

PERSONALITY AND WORKPLACE BULLYING

**Role of the Big Five Personality Traits in Predicting Workplace Bullying Perpetrators
in South Africa**

by

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Abstract

Workplace bullying as a psychosocial phenomenon has been an object of investigation on an international level for the past 20 years. Yet, limited research about this phenomenon exist in South Africa. Workplace bullying can be referred to as a form of counter-productive behaviour in the work environment, which has a significant effect on the well-being of employees and the organisation. This phenomenon can be understood by studying the person, as well as the environmental characteristics that may perpetuate or inhibit bullying in the workplace. This study specifically aims to explore bullying behaviours in South African organisations, and to what extent personality characteristics contributes to the occurrence of bullying in the workplace, i.e., the relationship between personality traits and workplace bullying. This study also aimed to find bullying scales that can accurately predict workplace bullying, as bullying scales are lacking in the literature. In addition, this study aimed to assist employers to identify and establish proactive interventions to prevent bullying in the workplace.

The personality characteristics chosen for this study was the famous Big Five personality traits, namely Extraversion, Agreeableness, Neuroticism, Openness to experience, and Conscientiousness. The Basic Traits Inventory (BTI) was used to measure the Big Five personality traits. As no single current scale would have been sufficient on its own to measure workplace bullies, a collection of three different scales was used to measure this phenomenon. The three different scales measuring the behaviour of workplace bullies (or prominent aspects of workplace bullies) were chosen to be one measuring bullying overtly, one measuring bullying covertly through personality, and one measuring Aggression. These three scales are Baughman et al.'s Bullying Questionnaire (BBQ), the Short Dark Triad (SD3), and the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF), respectively. The formulated research hypotheses concerning the relationships between the Big Five personality traits and workplace bullying as a general construct were answered by exploring

the relationships between the BTI and the chosen bullying scales. The relationships between the three bullying scales were also investigated.

The population under investigation consisted of working South Africans who have been permanently employed in an organisation for a minimum of 6 months. To find a sample that matched these criteria, non-probability purposive and convenience sampling with a snowball effect was used. The total number of respondents that completed the quantitative online survey in its entirety was 216.

All scales and subscales were found to have acceptable reliability and discriminant validity to warrant its inclusion in this study. All three scales showed moderate convergent validity, but not very strongly. Anger (as one of the subscales of the BPAQ-SF) specifically did not correlate well with the other scales. The same was found with Narcissism (a subscale of the SD3). It was thus suggested that the BBQ, as the only overt bullying scale included in this study that is clearly measuring bullying behaviours, is the best choice to measure workplace bullying. Alternatives could be the BPAQ-SF with the Anger subscale removed, or the SD3 with the Narcissism subscale removed.

With regards to the relationship between personality and workplace bullying, evidence was found for two of the five formulated hypothesis. The findings indicated that Conscientiousness, Openness to experience and Extraversion does not influence the likelihood of taking part in bullying behaviours, while low levels of Agreeableness and high levels of Neuroticism will result in an increased likelihood of taking part in bullying behaviours. It was thus suggested that, in attempting to predict workplace bullies through personality, only Agreeableness and Neuroticism are used, where a high degree of Neuroticism and a low degree of Agreeableness would be undesirable.

It was further established that personality in general do not play such a notable role in workplace bullying, pointing towards the organisational environment perhaps playing a more prominent role. An important insight thus gained from this study is that organizations cannot simply attempt to stop workplace bullies from entering the organisation (e.g., through

personality testing); this is not enough. Organisations are perhaps better off in ensuring the internal environment is not enabling workplace bullying in the first place, i.e., that non-bullies do not become bullies only after entering the organisation. The work environment plays an important role in the occurrence of bullying. Organisations should assess their current organisational culture, social climate, the leadership styles in the organisation etc. to determine whether there are any problem areas.

Key words: bullying, workplace, South Africa, personality, Big Five

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Chapter 1 – Introduction

Introduction

Considering that the average working South-African spends nine hours at work every day (ManpowerGroup Solutions, 2018), it would be a considerable issue if these hours are filled with constant victimisation, bullying, and harassment. Unfortunately, researchers like Cunniff and Mostert (2012) agree that this is the case for many employees in the world, and naturally also in South Africa. While many individuals fall victim to or witness bullying during their school years, research has unfortunately indicated that bullying behaviour does not disappear after school. Data indicates that bullying might even increase within the workplace (Wilson & Nagy, 2017). With the increased prevalence of workplace bullying in one's working life, organisations must understand this phenomenon to be able to control it.

Workplace bullying has only been a topic of research for roughly 20 years. The literature has grown significantly during that time, but workplace bullying is still in need of thorough attention, which includes the formation of a uniform definition (Samnani & Singh, 2012). The many negative acts that are often experienced by those in the workplace go under several names. It can be referred to as harassment, workplace-incivility, abuse, tyranny, mistreatment, victimization, mobbing, organisational violence, assault, tormenting, etc. Whichever term is used, bullying remains an important and fairly unsearched field in the world of work, and especially in South Africa (Cunniff & Mostert, 2012). Bullying will also be the term used in this paper to describe this phenomenon.

Researchers and managers alike agree that workplace bullying is an important area of research that demands attention (Samnani & Singh, 2012). With an estimated 5% to 10% of individuals experiencing bullying among the European workforce, with similar or higher percentages in many other countries, bullying is a serious and widespread issue (Hoel et.al., 2010). A study conducted by Cunniff and Mostert (2012) found that 31,1% of employees in South Africa reported always being bullied, while 4% reported being bullied often. A study

conducted by Hansen et al., (2011) found similarly shocking results, with bullying having occurred at 78% of the 43 workplaces involved in the study.

Bullying lacks one uniform definition, but several researchers have constructed their definitions for their research. Einarsen (1999) defines bullying as the exposure to numerous negative acts, weekly, over six months or longer. These acts refer to hostile and aggressive acts that persistently and repeatedly torment, wear down, stigmatise, or victimise one or more individuals, as well as repetitive behaviours that frighten, intimidate, frustrate, provoke or bring discomfort to the victim(s).

Vartia (2001) takes a more general approach, defining bullying as situations where an individual is the victim of on-going, recurring, and serious hostile or negative acts and behaviours that are frustrating and oppressing. The negative actions may be done consciously or unconsciously, but unmistakably cause offense, distress, or humiliation, and are experienced as hostile by the victim. The actions are unwanted by the individual, intending to bring mostly mental, but sometimes also physical, pain to victims who are unable to defend themselves against this treatment. The bullying may be intense and short in duration, or be less intense and stretched out over a longer period, potentially causing severe damage to the individual (Einarsen, 1999; Vartia, 2001).

With the increase in statistics proving the seriousness and high prevalence of bullying in the workplace, it is increasingly being regarded as a serious issue. Many countries, professional organisations, human resources departments, and trade unions have become aware of the several negative consequences of workplace bullying on the individuals that fall victim to it, witness it, and on the organisation as a whole (Cowie et al., 2002). Workplace bullying has several negative consequences on an individual, group, and organisational level. Consequences involve anxiety and depressive symptoms, suicidal thoughts, post-traumatic stress symptoms, chronic fatigue, and decreased health. On a group level, victims may suffer from social rejection and victimisation, while on an organisational level leading to decreased job satisfaction and an increased intention to quit (Hauge et al., 2010; Podsiadly

& Gamian-Wilk, 2017). Workplace bullying is therefore a serious issue with serious consequences. The remainder of the chapter will give an overview of the main antecedents to workplace bullying, the research initiating question it gives rise to, and clarify the research objectives of this study.

Work environment vs personality as antecedents of workplace bullying

Bullying in the workplace has several causes. It may be the result of individual differences between employees, shortcomings in the work environment, or interactions between individual and situational factors, amongst other factors (Pilch & Turska, 2015). Most researchers focus on the working environment and personality as the main explanations or antecedents for workplace bullying (Glasø et al., 2007). Some characteristics within an individual may predispose them to bullying others, or to being bullied, while the working environment may encourage or discourage certain behaviours (Pilch & Turska, 2015).

The work environment plays an important role in the occurrence of bullying. It is well documented by researchers that workers in a bullying situation are merely acting out larger, systemic organisational problems, and therefore merely acting within an already toxic environment. Organisational culture, processes, structure, and systems could thus foster bullying behaviour (Smit, 2014). Little work control, unchallenging work, role conflicts, low levels of satisfaction with leadership, the social climate, and especially the way the work-conflict is experienced, correlates strongly with bullying. Ten percent of the variance in bullying can be ascribed to the working conditions within an organisation, with both victims and observers of bullying reporting a low-quality work environment. The organisational elements which affects the frequency of bullying behaviours include a chaotic and unpredictable work environment, interpersonal conflicts, little work control, work changes, work pressure, high-performance demands, role conflicts, and role ambiguity, a destructive management style, and low moral standards. In addition, the organisational culture and the

organisational climate play a considerable role in perpetuating bullying behaviour (Einarsen et al., 1994; Glasø et al., 2007).

In some organisations, harassment and aggression are considered effective ways of achieving goals. If supervisors only focus on performance output, disregarding the means used to achieve it and its effects with regards to the organisation's members, this will lead to an organisational culture that gives consent to bullying. Three types of workplace cultures can be distinguished that is significantly related to diverse forms of abuse, namely a win/lose culture (forcing competition), a blaming culture (making people fearful about stepping out of line), and a sacrificing culture (sacrificing everything for work) (Pilch & Turska, 2015). In contrast, less bullying was detected in organisations with a clan culture (high flexibility with an internal orientation). With the attention being placed on the values and aims of the community, the inclination is towards teamwork and creating a friendly atmosphere. Similarly, in an adhocracy culture (high flexibility with an external orientation), described by its support of entrepreneurship, creativity, innovativeness, and risk tolerance, bullying behaviour is experienced at lower levels (Pilch & Turska, 2015). While bullying behaviours are often caused by environmental factors, the personalities of bullies however also play a determining role in bullying behaviour, as well as the interactions between personality traits and the organisational environment (Björkqvist et al., 1994).

While organisational factors are considered to play a major part in the occurrence of workplace bullying, there is another school of thought that regards personality traits as the main cause of workplace bullying. Olweus found in 1979 that being a bully is a stable personality trait. When an individual is a bully in one situation, he or she will probably also be a bully in other situations. The opposite can be said for the victims, who may be bullied in some situations but not in others. The personalities of those individuals engaged in workplace bullying are however not considered to be the primary cause by the majority of researchers. This may be because the personality traits that have been analysed thus far cannot usually be considered to be characteristic of all perpetrators (Björkqvist et al., 1994).

In addition, the personality traits of victims appear to have been researched more often than those of the bullies, most likely due to the difficulty in identifying individual bullies in the workplace for investigation. This study thus sets out to determine the role that personality plays in workplace bullies, and for how much variance it accounts for, as this appears to be a gap in the existing literature.

When examining the personalities of bullies, the set of significant traits which may prove to be useful for understanding and measuring bullying behaviour is the Dark Triad of personality traits (Machiavellianism, subclinical Psychopathy, and subclinical Narcissism) and the Big Five personality factors. The Big Five personality traits consist out of extraversion, agreeableness, neuroticism, openness to experience, and conscientiousness. Extraversion refers to a person's degree of sociability, while agreeableness refers to a person's congeniality. Neuroticism can be referred to as emotional stability, with openness to experience referring to how likely an individual is to seek out new experiences. Finally, conscientiousness refers to a person's degree of self-control (Wilson & Nagy, 2017). The Dark Triad of personality traits, despite their distinct differences, are all linked to the dark side of human nature. They are connected by the treating of others like objects, being manipulative, and a lack of empathy, which contributes to the display of those behaviours classified as bullying (Einarsen et al., 1994; Pilch & Turska, 2015).

Research initiating question and research objectives

Whether the working environment or an individual's personality traits play the biggest role in causing workplace bullying is much debated. The safest option is perhaps to incorporate both the environment and the person in predicting workplace bullying. Organisational issues cannot be ignored when investigating workplace bullying, but it will also not be complete without including the individual and personality factors of both the victims and perpetrators of workplace bullying (Glasø et al., 2007). Research on the personality traits that predict workplace bullies is however largely missing. Due to a gap in the existing literature, this

study, therefore, intends to focus on the personalities of bullies, with a focus on the Big Five personality traits, in investigating the prevalence of workplace bullying. The research initiating question is thus: *Does certain personality traits lead to bullying behaviour in the workplace?*

This study additionally sets out to establish the prevalence of workplace bullying in South Africa to add to the countries available knowledge on this phenomenon. The overarching aim of this study is to use the information and data to assist in developing methods for excluding bullies from the workplace.

The primary research objectives of this study are therefore to eliminate bullies and/or bullying behaviour in the workplace through:

- Establishing if there is a relationship between the personality traits of working individuals and bullying behaviour.
- Developing and empirically testing an explanatory *Workplace Bullying* structural model that would provide a valid answer to the research initiating question.
- Determining whether the chosen measurement instruments are valid and reliable instruments to measure workplace bullying.
- Develop suggestions as to how the measurement of personality traits can be used to exclude candidates in recruitment and selection that have significant potential to end up a bully.

Structure of this study

Chapter 2 of this study will consist of an extensive literature review. Bullying as a workplace phenomenon will be examined, as well as the relationship personality plays in workplace bullying. Hypotheses will be constructed to predict these relationships, which will be followed by an examination of bullying and the South-African law, as well as the role of human resources in managing workplace bullying. Chapter 3 will contain the research

methodology that this study will use to empirically test the structural model that was developed in the literature review. Chapter 4 will present the results of the statistical analysis. Lastly, chapter 5 will provide a discussion of the results and emphasise the theoretical implications of this study.

Summary

It must be stressed that the purpose of this paper is to identify ways to eliminate bullies from the workplace. The personality characteristics driving workplace bullies are merely used as a means to be able to identify these individuals. The final results of this study are intended to enable organisations in South-Africa to be able to select the best measures to be implemented in organisations to eradicate bullies and bullying behaviour. This study will in turn also assist in achieving a more complete understanding of the phenomenon of workplace bullying in South Africa, a country that is seriously lacking research in this field (Cunniff & Mostert, 2012). The study, therefore, serves to fill a gap in the existing literature in the country, as well as addressing a very serious problem in organisations.

Chapter 2 - Literature Review

Introduction

Research agrees that the causes of workplace bullying are for the most part divided into two groups, namely individual - and organisational causes. Several organisational factors can be seen as antecedents for bullying behaviour, such as leadership style, organisational culture, the ethical climate, and organisational policies (Samnani & Singh, 2012). The purpose of this study is to focus specifically on personality traits as antecedents of bullying behaviour, and whether personality tests can be used to identify bullies even before the bullying behaviour has been displayed. When discussing the personalities of bullies, the set of significant traits which were chosen for this study for understanding and measuring bullying behaviour is the Big Five Personality Traits. The Dark Triad of personality traits (Machiavellianism, subclinical Psychopathy, and subclinical Narcissism) will also be examined to gain a deeper understanding of an individual's personality and the role it plays in bullying behaviour, as well as assisting in the measurement of workplace bullies.

This chapter will be examining what other scholars have written about the topics presented in the paper, the theories addressing these topics, and what research has done previously to analyse this topic. This chapter will present in-depth research on personality, providing a deeper understanding of how personality functions, and what role it plays in workplace bullying. Workplace bullying will also be examined in the context of Counterproductive Work Behaviours (CWBs). The chapter will end off by looking briefly at workplace bullying and the law, as well as the role that human resources play in workplace bullying. The research was mainly conducted through examining relevant and popular sources, be it articles, books, or websites, with the online Stellenbosch University library service acting as the main role player in this endeavour.

Personality and workplace bullying

Personality traits are often considered an antecedent of being a bully, as well as being victimised by a bully. Researchers agree that the personality traits of individuals predispose them to partake in bullying behaviours, but often agree that the environment plays a moderating role. Most research has focused on the working environment and organisational climate as a cause of workplace bullying, and only recently the focus has shifted to the personality of bullies as an antecedent of bullying behaviour (Glasø et al., 2007). The relationship between an individual's personality traits and bullying behaviours is still very much debated, and in need of further research (Parkins et al., 2006), a gap that this study intends to fill.

Parkins et al. (2006) suggest that the inclination to bully or discriminate against others is not caused by one single tendency or personality trait, but by a collection of numerous personality traits. These researchers, for example, found that the orientation towards social dominance is positively related to bullying behaviour. Individuals who display bullying behaviours are also unlikely to provide socially acceptable responses to the harming of others. They may not recognise bullying and discrimination as socially undesirable behaviour and are less concerned with socially approved norms regarding harming of others and the display of aggression. These are however only some examples of several personality factors that have been related to workplace bullying. So which personality traits are specifically associated with workplace bullying? To answer this question, this section will be presenting research on the Dark Triad of Personality and the Big Five personality factors to establish its relationship with workplace bullying.

No effective and well-constructed measurement instruments are currently available to measure the degree to which an individual takes part in bullying behaviour themselves. Such a questionnaire is understandably difficult to construct, as it would be extremely challenging to construct items that do not come across as either incriminating or attacking. The Dark Triad is therefore specifically included in this study due to its focus on the “dark side” of human nature, arguing that a workplace bully can be identified through establishing to which degree an individual displays the three personality types in the Dark Triad. This section will therefore start by arguing why and how workplace bullies can be identified through the use of those measurement instruments that measure each of the three personality types in the Dark Triad. Due to the very clinical nature of studies involving the Dark Triad, it must be pointed out that the Dark Triad is only included in this study (that falls under the scope of industrial psychology) as it allows the researcher to use it as a tool for measurement. The focus is however not on the Dark Triad itself, but only on what it reveals about the inner workings of workplace bullies, and the assistance its related measurement instruments lend in identifying bullies in the workplace.

The Dark Triad is further included in this study as it has often been linked back to certain personality traits, which provides a deeper insight into the role that the Big Five personality traits play in predicting workplace bullying. These links will therefore also be established in this section. The section will end off by presenting research on the Big Five personality traits, and hypothesise the role these traits play in predicting workplace bullying, which is the overarching aim of this study.

The Dark Triad as a method of measuring workplace bullies

The Dark Triad (DT) consists of three personality types: Narcissism, Psychopathy, and Machiavellianism (Paulhus & Williams, 2002). While Psychopathy and Narcissism are classified as mental disorders by the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013), they are only considered offensive, yet non-

pathological, personality types at a subclinical level in the context of the DT. Together with Machiavellianism, these personalities are seen as socially aversive and disagreeable (Paulhus & Williams, 2002). These three traits are positively related to each other and overlap but are sufficiently distinctive constructs to allow for academic and experimental partitioning. This can be witnessed in their distinctive motivations and strategies (O'Boyle et al., 2012). Machiavellianism is seen as the manipulative personality type, while Narcissism refers to grandiosity, entitlement, dominance, and superiority in individuals. Psychopathic character elements in turn include high impulsivity and thrill-seeking, matched with low levels of empathy and anxiety. All three of these personalities however entail social malevolence, with behaviour tending toward emotional coldness, self-promotion, deceitfulness, selfishness, heartlessness, and aggressiveness in interpersonal dealings (Paulhus & Williams, 2002).

Narcissism. The idea of Narcissism originated in Greek mythology. The myth goes as follows: Narcissus, a young man, fell in love with his reflection in the water. He gradually became weaker, gazing lovingly at his mirror-image, till this exaggerated obsession with himself led to his death. Ever since, Narcissism has been used to signify excessive self-love (Kansi, 2003).

An operationalised description of the narcissistic personality disorder was introduced in 1980 by the Diagnostic and Statistical Manual of Mental Disorders, third edition (DSM-III) (Svindseth et al., 2009). The subclinical version of this DSM-defined personality disorder Narcissism was constructed by Raskin and Hall (1979), who converted the diagnostic criteria of the narcissistic personality disorder into the self-rated Narcissistic Personality Inventory (NPI). This inventory was designed to measure Narcissism as a personality trait in the general population, meaning non-pathological Narcissism/Narcissism as a personality trait. The features that were kept from the clinical syndrome focused mainly on the characteristics of grandiosity, dominance, entitlement, and superiority in narcissistic individuals (Paulhus & Williams, 2002; Svindseth et al., 2009).

A narcissistic individual is someone who seeks attention and admiration, is self-centred, condescending, harbours feelings of entitlement and grandiosity, and is lacking in empathy or the ability to recognize the needs and feelings of others. They under- or overestimate their effect on others, and their relationships with others are superficial, existing only for personal gain. Narcissists excessively rely on others for the regulation of their self-esteem and self-definition, and their goals are based on gaining approval from others. They either set unreasonably high standards for themselves to fit their exceptionally high view of themselves or set too low standards based on a sense of entitlement. They are often unaware of their motivations (American Psychiatric Association, 2013).

In a study conducted by Raskin and Terry (1988), the observational and self-report correlates of the NPI found in the sample depict a high NPI scorer as someone who is relatively exhibitionistic, aggressive, impulsive, dominant, extraverted, self-indulgent, self-centred, subjectively self-satisfied, and nonconforming. This depiction of the narcissist is extremely compatible with that which one would expect to find in nonclinical manifestations of Narcissism and is completely in agreement with clinical observation. These findings are similar to those reported by Emmons (1987). This finding provides insight into the portrait of a typical Narcissist, supported by quantitative data (Paulhus & Williams, 2002).

Raskin and Terry (1988), using principal-components analysis, analysed the correlations among the NPI item responses and found proof of a general construct of Narcissism, in addition to seven first-order components which were identified as superiority, vanity, authority, exhibitionism, entitlement exploitativeness, and self-sufficiency. Emmons (1984) factor analysed the NPI and found four correlated components, labelling these dimensions as leadership/authority, superiority/arrogance, exploitativeness entitlement, and self-absorption/self-admiration. All factors, except for exploitativeness entitlement, were positively related to self-esteem. At present, the appropriate number of factors to use in the NPI is still questioned (Kansi, 2003), although it seems as if the four-factor structure is more commonly used.

Machiavellianism. Richard Christie made a selection of statements regarding Niccolò Machiavelli's books *The Prince* (1532) and *The Discourses* (1531) wherefrom the construct of Machiavellianism emerged (Paulhus & Williams, 2002). Machiavellian personalities are those individuals who view and manipulate others for their purposes and refers to the degree an individual feels that others are untrustworthy and manipulatable in interpersonal interactions. These individuals have negative and cynical views of others, regarding others as weak, untrustworthy, and self-serving. They prefer ambiguous environments with few rules, many opportunities for face-to-face interaction that allows for improvisation, and where there is a low probability of being caught out when cheating. High Machiavellians are perceived by others as clever, bold, persuasive, relaxed, talented, ambitious, dominating and confident (Fehr et al., 1992). They are less inhibited in expressing hostility towards others, but are usually adept at getting what they want from others without overt hostility, and are usually cool and strategic (Jones & Paulhus, 2009). They are emotionally detached and task-oriented, with a disregard for conventional morality (Fehr et al., 1992). They are highly self-monitoring and pragmatic in their interactions and world-view (Jones & Paulhus, 2009).

Machiavelli personalities make use of strategies such as conscious manipulation of their facial expressions, manipulation of the emotions of others, getting others to do what they want them to do by making them think it was their idea, deceit, selective self-disclosure, flattery, persuasion, guilt-induction, exemplification, self-promotion, lying, cheating, and ingratiation when trying to exploit or convince others (Fehr et al., 1992; Jones & Paulhus, 2009). Machiavelli personalities are not simply out to achieve their own goals and individuate themselves, but rather aim to achieve their goals at the expense of others, or at least with disregard to others (Jones & Paulhus, 2009). In many ways, those with Machiavellian personalities are a threat to ethical behaviour. Most evidently, these individuals are not likely to place much value on ethical behaviour if it hinders them to reach personal goals and rewards. It is therefore unlikely that these individuals will turn out to be ethical managers (Dahling et al., 2009).

The Mach-IV inventory, developed by Christie and Geis in 1970, is the most popular measurement tool used to measure Machiavellianism in individuals (Paulhus & Williams, 2002). In its current form, it measures three theoretically created dimensions of Machiavellianism. These dimensions are interpersonal tactics, cynical views of human nature, and utilitarian morality (Collison et al., 2018), while the results of confirmatory factor analyses conducted by Corral and Calvete (2000) showed a four-factor structure to be the most satisfactory model for the Mach-IV. The factors were labelled as positive interpersonal tactics, negative interpersonal tactics, positive view of human nature, and cynical view of human nature.

Psychopathy. Workplace bullies are destructive individuals who may be anti-social and Psychopathic. Clinically disordered Psychopaths, or individuals with borderline personality disorder according to the DSM-5, derive their self-esteem from personal gain, power, or pleasure. Their goals are based on personal gratification, with an absence of prosocial internal standards, involving failure to conform to the lawful or normal ethical behaviour of the given culture. They lack empathy towards others or remorse after harming others. Since their primary means of relating to others involves deceit, intimidation, dominance, superficial charm, or coercion, they are normally not capable of mutually intimate relationships. They are manipulative, deceitful, callous, and hostile. They are often irresponsible, impulsive, prone to taking risks and unaware of personal danger (American Psychiatric Association, 2013).

Psychopathy at a subclinical level, which is the focus of the Dark Triad, can be related to Borderline Personality Disorder, but with a less behavioural-based approach to diagnosis. The focus on subclinical Psychopaths is less on their antisocial and criminal behavioural traits such as their aggression and hostility, and more on their personality traits, like callousness, guiltlessness, fearlessness, a lack of anxiety and foresight, and the psychological processes that underlie these behaviours (Hare, 1985; Lilienfeld & Andrews, 1996). In combination with the low levels of agreeableness found in Psychopaths, the

minimal anxiety they experience possibly makes them the most treacherous of the three DT personalities (Paulhus & Williams, 2002). As Psychopaths tend to be associated with instrumental violence, as opposed to reactive (emotionally driven) violence, it seems fitting that bullies may often be Psychopaths (Boddy & Taplin, 2017), or at least Psychopaths may often be bullies.

Hare's Psychopathy Checklist-Revised (PCL-R) is a psychological measurement instrument most utilized to measure the manifestation of Psychopathy in people (Hare et al., 1990). This scale is divided into two factors. The first factor describes a collection of interpersonal and emotional mannerisms ordinarily considered to be central to the construct of Psychopathy. The items in this factor focus on clinical inferences about affective processes, and an individual's verbal and interpersonal style. Factor 1 thus comprises items that are associated with personality. The second factor reflects those features of Psychopathy related to an impulsive, parasitic, antisocial, and unstable lifestyle. Factor 2 thus includes items that are fundamental to anti-social personality disorder (Evans & Tully, 2016).

The link between the Dark Triad and workplace bullies. It is plausible that individuals with DT personalities are more likely to end up being bullies in the workplace. To examine this statement, it is necessary to gain more insight into how individuals with Dark Triad personalities behave and function in the workplace. A Meta-Analysis of the Dark Triad and work behaviour, conducted by O'Boyle et al. (2012), reviewed the results of 245 separate samples across 186 articles. They found that Counterproductive Work Behaviours (CWBs), which include bullying behaviours, were associated with increases in all three personality traits of the DT, but these associations were moderated by contextual factors such as authority and culture, especially when it came to Narcissism. There was further found that the DT explains substantial amounts of the variance in counterproductive behaviours. The model was dominated by Narcissism, but Machiavellianism also explained a considerable share of the variance. Unlike expectations, Psychopathy was significant, but in the opposite

direction from the univariate results. Psychopathy's relation to CWBs is an uncommon finding as it suggests that, when included in a model with the other two DT traits, it is associated with reduced CWB (O'Boyle et al., 2012).

Bullying has however been found by some researchers to relate most strongly to Psychopaths, followed by Machiavellians and then narcissists (Boddy & Taplin, 2017). Research by Boddy and Taplin (2017) with regards to the prevalence of Psychopathic bullying showed that workplace Psychopaths may be responsible for 26% to 35% of all bullying, while arguing that it may be even higher if scale inadequacies are considered. Even though the link between the DT and workplace bullying was found to be moderated by contextual factors, the DT still proved to be a significant predictor of CWBs, which includes workplace bullying as argued in section 2.3.1. Linton and Power (2013) recently found workplace bullies to be positively associated with measures of Machiavellianism, psychoticism, aggression, Narcissism, and disinhibition. Additionally, Baughman et al. (2012) found the DT's correlation with bullying to be statistically significant, with Psychopathy found to be most strongly related to bullying, followed by Machiavellianism, and Narcissism.

