmon, 2006; Prochaska *et al.*, 1992). In contrast with the previous stages, those in the preparation stage are actively making plans to change, and some have already made small behavioural changes towards action (Prochaska *et al.*, 1992). The current study's findings mirrored these characterises, as those classified in the preparation stage of change indicated the lowest levels of sugar consumption in a two-week period, and most considered themselves to engage in healthy eating habits. Since preparers are intending to change their unhealthy behaviour very soon, it was investigated whether the negative emotional appeals resulted in any differences in these consumers' cognitive responses.

8.3.3.1 Cognitive responses of consumers in the preparation stage

The fifth objective addressed by this study was to investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the preparation stage. The results showed that not any of the negative emotional appeal warning labels influenced these consumers' cognitive responses differently, suggesting that not any of the appeals were significantly more effective than the other in inducing cognitive responses. In other words, with respect to their cognitive responses, consumers in the preparation stage responded similarly to both fear- and guilt-fear appeals.

Considering stages of change research, possible explanations of the similar responses to the negative emotional appeals relate to the inherent characteristics of each stage. Preparation stage consumers are known for making concrete plans to change their behaviour in the near future (Prochaska & Velicer, 1997). Because of preparers' enhanced readiness to change, studies indicate that messages containing a threat are effective in increasing these consumers' intentions to change (Wong & Cappella, 2009; Wong & McMurray, 2002). However, the current study presents a contrasting argument as the cognitive responses of consumers in the preparation stage of change did not differ between the warning labels with a fear appeal, or a guilt-fear appeal, in comparison to a warning label containing no appeal. Pelletier and Sharp (2008) indicated that communicating a threat to those who are fully aware of their behaviour and the need to change, would be ineffective as a pre-existing awareness of the health threat relating to their behaviour is evident. Therefore, consistent with the current study's findings, communicating a threat has little impact on those who are already aware of the risk. In this study, consumers in the preparation stage were aware of the threat relating to their sugar consumption, and are ready to change their behaviour, but a fear-based message threatening them did not induce enhanced cognitive responses.

Regarding the added emotion of guilt in a fear appeal, as in the previous stages of change, this combination did not yield significant differences in preparers' cognitive responses. Contrasting Passyn and Sujan's (2006) research, the current study did not find that guilt-fear appeals led to higher intentions to engage in behaviour modification. The insignificant differences could be explained by research on preventative versus detective health behaviour, which suggests that consumers either focus on preventing health problems or aim to identify potential health problems (Rothman & Salovey, 1997). Because consumers in the preparation stage of change are inherently more serious and are focused on making plans to change their unhealthy behaviour (Prochaska *et al*., 1992), it could be theorised that they might resonate more with detective behaviours as they are beginning the process of behaviour change. Considering this theory, preparers may possibly demonstrate increased cognitive responses to guilt-fear appeals that are associated with detective behaviours, as opposed to the detective approach as illustrated in the current study.

As with the previous stages of change, the cognitive responses of preparers can also be discussed alongside the EPPM. As found in the contemplation stage of change, consumers in the preparation stage also indicated that they did not feel susceptible to the communicated

threat associated with their sugar intake behaviours. According to the model, it is likely that low-level perceptions of susceptibility will lead to ineffective threat appraisal, which possibly limited the feelings of fear that were observed among these consumers. However, consumers in the preparation stage still showed intention to alter their sugar intake behaviours, which reinforces the notion that preparers are already making concrete plans and are motivated to change their behaviour in the near future.

In conclusion, given that guilt arousal occurs through responsibility perceptions and feelings of remorse (Tangey *et al*., 2011; Tangney & Dearing, 2002), it could be synthesised that preparers are already aware of their behaviour, making concrete plans to change, and are thus committed to changing their behaviour. Consequently, the messages targeted at these consumers' personal responsibility, namely to do the right thing, were not appraised differently, and therefore did not lead to enhanced cognitive reactions.

8.3.3.2 Emotional responses of consumers in the preparation stage

The sixth and final primary objective was to investigate whether negative emotional appeal warning labels on high-sugar-content products influenced the emotional responses of consumers in the preparation stage. As with the previous stages of change, the findings indicated that the negative emotional appeals did result in differences in the emotional responses of those in the preparation stage of change. In other words, evoking negative emotions through warning labels were more effective than with no appeal. Therefore, fear and guilt-fear appeal warning labels were successful in evoking negative emotions among preparation stage consumers.

Although fear and guilt-fear appeal emotional responses were significant among the preparation stage consumers in compared to the control group, the added emotion of guilt in a fear appeal (i.e. a guilt-fear appeal) did not enhance the emotions of fear and guilt itself compared to a single fear appeal. Indeed, preparers' emotional responses were similar between the fear appeal and guilt-fear appeal, suggesting that these consumers' emotional responses are indifferent specifically towards the added guilt appeal. A possible explanation for this finding is that consumers in this stage are highly motivated and committed to change their sugar intake, and that the guilt evocation had little effect on them as preparers do not feel remorse about their behaviour. Studies have shown that preparers have made small behavioural changes towards action, such as consulting a doctor or a counsellor (Prochaska *et al.*, 1992), reinforcing their

commitment to change. Considering this information, it is understandable that a guilt message alongside fear could not have been appraised significantly as preparers are no longer idle about changing their unhealthy behaviour.

As with the previous stages of change, preparation stage consumers had different levels of anticipated pleasure in response to the negative emotional appeals, compared to no appeal. In contrast to previous research, however, preparers' anticipated pleasure was not enhanced as a result of the added guilt message. Studies have shown when feelings of guilt are activated in an unhealthy food consumption setting, it automatically triggers pleasure-related thoughts (Conzen, 2015; Kuijer & Boyce, 2014; Vong, 2012). However, in the case of the current study, the added guilt resulted in similar anticipated thoughts of enjoyment and pleasure, compared to a single fear appeal message. The similar responses to the added guilt could be ascribed to preparers' characteristics of making concrete plans to change their behaviour in the immediate future (DiClemente *et al.*, 1991). Stated differently, these consumers are becoming increasingly aware of the health consequences related to their sugar consumption and are motivated to engage in behaviour change in the near future. Resultantly, given their intentions and plans towards healthier eating habits, guilt-fear appeals did not induce enhanced feelings of anticipated pleasure among preparers, as they were aware of the health consequences associated with consumption. However, to incorporate a fear appeal will more desirable than no appeal, as decreased anticipated pleasure was observed am amongst consumers in the preparation stage.

In summary, the results of this study underline the notion that consumers in the preparation stage of change are already highly motivated to change their sugar intake behaviours. Because of their readiness level – and contradicting many fear appeal and guilt-fear appeal studies – the use of different negative emotional appeals did not show significant differences in the cognitive responses of consumers in the preparation stage. However, as with both pre-contemplation and contemplation stages of change, emotional responses were significantly different between the negative emotional appeals. This finding indicates that negative emotional appeals induce considerable emotional feelings among consumers in the preparation stage to the extent that fear appeals may be best suited. Fear appeals are highlighted given that the appeal engendered significantly less anticipated pleasure from preparers in comparison to both guilt-fear appeals and no appeals.

8.3.4 Conclusions regarding the stages of change measurement

In addition to the stated objectives, an attempt was made to address decades of criticism regarding the measurement of the stages of change construct. More specifically, the measurement methods have been criticised for being unable to accurately classify consumers in their appropriate stage of change (Adams & White, 2004), mostly owing to the introduction of social desirability bias in self-reported settings (Coulson, 2000). In response to the criticism regarding stages of change self-classification, the current study proposed a theoretical argument in favour of incorporating response latency. The current study's findings of the response time data support researchers' self-classification critique, given that a noteworthy number of consumers in the pre-contemplation, contemplation and preparation stage of change were found to have classified themselves in their particular stage of change with a high level of uncertainty. Stated differently, based on their reaction time, consumers were unsure when indicating their readiness to change their sugar intake behaviours. According to existing literature, this uncertainty can be an indication of biased responses (Andersen & Mayerl, 2017; Mayerl, 2013; Holden & Hibbs, 1995), and therefore consumers could have self-classified themselves incorrectly. Incorrect self-classification into stages of change could in turn have led to inaccurate or invalid conclusions. Against this background, the inaccuracy that may be present in a self-report approach to stages of change classification was deemed plausible and emphasised the need to improve on this type of measurement. If the measurement methods can be improved, consumers will potentially be classified into their stage of change with improved accuracy, which in turn will result in better targeted communication. As shown in this study, the use of the response latency technique presented an opportunity to potentially improve on the aforementioned measurement limitations. More specifically, the use of response latency made it possible to identify both uncertain and certain answers, with the purpose of ensuring that the self-classifications included in the sample were an accurate representation of consumers' actual readiness to change. As a result, the study's conclusions and recommendations can be considered with increased confidence as the stages of change responses can be assumed as being truthful and sincere.

To conclude, by using response latency methodologies it was possible to advance from understanding respondents' declarations to identifying consumers' uncertainty and possibly biased answers. Consumers could thus be classified in their appropriate stage of change with more certainty and accuracy. Given the importance of the accurate assessment of the different

stages of change when designing and delivering tailored interventions (Brug *et al*., 2005), it is essential that social marketers consider an improved approach to correctly classify consumers in their specific stage of change. The use of response latency methodologies presented a convenient manner to identify certain and uncertain responses. More importantly, it is an effective way to ensure that behaviour change interventions tailored to each stage of change are more effective.

8.3.5 Summary of conclusions

The aforementioned discussions can be summarised to highlight the important conclusions relevant to make effective recommendations to social marketers. Firstly, in response to the inconclusive findings of the use of fear appeals, researchers have recommended the added emotion of guilt in an existing fear appeal framework to strengthen persuasive outcomes (Carcioppolo *et al.*, 2017; Passyn & Sujan, 2006). However, because of the known association between guilt and sugar consumption, coupled with research that states guilt evocation can enhance anticipated pleasure, the use of guilt-fear appeals can also induce unintended effects. The results showed that combining guilt with an existing fear appeal did not significantly enhance behavioural outcomes, nor did it induce enhanced anticipated pleasure from consumption. However, the emotional appeals engendered reduced anticipated pleasure, which is a desirable outcome in sugar consumption contexts. The current study contrasted other research by maintaining that guilt evocation in a sugar consumption setting does not amplify pleasure that might lead to unhealthy consumption. In fact, the opposite was found, suggesting the value of evoking guilt amongst consumers to discourage sugar consumption. These findings are applicable to the pre-contemplation, contemplation, and preparation stage of change.

With regard to the main objectives of the study, each stage of change consumer responded similarly to the negative emotional appeal warning labels, that is, in their *cognitive* responses. Essentially, this means that neither a fear appeal nor a guilt-fear appeal will result in enhanced favourable cognitive responses compared to no appeal. Therefore, in contrast to previous research (Passyn & Sujan, 2006), guilt-fear appeals are not significantly more persuasive than single fear appeal frameworks, or no appeal for that matter. Indeed, for all the stages of change, guilt-fear appeals did not significantly enhance behavioural intentions. However, significant differences occurred in the consumers' *emotional* responses to the negative appeal warning labels, which led to the conclusion that different appeals are more suited to the different stages of change. For pre-contemplators and consumers in the preparation stage, for instance, a fear

appeal produced the desired emotional responses; that is, highest levels of fear, and guilt, and reduced anticipated pleasure were experienced in response to a fear appeal, whereas contemplating consumers' emotional responses were stronger in response to the guilt-fear appeal. This finding implies that incorporating a negative emotional appeal warning label is a better option to target consumers than using no appeal whatsoever.