The shared traits of the three personalities included in the Dark Triad are callousness and manipulation, which predict aggressive behaviour in individuals. Jones and Neria (2015) found that each DT uniquely predicts different aspects of aggression. Psychopathy was most significantly related to aggression, positively predicting physical aggression. Machiavellianism positively predicted hostility associated with a dark worldview. Narcissism negatively predicted hostility, with the displaying of aggression being situationally based, these individuals only getting aggressive when provoked. It is suggested that Narcissism seems to call for aggravation in the form of an ego-threat before displaying hostile behaviour. With many negative acts associated with workplace bullying often being interpersonal, including aggression towards another individual, belittling, or ignoring the victim, laughter, scorn, negative gestures, or glances at the target (Samnani & Singh, 2012; Vartia, 2001), it can be argued that the aggressive behaviours of workplace bullies towards

others are driven by one (or more) of the DT personalities. Aggression is thus behaviour that is shared between DT personalities and workplace bullies.

Machiavellians' tendency to participate in unethical behaviour at work is confirmed by research, as well as the tendency to lie and deceive. Christie (as cited by Pilch & Turska, 2015) supposed that high Machs get what they want without having to resort to overt aggression. There is no solid evidence at present that overt aggression has been observed directly on the part of adult Machiavellians. In self-report studies, however, Machiavellians acknowledged hostile feelings and hostile behaviour in themselves, as well as admitting to verbal and nonverbal aggression at work (Pilch & Turska, 2015).

Children who report bullying, either as perpetrators or victims, score higher on Machiavellianism (Andreou, 2004). The results of a study conducted by Pilch and Turska (2015) showed that adult Machiavellians, like children, show an inclination towards abuse. As discussed, workplace bullying consists of different types of behaviour, mostly verbal abuse, accompanied by physical violence in rare circumstances (Pilch and Turska, 2015). Björkqvist et al. (1994), identified the types of workplace bullying as scapegoating, physical abuse, work pressures, name-calling and sexual harassment. These categories are all indicative of abuse and hostility. Zapf, as cited by Einarsen (1999), categorises workplace bullying into social isolation, work-related bullying (e.g. related to work tasks), personal attacks on an individuals' private life via insults, ridicule, gossip, etc., verbal threats e.g. public humiliation and criticism, and sexual violence or the threat thereof. Once again, these categories are indicative of abusing others. Abuse is thus a shared behaviour between Machiavellian individuals and workplace bullies.

Along with the manipulative tendencies of Machiavelli individuals, these individuals are positively related to being a perpetrator of bullying, especially in the situation where such behaviour could bring reckonable profits. Similarly, Machiavelli individuals may be positively associated with being a victim of workplace bullying (Andreou, 2004). Jones and Paulhus (2009) goes on to argue that Machiavelli personalities may be responding strategically to

being bullied by bullying others. Alternatively, they may make reports that they are being bullied to reap benefits from those in authority. High Machs may be more eager to confess to both bullying and being bullied than others may, especially if it results in outcomes that suit their needs.

Individuals low in Machiavellianism are prosocial, not manipulative, cooperative, and altruistic, which are desirable characteristics in workers. They prioritise family concerns and community building. They are characterized by higher emotional intelligence compared to those scoring high in Machiavellianism. Low Machs are trustful and may be seen as naïve and evading conflict. The tactics of social behaviour they use may motivate exploiters to reach objectives at their expense. Socially skilled low Machs can however build strong social relationships and supportive alliances (Jones & Paulhus, 2009), which may assist them to deal with aggression and exploitation from bullies. Individuals low in Machiavellianism thus fall very short of those behaviours associated with workplace bullies, arguably pointing to the fact that high Machs would in contrast fit the description of a workplace bully much closer.

Individuals with Machiavelli personalities are more likely to cheat, steal, and appear to be more believable liars. High Machs use strategies such as purposeful manipulation of their facial expressions, manipulation of others' emotions, and deceit. Moderately Machiavelli personalities are more likely to use persuasion and threat, while low Machs are more likely to use simple statements, persistence, and assertion (Fehr et al., 1992). In the workplace, manipulation of others, threats, and not placing much value on ethical behaviour if it stands in the way of personal goals and rewards, is not desirable and can be perceived as bullying behaviour (Dahling et al., 2009), especially if it involves the outright abuse of others. Manipulation, as a characteristic of high Machs, thus result in behaviour that falls into the scope of workplace bullying.

Machiavelli personalities make use of strategies deceit, selective self-disclosure, flattery, persuasion, guilt-induction, exemplification, self-promotion, lying, cheating, and ingratiation

when trying to exploit or convince others, while coming across as cool and collected (Fehr et al., 1992; Jones & Paulhus, 2009). It is thus possible that only those individuals who are intelligent or perceptive enough to identify the manipulative tactics used by high Machs will experience it as workplace bullying, as only those individuals will realise how they are being exploited. Jones and Paulhus (2009) however argue that Machiavelli personalities are not simply out to achieve their own goals and individuate themselves, but rather aim to achieve their goals at the expense of others, or at least with disregard to others. It is thus plausible that most employees will eventually realise that they are being negatively influenced by the actions of the high Mach in question, and perceive those actions as negative and hostile, as per the definition of workplace bullying chosen in this study. Both Machiavellian personalities and workplace bullies, therefore, abuse others for some form of personal gain.

Subclinical Psychopathy has often been linked to workplace bullying and CWBs. Hare famously stated that “not all Psychopaths are in prison. Some are in the board room” (Babiak et al., 2010, pg 1). Valentine et al. (2017) suggested that contact with workplace bullying might trigger Psychopathic inclinations in employees. It was suggested that workplace bullying encourages employees to adopt and use such wrongdoings as a suitable form of interaction with co-workers, thus motivating them to take on Psychopathic patterns for self-benefit, and supporting evidence was found. In addition, Valentine et al. found that workers with subclinical Psychopathic tendencies display weaker ethical reasoning. Workplace bullying, also characterised by a disregard of ethical standards, can therefore arguably be linked to subclinical psychopathic tendencies.

Several behaviours are shared by Psychopaths and workplace bullies according to research. Zapf, as cited by Einarsen (1999) includes verbal threats e.g. public humiliation and criticism or the threat of (or actual) sexual violence (Einarsen, 1999) as types of workplace bullying. As described by the American Psychiatric Association (2013) these threats or coercion can be seen as examples of the coercion subclinical Psychopaths may use as their primary means of relating to others. Psychopaths are manipulative, deceitful,

callous, and hostile (American Psychiatric Association, 2013), also characteristics of workplace bullies as identified by Samnani and Singh (2012) and Vartia (2001). This study's chosen definition for workplace bullying (negative or hostile acts that occur at least weekly... and that involve a significant power imbalance) in itself contains the hostility and negativity Psychopaths are prone to, as well as the intimidation, abuse of power, and dominance so often present in a power imbalance. Psychopathy further involves a lack of empathy towards others, or remorse after harming others (American Psychiatric Association, 2013). Workplace bullying occurs repetitively as per definition, implying that the bullying is both on purpose and that no remorse is being felt (or the behaviour would have ceased). This further falls in line with the lack of guilt felt on behalf of Psychopaths, as well as the lack of anxiety felt over possibly being reprimanded for the abusive behaviours. Both Psychopaths and workplace bullies thus tend to abuse with a lack of remorse or fear of being reprimanded. Skilling et al. (2002) found that persistently antisocial individuals not only exhibit characteristics of Antisocial Personality Disorder (described as a long-term pattern of disregard for, or violation of, the rights of others), but will with extremely high likelihood also display Psychopathic character traits such as superficiality, shallowness, and a failure to take responsibility.

Boddy (2011) found further evidence for the link between workplace bullying and Psychopathy. The researcher found that the presence of Psychopaths in the workplace is strongly associated with the degree of bullying perceived by others, demonstrating that individuals scoring high in Psychopathy were more likely to engage in bullying behaviour. While not all bullies are Psychopaths, and not all psychopaths are bullies, there appears to be considerable overlap between the two profiles. It was found that 35.2% of all bullying was related to subclinical Psychopaths. Babiak et al. (2010) also found that around 29% of corporate Psychopaths are also bullies. The researchers found that individuals with high scores in Psychopathy were highly correlated with a poor management style, lack of team

playing, and poor performance appraisals by their immediate superiors, elements shared with the phenomenon of workplace bullying.

Lastly, Narcissism can also be linked to workplace bullying, although slightly more challenging an endeavour, possibly due to the specific nature of the behavioural characteristic of narcissists. Narcissism involves extreme beliefs of grandiosity, in addition to those behaviours displayed by narcissists that feed these beliefs of grandiosity, such as dominance, entitlement, superiority, and condescension (Paulhus & Williams, 2002). It is highly likely that these behaviours are not regarded as pleasant by those who fall victim to them, and might even be considered to be bullying. Narcissists also lack empathy, or the ability to recognize the needs and feelings of others (Paulhus & Williams, 2002). As was argued with subclinical Psychopaths, workplace bullying is both on purpose (as the behaviour is repeated), and no remorse is felt by the bullies (or the behaviour would have ceased). This falls in line with the lack of empathy felt on behalf of narcissists, as well as the lack of ability to recognize the needs and feelings of others. Both narcissist and workplace bullies thus tend to display acts that may be perceived as negative or hostile, with a lack of remorse for the victim(s).

To conclude, the Dark Triad places a specific focus on the “dark side” of human nature and involves a wide range of undesirable, negative, and abusive behaviours. With the definition of workplace bullying involving a wide range of negative or hostile acts, several of these overlap with either Psychopathy, Machiavellianism, Narcissism, or all three, it is therefore argued that workplace bullying can sufficiently be measured through those measurement tools designed to measure the DT personalities. A workplace bully can therefore be identified through establishing the degree to which they display the three personality types in the Dark Triad. Many studies have used the measurement instruments that measure Psychopathy, Machiavellianism, and Narcissism to identify bullies, individuals taking part in Counterproductive Work Behaviours, or an individual’s level of aggression. These studies include those conducted by Linton and Power (2012), Gul-E-Sehar and

Fatima (2016), and Baughman et al., (2012) to name just a few. Several researchers, therefore, agree that these measurement instruments associated with the Dark Triad can sufficiently be used to identify workplace bullies.

The Big Five personality factors

Personality can be defined as the totality of a person's emotional and behavioural characteristics (Wilson & Nagy, 2017). Personality traits are defined as the individual differences between the way individuals consistently think, feel and behave. One of the most popular methods of measuring personality is the Big Five personality factors model, also known as the Five Factor Model of personality.

The Big Five model resulted from the contributions of many independent researchers, starting its journey in 1936 when Henry Odbert and Gordon Allport created a list of 4500 terms relating to personality traits. A few years later, Raymond Cattell (and colleagues) used factor analysis to narrow Allport's list to sixteen traits. Numerous researchers, such as Donald Fiske and McCrae and Costa, examined Cattell's list and found that it could be even further reduced to five traits. These efforts finally resulted in the Big Five personality factors model as it is known today (Lim, 2020).

This Big Five personality factors or traits offer a structure through which personality can be defined. It is described in the form of five global domains that characterise individual differences regarding personality. These five factors are Extraversion, Agreeableness, Neuroticism, Openness to Experience, and Conscientiousness. Each trait represents a continuum; individuals are ranked on a scale between the two extreme ends of each trait. While popularly measured by the 16PF questionnaire, a South African personality assessment was however developed by Taylor and de Bruin that specifically measure these traits in the South African context, namely the Basic Traits Inventory (BTI). (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

Extraversion. Extraversion, the first of the Big Five personality traits, refers to a person's degree of sociability and the extent to which the person enjoys being around other people. Those that receive high scores in extraversion do not find it difficult to engage in new activities or to talk to strangers, are cheerful in nature, and enjoy excitement and stimulation. It can be divided further into five facets, as in the BTI, namely ascendance, liveliness, positive affectivity, gregariousness, and excitement seeking. Ascendance can be defined as the degree to which an individual enjoys dominating or leading, as well as entertaining large groups of people. Liveliness is the degree of liveliness and energy in an individual. Positive affectivity refers to how often an individual experience positive emotions such as love, joy, and optimism, while excitement-seeking can be defined as the degree to which an individual needs experiences resulting in an adrenaline rush, as well as the need for intense sensations and stimulation (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

Agreeableness. Secondly, agreeableness refers to a person's likeability and the degree to which an individual gets along well with other people and has compassion. Those scoring high in agreeableness are unlikely to be harsh or rude and come across as very well-mannered. According to the BTI, agreeableness can be divided into five facets, namely straightforwardness, compliance, prosocial tendencies, modesty, and tendermindedness. Straightforwardness can be defined as being frank and sincere and valuing honesty. Compliance is the degree to which a person "forgives and forgets" easily and complies with others. Prosocial tendencies are the degree of concern for the greater community in an individual, and the willingness to help those in need. Modesty is the degree of being humble and self-effacing, while tendermindedness is the amount of sympathy and concern an individual has for others (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

Neuroticism. Thirdly, neuroticism can be referred to as the emotional stability of an individual. Those scoring high in neuroticism display a high amount of stress and anxiety and have the general tendency to experience negative emotions in response to their environment. Neuroticism is subdivided into four facets in the BTI, namely affective

instability, depression, anxiety, and self-consciousness. Affective instability can be defined as the tendency to easily get upset, angry, or bitter, in addition to emotional instability and unpredictability. Depression refers to the degree to which an individual experiences guilt, hopelessness, sadness, and feels discouraged. Anxiety is the tendency in an individual to be nervous and a worrier, while self-consciousness is the degree of sensitivity to criticism and experiencing feelings of shame and embarrassment in an individual (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

Openness to Experience. Openness to Experience (“openness”) refers to how likely an individual is to seek out new experiences. Individuals scoring high in openness tend to be unhappy with repetitive experiences. They are curious about themselves and the world and often seek out new or different things, places, and experiences. Openness can be divided into five facets according to the BTI, namely aesthetics, actions, values, ideas, and imagination. Aesthetics can be defined as an individual’s appreciation for art, music, beauty, etc. Actions refer to the willingness of the individual to try new and different activities. Values are the willingness of an individual to re-examine social, political, and religious values, with ideas being the degree of intellectual curiosity in an individual. Lastly, imagination is the extent of an individual’s vivid imagination and creative-thinking ability (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

Conscientiousness. The last of the Big Five personality traits, conscientiousness, refers to a person’s degree of self-control, effectiveness, and efficiency in planning and carrying out tasks. Those scoring high in conscientiousness tends to be diligent and timely in the performance of their tasks, and do not shy away from a high level of responsibility. Conscientiousness is divided into five facets according to the BTI, namely order, self-discipline, dutifulness, effort, and prudence. Order is defined as the degree to which an individual is methodical and keeps everything neat and tidy and in its rightful place. Self-discipline is the degree to which an individual is likely to start a task immediately and carry it through to completion, even if the task is unpleasant. Dutifulness is the tendency to be

dependable, reliable, and to stick to one's principles. Effort refers to the degree to which a person is purposeful and diligent in meeting their goals, and lastly, prudence is the degree to which a person thinks facts through carefully (Taylor & de Bruin, 2016; Wilson & Nagy, 2017).

The Big Five personality traits in predicting workplace bullying: hypotheses

formulation. Most research regarding personality, and specifically the Big Five personality traits, and its role in workplace bullying, focused on the degree to which these personality traits are present in the victim, not the bully (Wilson & Nagy, 2017). Victims of workplace bullying were found to be conscientious, unsophisticated, and experience difficulties in adjusting to new situations (Glasø et al., 2007). The individual nature of working individuals may trigger negative behaviours in co-workers and supervisors. It is argued that individuals with certain vulnerabilities or personality traits consciously or unconsciously violate workplace norms and expectations, aggravating those that share the workplace with them. Research has found that a victim's negative emotionality, self-esteem, and neuroticism may predict victimisation. Employees who fall victim to workplace bullying further display high neuroticism, poor social skills (thus having low agreeableness and extraversion), and high conscientiousness. It is however still a topic of debate whether these personality traits are outcomes or causes of being bullied in the workplace (Podsiadly & Gamian-Wilk, 2017).

Einarsen et al. (1994) found that victims of workplace bullying tend to have a lack of coping resources and self-efficacy, such as being shy, having low self-esteem, and a lack of conflict management skills. High scores in neuroticism are related to exposure to bullying, as well as high levels of anxiety and sensitivity (Glasø et al., 2007). Podsiadly and Gamian-Wilk (2017) found lowered agreeableness to be a result rather than a cause of bullying, while Glasø et al. (2007) report that targets of workplace bullying tend to be less extroverted and independent, as well as being more unstable and conscientious than non-victims. They go on to suggest that personality traits may indicate risk factors of becoming a victim of bullying and may predict who is likely to become a target of bullying.

There are however studies, though limited, which investigated the relationship between bullies and the Big Five personality factors. One of these studies, a study by Wilson and Nagy (2017), investigated the relationship between the Big Five personality factors and the incidence of bullying in the workplace. The study found that conscientiousness and agreeableness had a negative relationship with workplace bullying, while neuroticism had a positive relationship with workplace bullying. Wilson and Nagy (2017) suggest that these results provide support for the use of personality assessments in an organisations' recruitment and selection process. The scores candidates receive in these personality assessments are intended to enable organisations to identify and eliminate bullies during the screening process, in turn eradicating bullies from the workplace.

The lack of studies that investigate the relationship between personality and workplace bullying may be explained by the current lack of an effective and well-constructed measurement instrument to measure the degree to which an individual takes part in bullying behaviour themselves. To be able to form well-supported hypotheses for the role that the Big Five personality traits play in predicting workplace bullying, different methods and terminology must be considered to investigate this relationship. In this endeavour, the link between Counterproductive Work Behaviours and personality may thus be of assistance, as well as investigating the role personality plays in bullying in general, and not only workplace bullying in specific.

The Big Five personality traits have been related to a wide range of CWBs. In general, however, researchers found that conscientiousness showed the strongest relationship with CWBs, followed by agreeableness and neuroticism. Agreeableness is considered the best predictor of interpersonal CWBs, and conscientiousness and neuroticism the best predictors of organisational based CWBs (Hunter, 2014). Mitsopoulou and Giovazolias (2015) investigated the relationship between personality and bullying amongst different age groups and found similar results. The results revealed that lower levels of agreeableness and conscientiousness, and higher levels of neuroticism, were associated with bullying.

Conscientiousness and agreeableness are further associated with moral character, and thus relevant in understanding self-regulation of transgressive behaviours such as CWBs. CWBs are most closely correlated to low levels of conscientiousness, especially for organisational CWBs, and low levels of agreeableness for interpersonal CWBs (Bollmann & Krings, 2016; Eschleman et al., 2015), which echoes the above-mentioned findings by Hunter (2014) and Mitsopoulou and Giovazolias (2015).

Agreeableness and conscientiousness are personality traits that enable employees to successfully cope with an increase in work stressors, while simultaneously inhibiting CWBs, which includes workplace bullying. Agreeableness is theoretically associated with the acquisition and management of interpersonal resources and teamwork, assisting in the ability to inhibit CWBs. Conscientiousness is also relevant as it may facilitate the effective protection of needed resources. A highly conscientious employee can for example call upon those resources needed to succeed, such as organisational support, and resultantly resist the temptation of resorting to CWBs (Eschleman et al., 2015).

Both agreeableness and conscientiousness are positively correlated to proneness to experiencing guilt, as well as being related to those effortful control processes that are associated with self-regulation, and the tendency to feel remorse over transgressions of social standards. Individuals high in conscientiousness and agreeableness are therefore strongly regulated by an internal moral barometer that signals to them what is right and what is wrong and rely less on the organisational environment to regulate their behaviours. These individuals, therefore, anticipate more social and self-sanctions for transgressive behaviours and thus are less likely to engage in CWBs. Individuals low in conscientiousness and agreeableness in contrast have more limited self-regulatory capacities in those circumstances calling for self-control, and thus react more strongly to the external environment. These individuals are therefore more influenced by the anticipated organisational sanctions and the role it plays in behavioural self-regulation, such that this has a stronger impact on their CWBs (Bollmann & Krings, 2016; Eschleman et al., 2015).

In a doctoral dissertation by Hunter (2014), a positive relationship was found between CWBs and neuroticism. Individuals scoring high in neuroticism are more prone to psychological distress, have trouble controlling their impulses, and are susceptible to irrational ideas. With neuroticism being characterised by angry hostility, impulsiveness, vulnerability, moodiness, defensiveness, irritability, sarcasm, self-centredness, loudness, and carelessness, these traits can easily be linked to low integrity and CWBs.

Hunter (2014) also found a negative relationship between conscientiousness and CWB, as well as between integrity and CWB. Contrary to previous findings, however, agreeableness showed a non-significant relationship with CWB. In explaining this finding, Hunter suggests, amongst other study limitations, that individuals who score high in agreeableness could be associated with low assertiveness, consequently lacking resistance against group pressures or deviant norms (Hunter, 2014). By examining the role CWBs play in the display of workplace bullying, it can therefore be concluded that workplace bullying is negatively associated with agreeableness and conscientiousness, and positively related with neuroticism.

Extraversion's role in predicting workplace bullies lacks research. Examining the role of extraversion on bullying in general (and not only workplace bullying) however yielded more results. Extraversion can be argued to positively predict workplace bullying in certain conditions. Amongst school children, victims tend to be cautious, anxious, and sensitive. Perpetrators on the other hand tend to be self-confident, aggressive, and impulsive (Glasø et al., 2007). It thus seems unlikely that a bully will be a shy individual, possibly indicating that bullies tend to be more extroverted than introverted. Extraversion in itself is not a problematic personality trait, but may trigger bullying behaviours when coupled with a high degree of neuroticism. Mitsopoulou and Giovazolias (2015) provide support for this hypothesis, having found that higher levels of extraversion are associated with bullying. High levels of extraversion and neuroticism in bullies are in line with Eysenck's theory of criminality (Eysenck & Eysenck, as cited in Mitsopoulou & Giovazolias, 2015) and the

researcher's theory of antisocial behaviour. It is suggested that extroverts are more predisposed to crime and antisocial behaviour, because they pursue rewards with no fear for the consequences, in addition to being impatient and impulsive. This study, therefore, argues that extraversion, especially when coupled with a high degree of neuroticism, may predict workplace bullies.

A similar argument can be used in hypothesising the link between openness to experience and workplace bullying. The personality traits and behaviours associated with workplace bullying include an inability to see situations in perspective (Pilch & Turska, 2015). In contrast, values, as a facet of openness, is the willingness of an individual to re-examine social, political, and religious values (Taylor & de Bruin, 2016; Wilson & Nagy, 2017). It is therefore argued that workplace bullies do not examine their behaviour and values, and are therefore less likely to score high in openness. In addition, individuals scoring high in openness tend to be unhappy with repetitive experiences. They are curious about themselves and the world and often aim to try out new and different activities (Taylor & de Bruin, 2016; Wilson & Nagy, 2017). It can be argued that workplace bullies, who take part in repetitive negative or hostile acts (Einarsen et al., 2003; Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012), will not be very open to new experiences and trying different (more positive) techniques of social interaction. Mitsopoulou and Giovazolias (2015) provide support for this hypothesis, having found openness to experience to be negatively associated with both bullying and victimization amongst school children.

While the role of extraversion and openness in workplace bullying can be hypothesised, these hypotheses are less theoretically sound. It is therefore suggested that the focus of predicting workplace bullies remains on conscientiousness, agreeableness, and neuroticism, using extraversion and openness only as supporting evidence in this regard. The relations of the Big Five personality traits with Dark Triad measures, as found by Collison et al. (2018), support these arguments.

Based on the provided research and arguments, the following research hypotheses are thus presented regarding the relationship between the Big Five personality factors and the display of bullying behaviours:

Hypothesis 1 (H1): Individuals scoring low in Conscientiousness will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 2 (H2): Individuals scoring low in Openness to Experience will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 3 (H3): Individuals scoring low in Agreeableness will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 4 (H4): Individuals scoring high in Neuroticism will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 5 (H5): Individuals scoring high in Extraversion will demonstrate an increased likelihood of taking part in bullying behaviours.

Bullying: A working definition

Before attempting to address the problem of workplace bullying, it is necessary to construct a working definition thereof and thoroughly investigate the construct. While bullying goes under many names with many forms of behaviour defining it, it is necessary to select a working definition for this study to allow for a meaningful and clear investigation. This is especially necessary since there is a need for a formalized definition of workplace bullying on both a national and international level (Wilson & Nagy, 2017). According to a study by Cunniff and Mostert (2012), one of only a handful of South African studies about workplace bullying, South Africa is seriously lacking research in this field, as well as lacking a uniform definition. This section will thus attempt to clarify workplace bullying as a concept, based on relevant research.

Four elements have been identified to define workplace bullying. These elements are frequency, persistency, hostility, and power imbalance. Frequency refers to the number of times per week that the harmful behaviours are displayed. In general, this refers to a minimum number of acts of at least one or two per week. Persistency means the duration of time for which the harmful behaviours are experienced. According to different sources, the minimum duration of exposure an individual must have to these negative acts must be either six or twelve months. Hostility refers to the underlying negativity of the conduct. Lastly, power imbalance refers to the difference in perceived power between the perpetrator and the target. This does not only refer to hierarchical power but also other forms of power such as physical power imbalances and imbalances in social group settings. Since the power imbalances do not need to be formalised or be due to formal power disparities, it can thus also be created by institutional and contextual factors (Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012).

For this study, bullying will thus be defined as negative or hostile acts that occur at least weekly, taking place for at least 6 months, and that involves a significant power imbalance. This definition is chosen since it is supported by research (Einarsen et al., 2003; Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012), and contains clear distinctions as to what is and is not considered workplace bullying.

Workplace bullying: A thorough investigation

Now that a clear definition of workplace bullying was constructed for this study, workplace bullying will be critically discussed based on relevant research. This is important as the phenomenon under investigation must be thoroughly understood to be able to predict the phenomenon. Many negative behaviours and acts are associated with workplace bullying. These behaviours include gossiping, withholding critical information and personal jokes, as well as more serious mistreatment, such as violence, insults, and being told to quit one's job. The negative behaviours may be specifically work-related, involving criticism of a victim's

work, an excessive workload, or unnecessary monitoring of work. Many negative acts associated with workplace bullying are often interpersonal, including aggression towards another individual, belittling or ignoring the victim, laughter, scorn, negative gestures, or glances at the target (Samnani & Singh, 2012; Vartia, 2001).

Researchers distinguish between many types of workplace bullying. Bullying in the workplace can be divided into five main types according to Björkqvist et al. (1994), namely scapegoating, physical abuse, work pressures, name-calling, and sexual harassment (sexuality is often utilised in the workplace as a means of oppression). Zapf, as cited by Einarsen (1999), in turn, categorises workplace bullying into social isolation, work-related bullying (e.g. related to work tasks), personal attacks on an individual's private life via insults, ridicule, gossip, verbal threats, etc., e.g. public humiliation and criticism, and sexual violence or the threat thereof (Einarsen, 1999).

Bullying comprises of several different behaviours, typically verbal (indirect or direct; passive or active), sometimes accompanied by physical violence, but not as frequent. According to Pilch and Turska (2015), workplace bullying includes dispute-related bullying (as a result of strong interpersonal conflict between individuals), authoritative-bullying (as a result of the abuse of authority), displaced-bullying (when aggression is displaced to another party), discriminatory-bullying, and organisational-bullying (oppressive organisational policies and practices). Thus, bullying in the workplace has many shapes and sizes, and can happen because of several factors.

Workplace bullying is a gradually evolving process. At first, it may be subtle, devious, and very difficult to recognise (Samnani & Singh, 2012). Subtle and indirect bullying intends to harm people on an emotional level and to purposefully manipulate relationships. This includes acts such as gossiping, not notifying an employee of decisions that directly affects their departments or people, spreading rumours, excluding a co-worker from social proceedings, purposefully sitting a considerable distance from a specific individual,

manipulating the information an employee receives, and/or neglecting the working conditions of workers (Björkqvist et al., 1994; Cunniff & Mostert, 2012).