As indicated earlier, this study assessed whether consumers in different stages of change required different negative emotional appeals. The results revealed that owing to the different levels of readiness, consumers who are in different stages of change should indeed be targeted differently. Given the vital role that emotions play in consumers' health decision-making process (Han *et al.*, 2014), pre-contemplators and those in the preparation stage should be targeted with distinct negative emotional appeal messages than consumers in the contemplation stage of change.

Another important conclusion made in the current study was the value of incorporating response latency methodologies in measuring consumers' stage of change. Indeed, the success of detecting consumers' certain and uncertain answers made it possible to classify consumers in their appropriate stage of change – which, according to the theory of response latency, allowed for a more accurate representation of actual, truthful readiness to change, compared to the potentially biased self-classification technique. The use of response latency presents important implications for social marketers to consider when designing interventions that should be tailored to consumers' readiness to change their unhealthy behaviour.

8.4 IMPLICATIONS AND RECOMMENDATIONS OF THE STUDY

The conclusions presented in the preceding section provide important considerations that are relevant to the South African government's proposals to include warning labels on high-sugar-content products to discourage excessive sugar consumption. The following section offers further insights gained from the findings and provide implications and recommendations relevant to the design of warning labels in high-sugar-content settings.

8.4.1 Recommendations regarding the pre-contemplation stage

Bearing in mind that pre-contemplators are arguably the main target audience for discouraging unhealthy habits (Lacey & Street, 2017), it is important for social marketers to address consumers in this stage effectively. Evident from the results and conclusions of the current study, pre-contemplation consumers' cognitive responses were similar to both fear and guilt-

fear negative emotional appeals. This means that if social marketers prioritise consumers' cognitive responses, either of the negative emotional appeals can be chosen, as the one appeal did not induce significantly different responses over the other appeal. Considering the emotional responses to the negative emotional appeals, the fear appeal warning label evoked the most favourable emotions from consumers in the pre-contemplation stage of change. More specifically, fear appeals evoked both fear and guilty feelings, and furthermore led to decreased anticipated pleasure, potentially signifying consumers' healthier responses in sugar consumption settings. Resultantly, if it should be decided between the fear appeal and the guilt-fear appeal, it is recommended to incorporate a fear appeal into a warning label design when targeting consumers who have no intention to change their sugar consumption behaviours.

Other than evoking fear, it is recommended to focus specifically on pre-contemplators' perceptions of susceptibility. Inherently, pre-contemplators are inclined to be unaware of their unhealthy behaviours or are in denial (Prochaska, 2008), and therefore the communicated message may not be perceived as personally relevant to their own behaviour. Consequently, pre-contemplators are unlikely to feel susceptible to the adverse health consequences of sugar consumption. Indeed, pre-contemplators lack appropriate perceptions of susceptibility – an important component of fear appeals. Therefore, if policymakers can ensure that pre-contemplators become aware of the health consequences that they are susceptible to because of their sugary product intake, it is likely that their behaviour intentions will improve. Previous research has emphasised the importance of consumers' awareness of their susceptibility by suggesting, for instance, that the threat is personally relevant to all consumers (Ruiter *et al*., 2014; De Hoog *et al.,* 2007). Drawing insights from the personal interview discussions in the current study, consumers highlighted the need for stipulating specific, relevant health consequences in order for them to feel susceptible. For pre-contemplators, obesity could have been deemed not relevant enough, and it is therefore recommended to select a health issue associated with sugar consumption more carefully. Based on the study's findings and conclusions, policymakers and social marketers are advised to also consider framing their messages in such a way that pre-contemplators are convinced that they are also at risk. For instance, messages should stipulate that all consumers can gain weight or develop certain non-communicable diseases through excessive sugar consumption. This recommendation presents an area for future research, which will be discussed in Section 8.5.2.

In summary, should social marketers and policymakers have to decide between the negative emotional appeals, a fear appeal warning labels are best suited for effective emotional arousal. Therefore, it recommended to implement messages evoking fear for consumers in the pre-contemplation stage

8.4.2 Recommendations regarding the contemplation stage

Consumers in the contemplation stage of change are more aware of their unhealthy behaviours that require change, yet they lack the commitment and readiness to make actuals plans to do something about it (Cho & Salmon, 2006; Prochaska *et al*., 1999). Against this background, contemplators are an important target audience to convince and assist in taking the necessary steps towards behavioural action. As with consumers in the pre-contemplation stage, contemplators experienced fear and guilt-fear appeals similarly, that is in their cognitive responses. More specifically, both fear and guilt-fear appeal warning labels were equally effective in inducing cognitive responses. Resultantly, if having to choose between either fear or guilt-fear appeal, social marketers can implement either of the two negative emotional appeals when attempting to guide contemplating consumers towards modifying their sugar consumption behaviours. However, considering their emotional responses, the guilt-fear appeal warning label produced preferred emotional responses. That is, the guilt-fear appeal led to enhanced feelings of both fear and guilt, when compared to a single fear appeal. Moreover, anticipated enjoyment of sugar consumption was at its lowest level in the guilt-fear appeal setting. Contemplators' reduced anticipated pleasure responses could hint at improved and healthier decision-making in the future. Given these results, social marketers should incorporate guilt-fear appeals that demonstrate guilt with a self-focused element so that contemplators will experience remorse about their unhealthy sugar intake (Niedenthal & Ric, 2014). According to research, self-focused guilt induces increased remorse that leads to heightened motivation among consumers to change their current unhealthy behaviour (Netemeyer *et al.*, 2016).

In addition to the recommendation of using a guilt-fear appeal, it is suggested to focus on both perceptions of self-efficacy and susceptibility when targeting consumers in the contemplation stage of change. In particular, since contemplators are increasingly considering the advantages associated with change (Prochaska, 2008), it is suggested that they should believe in their abilities to start making productive plans to change. According to the theory of decisional balance, to stimulate progress from the one stage to the next, self-efficacy should be addressed

(Prochaska *et al.*, 1992), so that consumers can feel that the process of change is possible. Enhanced self-efficacy could be achieved through promoting the ease of avoiding health consequences and emphasising that consumers have the ability to eat fewer sugary products per day. Finally, it is important that the element of susceptibility is highlighted. As with the pre-contemplation stage, warning label designers should reconsider selecting specific adverse health consequences of excessive sugar consumption, with the objective of ensuring personal relevance to contemplators. Consumers' perceptions of susceptibility to the threat are a key element of effective fear evocation (De Hoog *et al.*, 2007), and contemplators in this study felt moderately vulnerable in developing obesity as a result of their sugar consumption. It is therefore recommended to communicate a more personally relevant health consequence associated with excessive sugar consumption to contemplators.

To conclude, contemplating consumers are conscious of their unhealthy sugar intake and the need for engaging in behaviour change. Despite this awareness, contemplators lack complete readiness to start making concrete plans, and therefore it is essential to persuade them to take behavioural action. The findings suggest that contemplators are indifferent towards fear and guilt-fear appeals with regard to the desired cognitive processing. However, guilt-fear appeal warning labels are best suited for effective emotional arousal, and the latter is therefore recommended for consumers in the contemplation stage. Moreover, the study's findings highlight the importance of emphasising the perceptions of self-efficacy and susceptibility among consumers in the contemplation stage, and it is therefore recommended to determine appropriate and personally relevant health consequences associated with sugar consumption to communicate to contemplating consumers.

8.4.3 Recommendations regarding the preparation stage

Consumers in the preparation stage of change intend to change their behaviour and to take action in the immediate future (Prochaska, 2008; Cho & Salmon, 2006; Prochaska *et al.*, 1992). Preparers are actively making plans to change, and some have already made small behavioural changes towards action (Prochaska *et al.*, 1992). Although consumers in the preparation stage are more ready to change their behaviour than those in the previous stages, they remain hesitant to follow through their intentions and plans. Consequently, it is essential to target preparers effectively so that action occurs eventually. Similar to the findings related to the cognitive responses of consumers in the previous stages of change, preparers responded similarly to the negative emotional appeal warning labels. In fact, both fear and guilt-fear appeal warning labels

were effective in inducing similar cognitive responses and at the same level. Therefore, social marketers designing warning labels can incorporate either fear appeals, or guilt-fear appeals, when attempting to discourage excessive sugar consumption among consumers in the preparation stage. However, when considering the emotional responses, the fear appeal warning label was slightly more effective in inducing the emotions of guilt, fear, and reduced anticipated pleasure. The desired emotional responses evoked through fear appeals could suggest improved and healthier decision-making among consumers in the preparation stage of change.

Other than evoking fear, it is also imperative that consumers feel susceptible to the threat communicated in a fear appeal (Rintamaki & Yang, 2014; Das *et al.*, 2003). As mentioned previously, insights obtained from personal interview discussions pointed to consumers' emphasis on warning labels, which should stipulate a specific, relevant health consequence in order for consumers to feel susceptible to the threat. According to the current study, preparers experienced average levels of susceptibility. Because the EPPM furthermore states that a communicated threat is accepted in instances where the perception-levels of susceptibility and severity are high, it is recommended to design a fear appeal warning label accordingly. That is, a fear appeal warning label should communicate a health consequence that is applicable and relevant to enhance perceptions of susceptibility among consumers in the preparation stage of change.

To conclude, consumers in the preparation stage of change are the closest to engaging in behavioural action in comparison to the pre-contemplation and contemplation stage but are still hesitant to follow through with their plans and intentions to change. Findings imply that the use of fear appeals is the best suited warning label design for consumers in the preparation stage. However, it is recommended that social marketers focus on consumers' levels of susceptibility, and subsequently determining what health consequence related to sugar consumption are considered more applicable and relevant to them.

In conclusion with relevance to each separate stage of change, fear appeals and guilt-fear appeals will not engender cognitive responses that are more favourable than the other. However, considering the emotional responses of each stage, a fear appeal is best suited for consumers in the pre-contemplation and preparation stages of change, while consumers in the contemplation stage will respond favourably to a guilt-fear appeal.

8.4.4 Stages of change classification and response latency recommendations

As mentioned previously, an attempt was made to make a methodological contribution by addressing the prolonged criticism of the stages of change measurement. This criticism was addressed by using response latency, which proved to be valuable in identifying and distinguishing between certain and uncertain stages of change self-classifications. The response latency technique has also been used since researchers have emphasised the importance of accurately measuring and classifying consumers in their appropriate stage of change (Casey *et al.,* 2005).

Based on these findings, it is recommended that researchers attempting to improve on the stages of change classification consider the theory of response latency. In addition, in practice, intervention designers can incorporate response latency technologies when consumers are self-reporting on their stage of readiness to change their unhealthy behaviour. Although it will not always be possible to target consumers specifically based on their stage of change, in practice, following this approach will enable social marketers and intervention designers to classify consumers in a stage of change with less bias and with more accuracy. Moreover, improved classification will assist social marketers in identifying what will likely encourage consumers to change their unhealthy behaviour. Although response latency technologies can be implemented quantitatively by means of online questionnaires, as was done in the current study, researchers can also follow this approach in qualitative contexts. In qualitative research contexts, researchers are able to probe the discussions, and response latency can first be used to ensure that self-classifications are accurate before probing discussions occur to understand groups better. As an exemplar, academic researchers who wish to design tailored interventions based on the stages of change can conduct large focus groups using response latency technologies, whereby consumers have to self-classify themselves into their appropriate stage of change. The focus group discussions can include other relevant topics such as personality characteristics, current habits, and needs and concerns regarding the process of behaviour change. The improved accuracy of stages of change classifications will enhance both the researchers' understanding and certainty of each stage of change. This improved knowledge can be used to design interventions that are better targeted at consumers, and therefore possibly more effective in encouraging consumers' behaviour change.