According to Einarsen (1999), workplace bullying involves at least four phases, agreeing that it starts with more subtle aggressive behaviours, followed by the aggressive actions becoming more direct, open, and frequent. This may include acts of humiliation, sarcasm, rudeness, and/or practical jokes (Cunniff & Mostert, 2012). With bullying often preying on the shortcomings of a victims' personality, victims are often unable to protect themselves due to existing psychological or social shortcomings. Stigmatisation then follows. This is where the victim is regarded as the problem or the troublemaker. Finally, the bullying behaviour leads to severe trauma and distress. Most researchers agree that bullying normally involves enduring and repeated behaviours that are meant to be hostile or are at least perceived by the victim as hostile, and mostly does not involve only a single or an isolated event (Samnani & Singh, 2012). For example, one negative comment from a co-worker is normally not perceived as bullying. When these comments however start taking place weekly, it is a different matter altogether and is perceived as bullying.

Two different strategies are used by researchers to measure and identify bullying and bullies. The first is via self-judgment by an individual, based on the definition of bullying. The second is via self-reported exposure to predefined negative and potentially harassing acts. Thus certain behaviours must be present for bullying to be identified (Pilch & Turska, 2015). Several scales are commonly used today to measure the severity of workplace bullying, for example, the Negative Acts Questionnaire (NAQ). These focus on the presence of negative behaviours employees may experience at work. If a respondent reports being the victim of these behaviours on a persistent and frequent basis, researchers can determine that this individual is a victim of workplace bullying (Samnani & Singh, 2012). Unfortunately, with regards to measuring the degree to which an individual takes part in bullying behaviour, no effective and well-constructed measurement instruments are currently available.

Workplace bullying as a Counterproductive Work Behaviour

Organisational performance is dependent on employee performance, which consists of task and contextual performance. Task performance refers to those behaviours by employees, as described in their job descriptions, which contribute to the productivity of the organisation (Rotundo & Sackett, 2002). Contextual performance on the other hand consists of Organisational Citizenship Behaviour (OCB) and Counterproductive Work Behaviour (CWB). These two behaviours are within the employee's control and are demonstrated voluntarily. However, whereas OCB contributes positively to the organisation's social and psychological environment, CWB harms the organisation's well-being (Rotundo & Sackett, 2002).

Counterproductive Work Behaviours are intentional and possibly harmful actions directed at the organisation, or those within the organisation (Bollmann & Krings, 2016; Eschleman et al., 2015). CWB violates fundamental organisational norms to purposefully bring about negative consequences (Vardi & Wiener, 1996). Workplace bullying is considered to be one of these Counterproductive Work Behaviours (Escartín et al., 2017). Since plentiful research is available on Counterproductive Work Behaviours, it is useful to also examine workplace bullying under the scope of CWBs to further assist in understanding this phenomenon.

Gruys and Sackett, as cited in Bragg and Bowling (2018), offers a system of categorising Counterproductive Work Behaviours by using the list of 11 categories of CWBs previously developed by Gruys, namely property destruction, inappropriate verbal actions, inappropriate physical actions, poor attendance, misuse of time and resources, alcohol use, drug use, poor quality work, unsafe behaviour, theft and related behaviour, and the misuse of information.

Vartia (2001) provides a definition for workplace bullying that demonstrates how this phenomenon fits into these 11 categories. Vartia (2001) defines bullying as situations where an individual is the victim of on-going, recurring, and serious hostile or negative acts and

behaviours that are frustrating and oppressing. The negative actions may be done consciously or unconsciously, but unmistakably cause offense, distress, or humiliation, and are experienced as hostile by the victim. The actions are further unwanted by the individual, intending to bring mostly mental, but sometimes also physical, pain to victims who are unable to defend themselves against this treatment. This falls into the scope of purposeful and potentially harmful acts targeting the organisation, or the people within the organisation, as the definition of CWB states. As workplace bullying may take different forms, it may fall into either the inappropriate verbal actions category or the inappropriate physical actions category of CWBs. As these behaviours have various negative consequences for individuals and teams in an organisation, it is crucial to understand what contributes to CWBs (Bollmann & Krings, 2016). Understanding which factors underlie CWBs provides relevant information that may also serve as a guide in understanding what factors specifically underlie workplace bullying (as a form of CWB).

Both organisational and personal variables have been argued to cause CWBs. Workgroups, as an organisational factor, partially determine the seriousness and value individuals assign to CWBs. Workgroups can for instance develop norms and decide upon specific values that create a powerful method of social control. Workgroups may thus potentially enable CWBs in individual members through enforcing negative behavioural norms, an aggressive culture, and norms of tolerance toward CWBs. In contrast, those employees who experience the climate of the team as one that nurtures a positive team spirit or friendliness display fewer CWBs and unethical behaviours. Some individuals, perceiving support from their colleagues, on the other hand, manifest more CWBs. More research is thus needed to understand how the organisational and team climate influences behaviour (Bollmann & Krings, 2016).

Increased work stressors are positively related to increases in CWBs. Work stressors are defined as demanding working conditions that call for an adaptive response from individual employees, such as interpersonal conflict and organisational constraints. Work stressors

can damage employee wellbeing and may lead to organisationally unwanted behaviours, such as CWBs. The undesirable consequences caused by work stressors have been hypothesized to be due to its depletion of employee's resources, such as their physical energy or self-esteem (Eschleman et al., 2015).

Personality is generally considered to moderate the relationship between organisational stressors and CWB. Agreeableness and conscientiousness are personality traits considered to moderate the relationship between work stressors and CWBs. These personality traits are key resources that enable employees to successfully cope with an increase in work stressors, while simultaneously inhibiting CWBs. Agreeableness is theoretically associated with the acquisition and management of interpersonal resources and teamwork, assisting in the ability to inhibit CWBs. Conscientiousness is also relevant as it may facilitate the effective protection of resources. A highly conscientious employee can for example call upon those resources needed to succeed, such as organisational support (Eschleman et al., 2015).

Behaviour with purpose is regulated by forethought. The same is true for CWBs. According to social cognitive theory, the expected consequences of one's behaviour are central to the self-regulatory mechanisms that determine one's transgressive acts. Thus, before an individual partakes in a certain behaviour, the person anticipates to which degree the intended behaviour would infringe on the moral standards of others, thus anticipating the likelihood of social sanctions. The person also anticipates to which degree the intended behaviour would infringe on their moral standards, thus the likelihood of self-sanctions. Social sanctions motivate individuals to abstain from those actions that they expect will lead to social censure or other adverse social consequences, such as exclusion. Self-sanctions motivate individuals to abstain from behaviours that they anticipate to violate their own adopted moral principles, through the expectation that decreased self-respect and increased self-criticism will follow (Bollmann & Krings, 2016).

Individual actions are based on moderately unchanging and constant personal standards that are used to guide and monitor one's actions. Some people are strongly preoccupied with satisfying their standards, while others adopt a more practical orientation, modifying their actions to what would be acceptable in the given situation. Personality traits reflect these personal standards, thus playing a role in the display of CWBs (Bollmann & Krings, 2016).

Conscientiousness and agreeableness are further associated with moral character, and thus relevant in understanding self-regulation of transgressive behaviours such as CWBs. CWBs are most narrowly correlated to low levels of conscientiousness, especially in the case of organisational CWBs, and low levels of agreeableness for when it comes to interpersonal CWBs (Bollmann & Krings, 2016; Eschleman et al., 2015).

The Big Five personality traits have been related to a wide range of CWBs, although inconsistently. Generally, however, researchers found that conscientiousness showed the strongest relationship with CWBs, followed by agreeableness and neuroticism. Agreeableness is considered the best predictor of interpersonal CWBs, and conscientiousness and neuroticism the best predictors of organisationally based CWBs. (Hunter, 2014).

Both agreeableness and conscientiousness are positively correlated to proneness to experiencing guilt, as well as being related to those effortful control processes that are associated with self-regulation, and the tendency to feel remorse over transgressions of social standards. Individuals high in conscientiousness and agreeableness are therefore strongly regulated by an internal moral barometer that signals to them what is right and what is wrong and rely less on the organisational environment to regulate their behaviours. These individuals, therefore, expect increased social and self-sanctions for transgressive behaviours and are as a result less likely to participate in CWBs. Individuals low in conscientiousness and agreeableness in contrast have more limited self-regulatory capacities in those circumstances calling for self-control, consequently reacting more

intensely to the external environment. These individuals are therefore more influenced by the anticipated organisational sanctions and the role it plays in behavioural self-regulation, such that this has a stronger impact on their CWBs (Bollmann & Krings, 2016; Eschleman et al., 2015).

In a doctoral dissertation by Hunter (2014), a positive relationship was found between CWBs and neuroticism. Individuals scoring high in neuroticism are more prone to psychological distress, have trouble controlling their impulses, and are susceptible to irrational ideas. With neuroticism being characterised by angry hostility, impulsiveness, vulnerability, moodiness, defensiveness, irritability, sarcasm, self-centredness, loudness, and carelessness, these traits can easily be linked to low integrity and CWBs.

Hunter (2014) also found a negative relationship between conscientiousness and CWB, as well as between integrity and CWB. Contrary to previous findings, however, agreeableness showed a non-significant relationship with CWB. In explaining this finding, Hunter suggests, amongst other study limitations, that individuals who score high in agreeableness could be characterised by a low degree of assertiveness, consequently lacking resistance against group pressures or deviant norms (Hunter, 2014).

It is therefore clear that both organisational factors, such as work stressors and organisational norms, and personal factors, such as the Big Five personality traits, play a role in the display of CWBs. While personality is mostly regarded as playing a moderating role in the relationship between organisational factors and CWBs, it is still considered crucial in understanding CWBs. This section, therefore, motivates the need of investigating the role of personality in understanding workplace bullying (as a CWB) as intended by this study, in addition to providing insight into how workplace bullying functions.

The effects of workplace bullying: Individual and organisational

Employees exposed to stressful working conditions, such as those conditions caused by bullying behaviours, will identify some level of distress that will if not sufficiently coped with, result in psychological, physical or behavioural strain as a result of this stressful process. Consequences of this job stress may manifest themselves in the form of impaired well-being amongst employees, affecting the organisation as a whole through increased turnover rates and reduced organisational profitability. Unlike being exposed to the other stressors individuals may encounter at work, the aggressive bullying behaviour experienced by victims is likely to impede their satisfaction in terms of their fundamental psychological and relational needs. These include needs such as a sense of belonging and trust in others. It may further cause severe psychological, emotional, and sometimes even physical pain (Hauge et al., 2010; Vartia, 2001).

Social, psychological, and psychosomatic problems may also develop in the bullied individual. In some cases, the bullying may lead to symptoms in the victim as severe as Post-Traumatic Stress Disorder (PTSD) or suicide. Feelings of depression, burnout, anxiety, reduced self-esteem, and aggression are frequently experienced by victims, including melancholy, reduced concentration, apathy, sociophobia, and various nervous symptoms (Björkqvist et al., 1994; Hansen et al., 2011; Pilch & Turska, 2015; Vartia, 2001). It can also lead to physical conditions such as migraines, sleep and eating disorders, cardiovascular diseases, psychosomatic symptoms, and musculoskeletal health complaints. Workplace bullying could impair the victim's sleep quality by meddling with the individual's necessary recovery processes during non-working hours, and due to elevated levels of psychological distress (Magee et al., 2015). In addition, victims experience a lack of a sense of control and power over their situation, leading to further anxiety and depression (Lee & Brotheridge, 2006; Podsiadly & Gamian-Wilk, 2017).

Victims claim workplace bullying to be a more devastating issue than all other work-related stressors combined. It may lead to intentions to leave the organisation, or even the

profession (Cunniff & Mostert, 2012). If the figure of suicides related to workplace bullying is correct, it is as high as one in every five suicides as estimated by Leymann in 1992. These suicides outnumber the deaths due to physical accidents at the workplace (Hauge et al., 2010). After controlling for other job stressors, Hauge et al. (2010) found an increase of 6% in the amount of explained variance of bullying in relation to anxiety, while as much as 10% of the variance in depression was ascribed to workplace bullying. Compared to the other job stressors investigated, workplace bullying was undoubtedly the strongest predictor of both anxiety and depression. According to Vartia (2001), workplace bullying accounts for 13% of the variance in psychological grievances among both blue-collar and white-collar workers in Norway, in addition to accounting for 6% of the variance in musculoskeletal problems, and 8% of the variance in psychosomatic health problems.

Exposure to workplace bullying is characterized by slowly but surely being denied control, becoming deprived of opportunities to deal with matters concerning oneself at work. The negative association between bullying and control will predictably become even more salient for affected individuals suffering under intense and persistent exposure to bullying, which may, in turn, induce more serious stress reactions as the exposure to bullying develops. Persistent contact with such behaviours appears to deprive the person of coping resources, slowly but surely causing the individual to be less able to cope with day-to-day work tasks and job requirements. This will in turn affect productivity negatively, which will impact the organisation as a whole (Hauge et al., 2010).

Furthermore, workplace bullying has undesirable effects on organisational outcomes, such as job dissatisfaction, organisational commitment, and absenteeism. The costs of workplace bullying to organisations and the economy can also be considerable due to lengthy legal proceedings, intervention programmes, loss of working days due to sick leave and absenteeism, and the health costs of employees (Magee et al., 2015; Smit, 2014; Vartia, 2001). The distress experienced by the victim may also hinder work performance, and result in an unpleasant working environment (Einarsen, 1999).

Being bullied is positively correlated to perceptions of a hierarchy culture within the organisation. The effect of workplace bullying seems to be more noticeable on job satisfaction than for turnover intentions and absenteeism (Pilch & Turska, 2015). According to a study published in 2007, over two million organisational members leave their jobs exclusively due to workplace bullying and unfairness, costing businesses in America roughly \$64 billion yearly. Workplace bullying may result in a loss of employee productivity and loyalty, as well as resulting lawsuits (Smit, 2014). Bullying further affects organisations by hindering group communication, and creating a hostile work environment that is characterised by apprehension, anger, distrust, and suspicion (Cunniff & Mostert, 2012). These factors are further aggravated by the fear of being the next victim to be targeted by the bullies (Smit, 2014).

Victims may experience bullying in the form of social rejection and victimisation on a group level. Victims tend to withdraw from social interactions or behave aggressively since they believe there is no hope of repairing these social relations. This damages their self-regulation, in addition to leading to lower resistance to temptations and a drop in cognitive functioning. Weakened self-regulation may further hinder appropriate emotional, cognitive, and group functioning. This process may lead to a downward spiral in which the social rejection promotes behaviours that are not socially appropriate, leading to even further social rejection (Podsiadly & Gamian-Wilk, 2017).

Those individuals at work that observe bullying behaviour are also affected. Not only bullied employees, but also observers of these behaviours, report higher levels of general stress, increased turnover rates, negativity, and decreased job satisfaction than those of non-bullied employees (Hauge et al., 2010; Hoel et al., 2010). According to Smit (2014), only 16% of witnesses to bullying claim to be unaffected by the bullying they had witnessed. While the targets of bullying report a low-quality work environment, the same can therefore be said for the observers of bullying (O'Moore & Lynch, 2007).

Witnesses of bullying behaviour report a significantly higher degree of health and behavioural problems than those who work in organisations where bullying is not observed. Vartia (2001) reported that sleeping problems are prevalent amongst 34% of those individuals who continually witness others being bullied at the workplace, in contrast to only 19% of those who have witnessed no bullying experiencing sleeping problems. Similar results were found with regards to headaches, fatigue, strain, and a lack of energy, amongst other symptoms. In addition to this, witnesses of bullying may be significantly motivated to also take part in bullying if they perceive the bullying to produce positive rewards within the workplace. This is especially true in organisations where the environment is regarded as corrupt, and one that legitimizes the exploitation of employees (Valentine et al, 2017). The problem of workplace bullying is severe, and it is important for organisations to adequately address bullying in the workplace.

The prevalence of workplace bullying

There seems to be a higher risk of workplace bullying in the public sector than within the private sector. This could be due to less room for mobility within employment in the public sector, organisational and managerial shortcomings, and fewer employees leaving the organisation due to conflict (O'Moore & Lynch, 2007). In addition, men are found to be bullies more often than women, most likely because men are members of the dominant group, and socialised in such a way that they are more comfortable to make use of their access to power (O'Moore & Lynch, 2007).

O'Moore and Lynch (2007) conducted a study in Ireland where 6% of the respondents claimed to have been bullied frequently in the past 12 months, while 17% claimed to have been bullied occasionally. In Norway, 10,6% of the respondents in a study by Einarsen et al. (2009) reported falling victim to workplace bullying during the last 6 months. A study conducted by Ortega et al. (2009) in Denmark found that 8,3% of the respondents fell victim to workplace bullying within the previous year, with 1,6% of those respondents being bullied

on a daily or weekly basis. Denmark is however known as a country with feminist values, pointing to countries like the United States to have a significantly higher prevalence of workplace bullying. Twenty-eight percent of U.S. respondents indicated that they were subjected to a minimum of two negative acts per week for at least six months. When the criteria were changed to one negative act per week for six months, the percentage of respondents indicating that they have been bullied increased to 46,8% (Wilson & Nagy, 2017). Linton and Power (2013) found that 37.5% of study participants (Canada) reported being victimized once per week in the past 6 months.

With regards to South Africa, a study conducted by Cunniff and Mostert (2012) found that 31,1% of employees in South Africa reported always being bullied, while 4% reported being bullied often. A study conducted by Hansen et al. (2011) found similarly shocking results, with bullying having occurred at 78% of the 43 workplaces involved in the study. Based on these statistics alone, workplace bullying is very prevalent. A fairly recent finding by Linton and Power (2013) sheds some light on workplace bullies, having found that 89,7% of bullies and 41,7% of victims fall under the category of both victim and bully. These individuals were both a target and a perpetrator of workplace bullying at least once a week in the last six months. It is, therefore, necessary for both employers and researchers to keep this in consideration when aiming to understand the phenomenon and to reduce workplace bullying.

Measuring workplace bullying: The absence of measurement instruments

The display of workplace bullying in the workplace is difficult to measure due to a lack of appropriate measuring techniques. While there are several measurement instruments available to measure the experience of the victims of workplace bullying, such as the Revised Negative Acts Questionnaire (Einarsen et al., 2009), this is not the case when it comes to measuring the perpetrators.

With workplace bullying being a fairly new area of research, much development still needs to take place in the measurement of this problem. Thus far, questionnaires have been the dominant method used to measure workplace bullying, with most taking the form of self-report questionnaires.

This section will discuss the available measurement instruments that measure the display of workplace bullying, and present research on why these measuring instruments are lacking, especially as it pertains to the needs of this study. This section will also serve as insight into why the measurement instruments used by this study were selected, and form hypotheses based on those selections.

Tests designed to directly measure the perpetrators of workplace bullying seem to lean towards being overt, in the sense that it asks direct questions about a person's behaviour, such as their history and attitudes towards dishonest behaviour and illegal acts. This would likely not go over well with those individuals who intend to hide their bullying behaviour, whether out of fear, shame, or due to hidden motives. Over and above unreliable data when asking respondents whether or not they had engaged in negative behaviours at work, there is also the impact of Social Desirability Bias (Escartín et al., 2019) which further complicates overt bullying scales. Regardless, the initiatives of those researchers who have created bullying scales for perpetrators have allowed the field to get enriched and contributed to a further understanding of the phenomenon (Escartín et al., 2019).

Once bullying assessments become more covert, however, it might become 'easier' to measure the perpetrators of workplace bullying, as these assessments are less transparent with respect to what is being measured, and have a broader scope than overt instruments. Personality-oriented measures, which typically include items measuring 'normal' personality attributes, are known to be predictive of Counterproductive Work Behaviour or workplace bullying (van Zyl & de Bruin, 2017). It is due to this reason that this study unpacked the Dark Triad of personality and its relationship with workplace bullying in detail.

This section will start by looking at the scales that overtly measure workplace bullying in the scientific literature. This will be followed by looking at measuring instruments that measure the behaviour of workplace bullying perpetrators more covertly, for example through measuring personality or integrity.

Scales overtly measuring workplace bullying.

Baron et al. (1999), as cited by Escartín et al. (2019), introduced the first validated unnamed scale for the perpetrators of workplace bullying, developed with a US sample. It measured aggression directed against a range of different potential targets, such as the respondent's immediate supervisor, co-workers, and the organization itself. The assessment consists of 33 items and is rated on a 5-point Likert-scale ranging from 1 (never) to 5 (very often). Its reliability was not documented, but in terms of predictive validity, the scale was positively related to type A behaviour patterns and perceived injustice (Escartín et al., 2019).

Six years later, Forrest et al. (2005) developed the Indirect Aggression Scale - Aggressor version (IAS-A) with a UK sample, in contrast with their Indirect Aggression Scale - Target version (IAS-T). The aggressor version of the scale uses wording opposite to that used in the target version and measures the enactment of indirect aggression in the past 12 months. An Exploratory Factor Analysis revealed three reliable factors: social exclusion ($\alpha = .82$), use of malicious humour ($\alpha = .84$) and guilt induction ($\alpha = 0.81$), which indicates sufficient reliability. The IAS-A was, however, constructed with a sample of undergraduate and postgraduate students that could hinder its generalizability (Escartín et al., 2019; Forrest et al., 2005).

Parkins et al. (2006) used a sample of undergraduate college students in the US to develop a six-item unnamed measurement. Participants indicated whether they had displayed a list of 15 behaviours on a 5-point scale ranging from 0 (never) to 4 (4 or more times), within the last 6 months. After the CFA, 6 out of the original 15 items were retained.

The construct validity was further tested using several independent variables such as personality and attitude variables. Ordinary Least Squares Regression Analyses showed that as perspective-taking decreased and as social dominance orientation increased, the frequency of bullying enactment increased (Escartín et al., 2019; Parkins et al., 2006)

Lee and Brotheridge (2006) proposed an unnamed scale for the perpetrators of workplace bullying, developed using a Canadian sample, based upon their target measure. Respondents indicated how frequently they directed each of the named behaviours towards others during the past 6 months using a response scale ranging from 1 (not at all) to 5 (many times a week). PCA showed three different factors, namely 'created fall guy/gal', 'undermined others' work' and 'emotional abuse'. Due to the low internal consistency for 'emotional abuse' ($\alpha = .46$), this factor was omitted (Escartín et al., 2019; Lee & Brotheridge, 2006).

Baughman et al. (2012) developed a bullying questionnaire for their study that directly investigated the relationships between the Dark Triad personality traits and bullying behaviours. The authors sought to design a reliable measure of bullying for use with an adult sample. The authors' Bullying Questionnaire assesses bully status and type, with several of the items based on an aggression scale constructed by Taki et al. (as cited by Baughman et al., 2012). Participants are asked to indicate how frequently they have engaged in each of the listed 17 bullying behaviours during the past month on a 5-point Likert scale ranging from "never" (1) to "always" (5). The Bullying Questionnaire contains four subscales, namely Physical Direct (e.g., "I forcefully pushed/pulled someone"), Verbal Direct (e.g., "I threatened to harm another person"), Direct (the sum of Physical and Verbal Direct), and Indirect (e.g., "I made friends with a person to 'get back' at someone else"). An overall bullying score is additionally obtained by obtaining the sum of all 17 items. Baughman et al. (2012) found the reliabilities for these subscales and the total score to range from .69 to .89, using a Canadian sample.

The Revised Negative Acts Questionnaire (NAQ-R) is a popular tool to measure how often the respondents have been subjected to negative actions and bullying behaviours during the last 6 months. Linton and Power (2013) modified the NAQ-R into a Perpetrator-Target Scale (PTS) using a sample of Canadian students. Where the NAQ-R only measured how often respondents have been subjected to bullying behaviours, the PTS is now also able to measure how often negative actions and bullying behaviours were enacted. The researchers created “bully” and “victim” subscales, which allows the researcher to simultaneously gather data on both perpetrators and targets of bullying. The researchers found this to be possible since bullies and victims appear to share personality traits that are normally more attributed to bullies, such as disagreeableness, dominance, and aggression (Linton & Power, 2013).

Both the bully and victim subscales of the PTS were found to have high internal consistency, with alpha coefficients of .84 and .89, respectively. The alpha coefficients also failed to improve upon the removal of any of the 22 items. The researchers further argued that the validity of both the victim and bully subscale was supported through its associations with the other measurement instruments included in the study previously proven to predict workplace bullies or victims, such as the 6-item Workplace Bullying scale and the 16-item Narcissistic Personality Inventory. The PTS thus appears to be a reliable and valid measurement instrument that simultaneously measures both perpetrators and victims of bullies, replacing the NAQ-R, and acting as an additional method for measuring workplace bullies to support other instruments (Linton & Power, 2013).

Also using the Negative Acts Questionnaire (NAQ-R), Escartín et al., (2012), as cited by Escartín et al. (2019), developed the Negative Acts Questionnaire - Perpetrators (NAQ-P) using a Spanish sample. The scale included seven items based on the Negative Acts Questionnaire (NAQ-R), and the response scale ranged from 0 (never) to 4 (daily). Confirmatory factor analysis supported two factors: a person-related bullying factor with

three items ($\alpha = .73$), and a work-related bullying factor with four items ($\alpha = .80$). The internal consistency was thus satisfactory.

Escartín et al. (2019) reported that none of the above-mentioned scales ran a retest through a collection of different waves of data (not referring to the Perpetrator-Target Scale and Baughman et al.'s bullying questionnaire). As a result, the knowledge on the predictive validity of the scales is lacking. There is thus a need for more research and validation studies on these workplace bullying scales – a need that this study intends to fill. In addition, none of these bullying scales were designed for the culturally and racially diverse landscape of South Africa, meaning that South Africa has a dire need for bullying assessments that have been validated within a South African context.

While the above assessments measure bullying behaviour directly and specifically, more measuring instruments become available if you are willing to expand your definition of workplace bullying. Especially when Counterproductive Work Behaviours are taken into account, more measurement instruments can potentially effectively measure the behaviours of those perpetrators of workplace bullying.

Scales measuring Counterproductive Work Behaviours

Workplace bullying is generally understood to be a form of Counterproductive Work Behaviours (Escartín et al., 2017). While workplace bullying is generally considered to be negative or hostile acts towards another person(s), CWBs is broader, also involving behaviours such as property destruction, drug use, poor quality work, and theft (Bragg & Bowling, 2018), that is not considered forms of workplace bullying. Workplace bullying, however, can be argued to fit into the inappropriate verbal or physical actions categories of CWBs (Vartia, 2001). Scales designed to measure CWBs, and specifically those subscales measuring inappropriate verbal or physical actions, can thus serve as effective means of measuring the behaviour of workplace bullying perpetrators.

Some of the most popular/applicable scales that measure CWB is discussed in the following paragraphs. While none of these will be used for this study, it is valuable to have sight of the wide range of measuring instruments that can potentially measure workplace bullying.

The Work Risk and Integrity Scale (WRISc). The Work Risk and Integrity Scale (WRISc) is a personality-based, covert integrity measure developed in South Africa by van Zyl and de Bruin in 2016. The WRISc aims to identify a range of negative behaviours that can cause harm to employees or organisations, i.e., Counterproductive Work Behaviours (JvR Africa Group, 2020; van Zyl & de Bruin, 2017).

The WRISc is currently the only assessment of its kind looking at dark personality. It uses the theoretical principles of the dark triad of personality (Narcissism, Machiavellianism and Psychopathy) to predict deviant behaviour in the workplace. Unlike overt integrity assessments, where the purpose of the assessment is obvious, personality-based assessments like the WRISc measure constructs predictive of counterproductive behaviour in a way that is less susceptible to socially desirable responding. As the WRISc measures normal personality, it is not intimidating or threatening to candidates (van Zyl & de Bruin, 2017).