Given the preliminary success of potentially improving the measurement limitations of the stages of change in this study, it is recommended that social marketers incorporate response

latency when consumers are self-reporting their readiness to change their unhealthy behaviour. The following section will elaborate on the specific recommendations related to the recent suggested proposal of warning labels on high-sugar-content products in the country.

8.4.5 Industry recommendations

Recently, the South African government has suggested the use of warning labels on high-sugar-content products as part of addressing the alarming rise in sugarrelated health conditions in the country (Tswanya, 2018). To encourage consumers to decrease their excessive consumption of high-sugar-content products, the current study recommends that negative emotional appeal warning labels are implemented on high-sugar-content products, to evoke emotions among consumers that could assist in realising the desired outcomes. However, selecting a fear appeal as opposed to a guilt-fear appeal to positively influence the cognitive responses of consumers would be inconsequential. Meaning, should intervention designers wish to positively influence the cognitive responses of consumers, a guilt-fear appeal or a fear appeal, or even no appeal can be used given that all three appeals are expected to produce similar results.

Although the study recommends the use of a specific negative emotional appeal warning label for each stage of change, in practice, social marketers will not have any control over which consumers see which appeal. The nature of warning labels in sugar consumption settings does not allow for segmenting consumers into their stage of change prior to exposure. Therefore, this study recommends one negative emotional appeal to be selected to recommend in practice. More specifically, based on the emotional responses among both pre-contemplators and preparers, it is recommended that governments implement a fear appeal design when introducing a warning label for high-sugar-content products. The reasoning for a fear appeal recommendation is three-fold. Firstly, it is of utmost importance to effectively target pre-contemplators, because these consumers are most at risk for developing sugar-related health problems. In addition, pre-contemplators are often in denial, unmotivated, resistant, or unaware of their unhealthy sugar intake (Norcross *et al.*, 2011; Prochaska, 2008). In the light of this background, pre-contemplators are arguably a key target audience for discouraging unhealthy habits (Lacey & Street, 2017). Secondly, consumers in the preparation stage are making concrete plans and are on the verge of taking action, but remain hesitant and, despite an increased readiness among these consumers to change, they are still considered sedentary (Sholl, 2019; Cho & Salmon, 2006; Prochaska *et al.*, 1992). Thus, preparers are equally important to convince them to follow through with their current plans and intentions to change

their sugar consumption. Thirdly, in addition to produce appropriate cognitive responses, fear appeals evoked emotional responses among consumers that, according to researchers, are likely to lead to future behaviour change and healthier decision-making (Rosenblatt *et al.*, 2018; Xu & Guo, 2018; Zemack-Rugar *et al.*, 2007; Giner-Sorolla, 2001).

The reasoning behind focusing on the emotional responses as opposed to cognitive responses when making recommendations is significant. Firstly, numerous authors argue that the most effective way to attract consumers' attention is to appeal to their emotions (Peters *et al*., 2014; Cameron, 2009). In addition to a heightened awareness regarding the communicated message, research shows that emotional evocation enables consumers to easily access the information contained in the message (Popova, 2016). Considering this information, emotional responses indicate that consumers paid attention to the message and will likely remember the message's content. More importantly, however, is the fact that consumers' emotions guide their behaviour (Dillard & Meijnders, 2006). According to Pounders *et al*. (2018), consumer emotions stimulate action and/or avoidance behaviours, which is a key requirement in the current study setting. Indeed, in unhealthy behaviour settings, negative emotional arousal aims to guide consumers towards making healthier decisions, in the context of sugar intake behaviours. Therefore, emotional responses are considered an important driving force for consumers' healthier decision-making. It is against this background that recommendations were made given the emotional responses of consumers in all three stages of change.

Finally, it is recommended that intervention designers make sure that they address consumers' perceptions of susceptibility when implementing warning labels. Regardless of consumers' readiness to change, the perceptions of susceptibility to the threat of sugar consumption need to be highlighted. It is recommended that warning label messages contain an element that addresses susceptibility more clearly, and future researchers should explore what is most effective among consumers in different stages of change.

8.5 LIMITATIONS AND AREAS FOR FUTURE RESEARCH

Despite the valuable conclusions, recommendations and contributions made by the current study, limitations were inevitable. However, these limitations will contribute to the effectiveness of future studies in similar contexts.

8.5.1 Limitations to the research study

The current study was subject to certain limitations that need to be discussed. These limitations relate to the composition of the sample, as well as the design and elements of the questionnaire.

Firstly, while respondents between the ages 18 and 75 were recruited, the final sample predominantly encompassed students, aged between 18 and 25. Given that the majority of the sampled respondents originated from one age group, external validity is called into question. Nevertheless, this limitation was not a concern, as young adults have been found to consume considerably more free sugar than the recommended health guidelines (Langlois & Garriguet, 2011; West, Bursac, Quimby, Prewitt, Spatz, Nash, Mays & Eddings, 2006). Moreover, it is essential to target young adults given that at this stage in their lives they begin to develop habits (Murad, 2017). In the second instance related to the sample limitations, the current study's gender distribution was not equally dispersed, as there were significantly more female than male respondents. This inequality was not regarded as a concern, given that males and females have similar sugar consumption behaviours (Langlois & Garriguet, 2011). However, future research studies could ensure a proportionally representative sample to generalise with more certainty.

Another limitation pertains to the questionnaire design. The questionnaire was relatively lengthy as it required respondents to switch between two separate online platforms to answer questions. The 'complexity' of incorporating two separate platforms could have caused respondent fatigue, which in turn could have led to a decline in the quality of data provided towards the end of the questionnaire (Zikmund *et al.*, 2013). However, attempts were made to keep respondents' attention by giving clear, straight-forward instructions, as well as showing respondents' their progress throughout the questionnaire.

The self-report nature of both cognitive responses and emotional responses posed another limitation to the study. Given the sensitive nature of health-related behaviours, respondents could have provided distorted answers to appear more socially desirable. Even though it could be argued that the use of response latency to collect data could have provided increased certainty of these answers, the available technology is not yet suited for a seven-point Likert scale (Poławska, 2020). Resultantly, the variables relating to the cognitive and emotional responses were measured in line with existing research methods (Cho *et al.*, 2018; Wright *et al*., 2015; Cho & Salmon, 2006). An attempt was made to minimise social desirability bias by

ensuring respondents' anonymity regarding their answers and the respondents were encouraged to answer as honest as possible.

Another limitation of the study is presented by the stimuli that were designed and implemented in the quantitative experiment phase. The extended parallel process model (EPPM) suggests that for fear appeals to produce intended outcomes, all four constructs of the model should be addressed in a fear appeal message. That is, perceptions of severity, susceptibility, self-efficacy, and response-efficacy should be highlighted in the message so that consumers will experience fear and subsequently engage in intended behaviours (behaviour change). However, the stimuli used in this study did not reflect all these elements, which could have influenced the effectiveness of the fear evocation among respondents. Rather, warning label recommendations from interview participants were considered given that it is still relatively unclear how warning labels should be designed in high-sugar content settings (Cullinan *et al.*, 2019). In addition, existing warning label research suggests that messages should be kept as short and concise as possible (Reyes, Luisa Garmendia, Olivares, Aqueveque, Zacarias & Corvalan, 2019). Indeed, because the warning labels will be placed on high-sugar-content products in practice, the limited space available on product packaging has led the study to keep designed messages as short as possible. Thus, while the use of the message elements of the EPPM would have improved the effectiveness of the fear appeal in the current study – and therefore pointed to a limitation – it was deemed appropriate to follow a different route to maximise the effectiveness of warning labels. In particular, existing warning label suggestions combined with the insights garnered from the qualitative interviews were prioritised to enhance the understanding of warning label designs for high-sugar-content products

The final limitation to the research study was that the manipulation check did not indicate differences in guilt between the fear appeal and the guilt-fear appeal. Because guilt has a known association to sugary product consumption (Kuijer & Boyce, 2014), it was asserted that the emotion is evoked automatically when considering sugar consumption. Given the complexity of separating the emotion from the product category in this study, despite the lack in differences, the guilt message was accepted and incorporated in the study.

Against the background of these limitations, in addition to the quantitative and qualitative findings, future research opportunities were identified. These areas of research are discussed in the subsequent section.

8.5.2 Areas for future research

Considering the persisting challenge of how warning labels should be designed to maximise their effectiveness in high-sugar-content product consumption settings (Grummon *et al.*, 2019), several new opportunities emerged that future researchers could explore to improve the effectiveness of interventions targeted at encouraging consumers to decrease their excessive sugar consumption. Firstly, future research should strive to ensure a sample more representative of the population, with an equal distribution of age, gender, and employment status. An equal distribution may result in enhanced data quality and generalisations can be made with more certainty.

In the second instance, it is worth investigating alternative phrasing of messages in both fear- and guilt-fear appeals. While the message phrasing produced adequate levels of cognitive responses, marketing scholars should explore different phrasing that could lead to enhanced cognitive responses. This suggestion specifically relates to the perceptions of susceptibility, as neither of the negative emotional appeals had a particularly significant impact on consumers' perceptions of the construct. The importance of engendering high levels of susceptibility perceptions among consumers to effectively induce behaviour changes have been emphasised in public health settings, including sun protection behaviours (Jackson & Aiken, 2000), sexual health contexts (Rintamaki & Yang, 2014), and sugar consumption habits (Dono, Ettridge, Wakefield, Pettigrew, Coveney, Order, Durkin, Wittert, Martin & Miller, 2021). Therefore, future researchers could explore which message element addresses susceptibility perceptions specifically and, more importantly, how it should be phrased to create the perception in a high-sugar consumption setting. It is also imperative to investigate different types of health consequences of excessive sugar consumption that are perceived as personally relevant for each stage of change, as enhanced perceived personal relevance will likely lead to enhanced susceptibility perceptions. In addition to investigating alternative phrasing and a selected health issue to communicate, the potential of eliciting other emotions than fear and guilt could provide another avenue for future research.

An additional stream of investigation is to consider incorporating response latency in all aspects of the research design to limit the possibility of social desirability bias. More specifically, given the sensitive nature of reporting on one's health habits, the responses to the cognitive EPPM variables can contain bias, and the use of response latency can address this limitation. Response latency technologies, as illustrated in this study, are simple and convenient to administer in an

online survey setting. Indeed, stages of change researchers in the health domain should assess the use of response latency by comparing the stages of change self-classifications with response latency and without response latency. Researchers can then evaluate the accuracy of consumers' reported stages of change by collecting consumers' behaviour data over time and assess whether their behaviour reflects the specific stages of change's characteristics as reported in the literature. Essentially, future researchers should invest more time and effort in understanding the value of response latency in self-reported health behaviour studies.

Another possible area for further research is to explore warning label messages that are more subdued. This concern was raised in the in-depth interviews where a participant suggested a less 'aggressive' approach to the warning label messages. This suggestion could be addressed by considering positively framed warning messages, or by introducing positive emotions as opposed to eliciting fear and guilt. An example might be to evoke the emotion of hope, as previous studies have found support for this approach (Bleakly *et al.*, 2015; Jordan *et al.*, 2015).