The WRISc contains 81 items, takes about 30 minutes to complete, and measures 12 unidimensional personality traits including aggression, callous effect, cynicism, egotistic, external locus of control, impulsivity, low effortful control, manipulation, negative affect, pessimism, risk-taking behaviours, and rule-defiance. As mentioned, these scales are also used in combination to index dark personality dispositions such as Narcissism, Machiavellianism, and sub-clinical Psychopathy, collectively known as the Dark Triad of personality. Responses are captured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) (JvR Africa Group, 2020; van Zyl & de Bruin, 2017).

A study by van Zyl and de Bruin (2017) found the WRISc's reliabilities to be satisfactory, with almost all scales having Cronbach's alpha coefficients $> .80$, except for Cynicism ($\alpha =$

.74). In general, the factor loadings were acceptable with most loadings $> .50$ and loading onto their respective scales. Overall, the WRISc was found to be a robust instrument that can function effectively in a multicultural population.

The Dark Triad of personality plays a role in the formulation of the WRISc, but several other measurement instruments measure the Dark Triad, and that can be argued to effectively measure the perpetrators of workplace bullying.

The Counterproductive Work Behaviours Checklist (CWB-C). The Counterproductive Work Behaviours Checklist (CWB-C) was created by Spector et al. (2006). The items of the CWB-C are sorted into categories according to the target of the CWBs: 21 items were identified as related to CWB directed toward organization (e.g., taking excessive breaks) and 22 items related to CWB directed toward people, namely colleagues, supervisors, and clients (e.g., verbal insults). The 22 items concerning those CWBs directed towards people would be effective in measuring workplace bullying (Barbaranelli et al., 2013). A study by Barbaranelli et al. (2013) with an Italian sample found reliability of CWB towards the organisation and for CWB towards people to be $.80$ and to $.89$ respectively, after dropping 6 items from the scale. They also found these two facets to seemingly have a common root, but undoubtedly diverse.

The Workplace Deviance Scale (WDS). The Workplace Deviance Scale (WDS; Bennett & Robinson, 2000) quickly rose in popularity due to its intuitive conceptualisation of CWB. The WDS distinguishes between CWB that targets other employees and those that target the organisation. It consists of 19 items and uses a 7-point Likert scale. The scales were found to have internal reliabilities of $.81$ for organizational deviance and $.78$ for interpersonal deviance (Bennet & Robinson, 2000; Sim 2016). According to Sim (2016), however, the WDS soon gave way to the CWB-C discussed above, which is the main measure that dominates the CWB literature today. Even though both measures intend to measure CWB, there is, however, evidence to support that the two measures are not functionally equivalent.

Scales measuring the Dark Triad of personality

The Dark Triad (DT) of personality, consisting of Narcissism, Psychopathy and Machiavellianism, can also be used to measure workplace bullies. This section will outline the available scales for each DT personality type, as well as scales that measure all three types.

With regards to measuring Narcissism at the subclinical level, an assessment was constructed by Raskin and Hall (1979) who converted the diagnostic criteria of the DSM-5 Narcissistic Personality Disorder into the self-rated Narcissistic Personality Inventory (NPI). This inventory was designed to measure Narcissism as a personality trait in the general population, meaning non-pathological Narcissism (Narcissism as a personality trait) (Paulhus & Williams, 2002; Svindseth et al., 2009). Today, the Narcissistic Personality Inventory is still the most popular research instrument used to measure subclinical Narcissism in a population (Paulhus & Williams, 2002).

The NPI has undergone a multitude of testing, development, and modifications since it originated, with the 40 items version (NPI-40) currently being the most popular. The NPI-40 is a further improvement of earlier NPI versions developed by Raskin and Hall, resulting in the 40-item forced-choice measurement tool that is commonly used today (Raskin & Terry, 1988). The shortened NPI-40 was investigated in three different studies by its authors to analyse its construct validity and has been utilized and scrutinized in many studies thus far (Svindseth et al., 2009).

Of the numerous measurement instruments of Narcissism that have been developed thus far, the NPI has received the most empirical attention. Psychometric testing of the NPI-40 has largely revealed good internal consistency and test-retest reliability, and principal component analysis has offered various solutions with four to seven factors (Emmons, 1984, 1987; Raskin & Terry, 1988). Alpha composite reliability scores of .83, .74, .80, and .90 were calculated for the Narcissistic Personality Inventory, and only two of the 40 NPI items

showed positive loadings that were somewhat under the minimum acceptable value (Raskin & Terry, 1988).

Raskin and Terry (1988), using principal-components analysis, analysed the correlations among the NPI item responses and found proof of a general construct of Narcissism, in addition to seven first-order components which were identified as superiority, vanity, authority, exhibitionism, entitlement exploitativeness, and self-sufficiency. Emmons (1984) factor analysed the NPI and found four correlated components, labelling these dimensions as leadership/authority ($\alpha=0.79$), superiority/arrogance ($\alpha=0.69$), exploitativeness entitlement ($\alpha=0.74$), and self-absorption/self-admiration ($\alpha=0.69$). All factors, except for exploitativeness entitlement, were positively related to self-esteem. At present, the appropriate number of factors to use in the NPI is still questioned (Kansi, 2003), although it seems as if the four-factor structure is more commonly used.

There can be determined in which areas individuals scored highest by looking at their answers to specific questions. The online questionnaire asks the test taker to choose either option A or B in a list of 40 choices, such as choosing between (A) "I have a natural talent for influencing people", or (B) "I am not good at influencing people". Another example is choosing between (A) "Modesty doesn't become me" and (B) "I am essentially a modest person". Scores above 30 are considered to be of concern (Decision Making Confidence, 2019).

It is important to note that even a high score on the NPI does not mean that the individual fits the criteria of someone with a narcissist personality disorder. It is therefore important to remember that the Narcissistic Personality Inventory is not a diagnostic tool and that it can be potentially problematic to label an individual with a personality disorder based on this test (Decision Making Confidence, 2019). The results of a study by Vater et al., (2013) indicated that the NPI is not a valid indicator of narcissistic personality disorder unless one controls for self-esteem. Caution should therefore be exercised in the use of this test for diagnostic purposes.

With regards to Machiavellianism, the Mach-IV inventory, developed by Christie and Geis in 1970, is the most popular measurement tool used to measure Machiavellianism in individuals. The Mach-IV is a three-dimensional, 20-item self-report measure of Machiavellianism (Paulhus & Williams, 2002). In its current form, it is administered in the form of a 7-point Likert scale, and measures three theoretically created dimensions of Machiavellianism. These dimensions are interpersonal tactics, cynical views of human nature, and utilitarian morality. To obtain a respondent's Machiavellianism score, items reflecting anti-Machiavellian attitudes are reverse scored, and scores for items are added up. To get 100 as the theoretical neutral point, a constant of 20 is further added to the score (Collison et al., 2018).

Unfortunately, The Mach-IV Inventory is not considered very psychometrically valid (Moss, 2005). Shea and Beatty (1983) argue that the Mach-IV inventory show reliability measures way below the conventionally accepted criteria. Bloom (1984) however disagrees with this statement but does hypothesise that Machiavellianism may be unsupported by a valid nomological net that might imply a new Mach inventory is needed.

The dimensionality of the Mach-IV Inventory has been scrutinised in numerous studies, and various factor structures have been found. The outcomes resulted in the concept of Machiavellianism falling victim to several criticisms. The results of confirmatory factor analyses conducted by Corral and Calvete (2000) showed a four-factor structure to be the most satisfactory model for the Mach-IV. The factors were labelled as positive interpersonal tactics, negative interpersonal tactics, positive view of human nature, and cynical view of human nature.

Earlier research has revealed that existing measurement tools of Machiavellianism, such as the Mach-IV Inventory, depart from theoretical conceptualizations of the construct, with too much overlap with measures of Psychopathy (Collison et al., 2018). Although this overlap with Psychopathy is not necessarily problematic for this study, due to Psychopathy's inclusions in this study, the aim is still to locate the best possible measurement tool for

Machiavellianism. Collison et al. (2018) provide such a tool, namely the new Five Factor Machiavellianism Inventory (FFMI), which is more in line with professional conceptualizations, more separated from Psychopathy, and which should assist research on Machiavellianism and the Dark Triad. It consists out of 52 items such as “I am better than others” and “In meetings, I typically let others do the talking” which are answered on a 5-point Likert scale ranging from “disagree strongly” to “agree strongly”. It contains 13 subscales, each representing a facet of the FFMI identified as prototypically Machiavellian. The alpha coefficients of the subscales ranged from 0.68 to 0.82, and a three-factor solution yielded the most homogeneous (and therefore interpretable) factors, accounting for 66.48% of the variance.

Rauthmann (2012) used Item Response Theory to select those items from the Mach-IV Inventory that provided the most information. This selection process resulted in a 5-item instrument (Items 3, 6, 7, 14, and 19) named the Trimmed-Mach*. This brief measure of Machiavellianism showed satisfactory internal consistency reliability ($\alpha = 0.77$) and associations with external criteria largely similar to the Mach-IV. Factor loadings were 0.77 (item 6), 0.68 (item 3), 0.68 (item 7), 0.54 (item 19), and 0.53 (item 14). A follow-up confirmatory factor analysis showed outstanding fit for a unidimensional model with a Tucker–Lewis Index (TLI) of 0.99, comparative fit index (CFI) of 1.00, and a root mean square error of approximation (RMSEA) of 0.02. The Trimmed-Mach* can thus be considered to be a unidimensional measure. Rauthmann thus created a very short scale that measures Machiavellianism reliably in a unidimensional manner. Rauthmann argues the Trimmed-Mach* is quite daunting for a five-item scale in terms of its psychometric properties, but certainly comparable to the Mach–IV with regards to its construct and criterion validity, while being both shorter and more distinguishable from Narcissism and Psychopathy.

With regards to the measurement of Psychopathy, Hare’s Psychopathy Checklist-Revised (PCL-R) is a psychological measurement instrument most commonly utilised to measure the

manifestation of Psychopathy in people. It is a 20-item inventory of observed personality traits and documented behaviours, meant to be conducted with the assistance of a semi-structured interview, and supplemented with a review of any supporting information, such as official records (Hare et al., 1990).

The PCL-R is generally used as a clinical diagnostic tool within criminal justice settings. This scale is divided into two factors. The first factor describes a collection of interpersonal and emotional mannerisms ordinarily considered to be central to the construct of Psychopathy. The items in this factor focus on clinical inferences about affective processes, and an individual's verbal and interpersonal style. Factor 1 thus comprises items that are associated with personality. The second factor reflects those features of Psychopathy related to an impulsive, parasitic, antisocial, and unstable lifestyle. Factor 2 thus includes items that are fundamental to anti-social personality disorder (Evans & Tully, 2016).

On each of the 20 items, the respondent is ranked on a 3-point scale: (0: item does not apply, 1: item applies somewhat, 2: item definitely applies), where after the scores are added up. Individuals who score above 30 are considered to be a Psychopath (Skilling et al., 2002). The alpha coefficient for the PCL-R was found to be .92. (Skilling et al., 2002), while Hare et al. (1990) found the mean coefficient alphas to be .84 and .79 for factors 1 and 2, respectively.

The administration of the PCL-R is however both time-consuming and labour intensive. It requires a thorough examination of criminal (or workplace) records, as well as a semi-structured interview, which may not be feasible in many settings or studies (Kastner et al., 2012). Wong (1988) however found reliable ratings on Hare's Psychopathy Checklist, as well as obtaining accurate classification of inmates, without the use of the interview. While ratings obtained without the interview were found to give a slightly more conservative estimate of the size of the group high in Psychopathy, Wong suggested that this scale can be used without the interview. New information has however recently come to the forefront

when assessing the PCL-R, questioning its reliability and validity, as well as whether this scale can be used without the interview.

Other instruments are however available to measure Psychopathy. One of these measurement tools is the Triarchic Psychopathy Measure (TriPM), a 58 item self-report measure comprising of three scales, namely “meanness” (19 items), “disinhibition” (20 items), and “boldness” (19 items). The measure uses a four-point Likert scale, with the response options ranging from ‘mostly false’ to ‘false’, ‘mostly true’ and ‘true’. The respondents are asked to rate the extent to which each of the items on the scale applies to them, which will take approximately 15 minutes. It is suggested the TriPM is not used as a diagnostic tool without further guidance on the interpretation of the scores as no norms or appropriate cut-off scores are available, but it remains an economical, time-efficient, and promising measure of Psychopathy (Evans & Tully, 2016; Sellbom & Phillips, 2013).

In their correctional sample, Sellbom and Phillips (2013) found that Cronbach's alphas for all three domains of the TriPM were .89 (boldness), .90 (meanness), and .89 (disinhibition). These reliability coefficients can be argued to be too high, possibly indicating that the meanness scale is too specific, lacking breadth in measuring the construct, and limiting the TriPM's validity. Stanley et al. (2013) found the alphas to range from .77 (boldness), .84 (disinhibition), and .88 (meanness), which is more promising. The triarchic Psychopathy domains have been found to capture a significant amount of variance in other Psychopathy measures. Sellbom and Phillips (2013) found that the boldness domain was especially associated with Narcissism, thrill-seeking, and lowered functioning in the behavioural inhibition system of individuals. Disinhibition was associated with impulsivity and fun-seeking, while meanness was associated with Machiavellianism, reduced empathy, and a lowered behavioural inhibition system. This motivated both the validity and usefulness of the TriPM.

Another promising alternative to the PCL-R is the Psychopathic Personality Inventory (PPI). The PPI is a 187-item self-report questionnaire that measures personality traits

relevant to Psychopathy while placing less emphasis on criminal conduct. The PPI is divided into eight subscales, seven of which have been found to load onto two higher-order factors, labelled “fearless dominance” and “impulsive antisociality”. The PPI has shown promising convergent and discriminant validity in both forensic and non-forensic settings, with all of the scale scores showing satisfactory levels of Cronbach’s alpha (above 0.70) (Kastner et al., 2012). Hall et al. (2014) combined the PPI and the TriPM to form the PPI–Triarchic (PPI–Tri) scale. Sellbom et al. (2014) found considerable overlap between the TriPM and the PPI and suggested that the combination of these scales into the PPI–Tri scale shows promising results.

The Levenson Self-Report Psychopathy Scale (LSRP) is a 26-item self-report measure that has also gained considerable popularity in recent years in measuring Psychopathy. This scale is designed to assess the central personality and behavioural features of Psychopathy, showing evidence for a three-factor model identified as egocentricity, callousness, and antisocial tendencies (Sellbom et al., 2014). Hare’s 64-item Self-Report Psychopathy Scale-III (SRP-III) and its shortened 28-item SRP-Short Form (SRP-SF) also display promising psychometric properties, as well as a substantial overlap with the concept of Psychopathy. The SRP-III is made up out of an interpersonal, affective, lifestyle, and antisocial factor with the subscales showing nearly acceptable to excellent internal consistencies, ranging from $\alpha = .69$ to $\alpha = .90$. For the SRP-SF subscales, however, alpha reliability ranged from poor to satisfactory ($\alpha = .44$ to $\alpha = .73$), indicating that the SRP-III should remain the measurement instrument of choice (Sellbom et al., 2014).

Some scales have also been constructed to measure all three DT personality types, for example, the Short Dark Triad (SD3), created by Jones and Paulhus (2014). The SD3 consists of 27 items, measured on a 5-point Likert scale, where the scale ranges from 1 (disagree strongly) to 5 (agree strongly). The SD3 contains three subscales that reflect the three DT personalities, each subscale consisting out of 9 items. Items included in the SD3 include “I like to be the centre of attention” (Narcissism), “It’s not wise to tell your secrets”

(Machiavellianism), and “I like to pick on losers” (Psychopathy) (Jones & Paulhus, 2014). The subscales were found to possess acceptable reliabilities (Machiavellianism $\alpha = .71$, Narcissism $\alpha = .74$, Psychopathy $\alpha = .77$). Baughman et al. (2012) found the Cronbach alpha reliability coefficients for the SD3 to be .73 for Machiavellianism, .71 for Narcissism, and .78 for Psychopathy. The SD3 meets acceptable psychometric standards while concisely capturing the classic origins of the Dark Triad personalities.

Scales measuring aggression

Inherent in workplace bullying is the experience of hostility, a synonym for aggression. More scales to measure workplace bullies can thus become available if scales measuring aggression are also considered. This also fits with this study’s definition of workplace bullying (negative or hostile acts that occur at least weekly). Scales measuring aggression include the Overt Aggression Scale (Yudofsky et al., 1986) and several subsequent modified versions (Cohen et al., 2010; De Benedictiset al., 2012). Currently, however, the Buss-Perry Aggression Questionnaire is one of the most widely researched measures of aggression in the literature (Diamond & Magaletta, 2006), and will thus be swiftly unpacked.

The Buss-Perry Aggression Questionnaire. Buss-Perry Aggression Questionnaire (BPAQ) was developed by Buss and Perry in 1992, the successor of the Buss-Durkee Hostility Inventory (BDHI) that was developed by Buss and Durkee in 1957, as cited by Webster et al. (2014). Despite the BDHI’s success, its seven subscales used to measure hostility seemed unnecessarily complex. It was found that these seven subscales could be reduced to two factors: Aggressiveness and Hostility. After discarding several items and updating several more, the new 29-item BPAQ was born (Webster et al., 2014).

The BPAQ is a self-report measure of aggression. It uses a 5-point Likert scale and is available commercially. The scale consists out of four subscales, namely verbal aggression, physical aggression, hostility, and anger. Buss and Perry (1992) found an internal consistency of .85 for physical aggression, .72 for verbal aggression, .83 for anger, and .77

for hostility (total score = .89), thus indicating considerable internal consistency. The test-retest correlations showed similar findings (total score = .80). For subscales with relatively few items, these coefficients suggest adequate stability over time (Buss & Perry, 1992).

Bryant and Smith (2001) created the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF), shortened from the full BPAQ. The 12 items in the BPAQ-SF are answered on a 5-point Likert scale rated from 1 (very unlike me) to 5 (very like me). The BPAQ-SF was later modified and confirmed using confirmatory factor analysis with mentally ill offenders by Diamond, Wang, and Buffington-Vollum (2005), with reliabilities ranging from .63 to .73 (Diamond & Magaletta, 2006). Diamond and Magaletta (2006) found the alpha coefficients of the four subscales to range from .62 to .75 for men, and from .64 to .77 for women, which shows adequate reliability. Linton and Power (2013) used the anger, hostility, and verbal aggression subscales of the BPAQ-SF as part of their measurement battery to identify workplace bullies, and found an alpha coefficient of .81 for the 8 items. See Appendix B for the items included in the BPAQ-SF. While the BPAQ-SF measures aggression and not bullying, several of the items in the BPAQ-SF do however describe bullying behaviours, for example, "*Sometimes I fly off the handle for no good reason*", "*I have threatened people I know*", and "*I have trouble controlling my temper.*" The BPAQ-SF also contains a Hostility subscale, and hostility is considered to be inherent in workplace bullying (Einarsen et al., 2003; Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012),

In 2014, Webster et al. selected the three highest loading items from each of the BPAQ's four subscales and developed an efficient 12-item measure of aggression, which they named the Brief Aggression Questionnaire (BAQ). Although the BAQ outperformed the BPAQ-SF in most validity tests, the BPAQ-SF often outperformed the BAQ in internal consistency reliability (Cronbach's α). Nonetheless, both scales showed good psychometric properties (Webster et al., 2014).

Exploration of the relationship between three workplace bullying scales

This study, unfortunately, had to give preference to scales that were in the public domain or easily accessible, not too lengthy, and that did not require extensive costs or training. Three different scales measuring the behaviour of workplace bullies (or prominent aspects of workplace bullies) were finally selected, one measuring bullying overtly, one measuring bullying covertly through personality, and one measuring Aggression. These three scales are Baughman et al.'s Bullying Questionnaire (BBQ), the Short Dark Triad (SD3), and the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF), respectively.

The relationships between the Big Five personality traits and the three chosen bullying scales, and their subscales, will be explored. How the Big Five personality traits relate to these three bullying scales will provide insights with regards to what role personality traits play in the behaviour of workplace bullies. In addition, the relationships between the three bullying questionnaires will be explored. This will provide insights on how some of the current bullying scales relate to each other, and to what extent they measure the same construct(s).

Visual representations of the paths that will be explored with regards to the relationships between the Big Five personality traits and the three chosen scales are presented via 1 to 4.

Figure 1

The Big Five personality traits and the Short Dark Triad: The paths under investigation

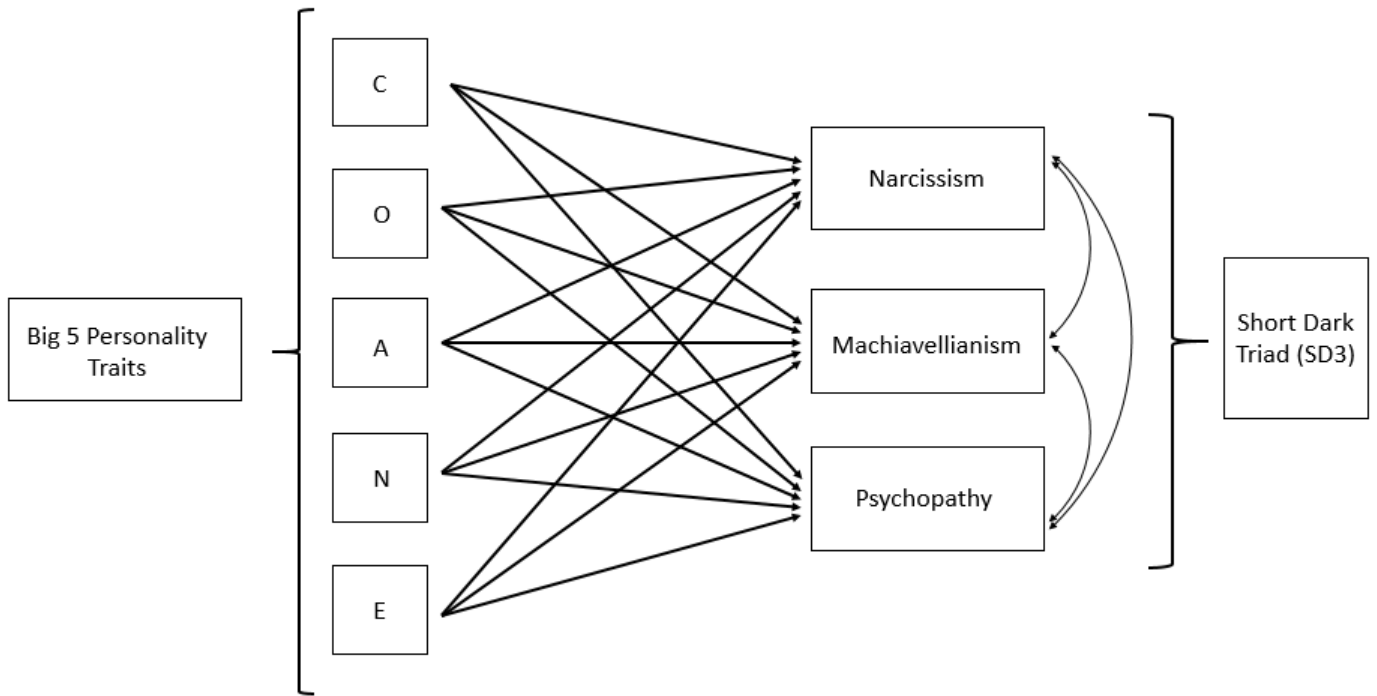


Figure 2

The Big Five personality traits and Baughman et al.'s Bullying Questionnaire: The paths under investigation

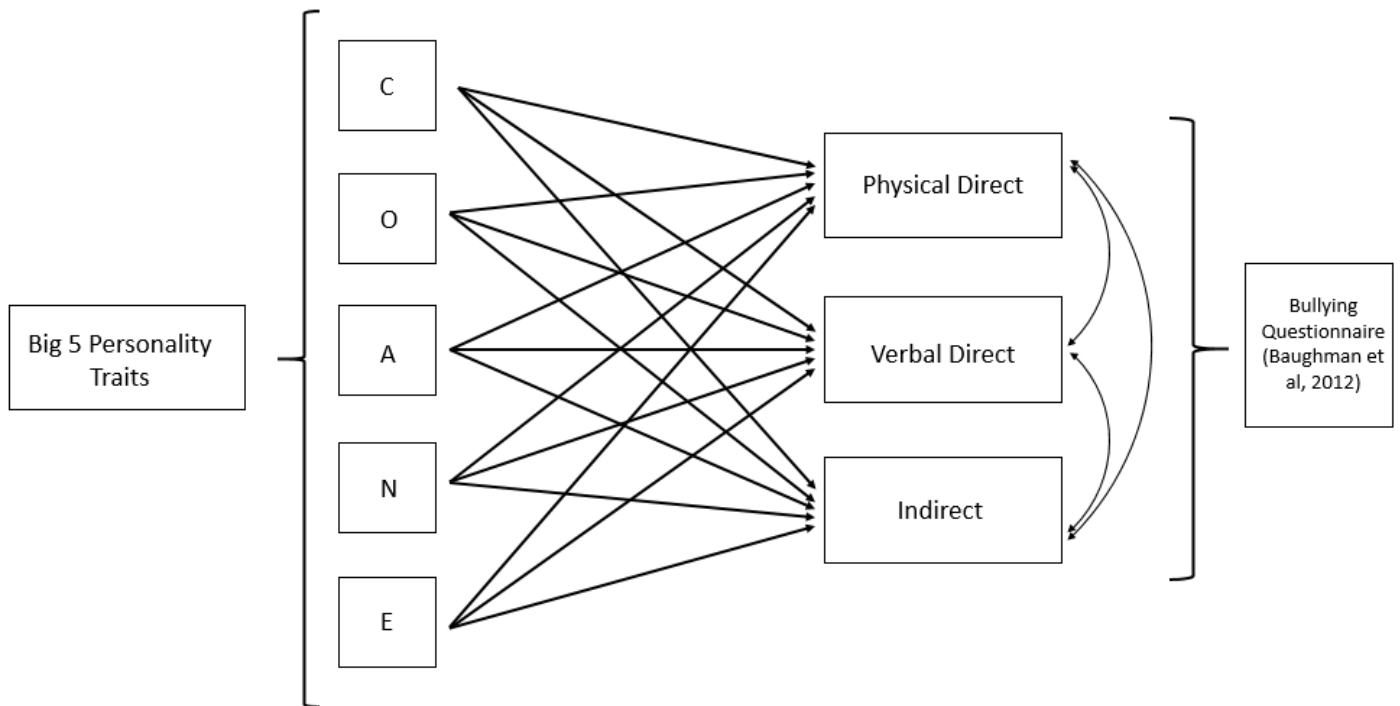
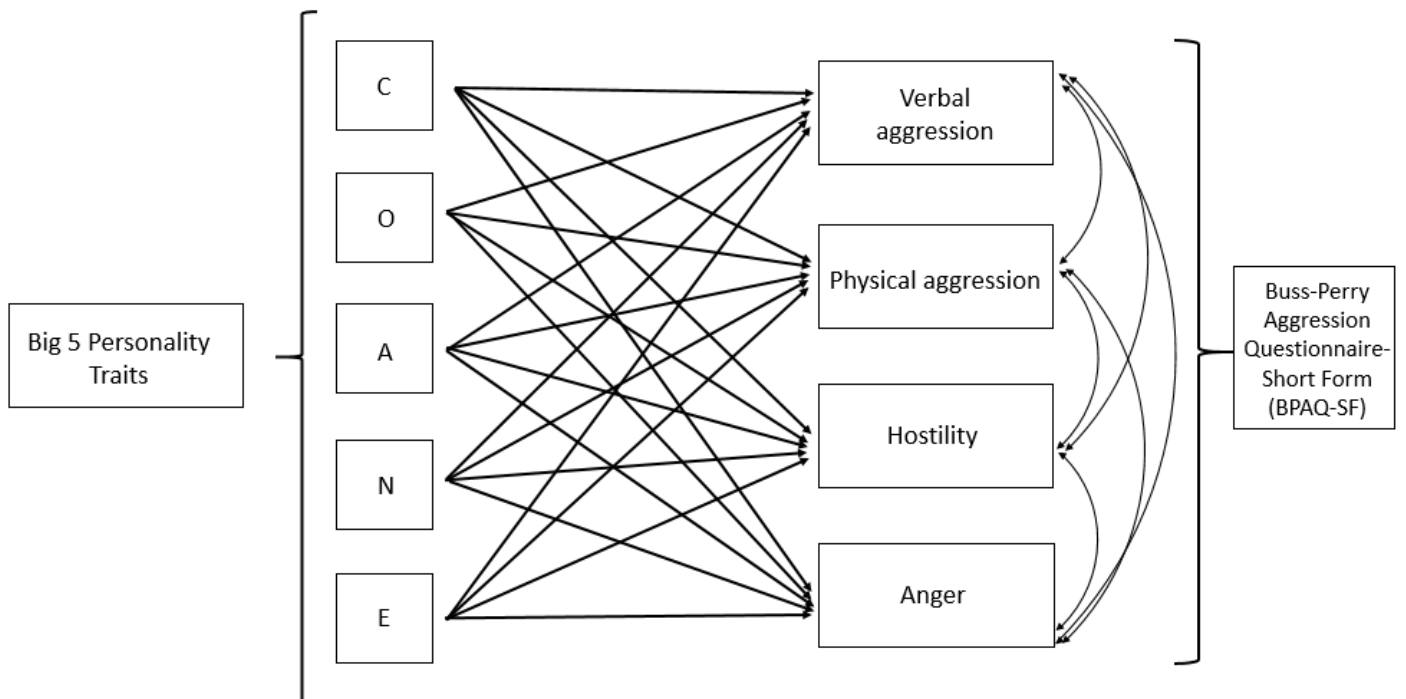


Figure 3

The Big Five personality traits and the Buss-Perry Aggression Questionnaire-Short Form:

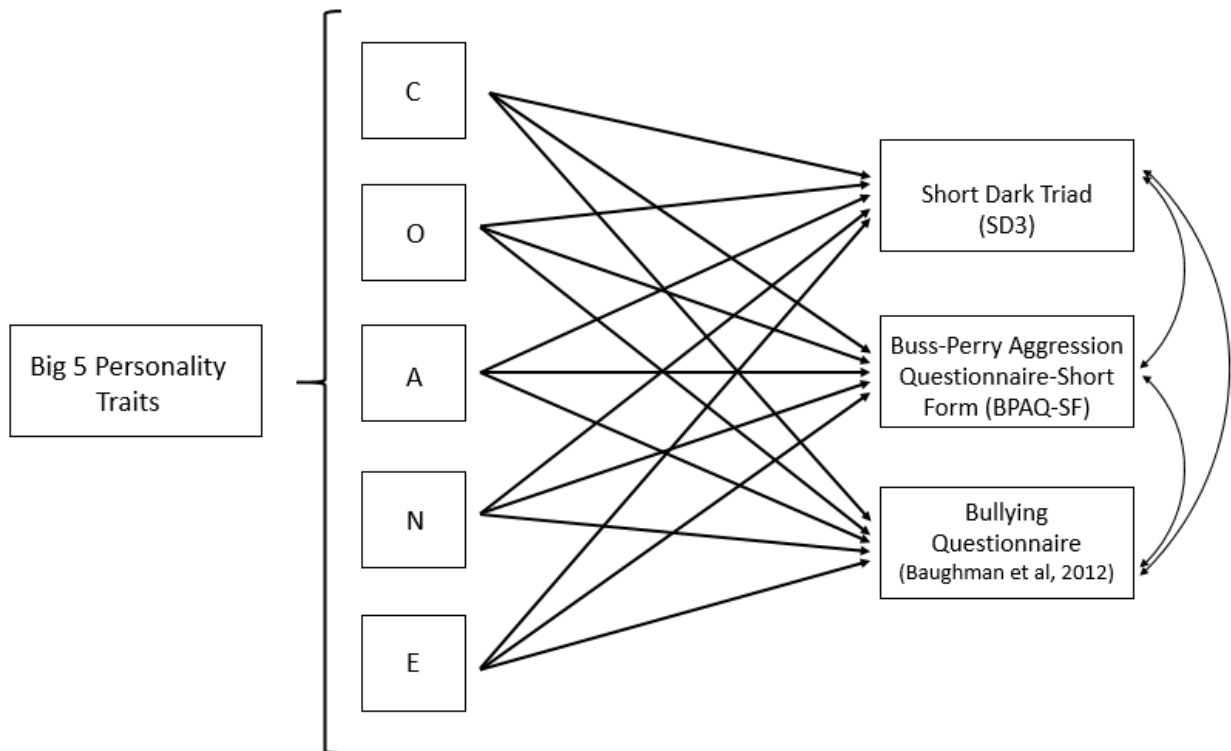
The paths under investigation



In addition to the above relationships under investigation, the relationships between the three bullying scales, and the ten subscales, will also be investigated in this study. This is demonstrated through Figure 4, which is a simplified visual representation (subscales not included).

Figure 4

The Big Five personality traits and three bullying questionnaires: The paths under investigation



The five research hypotheses that were formulated concerning the relationships between the Big Five personality traits and workplace bullying as a general construct will be answered via the above findings.

Moderating role of the workplace in workplace bullying

The work environment plays an important role in the occurrence of bullying. It is well documented by researchers that workers in a bullying situation are merely acting out larger, systemic organisational problems, and therefore merely acting within an already toxic environment. Organisational culture, processes, structures, and systems could thus foster bullying behaviour (Smit, 2014).

Organisational elements that have been linked to the occurrence of bullying behaviours include a chaotic and unpredictable work environment, little work control, unchallenging work, role conflicts, role ambiguity, work changes, work pressure, high-performance demands, interpersonal conflicts, a destructive management style or low levels of satisfaction with leadership, low moral standards, the social climate, and especially the way the work-conflict is experienced. Ten percent of the variance in bullying can be ascribed to the working conditions within an organisation, with both victims and observers of bullying reporting a low-quality work environment. In addition, the organisational culture and the organisational climate play a considerable role in perpetuating bullying behaviour (Einarsen et al., 1994; Glasø et al., 2007).

People create the corporate culture, the workplace processes, the unrealistically high-performance standards, etc. People also enact bullying behaviour. It could thus be argued that the workplace factors that contribute to bullying behaviour cannot truly be separated from the personality traits of those in the workplace.

Bullying involves a significant power imbalance, as incorporated in this study's chosen definition for workplace bullying (negative or hostile acts that occur at least weekly and that involves a significant power imbalance). This power imbalance is arguably often found between a colleague and their superior, manager or boss. Leadership styles will thus be discussed in this section since it plays such a large role in shaping the organisational climate, and how work is experienced by employees. This will additionally lend further insight into how workplace bullying operates, and how leaders may perpetuate workplace bullying through their personality.

Leadership styles and workplace bullying

Workplace bullying can happen to anyone. The victim can be a colleague, subordinate, or superior. While bullying has been found to take place at all levels in the organisation, it has been widely found that managers and supervisors are known to most often be the

wrongdoers. This is not surprising, with over 50% of employees reporting the worst characteristics of their job to be their immediate manager (Hoel et al., 2010).

Individuals in hierarchical superior positions in the workplace are found to more often harass colleagues in lower positions, with the imbalance of power between the bully and victim playing a significant role in the display of bullying behaviour (Hoel et al., 2010). Those who become a victim are normally weaker in some area than the bully. With children, this usually refers to physical weakness, but in an organisation this may refer to poor verbal defensive skills, or weak opportunities for defence due to the victim's weaker status in the workplace (Björkqvist et al., 1994; Hoel et al., 2010). A study by Ortega et al. (2009) in Denmark, a country known to have low power distance and feminine values, found that the perpetrators of bullying were more often colleagues than superiors. They suggest that these results may be due to bullying from superiors being more unacceptable in Denmark than in other countries, or because line-managers are often regarded as colleagues instead of supervisors in Scandinavia workplaces. The results however still support the notion that a high power imbalance plays a significant role in workplace bullying.

Targets are often unable to stand up against their managers due to a lack of power or means of defence. The bullying behaviour is often subtle and devious, and with that immensely difficult to confront. The power imbalance between the bully in the managerial role and the victim in the lower organisational position leads to reduced ability on behalf of the victim to adequately deal with the situation. In addition, witnesses to bullying from supervisors are fearful about their vulnerability, and are regularly unable to intervene or come to the aid of the victim. Witnesses may thus prefer to either ignore the bullying or join the bullying by turning against the victim, especially if they perceive that this will grant them favour from the individual in the more powerful position (Hoel et al., 2010).

Leaders are expected to lead by example. An effective leader is an individual who is proactive, hands-on, uses conflict as a tool while actively striving to find a solution, is stable, and has direction and a vision. Good leaders listen to their subordinates, empathize,

delegate, and motivate their team (Turaga, 2017). Good leaders can adapt their leadership style to suit different situations. The complexity of the situation, as well as how to address these complexities, is crucial. A leaders' subordinates are however often the main agent in determining whether the leaders' style is effective and suitable or not (O'Moore & Lynch, 2007)

Successful leadership is determined by examining the relationship between the leader and the subordinates. Those who are led must agree that the leader possesses the necessary qualities that make a good leader. Those who are led must agree that the leader can accept responsibility, is intelligent, impartial, has insight and imagination, and has a sense of judgement. Effective leadership is essential to ensure pace and energy to the work in an organisation, and it empowers the workforce, making the employees feel significant and needed. Without effective leadership, the organisation may face a serious lack of direction and motivation (O'Moore & Lynch, 2007). When leaders however do not only lack the necessary soft skills to be an effective leader but go on to be destructive or abusive, the situation may become considerably more problematic.

Many researchers agree that leadership style is one of the main antecedents to bullying in the workplace (Einarsen et al., 1994; O'Moore & Lynch, 2007). Bullying is often related to a stressful and negative working environment, and especially to little satisfaction with the leadership in the organisation (O'Moore & Lynch, 2007). Bullying by managers is often allowed by companies as an effective and efficient way of increasing productivity and performance and has as a result become acceptable in high-performing organisations (Smit, 2014). This is far from ideal. The leadership style that managers make use of tends to influence the working climate in the organisation negatively, as well as causing reduced productivity. Subordinates also report less loyalty and commitment to their leaders and the organisation (Hoel et al., 2010).

While leaders or managers that are supportive tend to lead to increased job satisfaction in their subordinates, bullied subordinates experience lower job satisfaction in addition to

health problems. Leaders that are abusive, autocratic, or tyrannical lead to increased stress levels in subordinates. Subordinates thus spend much of their time attempting to cope with their destructive leaders, managers, or supervisors. Also, the subordinates may experience depression, anxiety, circulation, and gastrointestinal problems (Hoel et al., 2010). The relationship between the bullied subordinate and the bullying manager is severely strained, with the victim suffering from toxic emotions when interacting with the manager. These toxic emotions include feelings such as suffering, despair, and pain. Without being able to display these emotions, the victims show an increased level of emotional labour. With having to fake or suppress one's emotions comes higher levels of stress, in addition to reduced job satisfaction, health complaints, and an increased intention to leave the organisation (Hoel et al., 2010). It is therefore especially worrisome that 54% of victims in a Norwegian study conducted by Einarsen (1999) reported being bullied by a superior in the workplace. Even more so, in other studies, as many as 80% of victims are bullied by a superior. A study by Catley et al. (2017) in New Zealand found that 69% of workplace bullying cases found were superior-to-subordinate, with peer-to-peer bullying making up 26% of the cases.

Supervisors taking part in acts of bullying can be extremely undermining to the relationship of trust between the different employee levels in an organisation (Smit, 2014). Employees that are bullied by their superiors appear to suffer more in mental terms than those that are bullied by their co-workers, often because interactions with superiors are not only unavoidable but also necessary, as well as superiors having more power to harm employees than co-workers, leading to increased levels of stress and anxiety (Einarsen, 1999). A study conducted by Cunniff and Mostert (2012) found that, of all the individuals in the sample, 30,5% reported having been bullied by their supervisors, while 15,7% reported being bullied by their colleagues. A study conducted in Norway found that more than 50% of bullied individuals were bullied by someone higher up in the organisational hierarchy, mostly those in managerial positions, with the numbers being as high as 75% in countries like Ireland and the UK (Hoel et al., 2010). Researchers thus agree that most workplace

bullies tend to be those in leadership roles. It is, therefore, necessary to examine which leadership styles are associated with workplace bullying to identify those leadership styles that are problematic.

With regards to leadership style, there are certain behaviours on behalf of leaders that are related to workplace bullying. A lack of involvement in decision-making processes is associated with bullying, as well as an authoritarian approach to settling the conflict. Bullied and non-bullied employees display the largest difference between their satisfaction with a manager's ability to resolve conflict, clearly indicating that this is a significant issue. Moreover, employees associate bullying with a working environment where there is fearfulness concerning the expression of one's opinions (Hoel et al., 2010).

Many situations in which bullying takes place stems from the leader's desire to control the behaviour of the subordinate by using force. This is once again rooted in the unequal balance of power associated with workplace bullying. While leaders may perceive the use of force as necessary to achieve organisational outcomes, it is often perceived as unjustified by the recipient. It may also be the case that the use of force is motivated by Narcissism and personal gain, which is often seen as an abuse of power. These characteristics are usually associated with what is termed an autocratic leadership style. As opposed to democratic leadership, characterised by being task-orientated and relationship-orientated, autocratic leadership is understood to be a coercive leadership style. Autocratic leadership does not stray far from terms such as abusive or tyrannical leadership and may be perceived as a form of bullying in itself (Hoel et al., 2010).

An autocratic leadership style is associated with certain behaviours. Shouting and rage is the norm, as opposed to constructive criticism, and behaviour comes across as threatening and unjustified. Autocratic leaders tend to be over-controlling, destroying any initiative on behalf of their subordinates. These leaders tend to cause volatile working environments through unpredictability and inconsistent punishment (Hoel et al., 2010). In a study by Hoel

et al. (2010), inconsistent punishment showed to be the strongest predictor of self-labelled bullying.

Autocratic leaders expect compliance from their subordinates. These leaders are believed to be motivated by the fear of being weak, blindly believing in authority. They are not ashamed to attack those who are regarded as weak, or easy prey (O'Moore & Lynch, 2007). Behaviours tend to be actively destructive, characterised by hostile or abusive behaviours such as threats of pay cuts or job loss, ridiculing, name-calling, yelling, etc. (Skogstad et al., 2007). With this manipulation, hostility, and threats, it is easy to see the link between an autocratic leadership style and workplace bullying. Parkins et al. (2006) found that bullying is more likely to occur at the hands of individuals who are more authoritarian, and who are less capable of taking perspective.

An autocratic leadership style may have several direct consequences on subordinates, such as bitterness, anger, a lack of concentration, anxiety, etc. There are also several indirect effects, such as substance abuse, depression, and reduced psychological well-being and health (Skogstad et al., 2007). Autocratic leadership may further lead to feelings of aggression amongst subordinates, in addition to frustration, stress, and an increase of co-worker aggression. An autocratic leader may therefore not only take part in bullying behaviour, but may cause further bullying behaviour amongst others in the organisation (Hoel et al., 2010). A study by O'Moore and Lynch (2007) found that 90% of the respondents have been bullied at some point, and all of them reported that the leadership style in the organisation was autocratic.

Another well-known leadership style that deserves a mention due to often being associated with bullying behaviour is a *laissez-faire* leadership style. *Laissez-faire* leadership is characterised by the absence of leadership: the leader is physically in their post, but not executing their duties and responsibilities. *Laissez-faire* leadership is characterised by a lack of transactions or agreements between the leader and the subordinates. Feedback, involvement and rewards are not present, and the needs of

subordinates are not recognised. Decisions are regularly delayed, and no effort is made to motivate the employees. (O'Moore & Lynch, 2007; Skogstad et al., 2007).

A failure to lead, as with a *Laissez-faire* leadership style, may become destructive, with the passivity in the leadership style becoming bullying in itself. Subordinates have certain expectations of their leaders. If these expectations are not met, they may experience feelings of being neglected, ignored, or socially excluded (Hoel et al., 2010; Skogstad et al., 2007). When managers lack initiative and action, it negatively affects the job satisfaction and productivity of subordinates, as well as negatively affecting satisfaction with the leader and leader efficiency. It is further possible that a *laissez-faire* leadership style may condone or perpetuate workplace bullying by either ignoring conflict or by failing to adequately intervene. As a result of the ignorance on behalf of the leader, a social climate characterised by high levels of conflict is fostered, further leading to a higher chance that an employee is bullied as part of this conflict (Skogstad et al., 2007). Therefore this leadership style may not only be seen as bullying in its own right but may also be viewed as an antecedent of bullying in the workplace (Hoel et al., 2010).

Skogstad et al. (2007) found that a *laissez-faire* leadership style by an immediate manager was strongly related to role ambiguity, role conflict, and workplace stressors, but only moderately related to conflict between co-workers. A study by Hoel et al. (2010) found that observed as well as self-reported bullying was correlated with the presence of an autocratic as well as *laissez-faire* leadership style. The strongest predictor for observed bullying was however the presence of an autocratic leadership style. Hoel et al. suggest that bullying is therefore mainly associated with aggression and arbitrary punishment. When the aggressive acts take place at random, victims are caught off guard and find it difficult to defend themselves.

Of those who have reported being bullied in a study by O'Moore and Lynch (2007), 67% described their organisation's leadership style as an autocratic leadership style, while 15% of the bullied respondents reported a *laissez-faire* leadership style. In addition, 39% of the

bullied respondents reported working in a hostile working environment. This further supports the claim that bullying is mainly associated with aggression and hostility, as opposed to the absence of leader participation. As a result, an aggression scale will also be included in this study to measure workplace bullies.

Bullying and the South African law

To understand the environment in which bullies are operating, and how the personalities of bullies are interacting with this environment, it is necessary to have a working understanding of the South African political, organisational, and economical environment. This section will therefore be investigating those aspects of the South African law that addresses bullying in the workplace, as well as its successes and failures.

Starting at the basics, the South African Constitution affords rights that protect parties from discrimination on many bases, including race, gender, culture, marital status and pregnancy. Everyone is equal before the law, and the right to dignity, security, and freedom of the person is granted, as well as the right to a safe and healthy working environment. One of the negative outcomes of workplace bullying is its hindrance to the basic right to human dignity, and it is therefore constitutional to protect the dignity of employees in the workplace (Republic of South Africa, 1996; Smit, 2014). Bullying is however a complex phenomenon, and bullying acts are not always clearly visible, or related to discrimination. As a result, the South African Constitution can do very little to protect victims.

South Africa's common-law contract of employment does not openly protect a worker against bullying, but there is a responsibility of fair dealings that can be read into contracts of employment on behalf of employers. It is however debated whether the protection of employees against bullying could be read into this obligation. The obligation of fair dealings is hypothesised to suggest that protective or responsive processes should not only be limited to sexual or general harassment but should also include occurrences of victimisation, bullying, abuse, and other forms of inexcusable employee conduct. There is also little done

to enforce fair dealings (Smit, 2014). Similarly, the Employment Equity Act (Nr. 55 of 1998) serves to protect employees from harassment but does not deal with bullying in specific.

South Africa's Protection from Harassment Act (2011) is currently going the longest way in terms of protecting victims of workplace bullying. This act incorporates the right of parties to be free from all forms of violence, from either public or private sources, and to afford victims of harassment an effective remedy against such behaviour. It confirms the constitutional right to privacy and dignity and, thus, also the right to be free from all forms of violence. It also intends to introduce measures that are aimed to enable the applicable organs of the state to give full effect to the provisions of the act. This does not, however, mean that discrimination does not take place in South African workplaces. There is unfortunately no law in South Africa dealing with workplace bullying in particular, nor any institutions ensuring that bullies get reprimanded (Smit, 2014).

Bullying in the South African workplace

South Africa is seriously lagging behind most of the world with regards to research in the field of bullying. A common definition and uniform approach to bullying must be established and implemented legal interventions seem to be lacking. The lack of national and organisational policies against workplace bullying is undesirable, and creates the impression that bullying is allowed, further encouraging bullying (Smit, 2014).

According to the current South African jurisdiction on unfair labour practices, bullying is grouped into a limited number of categories. These currently include categories such as training, promotion, demotion, and the granting of benefits. Unfortunately, if the bullying behaviours fall outside these constraints, there is no legal remedy available. Since bullying affects the bigger violence problems in the country, the necessity of an organised and targeted preventative response is essential (Smit, 2014).

The prevalence figures concerning workplace bullying differ between studies and countries. This could be due to cultural differences, dissimilarities in the definitions of

bullying or what bullying is understood to be, the fear of admitting to workplace bullying, feeling ashamed to classify oneself as either a victim or bully and differences in the instruments used for measuring. Prevalence figures should thus only be regarded as a rough estimate of the prevalence of workplace bullying and the severity of the problem that organisations are facing (Smit, 2014). While few prevalence figures are available, some South African studies have managed to ascribe a number to the prevalence of workplace bullying in South African organisations.

A recent study by Visagie et al., (2012), one of only a few on this topic in South Africa, found that 27.7% of the participants in a South African mining company reported having been bullied over the 6 months before the study. Kalamdien (2013) found in a study conducted in two organisations in the Western Cape that 44% of the total sample self-identified as victims of workplace bullying. Of the respondents, 50% reported that they have witnessed others in the workplace falling victim to workplace bullying every “now and then” during the previous 6 months, and 12% reported witnessing workplace bullying daily. A study conducted in 2003 by the International Labour Organisation showed that 80% of South African workers had fallen victim to aggressive behaviour in their workplaces, as cited by Smit (2014).

Only a few studies have examined how the experiences of workplace bullying differ between the different socio-demographic groups in the country. International literature mostly agrees that there is a direct association between being part of a minority ethnic group and the likelihood of experiencing workplace bullying. There was found that ethnic groups that were in the minority in the workplace reported higher levels of racial or ethnic bullying than their majority ethnic group counterparts did. A study conducted by Cunniff and Mostert (2012), however, found that Black employees in South Africa, the majority ethnic group, experienced the highest level of workplace bullying compared to minority groups like Coloured, White, and Indian employees. This phenomenon differs from the rest of the world, most probably due to South Africa's Apartheid history. Black people are the largest race

group in South Africa, but, compared to other race groups, remain the economically disadvantaged group, and the minority ethnic group in organisations (Cunniff & Mostert, 2012). Kalamdien (2013), however, found no significant difference between ethnic groups and their vulnerability to workplace bullying. Kalamdien explains that ethnic differences may be less of a factor in the prevalence of workplace bullying in the Western Cape, as compared to other South African provinces (as demonstrated by the wider range of South African employees used in the research by Cunniff and Mostert).

In South Africa, affirmative action practices are forcing organisations to change the composition of their personnel to reflect the country's demographics more accurately. This will result in diverse workforces who will have to learn to work together to reach their firm's objectives. These diverse workforces can however experience diversity in either a positive or negative light, depending on each group's views of status and power in and between the groups. If one group experiences diversity issues negatively, it could lead to them experiencing higher levels of workplace bullying, as power differences between groups often lead to bullying behaviours. There is however no literature that compares positive and negative diversity experiences, and how this relates to workplace bullying (Cunniff & Mostert, 2012).

Cunniff and Mostert (2012) further found in their South African study that direct bullying is predominant over indirect bullying, with 28.4% reported to being bullied directly, compared to the 23.8% who reported being bullied indirectly. Bullying behaviours by managers were more widespread than bullying behaviours by co-workers, with 30.5% reportedly being bullied by their managers, compared to the 15.7% who reported being bullied by their co-workers. A shortage of sufficient leadership allows for a fertile breeding ground for bullying behaviour. While leaders and supervisors do not necessarily bully with intent, they may unknowingly instigate perceptions of bullying being acceptable practice that is tolerated (Smit, 2014). Cunniff and Mostert (2012) also found that South-African employees in the

mining and manufacturing industries, as well as in government, are most likely to experience direct workplace bullying.

Even though labour force participation by females in South Africa have increased from 38% in 1995 to 48.5% in 2012, gender inequalities continue to undermine just and appropriate work goals. Female employees face discrimination and disadvantages, as well as a significant wage gap. Gender stereotyping is prevalent, with discrimination based on maternity, pregnancy, and family responsibilities, and a struggle to balance work and family life. Women are primarily concentrated in feminised professions, such as teaching and nursing, while simultaneously remaining in lower job categories than men, and remaining severely underrepresented in senior positions in South Africa (Smit, 2014).

Adding to the problem of gender inequality, sexual harassment is often considered to be a form of workplace bullying. Similar to general workplace bullying, victims of sexual harassment often experience emotional reactions such as lower levels of self-confidence, anger, humiliation, self-doubt, self-blame, and serious depression (Ramsaroop et al., 2007). According to Statistics South Africa, 63840 incidences of sexual assault were recorded in 2016/2017. A study by Wijk et al., (1997) concerning sexual harassment of women in the South African Navy found that 33,8% of women and 14,1% of men experienced incidents of supervisor harassment. Similarly, more women (84.3%) than men (51.4%) experienced co-worker harassment. Botha (2016) found that sexual harassment incidents take place daily and in varied forms in the South African mining workforce.

With regards to which gender experiences more workplace bullying, researchers are at odds as to whether females or males are more predisposed to being bullied (Smit, 2014). Cunniff and Mostert (2012) found substantial differences between the experiences of workplace bullying between males and females, with men reporting significantly higher levels of workplace bullying than women. Men also reported experiencing more direct and indirect bullying from managers, as well as more direct bullying from co-workers. This can be explained by workplace bullying incidents tending to be same-sex harassment (Namie, as

cited by Cunniff & Mostert, 2012). Since men fill the majority of management positions in South Africa, as well as being the most economically active gender, it supports the findings that most bullying will take place between men. Male bullies are also more likely to take part in bullying behaviours such as public screaming, verbal tactics, name-calling, and issuing threats of job loss, along with behaviour regarded as direct workplace bullying (Cunniff & Mostert, 2012).

This section provided a detailed view of workplace bullying in South Africa and those aspects related to it, such as sexual harassment, gender and racial discrimination, and the prevalence figures of these phenomena in South Africa. The approach of the South African legal system to workplace bullying and the prevention thereof was also addressed. While the country as a whole has a responsibility to address workplace bullying, workplaces specifically have a responsibility towards managing the occurrence of workplace bullying within the organisation itself, as well as how the bullying affects their employees. The next section will therefore focus on the role of the Human Resource Management department in an organisation with regards to addressing and managing workplace bullying.

The Role of Human Resource Management in workplace bullying

The Human Resource Management (HRM) department in an organisation has a significant role to play in the inhibition and management of workplace bullying. HRM is responsible for the people dimension of an organisation, and is responsible for representing and advocating for the employees in the organisation, as well as assisting the organisation in achieving its strategic goals. More and more researchers are starting to agree that a HR department that is functioning at a high level can improve the knowledge, abilities, and skills of the organisations current and future employees, increase their motivational levels, enhance the retention of productive employees, and encourage nonperformers to leave the organisation. Thus, HRM help to create a source of competitive advantage that can be

sustained through the interaction between a productive workforce and a HR department that facilitates this productivity (Huselid, 1995; Woodrow & Guest, 2014).

HRM has several functions. These include recruitment, selection, staffing, training and development, motivation, and managing and maintaining the human resources of the organisation. In addition, HR managers are responsible for providing those mechanisms that ensure employees maintain their productivity. Workplace bullying, however, has several negative consequences on the productivity of the organisation, which demands action from HRM. The negative consequences that result from workplace bullying include increased levels of job dissatisfaction, decreased organisational commitment, and absenteeism. The costs of workplace bullying to organisations are considerable, and employee productivity suffers under it (Huselid, 1995). Despite the widespread recognition of the problem, it is not yet apparent how to best manage workplace bullying, but the consensus is that it is the responsibility of the HRM department (Catley et al., 2017).

It is generally accepted that workplace bullying is one of the problems human resource managers are expected to deal with. Effectively managing and resolving bullying complaints are not only essential to resolving the situation at hand but also decreasing the likelihood of future cases of bullying. This is however no easy task for most HR managers, with workplace bullying complaints reported to be one of the most demanding aspects of their job. If these complaints are not actively and efficiently dealt with, parties to the situation may experience prolonged personal harm, a loss in productivity, absenteeism, and even resignation. Unfortunately, little assistance is offered in terms of research in how to manage and respond to these complaints (Catley et al, 2017).