In summary, investigating the abovementioned opportunities will strengthen the literature pertaining to effective warning label interventions in sugar consumption contexts. Improved knowledge of warning label interventions could therefore significantly contribute to the reduced intake of high-sugar-content products that add to the concerning health conditions that are evident among the South African population.

8.6 CONTRIBUTION OF THE STUDY

This study contributed to the literature in several ways. The first contribution pertains to the existing, yet limited knowledge on multiple emotional appeals by further exploring the incorporation of guilt in a fear appeal framework. Evoking guilt in addition to fear in a single message appeal has been suggested to increase persuasive outcomes in certain instances, but remains underexplored (Carcioppolo *et al.*, 2017; Passyn & Sujan, 2006). Findings of this study indicate that guilt-fear appeals did not engender different cognitive responses, but the hybrid appeal did induce different emotional responses. In particular, for certain stages of change, the guilt-fear appeal evoked lower anticipated pleasure from consumption, which contradicts current research (Goldsmith *et al.*, 2012). This study contributes to the literature by indicating that including guilt evocation in a sugar consumption setting will likely lead to decreased anticipated pleasure, a desirable outcome in unhealthy consumption behaviours. In addition, to the knowledge of the researcher, no study has addressed guilt-fear appeals in a high-sugar-

content setting. The study also contributed to the existing knowledge pertaining to public health interventions which it indicates that different negative emotional appeals may be better suited to consumers in different stages of change. Resultantly, this study emphasises the importance of incorporating stages of change into intervention research to allow for better targeting of public health communication efforts. Lastly, a theoretical argument was presented that response latency can improve the accuracy of classifying respondents into their specific stage of change, as respondents' self-reported answers are prone to contain bias. A preliminary attempt was made to address the prolonged criticism of stages of change measurement by using response latency (Brug *et al*., 2005). Classifying consumers' stage of change more accurately through response latency methodologies has not yet been investigated. Although the impact of this approach was not assessed by means of inferential testing, this exploratory attempt can potentially be used as an exemplar for future studies to further explore this methodological contribution.

8.7 CONCLUDING REMARKS

The concerning growth in sugar-intake related health problems have prompted the need for effective warning label interventions to discourage excessive sugar consumption. The existing literature suggests that fear appeals is an effective, persuasive communication tactic that has been widely adopted in behaviour change contexts. However, because authors have also questioned the use of fear appeals in certain instances, and reported unintended consequences of these appeals, a different line of research maintains that the use of a (combined) guilt-fear appeal strengthens the persuasive influence of fear appeals. It is against this background that the current study investigated the effects of both fear appeals and guilt-fear appeals on consumers' emotional and cognitive responses. The study was conducted to clarify and contribute to the existing literature, as well as to provide further insights to the South African government to consider when designing warning labels for high-sugar-content products. In addition, to improve communication in a public health setting, the notion that consumers are at different levels of readiness to change their behaviour was also incorporated. As a result, consumers in each stage of change should be targeted separately. For this reason, primary data on consumers in different stages of change who were most at risk and who indicated unhealthy sugar intake behaviours were collected and analysed. These consumers were classified as pre-contemplators, contemplators and preparers.

The empirical results revealed that pre-contemplators, contemplators and those in the preparation stage responded similarly to fear- and guilt-fear appeals in their cognitive responses. Emotional responses, however, differed substantially between each of the three stages of change, which prompted various main conclusions and recommendations.

Firstly, social marketers are advised to continue to explore alternative approaches to fear- and guilt-fear appeals, as its use did not significantly influence consumers' cognitive responses. Notwithstanding the indifference towards the appeals in terms of cognitive effects, differences in emotional responses were noted between the different negative emotional appeals. Based on the emotional arousal among consumers, fear appeals are more suited particularly for pre-contemplators and preparers, and guilt-fear appeals for consumers in the contemplation stage. Equally important, however, is that social marketers should ensure that the susceptibility perceptions of the threat are effectively communicated to consumers. Finally, as this study's findings have reiterated, consumers are in different stages of readiness to change their behaviours, and evidence exists that different appeals are better suited for different stages of change. The significance of stages of change in behaviour change interventions to better reach consumers should be noted, since consumers in each stage respond differently to communication messages. Therefore, self-report classifications into each stage should be carefully considered. More specifically, incorporating response latency presents an ideal solution to strengthen the measurement of the stages of change construct, which in turn, will likely improve the effectiveness of targeted behaviour change interventions.

Finally, in response to the newly suggested warning label implementation on high-sugar-content products in South Africa, this study found that different negative emotional appeals can be used to evoke emotional responses among consumers. Negative emotional appeals may enhance consumers' attention to the communicated message, raise awareness, and increase the likelihood that the message will be remembered. Furthermore, it is important to remember that consumers are not all ready to change their behaviour, and that different negative emotional appeals are more effective in eliciting negative emotions among pre-contemplators, contemplators, and those in the preparation stage of change. Resultantly, a 'one-size-fits-all' approach to warning label interventions might not be effective.

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APPENDIX A

OBJECTIVES PER STAGE OF CHANGE

PRE-CONTEMPLATION STAGE

Primary objectives:

To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the pre-contemplation stage.

Secondary objectives:

To investigate the impact of negative emotional appeal warning labels on the behavioural intention of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on response efficacy of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on self-efficacy of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on severity of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on susceptibility of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of fear of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of guilt of consumers in the pre-contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of anticipated pleasure of consumers in the pre-contemplation stage.

CONTEMPLATION STAGE

Primary objectives:

To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the contemplation stage.

Secondary objectives:

To investigate the impact of negative emotional appeal warning labels on the behavioural intention of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on response efficacy of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on self-efficacy of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on severity of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on susceptibility of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of fear of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of guilt of consumers in the contemplation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of anticipated pleasure of consumers in the contemplation stage.

PREPARATION STAGE

Primary objectives:

To investigate the impact of negative emotional appeal warning labels on the cognitive responses of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on the emotional responses of consumers in the preparation stage.

Secondary objectives:

To investigate the impact of negative emotional appeal warning labels on the behavioural intention of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on response efficacy of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on self-efficacy of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on severity of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on susceptibility of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of fear of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of guilt of consumers in the preparation stage.

To investigate the impact of negative emotional appeal warning labels on feelings of anticipated pleasure of consumers in the preparation stage.

APPENDIX B:

HYPOTHESES PER STAGE OF CHANGE

PRE-CONTEMPLATION STAGE

Main hypotheses:

H_0^1: There is no difference in the cognitive responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^2: There is no difference in the emotional responses of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

Extended hypotheses:

H_0^{1A}: There is no difference in the behavioural intention of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{1B}: There is no difference in response efficacy of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{1C}: There is no difference in self-efficacy of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{1D}: There is no difference in severity of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{1E}: There is no difference in susceptibility of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

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H_0^{2A}: There is no difference in fear of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{2B}: There is no difference in guilt of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

H_0^{2C}: There is no difference in anticipated pleasure of consumers in the pre-contemplation stage between different negative emotional appeal warning labels

CONTEMPLATION STAGE

Main hypotheses:

H_0^3: There is no difference in cognitive responses of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^4: There is no difference in the emotional responses of consumers in the contemplation stage between different negative emotional appeal warning labels

Extended hypotheses:

H_0^{3A}: There is no difference in the behavioural intention of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{3B}: There is no difference in response efficacy of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{3C}: There is no difference in self-efficacy of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{3D}: There is no difference in severity of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{3E}: There is no difference in susceptibility of consumers in the contemplation stage between different negative emotional appeal warning labels

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H_0^{4A}: There is no difference in fear of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{4B}: There is no difference in guilt of consumers in the contemplation stage between different negative emotional appeal warning labels

H_0^{4C}: There is no difference in anticipated pleasure of consumers in the contemplation stage between different negative emotional appeal warning labels

PREPARATION STAGE

Main hypotheses:

H_0^5: There is no difference in cognitive responses of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^6: There is no difference in the emotional responses of consumers in the preparation stage between different negative emotional appeal warning labels.

Extended hypotheses:

H_0^{5A}: There is no difference in the behavioural intention of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{5B}: There is no difference in response efficacy of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{5C}: There is no difference in self-efficacy of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{5D}: There is no difference in severity of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{5E}: There is no difference in susceptibility of consumers in the preparation stage between different negative emotional appeal warning labels

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H_0^{6A}: There is no difference in fear of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{6B}: There is no difference in guilt of consumers in the preparation stage between different negative emotional appeal warning labels

H_0^{6C}: There is no difference in anticipated pleasure of consumers in the preparation stage between different negative emotional appeal warning labels

APPENDIX C:

E-MAIL INVITATION FOR INTERVIEW PARTICIPANTS

Dear prospective participant

You are invited to take part in a study conducted by Marné Boshoff, from the Department of Business Management at Stellenbosch University. You were approached as a participant because you form part of the study's target population. Should you be willing to take part in an in-depth interview led by Marné Boshoff, please read the following instructions:

1. Find attached two documents:

- **Consent letter**: Please read the consent letter thoroughly. If you are willing to be interviewed, please indicate so at the **end** of the letter and return the document by sending it to 19066325@sun.ac.za. The consent letter has been sent to you in Word format to enable you to indicate your participation by manually filling in the appropriate answer with an 'X'.

- **Participant material**: This document must be accessible during the interview. Please open this document when the interview commences, and **only view its content when the researcher instructs you to do so**.

2. Please indicate with an e-mail to 19066325@sun.ac.za:

- A preference of electronic discussion platform through which the interview should be conducted: Zoom, Microsoft Teams, telephone call etc.
- An appropriate **date** and **time** for the interview. The researcher will confirm the date and time with an e-mail.

3. Please have a **pen** and **paper** on hand when the interview commences.

Should you have any further enquiries, please do not hesitate to contact the researcher at 19066325@sun.ac.za or number 060 912 4300.

APPENDIX D:

INTERVIEW PARTICIPANT CONSENT FORM

PARTICIPANT CONSENT LETTER

Participant number: _____

You are invited to take part in a study conducted by Marné Boshoff, from the Department of Business Management at Stellenbosch University. You were approached as a possible participant because you form part of the study's target population. Should you agree to take part in the study, your opinion will contribute towards the results of this study, forming part of Marné's MCom thesis.

This interview is being conducted in order to understand consumers' sugar consumption habits and opinions about warning labels. If you agree to take part in this study, you will be asked to discuss your sugar consumption habits, and will also be shown labels that warn consumers against consumption. These labels may induce discomfort or distress. In such cases, please feel free to contact the researcher at 19066325@sun.ac.za. She will be willing to assist you in the process of finding the required professional help.

Participation in this interview is entirely voluntary, and participants can terminate the interview at any time. Each participant has been given a unique subject number so that personal information can be excluded from the study. The session will be recorded for future reference and analysis, but the discussion will be analysed **anonymously**. Furthermore, the information obtained will remain **confidential** and will be disclosed *only* with your *permission*.

If you have any other queries, please contact the researcher at the same e-mail address. Should you want to discuss the topic in private, please feel free to speak to the researcher after the interview has been completed.

You can choose whether to be in this study or not. If you agree to take part in this study, you may withdraw at any time without any consequences. You may also refuse to answer any questions you don't want to answer.