Serious issues are encountered when HRM only pretends to be concerned for workers, but in reality, is not. It often happens that HRM acts as another form of management control, only under a different label. When the human resource systems and business strategy is not aligned or ethically sound, it leads to the exploitation of workers. When workers are merely viewed as a factor of production, HRM becomes an instrument to bully workers, undermining

its function as the protector of the workforce. A second problem may arise where the HR managers are incompetent to deal with workplace bullying. They may be reluctant to address the bully when the alleged bully is otherwise a productive and effective worker, or may not want to damage their relationship with the bully, especially if the bully is in a management position. HR managers also tend to rather side with the alleged bully than with the complainant when the bully holds a position of power in the organisation. In addition, an incompetent or inexperienced HR manager may interpret bullying situations as less harmless, for example interpreting hostile behaviour as competitive behaviours between employees (Catley et al., 2017).

HR professionals agree that the human resource policies of an organisation provide a direct and economically significant influence on the performance of an organisation (Huselid, 1995). In a study by Catley et al. (2017), 86% of the respondents claimed to have been unreasonably dismissed as a result of being either a target of bullying or an alleged bully, while the remaining 14% claimed to be unreasonably disadvantaged by the actions of the organisations. Only 12.5% of the cases mentioned the organisation having an anti-bullying or harassment policy. It is thus essential that the HR department establish policies that set out the grievance procedure, the way the case will be handled, and disciplinary action that will be taken in the case of workplace bullying (Catley et al, 2017).

A bullying policy is the basis of an organisation's approach to managing bullying. An explicit and detailed policy is necessary to tie together the different components of managing workplace bullying, and communicating with the workforce the standards that are set. The definitions of workplace bullying and its forms must be set out, as well as the formal and informal routes through which conflicts must be resolved. Dismissal is normally not advised for first offenses, but some sort of punishment is suggested e.g., formal written warnings or a disciplinary hearing (Woodrow & Guest, 2014).

To prevent unproductive and unethical behaviours that will negatively affect the workplace, such as fraud or theft, special observation and comprehensive training of newly

employed Machiavellians has been highlighted by Pilch and Turska (2015). Machiavelli individuals' behaviours may further be harmful to colleagues and the organisation due to their predisposition to abuse others. Careful consideration should be given to creating appropriate communication processes and instilling a favourable attitude toward colleagues in these employees. The culture of the organisations must also be examined by managers to ensure that it does not perpetuate bullying behaviour, and manage interpersonal interactions between workers.

As part of the role of HR managers to recruit and select the human resources of an organisation, effective practices must be put in place to ensure that job candidates with the desired behaviour are selected. HR departments should be diligent about checking references, and how applicants interact with others should be closely observed (Woodrow & Guest, 2014). HR is thus responsible for ensuring bullying is inhibited through the setting up of workplace bullying policies and procedures, actively dealing with complaints, and selecting the correct candidates during recruitment processes that will not perpetuate a culture of bullying or take part in bullying behaviours.

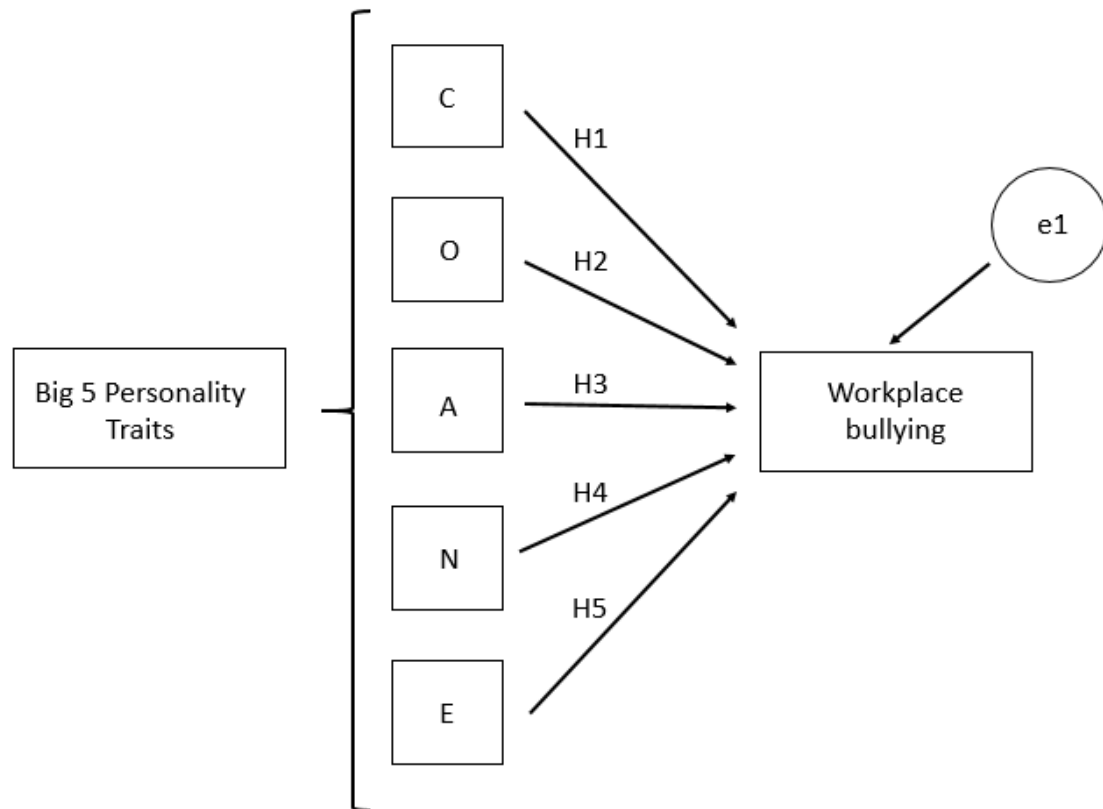
Summary and Structural Model

Data can be used to build a model that explains the channels through which one or more variable(s) affects another variable. A structural model investigates whether one variable influences another, by focusing specifically on the relationship between these variables (Mishken, 2007). In this study, the aim is to establish the relationship between personality traits and workplace bullying. Workplace bullying serves as the dependent variable, with the Big Five personality traits serving as the independent variables.

Figure 5 attempts to explain the relationship between personality traits and workplace bullying in the form of a proposed *Workplace Bullying* structural model. The model visually presents hypotheses 1 to 5 (H1-5) formulated in chapter 2.

Figure 5

The proposed Workplace Bullying structural model



It must be noted that this model is only a simplified structural model of the variables under investigation, as “workplace bullying” is measured through three separate scales that cannot be combined to give one workplace bullying “score”. Several different results will thus combine to answer the hypotheses presented through Figure 5.

Chapter 3 – Research Methodology

Introduction

The literature review in Chapter 2 of this study contains a reasoned argument, through consulting the relevant theory, in an attempt to answer the research initiating question presented in Chapter 1, namely: Does certain personality traits lead to bullying behaviour in the workplace? Chapter 2 presented the findings in the form of a *proposed Workplace Bullying structural model* (Figure 5). This proposed structural model serves as a schematic representation, illustrating the substantive research hypotheses and path-specific hypotheses formulated in the literature review through theorising and research. This path analysis facilitates the understanding of the relationships between the variables (Babbie & Mouton, 2001). The research was conducted to gain a broader understanding of the phenomenon of workplace bullying, as well as identifying those personality traits in employees that may play a role in the occurrence of workplace bullying.

The proposed *Workplace Bullying* structural model intends to answer the research-initiating question. This will be accomplished through empirically testing the predictions made by the research hypotheses that are schematically presented in the structural model to test its validity. The predictions will be considered valid if it closely fits the collected empirical data, i.e. the correlations are statistically significant ($p < 0,05$). The method of data collection, data analysis, and the overarching research design will be presented in this chapter.

Research design and methodological paradigm

This study was an empirical study, making use of primary empirical data, i.e. data collected originally by the researcher. The research design of a study can be viewed as the blueprint of the study or the overarching plan of how the research is intending to be

conducted. (Babbie & Mouton, 2001). An ex post facto correlational design was used in this study, as this is ideal for conducting social research when manipulating the characteristics of human participants is not acceptable. A major advantage of an ex post facto study is that the data is already collected. It thus studies facts that have already occurred. It is a form of methodical empirical investigation in which the researcher does not use random assignment or experimental manipulation of the independent variables, i.e. the researcher does not have direct control over these variables. The sample can however not be regarded as random, so generalisation is limited (Sukamolson, 2007).

The study is further classified as a correlational study due to the correlation between the specified variables that the study intends to obtain. Correlational designs are designs in which the independent and dependent variables can only be studied across individuals to determine the extent to which they co-vary (Simon & Goes, 2013). Correlational methods are used in almost every scientific and professional discipline and serve many purposes.

Correlations between variables are regularly used to make predictions. When the measures obtained on two variables are not related, namely they have a correlation coefficient of zero, knowing an individual's score on one variable will not help predict his or her score on the other variable. However, as the correlation becomes greater than zero, the accuracy of predicting the individual's score on one variable, based on his or her score on the other variable, increases. When the correlation is perfect, namely +1 or -1, the prediction of an individual's score on one variable, based on his or her score on the other variable, can be made without error. As is the case in this research study, the interest is in prediction rather than in a cause-effect analysis. When the correlation between the selected variables is clear, the prediction of one form of behaviour (i.e. workplace bullying) will be possible simply from obtaining knowledge of the other variables (i.e. personality characteristics) (Sukamolson, 2007).

In terms of the paradigm that was used, the data collected was quantitative. According to Sukamolson (2007), quantitative research is the numerical depiction and manipulation of

observations to define and clarify the phenomena that those observations replicate. It is employed in a wide variety of scientific and social sciences, including physics, biology, psychology, and sociology. Quantitative research specifically involves the collection of numerical data, followed by analysing this data through mathematically-based methods and statistics (which requires the data to be numerical in form) (Sukamolson, 2007). Multiple questionnaires were used in this study to quantify the data, which allowed for easy analyses of the data in the form of computerised output.

Substantive research Hypotheses

This study aimed to establish the role that certain personality traits play in the prevalence of workplace bullying. While it was found through extensive research that personality traits are not the only variables influencing workplace bullying, it was hypothesised to be strong and valid predictors of this phenomenon and was thus included as the main variables in the proposed *Workplace Bullying* structural model. The proposed *Workplace Bullying* structural model could thus be dissected into five path-specific substantive research hypotheses:

Hypothesis 1 (H1): Individuals scoring low in conscientiousness will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 2 (H2): Individuals scoring low in openness to experience will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 3 (H3): Individuals scoring low in agreeableness will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 4 (H4): Individuals scoring high in neuroticism will demonstrate an increased likelihood of taking part in bullying behaviours.

Hypothesis 5 (H5): Individuals scoring high in extraversion will demonstrate an increased likelihood of taking part in bullying behaviours.

The target population

According to Babbie and Mouton (2001), a population is the theoretically specified aggregation of study elements. An element in this context refers to the units about which information is collected, providing the basis for analysis. The specific target population of a research study is the complete amount or group of individuals that are identified for the research. The aim is that the outcomes of the study can be generalised to these individuals. The target population is thus the total of individuals that the researcher is interested in. It is important to identify the target population to ensure that a sufficiently representative sample can be selected from the population. In addition, as this is a quantitative study, the sample must be either the same as, or at least representative of, the features of the target population, otherwise, the data captured cannot be meaningfully interpreted and applied to the population as a whole (Babbie & Mouton, 2001).

For the research results of this study to be generalised, clear identification and explanation of the target population needed to be provided. The target population identified for this study was working South Africans that are permanently employed in organisations. South Africans refer to resident citizens of the Republic of South Africa. Since it would not be feasible to incorporate all citizens in South Africa into the study, a study population needed to be decided on.

A study population is that collection of elements from which the sample is selected (Babbie & Mouton, 2001). For this study, it was ideal to have research participants from organisations in both public and private sectors, and that have been employed in their respective organisation for at least 6 months. Their organisation has to be based in South Africa, and they had to be over 18. Participants who did not meet these requirements would not be able to participate in the study. For meaningful comparisons to be drawn between the South African provinces, sufficient representation of research participants in each province

was aimed for. The method of obtaining these research participants is discussed in the next section.

Sample, sample size, and sampling method

Sampling is the process of selecting observations. Since every population is quite heterogeneous, careful sampling must take place to ensure the representative sample is truly representative of the population. This is achieved when the individuals in the sample contain the same variations that exist in the population. Different sampling techniques exist, allowing for the determination or control over which specific individuals are selected for the study (Babbie & Mouton, 2001).

Sampling procedures can be generally divided into two procedures, namely probability, and non-probability sampling. Non-probability sampling is a sampling procedure in which the probability of selection is unknown for each component of the sampling population. Probability sampling, on the other hand, can be defined as a sampling procedure in which each element in the population has an identical chance of being selected into the sample. An element in this context refers to that unit about which information is collected, and which acts as the basis for analysis (Babbie & Mouton, 2001).

As discussed in the previous section, the units of analysis for this study consisted out of working South Africans who have been permanently employed in organisations for a minimum of 6 months. To find a sample that matched these criteria, non-probability purposive and convenience sampling with a snowball effect was utilised. Purposive sampling was employed as the sample considered had to possess the aforementioned criteria to be included in the study.

Convenience and snowball sampling was used to gain more participants who met the criteria. A convenience sample refers to a sampling procedure where readily available individuals are used (Babbie & Mouton, 2001). Snowball sampling is a sampling method

where the research participants are the ones to recruit additional participants for a study. With snowball sampling, the first step was to identify the potential subjects, i.e. working South Africans permanently employed in organisations. The second step was to ask those subjects to recruit other research participants, and then ask those to do the same. These steps were repeated until the required sample size is reached (Statistics How To, 2019).

To summarise the sampling method: research participants were selected based on convenience and the judgement of the researcher. Those who meet the participation criteria were encouraged to forward the study to other potential participants who also met the desired criteria.

With regards to sample size, large sample sizes are a prerequisite for a statistic to be reliable and accurate. Researchers must not neglect to decide on the appropriate sample size in a given study that will be both valuable and practical for addressing the research questions. This is especially important if the findings are to be extrapolated to the larger population (Babbie & Mouton, 2001). Nevitt and Hancock (2004) found that researchers with small to modest sample sizes can successfully model the data using SEM techniques. They noted that sample sizes of 100 could be satisfactory for simple models, but suggested using 250 or more to make estimations. In terms of the sample size for this study, the aim was thus a sample size of 250, but only 216 were obtained.

While deciding on a suitable sampling method for the proposed study is vital, permission to select the participants and use them for data collection first had to be obtained before the sample can be selected from the target population. Especially when questionnaires are used to examine human behaviour, the possibility arises that this measurement instrument may negatively impact participants due to the personal and sensitive data it requires. Due to the sensitive nature of the phenomenon under investigation in this study, namely workplace bullying, obtaining permission was specifically important in this study, especially due to the negative emotions or trauma it may have evoked. The method used to obtain ethical clearance is thus presented later in this chapter.

The data collection procedure

The data in this study were collected by means of administering self-report questionnaires to the selected sample and/or participants. These questionnaires were distributed electronically, and the opportunity was presented to the participants to enter a lucky draw. The prizes were two cash prizes of R500 each. The aim of these was to motivate increased participation in the study.

Sun Surveys, Stellenbosch University's e-survey service, was used to collect the electronic survey responses. The survey was shared via email and WhatsApp with various people that the researcher knew personally who met the sample criteria, i.e. eligible participants in the researcher's network. Responses were recorded electronically, thus no physical data collection was required. Participants were encouraged to share the link with other colleagues, friends, and family members who are eligible to participate.

Participants were required to click on the survey link to access the questionnaire. The necessary information regarding the rationale, objectives, and the nature of the questionnaire was then be provided to those individuals. Research participants firstly had to agree to take part in the study (i.e. informed consent was obtained). Next, it was determined if the participants met the prescribed selection criteria (employed in their respective organisation for more than 6 months, South African, over 18, etc.).

In the case that informed consent was obtained and the participant met the prescribed criteria, the opportunity to complete the questionnaire in their own time was presented. Participants using the online survey were allowed to withdraw from the questionnaire at any stage in the completion process by closing the browser. After the survey was submitted, the researcher extends their appreciation to the participants for willingly participating in this research study in the form of a thank you note. The option to enter the lucky draw was additionally presented by requesting the email address of the respondent. The entire survey took roughly 15 minutes to complete.

Measuring instruments/Operationalisation

Workplace bullying is difficult to measure due to a lack of appropriate measuring techniques. With workplace bullying being a fairly new area of research, much development still needs to take place in the measurement of this phenomenon. Thus far, questionnaires have been the dominant method used to measure workplace bullying, with most taking the form of a self-report scale.

The data collected in this study was collected via four different measurement instruments, added together into one survey. In keeping with the chosen definition of workplace bullying formulated in this study, respondents were asked to indicate how true the given statements were when considering their past 6 months. The four instruments were supplemented by a basic questionnaire concerning the demographics of the individual. These demographical questions asked for the basic information of the participant, including categories such as gender, age, race, and the contact details of those participants wishing to enter the lucky draw. This allowed the researcher to assess the generalisability of the research findings.

The Basic Traits Inventory (BTI) was used to measure the Big Five personality traits. As no single current scale would have been sufficient on its own to measure workplace bullies, a collection of three different scales was used to measure this phenomenon. The three different scales measuring the behaviour of workplace bullies (or prominent aspects of workplace bullies) were chosen to be one measuring bullying overtly, one measuring bullying covertly through personality, and one measuring Aggression. These three scales are Baughman et al.'s Bullying Questionnaire (BBQ), the Short Dark Triad (SD3), and the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF), respectively. The scales will be discussed in this section.

The Short Dark Triad

The Short Dark Triad (SD3), created by Jones and Paulhus (2014), was used to measure the Dark Triad of personality traits to establish whether an individual is a bully, or displays bullying tendencies. The SD3 consists of 27 items, measured on a 5-point Likert scale, where the scale ranges from 1 (disagree strongly) to 5 (agree strongly). The SD3 contains three subscales that reflect the three DT personalities, each subscale consisting out of 9 items.

Items included in the SD3 include “I like to be the centre of attention” (Narcissism), “It’s not wise to tell your secrets” (Machiavellianism), and “I like to pick on losers” (Psychopathy; Jones and Paulhus, 2014). The subscales were found to possess acceptable reliabilities (Machiavellianism $\alpha = .71$, Narcissism $\alpha = .74$, Psychopathy $\alpha = .77$). Baughman et al. (2012) found the Cronbach alpha reliability coefficients for the SD3 to be .73 for Machiavellianism, .71 for Narcissism, and .78 for Psychopathy. The SD3 meets acceptable psychometric standards while concisely capturing the classic origins of the Dark Triad personalities, and would as a result be extremely useful for this study. See Appendix C for the items included in the SD3.

The rationale behind using only one short questionnaire to measure the Dark Triad was to overcome the possible resistance amongst participants to answering questions that may come across as attacking or incriminating, as is the nature of scales measuring DT personalities. Including as few as possible items that may cause potential cognitive dissonance or unease in participants may have encouraged both the taking part and the actual completion of the full questionnaire. Secondly, both the validity and reliability of almost all scales measuring Narcissism, Psychopathy, and Machiavellianism are questionable. The SD3 was thus chosen to represent all three DT personalities concisely while having acceptable scores for reliability and validity. Thirdly, using a unique scale for each DT personality type would have resulted in a full questionnaire that would take a considerable amount of time to complete, potentially discouraging participation. The SD3 is

in contrast very short, only consisting out of 29 items. The SD3 was therefore the scale most suited for the needs of this study.

The Buss-Perry Aggression Questionnaire-Short Form

The Buss-Perry Aggression Questionnaire-Short Form (BPAQ-SF) was used to measure aggression in this study. It was shortened from the 29-item Buss-Perry Aggression Questionnaire (BPAQ) that was developed by Buss and Perry in 1992. The 12 items in the BPAQ-SF, originally developed by Bryant and Smith (2001), are answered on a 5-point Likert scale rated from 1 (very unlike me) to 5 (very like me). The scale consists of four subscales, namely verbal aggression, physical aggression, hostility, and anger. The BPAQ-SF was later adapted and confirmed using confirmatory factor analysis with mentally ill criminals by Diamond, Wang, and Buffington-Vollum (2005), with reliabilities ranging from .63 to .73. Diamond & Magaletta, 2006). Diamond and Magaletta (2006) found the alpha coefficients of the four subscales to range from .62 to .75 for men, and from .64 to .77 for women, which shows adequate reliability. Linton and Power (2013) used the anger, hostility, and verbal aggression subscales of the BPAQ-SF as part of their measurement battery to identify workplace bullies, and found an alpha coefficient of .81 for those 8 items. See Appendix B for the items included in the BPAQ-SF.

Baughman et al.'s Bullying Questionnaire

Baughman et al. (2012) developed a bullying questionnaire for their study that directly investigated the relationships between the Dark Triad personality traits and bullying behaviours. The authors sought to design a reliable measure of bullying for use with an adult sample. Baughman et al.'s Bullying Questionnaire (BBQ) assesses bully status and type, with several of the items based on an aggression scale constructed by Taki et al. (as cited by Baughman et al., 2012). Participants are asked to indicate how frequently they have engaged in each of the 17 bullying behaviours during the past month on a 5-point Likert scale ranging from "never" (1) to "always" (5). The BBQ contains four subscales,

namely Physical Direct (e.g., “I forcefully pushed/pulled someone”), Verbal Direct (e.g., “I threatened to harm another person”), Direct (the sum of Physical and Verbal Direct; not analysed in this study), and Indirect (e.g., “I made friends with a person to ‘get back’ at someone else”). An overall bullying score is additionally obtained by obtaining the sum of all 17 items. Baughman et al. (2012) found the reliabilities for these subscales and the total score to range from .69 to .89.

The Basic Traits Inventory - Short

The Basic Traits Inventory (BTI) measures the Big Five factors of personality, namely Conscientiousness, Extraversion, Agreeableness, Openness to Experience and Neuroticism, as well as social desirability. These five factors are divided into four or five facets each. Openness to Experience consists of the following facets: aesthetics, ideas, actions, values, and imagination. Conscientiousness consists of effort, order, prudence, self-discipline, and dutifulness. Extraversion consists of ascendance, gregariousness, excitement-seeking, liveliness, and positive affectivity. Agreeableness consists of straightforwardness, compliance, tendermindedness, prosocial tendencies, and modesty. Lastly, neuroticism consists of depression, anxiety, affective instability, and self-consciousness (JvR Africa Group, 2018a). These facets are very similar to those found in the NEO Personality Inventory, a very popular scale also based on the well-known Five-Factor Model of personality that is used worldwide (JvR Africa Group, 2018b). The BTI was developed by Taylor and De Bruin specifically for the South African context. This was done in reaction to the lack of appropriate, locally developed personality inventories available in the country (Taylor & de Bruin, 2006).

The BTI is easy to use, easy to understand, and can be used in almost any context. No complicated psychological terms are used, with the test focusing on using every-day language that is easy to comprehend. The test was designed to be administered to individuals who are older than 16 years of age and have a reading level of at least grade 10.

It is available in both Afrikaans and English, takes 30 to 40 minutes to complete, and consists out of 193 items. The items are in the form of short, positive statements. The test-taker indicates their degree of agreement with the statement on a five-point Likert-type scale. The scale ranges from “Strongly Agree” to “Strongly Disagree”. It can be completed online, as well as in paper-and-pencil format. The test may only be used by individuals with the appropriate training and education in psychometric assessment and psychology, and should thus be used in the scope of laws that govern the use of psychometric and psychological assessment in South Africa (Taylor & de Bruin, 2006).

Taylor and de Bruin developed the BTI for South Africa, based on the five personality factors as a model that has proven to be applicable across cultures worldwide. The 16PF has been in existence for multiple years and measure the same five personality traits. A lot of evidence for this test, and the factors it measures, have been found in both Western and non-Western cultures. The authors thus intended to prove that these factors are also applicable in the South African context. The model has been extensively validated across multiple cultures, providing sufficient support for the generalisability of the factors. Several factor analyses of existing personality inventories yielded strikingly similar structures to that seen in the Big Five model (Taylor & de Bruin, 2006). An extensive literature review was conducted by Taylor (2004) to construct precise definitions of the five factors and the facets defining each, to ensure construct validity of the BTI.

The internal reliability coefficients for the facets are sufficient across all four norm groups used in the construction of the BTI ($n=5352$). Most scales have an internal consistency reliability value of .70, which is acceptable. The Cronbach's alpha coefficients (α) of the factors, as well as the facets, are very high, with the lowest being $\alpha = .87$, and the highest $\alpha = .93$. The reliability of the Big Five Factors is therefore very high, and the five factors are thus sufficient to use in decision making about individuals. Openness to values ($\alpha = .44$) and modesty ($\alpha = .56$) should however not be used for decision-making purposes or in isolation due to its consistently lower reliability coefficients, but the overall factor score would still be

acceptable for use. The reliability coefficients of each of the five factors are presented in Table 1. All five factors also emerged clearly for the Black and White group separately (Taylor & de Bruin, 2006).

Table 1

Cronbach Alpha Coefficients for Factors of the Basic Traits Inventory

Scale	Total	Black	White
Extraversion	0.87	0.85	0.92
Neuroticism	0.93	0.92	0.95
Conscientiousness	0.93	0.92	0.94
Openness to experience	0.87	0.85	0.91
Agreeableness	0.89	0.88	0.89

Note. Taylor, N., & de Bruin, G. (2006). *Basic Traits Inventory Technical Manual*. JVR Psychometrics.

Because the BTI is a lengthy assessment, however, the Basic Traits Inventory-Short (BTI-S) was chosen for this study. The BTI-S consists of 60 items, with each of the five personality traits being measured by 12 items that were selected from the full BTI assessment. The BTI-S contains the best items of the full BTI, and it is thus expected that BTI-S will yield scores that adequately represent the Big Five personality traits. Table 2 shows the reliabilities of the BTI-S when using the responses to the full-length BTI ($n = 1000$; the calibration sample), and for a new data set containing the responses of 883 persons. The Cronbach's alpha coefficients (α) of the factors, as well as the facets, remained high in the BTI-S, with the reliabilities $> .80$ overall (Laher & Cockcroft, 2013).

Table 2*Cronbach Alpha Coefficients for Factors of the Basic Traits Inventory - Short*

Scale	Calibration sample	New data set
Extraversion	0.80	0.81
Neuroticism	0.86	0.86
Conscientiousness	0.85	0.87
Openness to experience	0.77	0.83
Agreeableness	0.75	0.81

Note. Laher, S., & Cockcroft, K. (2013). *Psychological Assessment in South Africa: Research and Applications*. Johannesburg: Wits University Press.

The BTI-S was thus chosen for this study specifically for its high reliability, its shorter completion time, and its applicability to the South African context, in which this study will be taking place. The simple “BTI” acronym will be used to refer to this assessment in the remainder of this study.

The data analysis procedure

This section outlines the different data analysis techniques that were utilised in this study. The aims of the data analysis conducted for this were threefold. The researcher firstly aimed to analyse the validity and reliability of the measurement instruments used in this study to ensure it supports the structural model, and that the results could be meaningfully interpreted. Secondly, the researcher aimed to establish the correlations between the chosen bullying scales. Thirdly, the researcher aimed to analyse the formulated hypotheses to assess whether the hypotheses are correct and statistically significant, and thus support (or do not support) the structural model. The data was obtained

from the results of the various respondent's answers on the survey and resulted in descriptive statistics representing the quantitative data in a manageable form.

Firstly, to establish whether the items of the chosen measurement instruments consistently measure the same thing across respondents, internal consistency reliability was established. The reliability coefficients that were used to establish this internal consistency were Cronbach's alpha (α), the total-item correlations, and whether the alpha would increase if any item were to be removed.

Cronbach's coefficient alpha is considered the most popular reliability coefficient, seen as a measure of a scale's internal consistency, i.e. the degree of unidimensionality in the test (Dunn et al, 2014; Peters, 2014). The threshold for sufficient reliability is commonly accepted to be a reliability coefficient (like that of Cronbach's alpha) of .7 (Nunnally, 1978), and is also the cut-off that was used in this study.

The item-total correlation is the correlation coefficient of an individual item with the instrument as a whole and can be used as a supplementary coefficient to Cronbach's alpha to assess internal consistency. The thresholds for acceptable item-total correlations used in this study was .2, which is the recommended cut-off (Everitt & Skrondal, 2010).

Related to the item-total correlation, whether the alpha coefficient would increase or decrease if the item is deleted was also considered. Should the alpha increase if an item is deleted, then the internal consistency would increase. For individual items, the item-total correlations and whether the alpha would increase were considered together before a decision was made to remove items from further analyses.

The average inter-item correlations were also considered. The thresholds for acceptable item-total correlations used in this study were between .15 and .5, where the deletion of items with lower correlation coefficients was considered as these items do not measure the same construct well. Where items had a higher correlation, it indicated that the items are so

close as to be almost repetitive, but this was not considered a sufficient reason to delete any item on its own (Statistics How To, 2020).

The second aim of this study, namely establishing the correlations between the three bullying questionnaires, i.e. to what extent these scales measure the same construct (convergent validity), was achieved through assessing the Pearson correlation coefficients between the total scales and subscales. Correlation (Pearson correlation coefficients) is when the change in one item may result in a change in another item. There can be either a positive or a negative correlation between two variables. The variables are said to be positively correlated when the two variables move in the same direction. When the two variables move in opposite directions (as the one increase, the other decreases), the correlation is however negative. The value of correlation lies from -1 to +1. A value close to +1 represents a strong positive correlation, while a value close to -1 indicates a strong negative correlation (Babbie & Mouton, 2001; Surbhi, 2016). A correlation of zero indicates that there is no linear relationship between the two variables. To identify whether two variables correlate more than two others, it is necessary to compare their correlations. By running the correlation between the variables, the degree to which the variables influence each other was established. As a general rule, correlations from 0 to .3 were considered very weak, .3 to .5 weak, .5-.7 moderate, and above .7 strong.

The statistical significance of the above correlations was also assessed through the p-value. The p-value expresses the probability of observing a correlation as large as the one we have in our sample if the null hypothesis were true (i.e. if there is in reality no relationship). If this probability is small “enough” we conclude that it is unlikely that our observed regression coefficient could have arisen by chance and we reject the null hypothesis (Babbie & Mouton, 2001).

In psychology, it is common practice to regard p-values $< .05$ as small “enough” to reject the null hypothesis. When a p-value of $< .05$ is observed, the regression coefficient is statistically significant. Note, however, that a small p-value reveals nothing about the

psychological significance or importance of a regression coefficient and the relation between Y and X. The p-value of $< .05$ reveals that it is unlikely that the regression coefficient reflects chance alone. Large samples yield small standard errors, and with small standard errors, even small regression coefficients will be statistically significant. Statistically, we say that large samples increase the power of the test to reject the null hypothesis. The size of the regression coefficient and the correlation between Y and X is more informative about the psychological significance and importance of the relationship. If the criterion for statistical significance is set at $.05$, it means that the researcher is willing to tolerate a 5% chance of wrongly rejecting the null hypothesis (Babbie & Mouton, 2001). For this study, the criterion for statistical significance was therefore set at $.05$ ($p < .05$), but larger p-values ($p < .1$) were also explored.

The third aim of this study, namely testing the constructed hypotheses. This was done through assessing the relationships between the BTI and the three chosen bullying scales, i.e. three different measurement models were tested, first looking at the outer/measurement model, followed by the inner/structural model. This was done by making use of Partial Least Squares Structural Equations Modelling (PLS-SEM), using *SmartPLS 3.3.3* software. The inner and outer models were tested using this PLS approach.

Considering the outer/measurement model, the composite (construct) reliability, the discriminant validity, the Average Variance Extracted (AVE), and outer loadings (on an item level) were explored for each scale used in the models. With the composite reliability, the amount of common variance the items in the subscales explain when measuring the latent constructs were assessed (R^2 ; Modern Program Evaluation, n.d.). Reliability values of $.7$ and above were considered sufficient. Discriminant validity, using heterotrait-monotrait ratio, was used to assess whether it was able to discriminate between dissimilar constructs. A cut-off of 1 was used, where scores below 1 indicated that discriminant validity exists between the latent constructs. The AVE, i.e. the average of the squared loadings, were deemed sufficient if above $.5$. An AVE of $< .5$ did not convey sufficient variance for the

variables (items) to converge into a single construct, which indicated the items were less-than-effective measures of the latent construct. Lastly, the outer loadings are the estimated relationships in the measurement models (i.e., arrows from the latent variable to its indicators). They determine an item's absolute contribution to its assigned construct. Loadings of .7 were considered to be ideal, while loadings close or below 0.4 were considered less/not valuable, as per the recommended cut-offs (Hair et al., 2017). Once again, a p-value of $< .05$ was used.

Considering the inner/structural model, the relationships between the variables were analysed via SEM, which allows the researcher to empirically test their theoretical position. Structural equation modelling, or path analysis, is based on regression analysis and can offer a useful graphical picture of the relationships among many variables. Path analysis indicates the impact of the independent variable(s) on the dependent variable(s), in addition to the strength of the relationships between pairs of variables (Hair et al., 2011). The path coefficients between the scales in the measurement models were considered, as well as the p-values, variance (R^2), and the model's Variance Inflation Factors (VIF). The path coefficients were interpreted similarly to the correlation coefficients discussed before, where relationships from 0 to .3 were considered very weak, .3 to .5 weak, .5-.7 moderate, and above .7 strong. With the VIF, the cut-off was set at 5, where scores below 5 indicated that the model does not have a multicollinearity problem (i.e. independent variables in the regression model are not correlated) (Frost, 2021).

Ethical considerations with regards to the research methodology

In terms of the research methodology of this study, numerous ethical concerns had to be raised with regards to the measurement tools used, the use of computerised output, consent, and confidentiality. The ethical principles of psychologists and code of conduct of the American Psychological Association (APA, 2002) are clear on the conduct expected from researchers in the use of assessments, informed consent on assessments, the release of

data, test construction, interpreting test results, test scoring, etc. These codes of conduct will briefly be discussed and were adhered to in this study.

Psychologists are to administer, adapt, score, interpret and use assessment techniques for appropriate reasons in the light of the research. The instruments used must be valid and reliable, and it must have been proven that these instruments are safe to use on members within the chosen population. If this reliability and validity have not yet been proven, psychologists must define both the strengths and limitations of the test results, as well as the interpretation thereof. In addition, the assessment methods and tools must be appropriate to the individual's language preference and competency level. Informed consent must also be obtained (APA, 2002).

When constructing tests or other assessment techniques, appropriate psychometric procedures must be used, in addition to current scientific knowledge for test design, validation, standardization, elimination of bias, and recommendations for use. For existing tests, test materials (e.g. manuals, instruments) must be kept secure and must be administered by qualified individuals, except when the use is for training purposes, where appropriate supervision must be present (APA, 2002).

The use of computerised output opens up some further ethical considerations. Computer applications in psychology open up several exciting possibilities. However, with any rapid changes in technology, ethical concerns follow. Potential abuse of ethical guidelines when making use of computers in the procedure of scoring and interpreting psychological assessments must be taken into account, and methods must be put in place to avoid this. While technology poses qualitative limitations, the conditions and guidelines under which the computerised procedures are used must also be taken into account (Walker & Myrick, 1985).

The use of computers in psychological assessment should not change the requirements of ethical testing standards or service delivery guidelines. Computerised output often has the appearance of being objective and dependable, as well as accelerating testing duties. This allows for violations of professional ethics and the standards that govern psychological

assessment (Walker & Myrick, 1985). The American Psychological Association offers several guidelines in the use of computers in psychological assessment. The psychologist is required to explain the assessment techniques and measures that will be used, the development of these techniques, and any reservations regarding these techniques must be stated. Appropriate evidence must be produced for the validity of the procedures and programmes used in making the interpretations of the results, and efforts must be made to avoid misuse of the computerised output (Walker & Myrick, 1985).

Computerised programmes often include a summary of the analyses of data that was fed into the computer. While it may be compelling for the professional to use this statistical analysis as a final and full report, more detailed investigation into the data analyses must be conducted to ensure that all aspects of the data were investigated. The computerised output should merely assist the researcher in interpreting the data, leaving the conclusions and written report to the trained professional (Walker & Myrick, 1985).

To ensure confidentiality, special consideration must be given to ensure that the researcher working with the data and computer programmes are appropriately trained. In addition, matters such as password security and storage security must be taken into account. The raw data must be protected, and the accuracy of the initial test responses must be ensured (Walker & Myrick, 1985).

Managing the ethical risks associated with the research study

To safeguard the well-being of the research participants before continuing with the research process, ethical clearance was first obtained. Stellenbosch University policy necessitates that the level of ethics reviewing, i.e. by the Research Ethics Committee: Humanities (DESC) or the central Research Ethics Committee REC), is established in terms of the ethical risk associated with the specific research. It is crucial to determine the level of risk, as this classification will decide whether or not a study can be approved by the DESC alone, or needs to be referred to the central REC. Two factors motivate the importance of

this decision. Firstly, the higher the potential level of risk involved in the intended research, the more in-depth ethical review process is required. Secondly, when a less-experienced researcher selects a topic that is predominantly sensitive, a higher degree of examination is crucial to ensure that any potential risks to participants and the institution are reduced as far as possible. The concept of 'risk' applies predominantly to the potential risk of the research study to the human research participants involved (Horn et al., 2015).

This study is classified as medium risk according to the Research Ethics Guidelines by Horn et al. (2015). A medium-risk study is one in which there is a potential risk of harm or discomfort, but where appropriate steps can be taken to mitigate or reduce overall risk. This is due to the research topic being considered 'sensitive', and the information gathered being of a personal nature (e.g. how often the candidate is aggressive; Horn et al., 2015).

It must be noted, however, that the research participants in this study were adults, not considered to be a vulnerable research population. Further, the extent to which the research participants believe they take part in certain acts, and their perception of their personality, was not considered a controversial topic, but rather asked individuals to reflect on their day-to-day behaviour. These considerations, and the availability of counselling services by a trained counsellor, was believed to mitigate any serious risks that may have arisen from the study.

Where unforeseen stress may however have arisen as a result of this research, several guidelines were suggested and adhered to. Voluntary withdrawal, without explanation, was accepted at any point in the process of completing the survey. The participant's data was as a result withdrawn from the study. Confidential information was adequately protected, e.g. by keeping electronic data password-protected and avoiding any direct association between individuals and any set of data. Most importantly, counselling services were made readily available to all research participants by Mrs. M de Wet, a registered Industrial Psychologist with experience in trauma counselling.

The ethics application was directly submitted to the REC (Humanities) for review. All the relevant signatures were included in the application i.e. the signatures of the applicant, supervisor, and the Head of Department. An informed consent form (see Appendix D) was also included ensuring consensual participation in all aspects of the research study. The consent form contained aspects such as information about the research and the possible risks involved, is written in a simple language and addresses the participant directly. This consent form was presented at the start of the survey. Participants first had to read and agree to its conditions before they were allowed to partake in the research. An information sheet was also made available to participants for download and accompanied the application for ethical clearance. In addition, the full survey being used and a service agreement from the counsellor was included. See Appendix A for the ethical clearance letter (REC approval).

Summary

The hypotheses, which lead to the formation of the proposed *Workplace Bullying* structural model, were empirically tested to test its validity. The data collected in this study will be collected via four different questionnaires/measuring instruments. These are the Basic Traits Inventory - Short (BTI), a measure for Psychopathy, Machiavellianism, and Narcissism, namely the Short Dark Triad (SD3), a Bullying Questionnaire created by Baughman et al. (2012; BBQ), and the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF). A sample size of 250 was aimed for. Data analysis primarily takes place through computerised output and ethical considerations were taken into account.

Chapter 4 – Presentation of Results

Introduction

In this chapter, the researcher describes the different statistical analyses that are used to address the various hypotheses formulated in Chapter 3. The researcher will start by discussing the psychometric properties of the four measuring instruments used in this study. This is followed by descriptive statistics of the total sample's demographics, namely gender, race, province, age, tenure, and industry.

Next, the researcher will present the statistical findings with regards to the link between personality traits and the display of workplace bullying. The statistical findings of the Big Five personality traits' relation with each of the chosen scales that measure bullying will be discussed, as well as its relationship with each of the subscales. Differences in the sample's demographics will also be presented as it relates to the hypotheses under investigation.

Descriptive statistics for the total sample

The total number of respondents that completed the quantitative online survey used in this study in its entirety is 216. In terms of gender, 62% (n = 133) of the participants were female, while 38% (n = 82) of the respondents were male, and 1 of the respondents preferring not to disclose their gender, as seen in Figure 1 in Appendix E. The mean age of the sample group was 34 years (SD = 11.73), with the respondent's ages ranging between 19 and 64 years, as seen in Figure 4 in Appendix E.

The ethnic groups of the sample is 80% (n = 172) Caucasian/White, 6% (n = 12) Coloured, 10% (n = 22) African/Black, 1% (n = 1) Asian, 4% (n = 8) Indian with 1 respondent identifying as an 'other' ethnic group, as seen in Figure 2 in Appendix E. In terms of the province in which the respondents are located, most of the sample were in the Western Cape (61%; n = 131), with the next highest being those in Gauteng (30%; n = 66). The

remaining were spread out across the remaining provinces, with none in the Northern Cape and Limpopo, as seen in Figure 3 in Appendix E.

The majority of the sample group had been with their current organisation for 5.7 years (SD = 7.94 years), ranging from 6 months to 50 years, as seen in Figure 5 in Appendix E. In terms of the industry that the respondents were currently working in, most of the sample was in the financial services (26%; n = 57), followed by healthcare (10%; n = 22), technology (8%, n = 18), engineering and construction (7%, n = 16) and education (under “other”) (7%, n = 15). Overall, the respondents were spread across a wide variety of industries. The full industry results can be seen in Figure 6 in Appendix E. Table 1 in Appendix E shows a breakdown of the responses to the “other” option provided to the respondents.

Psychometric properties of questionnaires used

In this section, the researcher explores the psychometric properties of the measurement instruments, and their sub-scales, that collectively formed the online survey used to gather this study’s data. The four measuring instruments have been taken directly from previous studies, namely the Short Dark Triad (SD3), the Basic Traits Inventory (BTI), Baughman et al.’s (2012) Bullying Questionnaire, and the Buss-Perry Aggression Questionnaire-Short Form (BPAQ-SF).

Chapter 3 discussed the above mentioned measuring instruments as it relates to the instruments’ history, the reliabilities and validities found in previous studies, and a description of these instrument’s subscales, items, scoring methods, etc. This chapter will in turn discuss the psychometric properties of the measuring instruments as found in this study. This section will focus on the reliabilities, while the validity of each scale was unpacked where the outer/measurement models were discussed.

The Short Dark Triad

The three sub-scales of the Short Dark Triad (SD3) can be explored, namely Psychopathy, Machiavellianism, and Narcissism, as well as the scale as a whole due to the reported overlap between these sub-scales.

The Cronbach's alpha is slightly below the threshold of .7 ($\alpha = .68$, 95% CI [0.57, 0.72]) for the overall SD3. The average inter-item correlations are .43, with all of the subscales having item-total correlations between .34 and .59 as depicted in Table 3.

Table 3*Reliability of the SD3 (Total)*

Variable	Item-total correlation	Alpha if deleted
SD3 Machiavellianism	0.59	0.46
SD3 Narcissism	0.34	0.76
SD3 Psychopathy	0.59	0.48

The Cronbach's alpha for the Psychopathy sub-scale is above the threshold of .7 ($\alpha = .78$, 95% CI [0.67, 0.79]), as depicted in Table 14 in Appendix F. The average inter-item correlations are 0.3, with the items having item-total correlations ranging from .11 to .62. Two items have an item-total correlation below the recommended threshold of .2, namely item SD3_P7 ("I have never gotten into trouble with the law") and item SD3_P2 ("I avoid dangerous situations"). These items are reversed scored, however, which might have confused the respondents when answering the survey. With so few items in this subscale, it is not recommended to remove these items at the risk of causing scale invalidity, i.e. the remaining items not sufficiently measuring the underlying construct. Further, the alpha of the Psychopathy sub-scale increases with .01 if item SD3_P7 is deleted, which is once again not considered a large enough improvement to warrant this item's removal from the scale.

The Cronbach's alpha for the Machiavellianism sub-scale is above the threshold of .7 ($\alpha = .82$, 95% CI [0.78, 0.85]), as depicted in Table 12 in Appendix F. The average inter-item correlations are .35, with all of the items having item-total correlations ranging from .26 to .71. When considering whether the alpha would increase if an item is deleted, none of the items would increase the alpha with more than .01 if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Narcissism subscale is just below the threshold of .7 ($\alpha = .69$, 95% CI [0.61, 0.75]), as depicted in Table 13 in Appendix F. The average inter-item correlations are .2, with the items having item-total correlations between .2 and .47, which is sufficient to keep them in the subscale. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Buss-Perry Aggression Questionnaire - Short Form

The four sub-scales of the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF) can be explored, namely verbal aggression, physical aggression, hostility, and anger, as well as the scale as a whole due to the reported overlap between these sub-scales.

The Cronbach's alpha is above the threshold of .7 ($\alpha = .84$, 95% CI [0.80, 0.87]) for the overall PBAQ-SF, as depicted in Table 4. The average inter-item correlations are .58, which is above the recommended threshold of .5, indicating the items are so close to the others as to be almost repetitive. All of the subscales have item-total correlations between .61 and .75, however, therefore, all items are kept as part of the analysis.

Table 4*Reliability of the BPAQ-SF (Total)*

Variable	Item-total correlation	Alpha if deleted
BPAQ-SF Physical aggression	0.71	0.79
BPAQ-SF Verbal aggression	0.61	0.82
BPAQ-SF Hostility	0.63	0.81
BPAQ-SF Anger	0.75	0.76

The Cronbach's alpha for the Verbal Aggression subscale is above the threshold of .7 ($\alpha = .71$, 95% CI [0.62, 0.71]), as depicted in Table 8 in Appendix F. The average inter-item correlations are .45, with all of the items having item-total correlations between .5 and .56. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Physical Aggression subscale is at the threshold of .7 ($\alpha = .7$, 95% CI [0.60, 0.76]), as depicted in Table 7 in Appendix F. The average inter-item correlations are .37, with all of the items having item-total correlations between .46 and .5, which is sufficient to keep them in the subscale. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Hostility subscale is above the threshold of .7 ($\alpha = .76$, 95% CI [0.68, 0.81]), as depicted in Table 10 in Appendix F. The average inter-item correlations are 0.51, which is above the recommended threshold of .5, indicating the items are so close to the others as to be almost repetitive. All of the items having item-total correlations between .58 and .6. When considering whether the alpha would increase if an item is

deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Anger subscale is above the threshold of .7 ($\alpha = .76$, 95% CI [0.64, 0.84]), as depicted in Table 9 in Appendix F. The average inter-item correlations are .61 which is above the recommended threshold of .5, with both items having item-total correlations of .61. All items are kept as part of the analysis – there are only two items in the subscale; thus removing an item would be risky.

Baughman et al.'s Bullying Questionnaire

Baughman et al. (2012) Bullying Questionnaire contains three distinct subscales, namely Physical Direct, Verbal Direct, and Indirect. It also contains a fourth sub-scale named Direct, which is the sum of Physical and Verbal Direct. The sum of these sub-scales can also be explored as a whole bullying construct.

The Cronbach's alpha is above the threshold of .7 ($\alpha = .83$, 95% CI [0.77, 0.87]) for the overall Bullying Questionnaire, as depicted in Table 5. The average inter-item correlations are .62, which is above the recommended cut-off point of .5, indicating that the items are so close as to be almost repetitive, with all of the subscales having item-total correlations between .63 and .75, which is sufficient.

Table 5

Reliability of the BBQ (Total)

Variable	Item-total correlation	Alpha if deleted
BBQ Physical Direct	0.69	0.75
BBQ Verbal Direct	0.75	0.69
BBQ Indirect	0.63	0.81

The Cronbach's alpha for the Physical Direct subscale is equal to the threshold of .7 ($\alpha = .7$, 95% CI [0.53, 0.73]), as depicted in Table 16 in Appendix F. The average inter-item correlations are .32, with all of the items having item-total correlations between .39 and .49, which is sufficient to keep them in the subscale. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Verbal Direct subscale is above the threshold of .7 ($\alpha = .81$, 95% CI [0.76, 0.84]), as depicted in Table 17 in Appendix F. The average inter-item correlations are 0.39, with all of the items having item-total correlations between .49 and .72. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Indirect subscale is just below the threshold of .7 ($\alpha = .68$, 95% CI [0.54, 0.75]), as depicted in Table 18 in Appendix F. The average inter-item correlations are .3, with all of the items having item-total correlations between .4 and .46, which is sufficient to keep them in the subscale. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Basic Traits Inventory - Short Form

The Basic Traits Inventory – Short Form (BTI-S) measures the Big Five factors of personality, namely Conscientiousness, Extraversion, Agreeableness, Openness to Experience, and Neuroticism.

The Cronbach's alpha for the Conscientiousness subscale is above the threshold of .7 ($\alpha = .85$, 95% CI [0.81, 0.89]), as depicted in Table 3 in Appendix EF. The average inter-item correlations are .34, with all of the items having item-total correlations between .41 and .64. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Extraversion subscale is above the threshold of .7 ($\alpha = .84$, 95% CI [0.79, 0.88]), as depicted in Table 1 in Appendix F. The average inter-item correlations are .32, with all of the items having item-total correlations between .34 and .65. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Agreeableness subscale is above the threshold of .7 ($\alpha = .78$, 95% CI [0.70, 0.81]), as depicted in Table 5 in Appendix F. The average inter-item correlations are .23, with all of the items having item-total correlations between .28 and .54, which is sufficient to keep them in the subscale. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Openness to Experience subscale is above the threshold of .7 ($\alpha = .84$, 95% CI [0.80, 0.87]), as depicted in Table 4 in Appendix F, the average inter-item correlations are .31, with all of the items having item-total correlations between .36 and .61. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

The Cronbach's alpha for the Neuroticism sub-scale is above the threshold of .7 ($\alpha = .92$, 95% CI [0.90, 0.93]), as depicted in Table 2 in Appendix F. The average inter-item correlations are .49, with all of the items having item-total correlations between .54 and .82. When considering whether the alpha would increase if an item is deleted, none of them would increase the alpha if deleted. Therefore, all items are kept as part of the analysis.

Correlations between the bullying questionnaires

This section will report on the correlations between the bullying questionnaires chosen for this study, i.e. to what extent these scales measure the same construct. The paths/relationships under investigation were presented via Figure 4 in chapter 2.

The Buss-Perry Aggression Questionnaire – Short Form and Baughman et al.’s Bullying Questionnaire

The Pearson correlation coefficients between the total scales and subscales of the BPAQ-SF and the BBQ ranged from .2 to .48 ($p < .01$), thus all being statistically significant, and ranged from a very small to a moderate positive correlation between the scales/subscales, as depicted in Table 6.

Table 6

Correlation set between BPAQ-SF and BBQ

Variable 1	Variable 2	Pearson correlation coefficient	Pearson p-value
BPAQ-SF Physical aggression	BBQ Physical Direct	0.38	<0.01
BPAQ-SF Physical aggression	BBQ Verbal Direct	0.42	<0.01
BPAQ-SF Physical aggression	BBQ Indirect	0.3	<0.01
BPAQ-SF Physical aggression	BBQ total	0.43	<0.01
BPAQ-SF Verbal aggression	BBQ Physical Direct	0.34	<0.01
BPAQ-SF Verbal aggression	BBQ Verbal Direct	0.42	<0.01
BPAQ-SF Verbal aggression	BBQ Indirect	0.28	<0.01
BPAQ-SF Verbal aggression	BBQ total	0.41	<0.01
BPAQ-SF Hostility	BBQ Physical Direct	0.34	<0.01
BPAQ-SF Hostility	BBQ Verbal Direct	0.4	<0.01
BPAQ-SF Hostility	BBQ Indirect	0.37	<0.01
BPAQ-SF Hostility	BBQ total	0.43	<0.01
BPAQ-SF Anger	BBQ Physical Direct	0.2	<0.01

Variable 1	Variable 2	Pearson correlation coefficient	Pearson p-value
BPAQ-SF Anger	BBQ Verbal Direct	0.34	<0.01
BPAQ-SF Anger	BBQ Indirect	0.28	<0.01
BPAQ-SF Anger	BBQ total	0.32	<0.01
BPQA total	BBQ Physical Direct	0.37	<0.01
BPQA total	BBQ Verbal Direct	0.48	<0.01
BPQA total	BBQ Indirect	0.38	<0.01
BPQA total	BBQ total	0.48	<0.01

Three very weak Pearson correlation coefficients were found (Pearson correlation coefficients < .3), namely between the Verbal Aggression sub-scale of the BPAQ-SF and the Indirect bullying subscale of the BBQ, between the Anger subscale of the BPAQ-SF and the Physical Direct subscale of the BBQ, and between the Anger subscale of the BPAQ-SF and the Indirect subscale of the BBQ.

The BPAQ-SF (total) had a Pearson correlation coefficient of .48 with the BBQ (total). The coefficient of 0.48 is very close to the .5 threshold of moderate convergent validity; therefore, one can conclude moderate convergent validity between the two scales. The Buss-Perry Aggression Questionnaire – Short Form and Baughman et al.'s Bullying Questionnaire thus measure the same construct to a certain extent, but not very strongly.

The Buss-Perry Aggression Questionnaire - Short Form and the Short Dark Triad

The Pearson correlation coefficients between the total scales and sub-scales of the BPAQ-SF and the SD3 ranged from 0 to .54 ($p < .05$ for all but four), thus most being statistically significant, and ranging from a very weak to a moderate positive correlation

between the scales/sub-scales, as depicted in Table 2 in Appendix G. Four statistically insignificant Pearson correlation coefficients were found ($p \geq .05$),

Excluding the above-mentioned statistically insignificant Pearson correlation coefficients, one very weak Pearson correlation coefficient were found (Pearson correlation coefficients $< .3$), namely between the BPAQ-SF Anger sub-scale and the SD3 Machiavellianism sub-scale, with a Pearson correlation coefficient of $.29$ – thus just below the threshold.

Two moderately strong Pearson correlation coefficients were found (Pearson correlation coefficients $\geq .5$), namely between the SD3 Psychopathy sub-scale and the BPAQ-SF total and Physical Aggression sub-scale. The SD3 Psychopathy sub-scale had Pearson correlation coefficients of $.41$ and higher with all the BPAQ-SF sub-scales, indicating that this SD3 sub-scale is the one most highly correlated with the BPAQ-SF – but still only indicating moderate convergent validity. The Psychopathy sub-scale of the SD3 is thus moderately correlated with any part of the BPAQ-SF.

The BPAQ-SF (total) had a Pearson correlation coefficient of $.54$ with the SD3 (total). The coefficient of $.54$ is above the $.5$ threshold of moderate convergent validity; therefore, one can conclude moderate convergent validity between the two scales. The Buss-Perry Aggression Questionnaire – Short Form and Short Dark Triad thus measure the same construct to a certain extent, but not very strongly.

The Short Dark Triad and Baughman et al.'s Bullying Questionnaire

The Pearson correlation coefficients between the total scales and subscales of the SD3 and the BBQ ranged from 0.1 to $.5$ ($p < .05$ for all but one), thus most being statistically significant, and ranging from a very weak to a moderate positive correlation between the scales/sub-scales, as depicted in Table 3 in Appendix G.

One statistically insignificant Pearson correlation coefficient was found ($p \geq .05$), namely between the SD3 Narcissism sub-scale with the BBQ Indirect subscale. Excluding this statistically insignificant Pearson correlation coefficient, three very weak Pearson correlation

coefficients were found (Pearson correlation coefficients $< .3$), namely between the SD3 Narcissism sub-scale and the remaining BBQ Indirect subscales.