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development. **You have the right to receive a copy of this Information and Consent form.**

Your participation is greatly appreciated!

As the participant I confirm that:

- I have read the above information and it is written in a language that I am comfortable with.
- I have had a chance to ask questions and all my questions have been answered.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained.

Please indicate with an 'x':

☐ I have read and understand this document's content and agree to take part in this interview.

☐ I do not agree to take part in this interview and withdraw my participation.

APPENDIX E:

INTERVIEW GUIDE

INTRODUCTION:

- Welcome participant and thank him/her for their time and willingness to engage in interview
- Introduce the researcher and broadly explain the purpose of the interview. *(To obtain information for my main study)*
- Ask participant whether he/she has opened the attachment. Remind participant to only view the attachment once asked to do so.
- Ask participant whether they have a pen and paper on hand.

Remind participant of the consent letter that was sent with the invitation e-mail.

As you have read in the consent letter:

- Any information provided in the interview will remain confidential, and the responses will not be attached to the respondent's identity,
- Should respondents prefer to discuss any topics in private, encourage respondents to talk to the researcher after the interview,
- Inform participants that the interview will be recorded for analysis and reference purposes,
- Emphasise the researcher's role should any participant experience discomfort during the session.
- Since you have signed the consent letter, can I assume you are happy with the content and is ready to commence this interview?

Inform participant that this study is about sugary products such as chocolates, sweets, candied chocolates and sweetened beverages, baked goods like muffins and doughnuts

- **Do you think you consume such products?**
- Tell me a bit more about the sugary products you consume:

  - How often do you consume such products, and how much of it?
  - Which products are your favourite?
  - In what contexts do you purchase and consume sugary products? If necessary, researcher may provide examples of *contexts* for example, when you feel stressed, when you want to reward yourself, when you are celebrating something etc.

Researcher to read the following statements to the participant, upon which the participant would choose one that he/she considers to be relevant to their behaviour:

1	I do not intend to reduce my consumption of such sugary products in the next 6 months
2	I am thinking about reducing my consumption of such sugary products in the next 6 months
3	I am planning to reduce my consumption of such sugary products in the next 30 days

Researcher to explain how the government has suggested the implementation of warning labels on sugary products. Researcher to explain broadly what warning labels are (*Short message on risky products*), its purpose (*educate, warn against consumption*) and some product examples that generally contains warning labels (*cigarette packaging and alcoholic beverages*).

Following this, the researcher will ask participant to use the blank piece of paper and pen to:

- Write a textual message that you think should be on your favourite sugary products to prevent you from buying and consuming the product. Ask participant to please read it to researcher.
- What about this message would prevent you from buying your favourite sugary product?

- When viewing your message, what do you consider as the most important element to discourage consumption?

Researcher to ask participant to view the document PARTICIPANT MATERIAL.

Please open on **Section 1** and view the examples of warning labels on *cigarette packaging in South Africa*.

- What aspects of the warning labels caught your eye?
- What about warning labels do you think is important to **attract attention** and why?
- What do you think a warning label should include if it is meant to stop you from purchasing or consuming a product that is **high in sugar?**

Researcher to ask participant to *view **Section 2***, containing high-sugar-content warning labels with **fear appeals** examples from previous research studies. Participant to first discuss Image A and then Image B.

- When you look at this label, does it scare you to think about the products you eat? Why/ why not?
- Would you reconsider purchase and consumption of the product? Why/ why not?
- Would you consider these labels effective? Why/ why not?
- If I asked you to look at this label and suggest changes so that the message is more effective in preventing purchase or makes you reconsider the sugary product, what would the change be? You can make any suggestions, including location of the label, size, font etc.

Researcher to ask participant to view ***Section 3*** containing high-sugar-content warning labels with **guilt-fear appeals** examples. Participant to first discuss Image A and then Image B.

- How does this label differ from the previous ones?
- Does it perhaps make you feel guilty? Why/ why not?
- Do you feel scared after looking at this label? Why/ why not?
- Would you refrain from consuming the product? Why/ why not?
- Would consider these labels effective? Why/ why not?
- What changes would you make on these warning labels?

Researcher to ask participant to close the participant material document, and consider the following definition:

Introduce the definition of a high-sugar-content product:

High-sugar-content products refers to products with total sugar exceeding 10g per 100g. Examples include chocolates, sweets, candied chocolates and sweetened beverages, baked goods such as muffins and doughnuts.

- In your opinion, why do you consume high-sugar-content products?
- What do you like about eating high-sugar-content products?
- What don't you like about eating high-sugar-content products?
- Does purchasing and consuming high-sugar-content products make you feel guilty?
    - What about the purchase and consumption makes you feel guilty? / Why don't you feel guilty?
- Are you aware of the sugar **content** of the sugary products you consume?
    - If yes, is it alarming to know the excessive intake of sugar with such products? Why do you still consume such products?
    - If no, would you say you want to learn about the sugar content of such products?

Introduce the approximate amount of sugar in product examples such as a Bar One (27g), a single blueberry muffin (22g) and 330ml Iced Tea bottle (24g). Explain that one teaspoon of sugar equals 4g of sugar, so for example in a Bar One there is almost 7 teaspoons of sugar.

- How do you feel now that you know how much sugar the products you consume contain?
- Do you believe there are health concerns related to the consumption of such sugar products?
    - If so, why do you continue to engage in consumption?
    - Does it make you feel guilty that you are harming your health by consuming such products?
    - What health problems concerns you the most?

Now that we have looked at some examples of warning messages found on other products, and have discussed what HSC products are, how much sugar they contain and how you feel about your HSC consumption habits, please take another look at the warning labels you created in the beginning of the session.

- If you want to, you now have an opportunity to add to these labels or change them completely if you wanted to. The objective of the label should be to make you reconsider purchasing or preventing you from consuming the product.
- Do you have any other comments or suggestions for labels to be designed for HSC products?

Participants will be asked whether they have any further comments or questions. Again, participants' confidentiality will be emphasised. The participants will also be asked to refrain from discussing the interview purpose with anyone until the quantitative phase are completed. Furthermore, participants will be told to not take part in the quantitative phase of the study as this might impede the accuracy of results. Again, participants will be encouraged to speak to the researcher privately if they would prefer so. Finally, participants will be thanked for their time and willingness to partake in the study and assured their contribution valuable and greatly appreciated.

APPENDIX F:

INTERVIEW PARTICIPANT MATERIAL

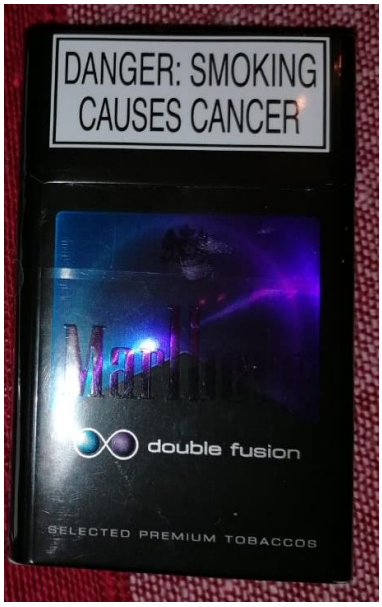
PARTICIPANT MATERIAL

SECTION 1:

Image A:

Image B:

Image C:



SECTION 2:

Image A:

Image B:

Image C:

SECTION 3:

WARNING: This product is high in sugar and should not be consumed frequently.

Image A:

Image B:

This product contributes to health problems. Don't harm yourself.

Image C:

This product contributes to obesity, diabetes and tooth decay. Don't harm your health.

APPENDIX G:

INTERVIEW SUMMARY

Interview Summary

Subject profile: five females, three males. Ages between 24 and 60.

- Tell me a bit more about the sugary products you consume:

Two indicated at least once a day, and said it is a habit that was learnt over the years, especially after dinner. One subject admitted it is an addiction. One said every second day. Some indicated more or less two times a week. Or occasionally, when I have a craving or when I want to reward myself after long day. Sometimes when I need a mood boost. When the product is easily available (for example when someone in household provides, or at a birthday celebration). Some indicated it to be a social thing, like when going out for drinks, or ice-cream or cake). Often succumb to the temptation in the grocery store line. Favorite products are predominantly chocolates, some indicated sugary beverages, biscuits and ice-cream.

- Stages of change indication

Four subjects indicated contemplators; four subjects were actively planning (preparation). Of those four, one said 'I am definitely planning, but if I am going to stick with it is another question'.

- Write a textual message that you think should be on your favourite sugary products to prevent you from buying and consuming the product.

- Be careful. This product, if taken in too often, can harm your health.

- BEWARE. This product is high in sugar.

- Warning. This is a high sugar content product and can cause skin problems and tooth decay.

- Beware. High sugar product consumption can cause diabetes.

- Warning. Eating products high in sugar could add to weight gain.

- This product has serious long-term health effects.

- This product should be consumed in moderation.

- This product contains high amount of sugar and can cause obesity.

- What about this message would prevent you from buying your favourite sugary product? / When viewing your message, what do you consider as the most important element to discourage consumption?

Majority indicated the importance of the **CONSEQUENCE** of the product consumption. Meaning, weight gain, skin problems, tooth decay, diabetes. Two subjects indicated the importance of the 'beware' part to remind her that consumption is harmful and thus discourage purchase. Another said the fact that the product has long-term, not only short-term, but effects on health is also important. Some subjects emphasised that the message should just remind consumer, as one already knows that it is bad for health. Emphasis on short message as well, as one does not want to read too long.

- Upon viewing **SECTION 1**, Image A, B, C.

All subjects indicated Image A to be too much information. However, one did indicate that the information is valuable when it is read. Upon this, the subject said the '9 out of 10 smokers…' was really scary, suggesting the value of a fact/statistic way to elicit fear. Five subjects preferred Image B because of the red attracting attention against the white. These subjects also indicated the importance of the *consequence* and highlighted the necessity of being specific about the health issue. Three subjects liked image C more as it stood out, and cancer was perceived as more severe. All subjects like the 'short and sweet' message of Image B and C and said the 'Danger' part to attract sufficient attention. Two suggested, 'DANGER' to be too harsh, rather 'be careful' as consumers 'wants to think for themselves' and one should not 'underestimate the intelligence of consumer'.

- Upon viewing **SECTION 2**, Image A, B, C.

Image A: Only one subject indicated 'health problems' to be 'scary', and that it would cause her to reconsider purchase. Majority of the subjects indicated the 'health problems' are **too vague** and did not scare them that much. One subject said it is not effective at all, needs to be more specific, 'What do you mean with health problems?'. Message should be more substantiated. Three subjects did suggest to perhaps include a factual message or statistic. One subject also said the message went above her head because there is no BEWARE or WARNING. Two subjects also want the health problems to be replaced with 'tooth decay' or 'weight gain'. One subject insisted the message to be too 'plain' and wanted more information. One subject suggested it is not 'severe' enough to be scared and needed to be specific for him

to ‘relate to’. While two subjects liked the font and color of the label, the majority of subjects said the label were not attracting enough attention, as it sort of blend in with the packaging, to such an extent it is almost overlooked as ‘just nutritional information’ or perhaps ‘brand information’. Majority subjects indicated that they would add an ‘warning’ or ‘caution’ in bold and capital letters, and a specific consequence. One subject said she is not bothered at all with the warning label.

- **Image B:** Majority of subjects preferred Image B because the consequence of sugar consumption was clearly indicated, scared them more, and indicated it will make them reconsider consumption. One said this label is more credible. Additionally, the ‘SAFETY WARNING’ was present, and attracted their attention. One subject said it is ‘softer put than for example, DANGER’. However, many subjects said to drop the ‘safety’ as it was unnecessary. Three subjects also liked how the white stood out from the black. However, one subject said the label was perceived as a list of ingredients and said the message could be overlooked because of this. It is also suggested to place the label at the top of the product to avoid being overlooked.
- **Image C:** Subjects again indicated the lack of consequence. So, although the WARNING was present, the ‘should not be consumed frequently’ did not scare them or was not substantiated enough because they thought ‘why not?’. Again, changes suggested including a severe consequence a consumer can relate to. One subject however preferred this label as it was not so ‘attacking’ and ‘in your face’.

- Upon viewing **SECTION 3**, Image A and B.

Image A: Again, similar comments with regards to the ‘serious health problems’ as indicated in Section 1. One subject indicated the second sentence ‘if consumed, you could harm your health’ was unnecessary because it is repetitive of the first sentence, or ‘goes without saying’. Three subjects said the message did not particularly make them feel guilty at all. Three subjects indicated that they did feel guilty when reading the message, because it reminded them that they are in control of making the right choice (not purchasing or consuming the product). Additionally, two said it made them more guilty, because now they know it is bad for them and they are supposed to make the correct choice. One subject who did not feel guilty at all, suggested the message to be a bit long. One subject who did feel guilty, said so because he knows the product is bad for his health. Three subjects indicated that their initial

recommendations in Section 1 would be sufficient for them to reconsider purchase as they need a reminder of the consequence.

Image B: Same comments again with regards to 'serious health problems'. Two subjects did not like the 'don't harm yourself' as it was 'too intense' and made them think of 'suicidal behavior'. For them, guilty feelings were not experienced. Some subjects did experience guilty feelings. Two subjects indicated that they feel guilty, but more so because they already know they are harming their health, not necessarily because of the message. One explained that knowing the product is high in sugar and is unhealthy already elicits guilt. This could suggest guilt is experienced even before message exposure. Another subject said they feel guilty because 'now I know it is specifically bad for my health, I can't go back', and also said the 'don't harm yourself' makes it more personal and felt that it should be addressed. When specifically asked what makes them guilty, one subject said that even as he knows the product is full of sugar and is bad for his health, he is going to buy it anyway (because he does not do it too often, according to himself). One subject also indicated the guilt to arise also because he knows the harmful consequences, and also because he knows he is going to disappoint himself when he does consume the product. Another subject said he liked the 'could harm' more than the 'don't harm yourself' because he does not like the 'commanding' tone of the latter message.

- What do you like about eating high-sugar-content products?

All subjects like the taste of sugar, it is simply too 'lekker'. Some indicated consuming chocolates is a mood booster, some said it is rewarding and a pleasurable experience.

- What don't you like about eating high-sugar-content products?

Knowing that it is bad for your health. Knowing your skin might break out. Knowing that you can gain weight. One of the subjects indicated the disappointing feelings that you have 'cheated' or 'failed' (preparation stage!). One said the guilt experienced after consumption, knowing the long-term effects will catch up.

- Does purchasing and consuming high-sugar-content products make you feel guilty? What about the purchase and consumption makes you feel guilty? / Why don't you feel guilty?

Majority indicated that yes, they do feel guilty because they know the product is harmful, and yet they continue to purchase and consume. Knowing the health issues related to consumption seems kto enhance guilty feelings. One indicates that they do it because it does not happen too often, and not enough for them to develop obesity or diabetes (according to them!). One subject

said she feels guilty because she knows she is being unhealthy despite her plans to reduce her weight. Some indicated they continue to consume because it's just too good and 'lekker'! One subject said that she does not ever feel guilty because she knows she is actively working on her diet and was previously much worse in terms of eating sugary products. Essentially, she compares herself to her herself a view year back and considers herself in a much healthier position and therefore eating a chocolate occasionally, is not a sin. Another subject also compares her consumption, but with others, saying she is much better off or much healthier than others, essentially justifying her consumption. This subject however did indicate she feels guilty because she knows it is her own responsibility to refrain purchasing and consuming sugary products. One subject said that they know its unhealthy and it's something they can control, but they still do it because it's 'lekker', despite the thoughts in the back of their mind. Another said she does not feel guilty at all, only when she does not consume in moderation.

- Are you aware of the sugar **content** of the sugary products you consume?

All subjects indicated they are aware that such products are high in sugar but does not necessarily knows the exact content of each product. They just know it's enough to be unhealthy. When the content is introduced in terms of **teaspoons**, many were shocked to hear how much sugar is in such products. One subject indicated that she wants to change her previous statement from 'thinking' to 'planning' to reduce her sugar consumption! Some subjects indicated that in terms of teaspoons, consumers might be more scared to purchase and consume. Subjects indicated again they continue to consume because it's a pleasurable feeling, and four subjects specifically said they will 'make up for it' by going to exercise or eat healthier the rest of the day.

- Do you believe there are health concerns related to the consumption of such sugar products?

All subjects said they do know there are health concerns, but again, continue to consume because they feel it does not happen that often, they will make up for it etc. Specific health problems that were most concerning included weight gain, obesity, tooth decay and skin breakouts.

- Does it make you feel guilty that you are harming your health by consuming such products?

Subjects indicated that yes, they do feel guilty. One subject said especially knowing that 'no one is forcing it down my throat, it is my choice and responsibility'. One subject also said he feels guilt knowing that he 'is doing so well with my health currently, and then one relapse

feels like failing!'. Two subjects said they do not feel guilty, because it does not happen that often and she does not feel guilt when rewarding herself.

- Upon asking whether anyone wants to make changes on their own labels, majority said no, they want to stick with their message. One or two did suggest replacing 'beware' with 'warning' in bold and capital letters. Three subjects suggested to perhaps indicate the sugar content in terms of teaspoons so consumers can understand how much they are consuming. It was also suggested to perhaps include visual representation could enhance fear and guilt.

APPENDIX H:

WARNING LABEL TEST QUESTIONNAIRE

Thank you for your willingness to participate in this study. This questionnaire will not take longer than 5 minutes to complete.

Please remember to click on the blue arrow on the bottom right corner to continue with subsequent questions.

Please indicate your gender

- ○ Male
- ○ Female
- ○ Prefer not to answer.

Please indicate your age category

- ○ 18-25
- ○ 26-32
- ○ 33-40
- ○ 41-48
- ○ 49-56
- ○ 57-64
- ○ 65+

This study concerns the purchase and consumption of sugary products. Sugary products include rusks, chocolates, cookies, sweetened beverages etc. Please view the following examples of sugary products.

Have you consumed sugary products in the past year?

- ○ Yes
- ○ No

Skip To: End of Survey If Have you consumed sugary products in the past year? = No

Please indicate, by dragging the slider, **how many times** you have consumed sugary products:

	0 1 2 3 4 5 6 7 8 9 10
1.) ...in the past week:	
2.) ...in the past two weeks:	

Imagine that one of the following labels were placed on your favourite sugary product. Select **<u>one</u>** label that will most likely make you **reconsider purchasing** the product.

○ Label 1: **WARNING:** This product contains 7 teaspoons of sugar and can cause obesity.

○ Label 2: **WARNING:** This product is high in sugar and can cause obesity and tooth decay.

Suppose this label is placed on your favourite sugary product:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity.

Please indicate, by dragging the slider, to what extent the label makes you feel...

	Not at all 1 2 3 4 5 6 7 8 Very much so
(1). Scared	
(2). Guilty	

Imagine this label on your favourite sugary product:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Your health is your responsibility.

Please indicate, by dragging the slider, to what extent the label makes you feel...

Not at all 1 2 3 4 5 6 7 8 Very much so

(1). Scared	
(2). Guilty	

Suppose your favourite sugary product has the following label:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Don't harm your health.

Please indicate, by dragging the slider, to what extent the label makes you feel...

	Not at all							Very much so
	1	2	3	4	5	6	7	8
(1). Scared								
(2). Guilty								

Imagine that one of the following four labels were placed on your favourite sugary product. Select **one** label that will most likely make you **reconsider purchasing** the product.

○ Label C: **WARNING:** This product contains 7 teaspoons of sugar and can cause obesity. Choose to not harm your health.

○ Label A: **WARNING:** This product contains 7 teaspoons of sugar and can cause obesity. Your health is your responsibility.

○ Label D:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Don't harm your health.

○ Label B:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Your health is your choice.

Suppose your favourite sugary product has the following label:

WARNING: This product is high in sugar and can cause obesity and tooth decay.

Please indicate, by dragging the slider, to what extent the label makes you feel...

	Not at all 1 2 3 4 5 6 7 8 Very much so
(1). Scared	
(2). Guilty	

Suppose your favourite sugary product has the following label:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Your health is your choice.

Please indicate, by dragging the slider, to what extent the label makes you feel...

Not at all Very much so

	1 2 3 4 5 6 7 8
(1). Scared	
(2). Guilty	

Imagine the following label on your favourite sugary product:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Choose to not harm your health.

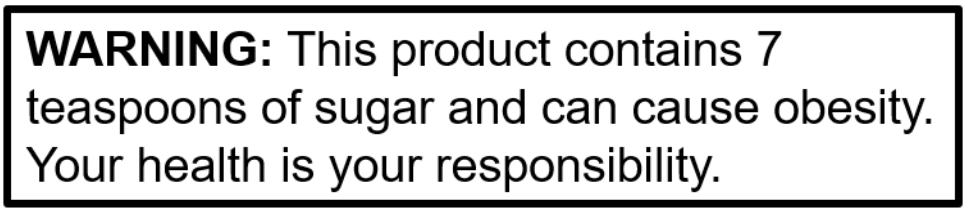
Please indicate to what extent the label makes you feel...

	Not at all Very much so 1 2 3 4 5 6 7 8
(1). Scared	
(2). Guilty	

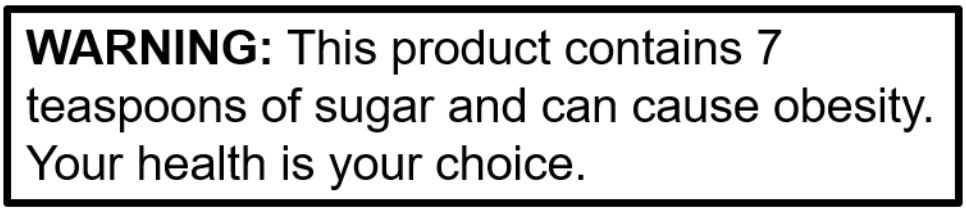
Consider the following four labels. Please rank the labels based on how guilty they make you feel, where 1 (at the top) indicates the label makes you feel the most guilt and 4 (at the bottom) is the label that makes you feel the least guilt.

Rank the labels by selecting the labels and dragging each to the desired position.

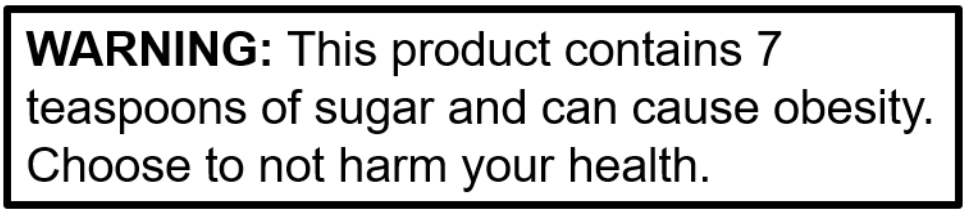
_____ Label A:



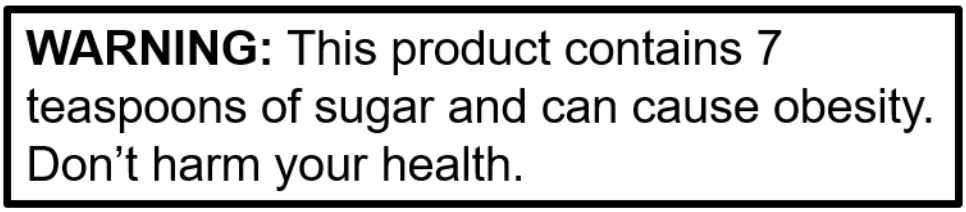
_____ Label B:



_____ Label C:



_____ Label D:



We thank you for your time spent taking this survey.

Your response has been recorded.

APPENDIX I

QUESTIONNAIRE TEMPLATE

UNIVERSITEIT • STELLENBOSCH • UNIVERSITY

Thank you for your willingness to take part in this study. Participating in this survey is entirely voluntary, you can choose whether to partake in this study or not. If you agree to take part in this study, you may withdraw at any time without any consequence. You may also refuse to answer any questions you don't want to answer and still remain in the study. **However, incomplete answers may result in your disqualification from the lucky draw.** The researcher may withdraw you from this study if data is considered to be too incomplete for appropriate analysis.

The questionnaire will take approximately 15 minutes to complete and the information is purely for academic purposes. Any information that is obtained in connection with this study will remain **confidential** and will be disclosed only with your permission. In addition, information given will be analysed anonymously. Although only e-mail addresses will be collected, in the event that you want to take part in the lucky draw for standing a chance of winning **one of two Takealot vouchers of R500**, this information will only be used for such purposes and will not be linked back to your answers given in the questionnaire. Should you provide your e-mail address to stand a chance of winning **one of two Takealot vouchers of R500,** your information will be used only for the random selection and will deleted once a winner has been selected. Data collected will be protected on flash discs only accessible to the researcher and her supervisor. After data has been analysed, it will be deleted.

Although highly unlikely, some images presented to participants may induce discomfort or distress. Should you feel uncomfortable at any time, you may terminate participation. In the event that you experience discomfort and would like to discuss it, please feel free to contact the researcher at marneboshoff@gmail.com. She will be willing to assist you in the process of finding the required professional help. If you have any other queries, please contact the researcher at the same e-mail address, or her supervisor at luceavh@sun.ac.za.

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development. **You have the right to receive a copy of this Information and Consent form.** Should you require a copy, please request by e-mailing the researcher at marneboshoff@gmail.com.

By agreeing to take part in this survey, you confirm that:

- You have read the above information and it is written in a language that you are comfortable with.
- You know you can contact the researcher to ask questions and all your questions can be answered.
- All issues related to privacy, and the confidentiality and use of the information you provide, have been explained.

I agree to take part in this survey:

- YES
- NO

Thank you for your willingness to participate in this study. Please remember to click on the blue arrow on the bottom right corner to continue with subsequent sections.

For the first section, please read the following questions carefully and click on the horizontal bar that you think describes you best.

D1	Please indicate your age	18-25	26-32	33-40	41-48	49-56	57-64	65+
		1	2	3	4	5	6	7
D2	What is your biological gender?	Male	Female	Prefer not to answer				
		1	2	3				
D3	What is your current employment status?	Student	Unemployed	Employed part-time	Employed full-time	Self-employed	Pensioner	Other (Please specify in the block below)
		1	2	3	4	5	6	7
D4	Do you consider yourself as someone who maintains healthy eating habits?	Yes	Sometimes	No				
		1	2	3				

This study is about the consumption of products that contain sugar.

Such products include rusks, cookies, sweets, jam, certain granola bars, sweetened dairy, sweetened beverages (such as pre-made smoothies, iced teas, carbonated sodas etc), muffins and many more!

Please view the following examples of typical products that contain sugar.

	Have you consumed sugary products in the past year?	Yes	No	
		1	2	

Note: If no is selected, skip to end of survey.

The following section presents identified product categories that contain sugar. To help you familiarise yourself with the categories, we have provided typical branded examples and an approximate serving size for each category.

Please read the following instructions carefully.

***If you are completing this survey on your mobile phone, we recommend tilting your screen horizontally to answer questions easier!**

For the following question, think about your consumption in a typical two-week period. During the two weeks, indicate how many times you consumed the following:

	Never	1	2	3	4	5	6	7	8	9	10+
1 Teaspoon of sugar (added in cereal/coffee/tea/other cooking)	1	2	3	4	5	6	7	8	9	10	11
Carbonated cooldrink of 330ml. (Coke, Sprite, Fanta)	1	2	3	4	5	6	7	8	9	10	11
Fruit juice bottle of 350ml. (Henties, Krush)	1	2	3	4	5	6	7	8	9	10	11
Bottled smoothie of 330ml.	1	2	3	4	5	6	7	8	9	10	11
Small 100g **flavoured yogurt** tub. (Danone, Nutriday)	1	2	3	4	5	6	7	8	9	10	11
80g **Chocolate slab**. (Cadbury, Lindt, Beacon)	1	2	3	4	5	6	7	8	9	10	11
40g **Chocolate bar** (Bar One, Lunch Bar)	1	2	3	4	5	6	7	8	9	10	11
A **packet of soft sweets** of 100g. (Jelly Tots, Wine gums)	1	2	3	4	5	6	7	8	9	10	11
A **packet of candied chocolates** of 40g. (Astros, Smarties)	1	2	3	4	5	6	7	8	9	10	11
A **single serving cookie** of 10g. (Tennis biscuits, Oreo's)	1	2	3	4	5	6	7	8	9	10	11
A **single muffin** of 58g. (Bran, Chocolate)	1	2	3	4	5	6	7	8	9	10	11
Granola bar of 40g. (Jungle Bar, Kellogg's Bar)	1	2	3	4	5	6	7	8	9	10	11
A **single rusk** of 30g.	1	2	3	4	5	6	7	8	9	10	11
A slice of **Cake/Tart** of 100g.	1	2	3	4	5	6	7	8	9	10	11

Please view the following product categories and consider which category you consume most often.

Please keep in mind that you are considering categories and not the branded product example provided. For instance, if you consider yourself to consume bottled iced teas most often, click on the 'sugar-sweetened beverages' option.

***If you are completing this survey on your mobile phone, we recommend tilting your screen horizontally to answer questions easier!**

Please indicate below which product category you consume most often.

Sugar-sweetened beverages (e.g Fanta, Coke, Iced Tea, pre-made smoothies)	1
Chocolates or granola bars (e.g Bar One, Lunch Bar, Crunchie, Jungle Oats Bar)	2
Sweets (e.g Jelly Tots, Speckled Eggs, Jelly Babies, Rascals, Manhattan Sour Worms)	3
Cookies (e.g Oreo's, Jolly Jams, Zoo Cookies, Romany Creams, Tennis Biscuits)	4
Sugar-sweetened ice-cream (e.g Magnum, King Cone, Paddle Pop, Cornetto)	5
Candied chocolates (e.g Smarties, Astros, Whispers, Woolworths Chuckles, M&Ms)	6

Please note that two different platforms will be used to collect your answers. You are currently on platform one. Soon you will be asked to open platform two. Before continuing to platform two, as a warm-up, please provide answers to the following two questions:	
What is your favourite food?	
Please provide the name of your first pet here: (If you cannot remember the name, or have never owned a pet, please provide a hypothetical name, and don't forget it!)	
You will now be asked to answer a few questions on platform two. Once that section is completed, you will again resume the questionnaire on this current platform (platform one). In other words, do not close the current questionnaire tab as you will be prompted to return to it to complete the rest of the questions here. ***If you are completing this survey on your mobile phone, please tilt your screen horizontally to answer the following platform's questions!** **To continue to the next platform, please click here.**	

If you have completed the second section in another tab, please click on YES to confirm. Then, click on the blue arrow to continue with the final questions of this survey.	
◯	**YES**

We previously asked you what your favourite food is. Please repeat your answer here:
We previously asked you the name of your childhood pet. Please repeat your answer here:

This is the beginning of a short warm-up exercise. Before the main section start, you will be asked to answer a series of short questions to ensure you are comfortable and familiar with how this survey works. Please ensure that you read the questions carefully before answering this part of the survey.	
Please click on the 'OK' button as soon as you have finished reading the statement.	
Warm-up questions included, amongst others, the following statements:	
It is important to follow instructions on the screen	
Please work carefully without interruptions	
Welcome to our survey	
Before answering the following questions, please think about your consumption of sugary products. Then, please read each statement and indicate whether you agree with the statement by either clicking 'YES' or 'NO'.	
I do not intend to reduce the number of sugary products I eat in the next 6 months	
Yes	No
I am seriously intending to reduce my sugar eating habits in the next 6 months	
Yes	No
I have definite plans to reduce my sugar eating habits in the next month	
Yes	No
For the past six months, I have been doing something to reduce my sugar eating habits.	
Yes	No
I have been reducing the number of sugary products I eat for longer than 6 months	

Yes	No

You have now completed the questions for platform two and only have a few more to answer on platform one. Please close this platform tab and continue the final section of the questionnaire on platform one.

The following image represents the product category that you indicated you consume most often. Assuming that you may be interested in consuming this brand or a similar one, please view the image carefully in its entirety.

Important: The subsequent questions will all be referring to this image, so please take your time to view this image in its entirety. If you are completing this survey on a mobile phone, consider zooming in to view the image more clearly.

**SUGAR-SWEETENED ICE-CREAM: FEAR APPEAL GROUP EXAMPLE*

After viewing the image in its entirety, and keeping your favourite product in mind, please indicate to what extent the image make you feel...

	NOT AT ALL						**VERY MUCH SO**
	1	2	3	4	5	6	7
…Tense	1	2	3	4	5	6	7
…Guilty	1	2	3	4	5	6	7

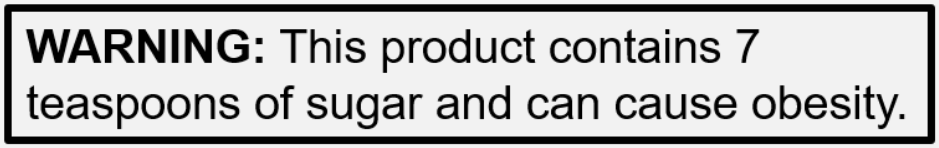
…Anxious	1	2	3	4	5	6	7
…Scared	1	2	3	4	5	6	7
…Bad	1	2	3	4	5	6	7
…Happy	1	2	3	4	5	6	7
…Pleased	1	2	3	4	5	6	7
…Excited	1	2	3	4	5	6	7
After viewing the image in its entirety, and keeping your favourite product in mind, please indicate to what extent the image make you feel...							
	NOT AT ALL						**VERY MUCH SO**
	1	2	3	4	5	6	7
…Accountable	1	2	3	4	5	6	7
…Frightened	1	2	3	4	5	6	7
…Ashamed	1	2	3	4	5	6	7
…Irresponsible	1	2	3	4	5	6	7
…Nervous	1	2	3	4	5	6	7
…Delighted	1	2	3	4	5	6	7
…Joy	1	2	3	4	5	6	7

Please read the following statements and indicate to what level you agree or disagree to the statements.							
	STRONGLY DISAGREE	**DISAGREE**	**SOMEWHAT DISAGREE**	**NEUTRAL**	**SOMEWHAT AGREE**	**AGREE**	**STRONGLY AGREE**
	1	2	3	4	5	6	7
If I wanted to, it would be easy for me to eat fewer sugary products	1	2	3	4	5	6	7
Eating fewer sugary products now will lessen my chances of developing health problems	1	2	3	4	5	6	7

I am at risk for developing health problems from eating too much sugar	1	2	3	4	5	6	7
I believe that health problems caused by sugar consumption are severe	1	2	3	4	5	6	7
I have decided to reduce my sugar intake today	1	2	3	4	5	6	7
I am confident that I can cut back on consuming sugary products if I wanted to	1	2	3	4	5	6	7
I believe eating fewer sugary products will protect me from developing health problems	1	2	3	4	5	6	7
I worry a lot about developing health problems if I do not eat fewer sugary products	1	2	3	4	5	6	7
The health problems associated with my consumption of sugary products will have a major impact on my life	1	2	3	4	5	6	7
I intend to reduce my sugary product consumption within the next few days	1	2	3	4	5	6	7
I am able to reduce my sugar intake habits if I wanted to	1	2	3	4	5	6	7
I can stay healthy longer by eating fewer sugary products now	1	2	3	4	5	6	7
The chances of me developing health problems from eating sugar are great	1	2	3	4	5	6	7
I believe that the health problems associated sugar consumption are significant	1	2	3	4	5	6	7
I plan to eat fewer of sugary products	1	2	3	4	5	6	7

I can eat fewer sugary products if I wanted to	1	2	3	4	5	6	7
For me, eating fewer sugary products will be effective in reducing the chances of developing health problems	1	2	3	4	5	6	7
It is likely that my health will suffer from my sugar eating habits	1	2	3	4	5	6	7
I can avoid common health problems by eating fewer sugary products	1	2	3	4	5	6	7
I will continue to eat sugary products for the rest of my life	1	2	3	4	5	6	7
It is possible I will develop health problems as a result of my sugar intake	1	2	3	4	5	6	7
I believe that eating too much sugar can lead to serious negative health consequences	1	2	3	4	5	6	7
If I wanted to, I can manage to reduce my sugar intake	1	2	3	4	5	6	7
Health problems associated with eating too much sugar are a severe threat	1	2	3	4	5	6	7
I am likely to eat fewer sugary products in the future	1	2	3	4	5	6	7

Imagine this label on your favourite sugary product:



Please indicate, by dragging the slider, to what extent the label makes you feel...

	NOT AT ALL						**VERY MUCH SO**

	…Scared	1	2	3	4	5	6	7
	…Guilty	1	2	3	4	5	6	7

Imagine this label on your favourite sugary product:

WARNING: This product contains 7 teaspoons of sugar and can cause obesity. Your health is your responsibility.

Please indicate, by dragging the slider, to what extent the label makes you feel...

		NOT AT ALL						**VERY MUCH SO**
	…Scared	1	2	3	4	5	6	7
	…Guilty	1	2	3	4	5	6	7

Should you want to take part in the lucky draw to stand a chance to win one of two R500 Takealot vouchers, please provide your e-mail address here:

[Open ended]

Please click on the blue arrow to finish the survey.

END OF SURVEY

APPENDIX J:

RESPONDENT COVER LETTER

Dear prospective respondent

Thank you for your willingness to take part in this study. Participating in this survey is entirely voluntary, you can choose whether to partake in this study or not. If you agree to take part in this study, you may withdraw at any time without any consequence. You may also refuse to answer any questions you do not want to answer and still remain in the study. **However, incomplete answers may result in your disqualification from the lucky draw.** The researcher may withdraw you from this study if data is considered incomplete.

The questionnaire will take approximately 15 minutes to complete and the information is purely for academic purposes. Any information that is obtained in connection with this study will remain **confidential** and will be disclosed only with your permission. In addition, information given will be analysed anonymously. Although only e-mail addresses will be collected, in the event that you want to take part in the lucky draw for standing a chance of winning **one of two Takealot vouchers of R500**, this information will only be used for such purposes and will not be linked back to your answers given in the questionnaire. Should you provide your e-mail address to stand a chance of winning **one of two Takealot vouchers of R500,** your information will be used only for the random selection and will deleted once a winner has been selected. Data collected will be protected on flash discs only accessible to the researcher and her supervisor. After data has been analysed, it will be deleted.

Although highly unlikely, some images presented to participants may induce discomfort or distress. Should you feel uncomfortable at any time, you may terminate participation. In the event that you experience discomfort and would like to discuss it, please feel free to contact the researcher at marneboshoff@gmail.com. She will be willing to assist you in the process of finding the required professional help. If you have any other queries, please contact the researcher at the same e-mail address, or her supervisor at luceavh@sun.ac.za.

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development. **You have the right to receive a copy of this Information and Consent**

form. Should you require a copy, please request by e-mailing the researcher at marneboshoff@gmail.com.

By agreeing to take part in this survey, you confirm that:

- You have read the above information and it is written in a language that you are comfortable with.
- You know you can contact the researcher to ask questions and all your questions can be answered.
- All issues related to privacy, and the confidentiality and use of the information you provide, have been explained.

I agree to take part in this survey:

☐ Yes.

☐ No.

APPENDIX K:

FEAR APPEAL WARNING LABELS USED IN QUANTITATIVE EXPERIMENT

Bar One:

Astro's:

Magnum:

Jelly Tots:

Coke:

Zoo Cookies:

APPENDIX L:

GUILT-FEAR APPEAL WARNING LABELS USED IN QUANTITATIVE EXPERIMENT

Bar One:

Astro's:

Magnum:

Jelly Tots:

Coke:

Zoo Cookies:

APPENDIX M:

CONTROL GROUP IMAGES USED IN QUANTITATIVE EXPERIMENT

Bar One:

Astro's:

Magnum:

Jelly Tots:

Coke:

Zoo Cookies:

APPENDIX N:

ORIGINAL AND ADAPTED QUESTIONNAIRE ITEMS

Original and adapted questionnaire items:

DIMENSION	ORIGINAL ITEM	FINAL ADAPTED ITEM	SOURCE
Emotional responses			
Fear	Tense	I am tense regarding my sugar intake	Arthur & Quester (2005)
	Nervous	I am nervous about my current sugary product intake	
	Anxious	I feel anxious regarding my sugar intake habits	Cho & Salmon (2006)
	Frightened	I feel frightened about my sugary product intake	
	I am scared of the health consequences of smoking tobacco	I am scared of the health consequences associated with my sugary product intake	Popova (2014)
Guilt	Ashamed	I am ashamed about my current sugar consumption	Coulter & Pinto (1995)
	Accountable	I feel accountable for my sugar intake habits	
	Irresponsible	My sugary product intake is irresponsible	
	Bad	My intake of sugary products makes me feel bad	
	Guilty	I feel guilty about my sugar intake habits	
Anticipated pleasure	If I ate the advertised menu items, I would be pleased	If I eat my favourite sugary product, I would be pleased	Hur & Jang (2015)
	If I ate the advertised menu items, I would feel happy	I would be happy if I eat my favourite sugary product	
	If I ate the advertised menu items, I would feel delighted	I would feel delighted if I ate my favourite product	
	Enjoyable	It would be enjoyable to eat my favourite sugary product	Goldsmith *et al.* (2012)

	Buying this product made me feel good	I will feel good if I were to eat my favourite sugary product	Goldsmith *et al.* (2012)
DIMENSION	**ORIGINAL ITEM**	**FINAL ADAPTED ITEM**	**SOURCE**
Cognitive responses			
Behavioural intention	I intend to quit smoking some time within the next few days	I intend to reduce my sugary product consumption within the next few days	Boudreaux, Moon, Baumann, Camargo, O'Hea & Ziedonis (2010)
	I have decided to quit smoking today	I have decided to reduce my sugar intake today	Boudreaux *et al.* (2010)
	I plan to perform BSE	I plan to eat fewer of sugary products	Chen & Yang (2019)
	I will continue to smoke until I die…	I will continue to eat sugary products for the rest of my life	Boudreaux *et al.* (2010)
	How likely or unlikely is it that you will eat healthy foods regularly in the future I am likely to reduce..	I am likely to eat fewer sugary products	Åstrøm & Rise (2001)
Severity	I believe breast cancer is severe	I believe the health problems caused by sugar consumption are severe	Ooms *et al.* (2015)

	My current health problem will have a major impact on my life	Health problems associated with my consumption of sugary products will have a major impact on my life	Boudreaux *et al.* (2010)
	I believe that breast cancer is significant	I believe that the health problems associated sugar consumption are significant	Ooms *et al.* (2015)
	Kidney disease is a severe threat	Health problems associated with eating too much sugar are a severe threat	Maguire Gardner, Sopory, Jian, Roach, Amschlinger, Moreno, Pettey & Piccone, (2010)
	I believe that experiencing mental or emotional problems can lead to serious negative consequences	I believe that eating too much sugar can lead to serious negative health consequences	McKinley & Ruppel (2014)
Susceptibilty	I am at risk of developing cancer from using snus	I am at risk for developing health problems from eating too much sugar	Popova (2014)
	I worry a lot about becoming ill if I do not perform self-examination	I worry a lot about developing health problems if I do not eat fewer sugary products	Huang, Kuo, Wang, Wang & Tsai (2016)
	Chances of me getting lung cancer are great	The chances of me developing health problems from eating sugar are great	Price & Everett (1994).

	It is likely that my health will suffer from using snus	It is likely that my health will suffer from my sugar eating habits	Popova (2014)
	It is possible that I will get breast cancer	It is possible I will develop health problems as a result of my sugar intake	Ooms *et al.* (2015)
Response efficacy	Eating fruits and vegetables now will lessen my chances of developing health problems	Eating fewer sugary products now will lessen my chances of developing health problems	McKinley (2009)
	I believe condoms are effective protectors against HIV	I believe eating fewer sugary products will protect me from developing health problems	Witte (1992)
	I can stay healthy longer by getting enough rest and sleep now	I can stay healthy longer by eating fewer sugary products now	Keller (2006)
	For a smoker, giving up cigarettes is extremely effective in reducing the chances of developing lung cancer	For me, eating fewer sugary products will be effective in reducing the chances of developing health problems	Rogers and Mewborn (1976)
	I can avoid common health problems by reducing my sodium intake	I can avoid common health problems by eating fewer sugary products	Keller (2006)
Self-efficacy	For me it would be easy to…	If I wanted to, it would be easy for me to eat fewer sugary products	Manstead & Van Eekelen (1998)
	I am confident *I can*…	I am confident that I can cut back on consuming sugary products if I wanted to	Bandura (1982)

	I am able to use sunscreen/stay away from tanning beds to prevent Melanoma'	I am able to reduce my sugar intake habits if I wanted to	Shi & Smith (2016)
	I can use sunscreen/stay away from tanning beds to prevent Melanoma.	I can eat fewer sugary products if I wanted to	Shi & Smith (2016)
	I can manage to stick to healthful food	If I wanted to, I can manage to reduce my sugar intake	Renner & Schwarzer (2005)