Two moderately strong Pearson correlation coefficients were found (Pearson correlation coefficients $\geq .5$), namely between the SD3 Psychopathy sub-scale and the BBQ Verbal Direct and Indirect sub-scales. Once again, the SD3 Psychopathy sub-scale had Pearson correlation coefficients of .43 and higher with all the BBQ sub-scales, indicating that this SD3 subscale is the one most highly correlated with the BBQ – but still only indicating near moderate-to-moderate convergent validity.

The SD3 (total) had a Pearson correlation coefficient of .47 with the BBQ (total). The coefficient of 0.47 is very close to the .5 threshold of moderate convergent validity; therefore, one can conclude near moderate convergent validity between the two scales. The Short Dark Triad and Baughman et al.'s Bullying Questionnaire thus measure the same construct to a certain extent, but not very strongly.

Outer/measurement model

The outer/measurement model for each measurement instrument will be reported on in this section, i.e. the relationships among the latent variables in each scale and their indicators. The composite (construct) reliability, the discriminant validity, the Average Variance Extracted (AVE), and outer loadings (on an item level) were explored for each scale used in the models.

The Basic Traits Inventory

In terms of the composite (construct) reliability, all reliability values were above the .7 threshold, ranging from .83 to .93, indicating that the items in the sub-scales shares between 68.89% and 86.49% in common variance when measuring the latent construct, as depicted in Table 1 in Appendix H. The variance in the latent constructs in the BTI, namely

Conscientiousness, Agreeableness, Extraversion, Neuroticism, and Openness to Experience, is thus sufficiently explained by the relevant items.

In terms of the discriminant validity, all values were below the threshold of 1, indicating that discriminant validity exists between the latent constructs, as depicted in Table 3 in Appendix H. The five BTI subscales have discriminant validities ranging from .15 to .48, which provides evidence that the sets of measures are discriminated from each other.

The Average Variance Extracted (AVE; Average of the squared loadings) ranged from .3 to .39, which is below the threshold of .5, except for the Neuroticism subscale which had an AVE of .53, as depicted in Table 2 in Appendix H. Thus, with the exception of Neuroticism, the AVE of $< .5$ did not convey sufficient variance for the variables (items) to converge into a single construct, which means the items are less-than-effective measures of the latent construct.

When considering the outer loadings (on an item level), all were statistically significant ($p < .01$), as depicted in Table 4 in Appendix H. Neuroticism performed well, with loadings all close to or above the suggested cut-off of .7. Some items that performed particularly poorly, with loadings from .41 to .47 (the construct thus explaining roughly only 20% of the variance in these items), were BTI_A1 (.47), BTI_A2 (.42), BTI_A3 (.41), BTI_A5 (.47), and BTI_E3 (.45). Agreeableness thus had several items that did not have a strong relationship with the construct, i.e. the construct does not explain a lot of the variance in these items – not surprising as Agreeableness had the lowest AVE as well.

The Short Dark Triad

In terms of the composite (construct) reliability, all reliability values were above the .7 threshold, ranging from .78 to .86, indicating that the items in the subscales explain between 60.84% and 73.96% in common variance when measuring the latent constructs, as depicted in Table 1 in Appendix H. The variance in the latent constructs in the SD3, namely

Machiavellianism, Narcissism, and Psychopathy, is thus sufficiently explained by the relevant items.

In terms of the discriminant validity, all values were below the threshold of 1, indicating that discriminant validity exists between the latent constructs, as depicted in Table 3 in Appendix H. The three SD3 subscales have discriminant validities ranging from .5 to .79, which provides evidence that the sets of measures are discriminated from each other.

The Average Variance Extracted (AVE; Average of the squared loadings) range from .29 to .42, which is below the threshold of .5, as depicted in Table 2 in Appendix H. The AVE of $< .5$ does not convey sufficient variance for the variables (items) to converge into a single construct, which means the items are less-than-effective measures of the latent construct.

When considering the outer loadings (on an item level), all but three are statistically significant ($p < .01$), as depicted in Table 4 in Appendix H. The statistically insignificant loadings were SD3_N9, SD3_P2, and SD3_P7, with loadings of .24, .19, and .05 respectively. Some items that performed particularly poorly, with loadings from .31 to .45 (the construct thus explaining roughly only 15% of the variance in these items), were SD3_M1 (.31), SD3_N6 (.45), and SD3_N7 (.43). Other than these exceptions, all items appear to have a strong relationship with the latent constructs, i.e. the construct explains a significant amount of the variance in these items.

The Buss-Perry Aggression Questionnaire - Short Form

In terms of the composite (construct) reliability of the BPAQ-SF, all reliability values were above the .7 threshold, ranging from .8 to .89, indicating that the items in the subscales shares between 64% and 79.21% in common variance when measuring the latent construct, as depicted in Table 1 in Appendix I. The variance in the latent constructs in the BPAQ-SF, namely Anger, Hostility, Physical aggression, and Verbal aggression, is thus sufficiently explained by the relevant items.

In terms of the discriminant validity, all values were below the threshold of 1, indicating that discriminant validity exists between the latent constructs, as depicted in Table 3 in Appendix I, except for the ratio between the Physical aggression and Anger subscales (.97). The four BPAQ-SF subscales thus have discriminant validities ranging from .65 to .97, which provides evidence that the sets of measures are discriminated from each other, except for the Physical aggression and Anger subscales where these seem to be mergeable into one latent construct; if a person is prone towards the one they are also prone towards the other.

The Average Variance Extracted (AVE) range from .5 to .8, which is equal/above the threshold of .5, as depicted in Table 2 in Appendix I. The AVE of $\geq .5$ conveys sufficient variance for the sets of variables (items) to converge into a single construct, which means the items are effective measures of the latent constructs.

When considering the outer loadings (on an item level), all are statistically significant ($p < .01$), as depicted in Table 4 in Appendix I. The Anger, Hostility and Verbal aggression subscales performed well, with all loadings above the suggested cut-off of .7, i.e. the construct explains a significant amount of the variance in these items. The Physical aggression subscale performed poorer, however, with three-item loadings below .7, but none lower than .56 (i.e. explaining only 31% of the variance in the items). Physical aggression thus had three items that did not have a strong relationship with the construct, i.e. the construct does not explain a lot of the variance in these items.

Baughman et al.'s Bullying Questionnaire

In terms of the composite (construct) reliability of the BBQ, all reliability values were above the .7 threshold, ranging from .78 to .86, indicating that the items in the sub-scales shares between 60.84% and 73.96% in common variance when measuring the latent construct, as depicted in Table 1 in Appendix J. The variance in the latent constructs in the BBQ, namely Indirect, Physical direct, and Verbal direct, is thus sufficiently explained by the relevant items.

In terms of discriminant validity, all values were below the threshold of 1, indicating that discriminant validity exists between the latent constructs, as depicted in Table 3 in Appendix J, ranging from .81 to .9. This provides evidence that the sets of measures are discriminated from each other, but not strongly so.

The Average Variance Extracted (AVE; Average of the squared loadings) range from .42 to .47, which is below the threshold of .5, as depicted in Table 2 in Appendix J. The AVE of $< .5$ does not convey sufficient variance for the sets of variables (items) to converge into a single construct, which means the items are less-than-effective measures of the latent constructs.

When considering the outer loadings (on an item level), all are statistically significant ($p \leq .2$), as depicted in Table 4 in Appendix J. All loadings range from .51 to .83, the construct thus explaining 26% to 67% of the variance in the items.

Link between bullying behaviour in the workplace and the Big Five personality traits

This section will report on the relationships among the latent variables that make up the various models depicted in chapter 2 of this study (Figure 1 to 3), i.e. the inner/structural models.

The Basic Traits Inventory and the Short Dark Triad

This model is visually depicted via Figure 1 in chapter 2 of this study. When considering the relationship between the Big Five personality traits and the SD3's subscales, Table 5 in Appendix H displays the variance. The Big Five personality traits explain 15% ($r^2 = .15$) of the variance in the Machiavellianism subscale, 31% ($r^2 = .31$) of the variance in the Narcissism subscale, and 14% ($r^2 = .14$) of the variance in the Psychopathy subscale, which indicates a weak to moderate effect size.

Seven out of the fifteen path coefficients were statistically significant ($p \leq .02$), namely BTI Agreeableness with SD3 Machiavellianism, BTI Agreeableness with SD3 Psychopathy, BTI extraversion with all SD3 subscales, BTI Neuroticism with SD3 Machiavellianism, BTI Neuroticism with SD3 Psychopathy. The path coefficients ranged from $-.23$ to $.57$, thus showing weak to moderate relationships, as depicted in Table 7.

Table 7

Path coefficients between the BTI and SD3

from	to	Path coefficient	95% lower	95% upper	p-value from T-test
SD3					
BTI Agreeableness	Machiavellianism	-0.23	-0.38	-0.08	<0.01
BTI Agreeableness	SD3 Narcissism	-0.03	-0.17	0.12	0.65
SD3					
BTI Agreeableness	Psychopathy	-0.22	-0.37	-0.09	<0.01
BTI					
SD3					
Conscientiousness	Machiavellianism	0.03	-0.13	0.18	0.73
BTI					
SD3					
Conscientiousness	Psychopathy	-0.08	-0.24	0.09	0.37
SD3					
BTI Extraversion	Machiavellianism	0.19	0.06	0.31	<0.01
BTI Extraversion	SD3 Narcissism	0.57	0.46	0.68	<0.01
SD3					
BTI Extraversion	Psychopathy	0.17	0.03	0.32	0.02

from	to	Path coefficient	95% lower	95% upper	p-value from T-test
BTI Neuroticism	SD3 Narcissism	-0.05	-0.22	0.15	0.6
	SD3				
BTI Neuroticism	Psychopathy	0.26	0.12	0.4	<0.01
	SD3				
BTI Openness	Machiavellianism	0.11	-0.02	0.24	0.11
BTI Openness	SD3 Narcissism	-0.01	-0.14	0.15	0.93
	SD3				
BTI Openness	Psychopathy	0.04	-0.11	0.16	0.62

The model's Variance Inflation Factors (VIF) ranged from 1.103 to 1.313, thus below the cut off of 5, indicating that the model does not have a multicollinearity problem, as depicted in Table 6 in Appendix H.

The Basic Traits Inventory and the Buss-Perry Aggression Questionnaire - Short Form

This model is visually depicted via Figure 3 in chapter 2 of this study. When considering the relationship between the Big Five personality traits and the BPAQ-SF's subscales, Table 5 in Appendix I displays the variance. The Big Five personality traits explain 15.9% ($r^2 = .16$) of the variance in the Physical aggression subscale, 17% ($r^2 = .17$) of the variance in the Verbal aggression subscale, 37.6% ($r^2 = .38$) of the variance in the Hostility subscale, and 28.2% ($r^2 = .28$) of the variance in the Anger subscale which indicates a weak to moderate effect size.

Nine out of the twenty path coefficients were statistically significant ($p < .01$), namely BTI Agreeableness with all BPAQ-SF subscales, BTI Neuroticism with all BPAQ-SF subscales, and BTI Openness to Experience with BPAQ-SF Verbal aggression. The path coefficients ranged from $-.27$ to $.42$, thus showing weak to moderate relationships, as depicted in Table 8.

Table 8*Path coefficients between the BTI and BPAQ-SF*

from	to	Path coefficient	95% lower	95% upper	p-value from T-test
BTI_Agreeableness	BPAQ Anger	-0.27	-0.4	-0.13	<0.01
BTI_Agreeableness	BPAQ Hostility	-0.26	-0.37	-0.15	<0.01
BTI_Agreeableness	BPAQ Physical aggression	-0.25	-0.4	-0.11	<0.01
BTI_Agreeableness	BPAQ Verbal aggression	-0.21	-0.35	-0.06	<0.01
BTI_Conscientiousness	BPAQ Anger	0.05	-0.09	0.18	0.47
BTI_Conscientiousness	BPAQ Hostility	0.05	-0.07	0.17	0.43
BTI_Conscientiousness	BPAQ Physical aggression	0.08	-0.07	0.25	0.33
BTI_Conscientiousness	BPAQ Verbal aggression	0.09	-0.06	0.24	0.26
BTI_Extraversion	BPAQ Anger	0.04	-0.1	0.16	0.58
BTI_Extraversion	BPAQ Hostility	-0.02	-0.16	0.09	0.69
BTI_Extraversion	BPAQ Physical aggression	0.09	-0.06	0.23	0.23
BTI_Extraversion	BPAQ Verbal aggression	0.11	-0.03	0.25	0.11
BTI_Neuroticism	BPAQ Anger	0.42	0.31	0.52	<0.01
BTI_Neuroticism	BPAQ Hostility	0.5	0.39	0.6	<0.01
BTI_Neuroticism	BPAQ Physical aggression	0.31	0.19	0.44	<0.01
BTI_Neuroticism	BPAQ Verbal aggression	0.32	0.2	0.45	<0.01
BTI_Openness	BPAQ Anger	-0.07	-0.2	0.06	0.32
BTI_Openness	BPAQ Hostility	-0.03	-0.13	0.08	0.56
BTI_Openness	BPAQ Physical aggression	0	-0.17	0.15	0.97
BTI_Openness	BPAQ Verbal aggression	0.17	0.04	0.31	<0.01

The model's Variance Inflation Factors (VIF) ranged from 1.103 to 1.313, thus below the cut off of 5, indicating that the model does not have a multicollinearity problem, as depicted in Table 6 in Appendix .J

The Basic Traits Inventory and Baughman et al.'s Bullying Questionnaire

This model is visually depicted via Figure 2 in chapter 2 of this study. When considering the relationship between the Big Five personality traits and the BBQ's subscales, Figure 5 in Appendix J displays the variance. The Big Five personality traits explain 6.1% ($r^2 = .06$) of the variance in the Physical Direct subscale, 12% ($r^2 = .12$) of the variance in the Verbal Direct subscale, and 7.8% ($r^2 = .08$) of the variance in the Indirect subscale, which indicates a non-existent or very weak effect size.

Only two out of the fifteen path coefficients were statistically significant ($p < .01$), namely Neuroticism's relationship with both the BBQ Verbal Direct and BBQ Indirect subscale. In addition, Openness to Experience showed a path coefficient with the BBQ Physical Direct subscale that was very close to the .05 cut off of statistical significance ($p = .06$), and Neuroticism had a path coefficient with the BBQ Physical Direct subscale with a p-value of .08. The path coefficients ranged from -.11 to .319, thus showing mostly very weak relationships, as depicted in Table 9.

Table 9*Path coefficients between the BTI and BBQ*

from	to	Path coefficient	95% lower	95% upper	p-value from T-test
BTI_Agreeableness	BS_Indirect	0.03	-0.2	0.22	0.79
BTI_Agreeableness	BS_Physical Direct	-0.04	-0.27	0.18	0.74
BTI_Agreeableness	BS_Verbal Direct	-0.11	-0.24	0.03	0.11
BTI_Conscientiousness	BS_Indirect	-0.04	-0.24	0.19	0.7
BTI_Conscientiousness	BS_Physical Direct	0	-0.26	0.24	0.98
BTI_Conscientiousness	BS_Verbal Direct	0	-0.17	0.16	0.99
BTI_Extraversion	BS_Indirect	0.01	-0.21	0.2	0.93
BTI_Extraversion	BS_Physical Direct	-0.01	-0.26	0.19	0.91
BTI_Extraversion	BS_Verbal Direct	0.09	-0.05	0.25	0.24
BTI_Neuroticism	BS_Indirect	0.27	0.12	0.41	<0.01
BTI_Neuroticism	BS_Physical Direct	0.19	-0.09	0.34	0.08
BTI_Neuroticism	BS_Verbal Direct	0.32	0.2	0.44	<0.01
BTI_Openness	BS_Indirect	0.06	-0.12	0.27	0.54
BTI_Openness	BS_Physical Direct	0.16	-0.03	0.31	0.06
BTI_Openness	BS_Verbal Direct	0.07	-0.08	0.22	0.32

The model's Variance Inflation Factors (VIF) ranged from 1.103 to 1.313, thus below the cut off of 5, indicating that the model does not have a multicollinearity problem, as depicted in Table 6 in Appendix J.

Summary

In this chapter, the researcher explored the results of this study by exploring different statistical analyses and the interpretation thereof. Firstly, the psychometric properties of all the items/scales used as part of this study's online survey used for data collection were analysed. All scales and subscales were found to have acceptable reliability and validity to warrant its inclusion in this study.

Next, the correlations between the bullying questionnaires chosen for this study were reported on. Moderate convergent validity was found between the scales. Lastly, the relationships among the latent variables that make up the various models depicted in chapter 2 of this study were reported on. Very weak to moderate correlations were found between variables.

In the next chapter, the statistical findings outlined in this chapter are explored, also taking into account other literature and the research objectives of this study. Meaningful insights will be drawn.

Chapter 5 - Discussion of Research Results

Introduction

An introductory discussion of bullying in the workplace was presented in chapter 1, along with the research initiation question and research objectives. In chapter two, theoretical arguments were made through an in-depth literature review and theorising. A structural model was presented to represent the formulated hypotheses. Chapter three discussed the methodological process that was followed to empirically evaluate the proposed structural model. The results of the statistical analysis were presented in chapter four. This chapter provides a discussion of the results and emphasises the theoretical implications of the study. The purpose of this chapter is to evaluate the extent to which the models successfully explained workplace bullying and its relationship with the Big Five personality traits, as well as whether the chosen bullying scales are adequate measurement instruments to measure workplace bullying. The results will also be compared to those in other studies to determine whether similar results were found or not.

This section will start by discussing whether the chosen bullying scales are adequate measurement instruments to measure workplace bullying, and how they relate with each other. This will be followed by a discussion on whether the Big Five personality traits play a role in workplace bullying, first considering personality as a whole, and then the individual five traits independently.

The chosen measurement instruments' effectiveness in measuring workplace bullying

Three different scales measuring the behaviour of workplace bullies (or prominent aspects of workplace bullies) were selected for this study, one measuring bullying overtly, one measuring bullying covertly through the Dark Triad of personality, and one measuring Aggression. These three scales are Baughman et al.'s Bullying Questionnaire (BBQ), the

Short Dark Triad (SD3), and the Buss-Perry Aggression Questionnaire - Short Form (BPAQ-SF), respectively. It was first expected that these scales would each measure workplace bullying satisfactorily, and secondly, that these scales, at least to some extent, would measure the same underlying construct.

All scales and subscales were found to have acceptable reliability and discriminant validity to warrant its inclusion in this study. This includes the Basic Trait Inventory that measures the Big Five personality traits. All scales thus sufficiently measure the construct(s) it intends to measure.

It must be noted that with the SD3, however, a theme emerged where the items that are reversed scored have the lowest item-total correlations. It is thus suggested that these items' content is altered so that reverse scoring is not needed. It causes also some concern, as it might indicate that the respondents were not focusing at that point in the survey anymore (as they did not notice the items being stated in the negative sense).

When considering whether the three chosen scales to measure workplace bullying measure the same underlying construct, all three scales showed moderate convergent validity, i.e. the scales measure the same construct to a certain extent, but not very strongly. There were some interesting outliers when looking at the various subscales, however.

When considering the correlations between the subscales of the BPAQ-SF and the BBQ, it was interestingly found that the BPAQ-SF Anger subscale tended to not correlate well with the BBQ subscales. This is surprising as one would assume anger to be inherent in workplace bullying. Looking at the definition of anger, however, it makes more sense. Anger signals your body to prepare for a fight and can be a normal response to everyday events (Healtwise.org, 2019). Bullying, on the other hand, is not a normal response to something someone did, but purposefully repeated behaviours; bullying is frequent and persistent (Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012). Hostility, on the other hand, is inherent in workplace bullying, as included in the chosen definition for workplace bullying in this study ("negative or hostile acts that occur at least weekly ..."). It is thus not

surprising that the BPAQ-SF Hostility subscale tended to correlate much stronger with the BBQ's subscales. Hostility is being ready for a fight all the time and refers to individuals who tend to often be stubborn, impatient, hot-headed, or have an "attitude" (Healtwise.org, 2019) behaviours one would associate with a bully. Thus, when measuring workplace bullying with the BPAQ-SF, it is suggested that the Anger subscale is excluded.

When considering the correlations between the subscales of the BPAQ-SF and the SD3, it was found that the SD3 Narcissism subscale did not significantly (or strongly) correlate with the BPAQ-SF. Narcissism is thus not well correlated with aggressive behaviours. This is in contrast with findings by Raskin and Terry (1988) and Emmons (1987) who found that those who score high on the Narcissistic Personality Inventory are people who are relatively aggressive (along with being exhibitionistic, impulsive, dominant, self-centred, etc.). In addition, the BPAQ-SF Anger subscale did not correlate well with the SD3's subscales, once again indicating that anger is not that inherent in workplace bullying behaviours as one would assume. Thus, when measuring workplace bullying with the SD3, it is suggested that the Narcissism subscale is excluded.

The SD3 Psychopathy subscale tended to have moderately high correlations with the BPAQ-SF and its subscales. Psychopathy and aggression are thus correlated to a moderate extent. This is in line with findings by several other authors (Boddy & Taplin, 2017; Hare, 1985; Lilienfeld & Andrews, 1996; Paulhus & Williams, 2002) who found that Psychopathy tends to be associated with instrumental violence and guiltlessness. The SD3 Psychopathy subscale was notably higher correlated with the BPAQ-SF Physical Direct subscale when compared to the other correlations.

When considering the correlations between the subscales of the BBQ and the SD3, the SD3 Narcissism sub-scale once again correlated poorly with the BBQ subscales. Narcissism is thus not well correlated with bullying behaviours. This is once again in contrast with earlier mentioned findings by Raskin and Terry (1988) and Emmons (1987). Additionally, The SD3 Psychopathy subscale tended to have moderately high correlations

with the BBQ and its subscales. Psychopathy and bullying behaviours are thus correlated to a moderate extent, again in line with findings by several other authors (Boddy & Taplin, 2017; Hare, 1985; Lilienfeld & Andrews, 1996; Paulhus & Williams, 2002).

The reader must, however, be reminded that even the strongest correlations between the scales and subscales only show moderate convergent validity, i.e. measuring the same construct to a certain extent, but not very strongly. It thus cannot be assumed that all three scales can be equally comfortably used to measure workplace bullying. These scales most likely measure different aspects of workplace bullying. It is thus suggested that the BBQ, as the only overt bullying scale included in this study that is measuring bullying behaviours, is the best choice to measure workplace bullying. Alternatives could be the BPAQ-SF with the Anger subscale removed, or the SD3 with the Narcissism subscale removed.

Link between bullying behaviour in the workplace and the Big Five personality traits

The relationships between the Big Five personality traits and the three chosen bullying scales were also explored. How the Big Five personality traits relate to these three bullying scales provided insights with regards to what role personality traits play in the display of workplace bullying behaviour, which ultimately answers one of this study's main objectives, namely establishing if there is a relationship between the personality traits of working individuals and bullying behaviour. This objective also leads to the formulation of the five hypotheses discussed in chapter 2.

The Big Five personality factors model is a popular method to use in measuring personality and has gone through years and years of rigorous testing (Taylor & de Bruin, 2016; Wilson & Nagy, 2017). It is thus argued that if personality plays a role in the display of workplace bullying behaviours, the Big Five personality traits would show a statistical relationship with at least some, if not all, of the chosen workplace bullying scales. Table 10 displays the amount of variance the Big Five factors explain in the chosen bullying scales' subscales.

Table 10*Variance the Big Five factors explains in the bullying scales' subscales*

Subscales	R²	Amount of variance explained by Big Five traits
SD3 Machiavellianism	0.15	15%
SD3 Narcissism	0.31	31%
SD3 Psychopathy	0.14	14%
BPAQ-SF Verbal aggression	0.17	17%
BPAQ-SF Physical aggression	0.16	16%
BPAQ-SF Hostility	0.38	38%
BPAQ-SF Anger	0.28	28%
BBQ Indirect	0.12	12%
BBQ Physical direct	0.06	6%
BBQ Verbal direct	0.08	8%

As seen in Table 10, the Big Five factors explain much more of the variance in the SD3 and BPAQ-SF's subscales when compared to the BBQ. This indicates personality does not play such a big role in overt bullying behaviours when compared to aggression and the Dark Triad of personality.

Since the DT3 is essentially a personality assessment, the relationship between the DT3 and BTI is expected. It further indicates that personality (as measured by the BTI) does explain 15% to 31% of those "darker" thoughts and behaviours that people may have (as

measured by the DT3). It is, however, surprising that the Big Five personality traits explain so much more of the variance in the BPAQ-SF's subscales when compared with the BBQ, especially since these scales showed moderate convergent validity. A possible explanation could be that aggression as a disposition (as measured by the BPAQ-SF) is more influenced by personality than the display of purposeful bullying behaviours (as measured by the BBQ). Aggression alone might not be fully compatible with the intentional nature of bullying. Aggression is a disposition, arguably inherent in a person. Even if those feelings of anger or dislike result in hostile or violent behaviour, it does not necessarily mean that the person intended to bully someone, or that the behaviour was even perceived as bullying. The aggressive person might direct their aggression anywhere, not towards a specified victim to cause harm. Regardless, more research is needed to explain this phenomenon fully.

It is also of relevance that the Big Five personality traits explain the most variance in the BPAQ-SF's Hostility subscale. Displaying hostility is thus significantly influenced by one's personality. It must be pointed out, though, that the three items that measure Hostility ("*At times I feel I have gotten a raw deal out of life*"; "*Other people always seem to get the breaks*"; "*I wonder why sometimes I feel so bitter about things*") are not necessarily an indication of bullying behaviours, but rather a person's disposition. It is even further assumed, however, that these three items remained in the BPAQ-SF as they best describe hostile behaviour (unfriendliness or opposition). Thus, the Hostility subscale does still indicate some degree of bullying behaviours being displayed, even if only in the form of unfriendliness due to the person's bitterness; overall underlying negativity of conduct. Hostility is, after all, considered to be inherent in workplace bullying (Podsiadly & Gamian-Wilk, 2017; Samnani & Singh, 2012).

As mentioned, the BBQ comes the closest of all the scales used in this study in measuring workplace bullying (the items openly address bullying behaviours), but it was found that personality does not explain much of the variance in these bullying behaviours. One can thus conclude that other factors play a more dominant role in the display of overt

workplace bullying. These factors could be the leadership style in the organization (Hoel et al., 2010), organisational culture, processes, structure, and systems (Smit, 2014), little work control, unchallenging work, role conflicts, low levels of satisfaction with leadership, the social climate, etc (Einarsen et al., 1994; Glasø et al., 2007; Pilch & Turska, 2015). It might also be that the complex interactions between personality traits and the organisational environment plays a determining role in bullying behaviour (Björkqvist et al., 1994). When it comes to negative dispositions like aggression and those associated with the Dark Triad of personality, however, the Big Five personality traits appear to play a more significant role – even though other factors still play a more dominant role.

It is further the intention of this study to establish what role the five different personality factors included in the Big Five play in workplace bullying. While we already established that personality, in general, does not play such a notable role in workplace bullying, meaningful insights can still be drawn from investigating which personality factors influence workplace bullying to a lesser or more extent, and how this compares to other research. Table 11 displays the relationships (path coefficients) between the Big Five factors with the chosen bullying scales' subscales. These results will allow the researcher to answer the five hypotheses formulated in chapter 2, and will be discussed in the following sections.

Table 11*Relations of Big Five factors with chosen bullying scales' subscales*

Subscales	O	C	E	A	N
SD3 Machiavellianism	0.11	0.03	0.19*	-0.23*	0.28*
SD3 Narcissism	-0.01	-0.09	0.57*	-0.03	-0.05
SD3 Psychopathy	0.04	-0.08	0.17*	-0.22*	0.26*
BPAQ-SF Verbal aggression	0.17*	0.09	0.11	-0.21*	0.32*
BPAQ-SF Physical aggression	0	0.05	0.09	-0.25*	0.31*
BPAQ-SF Hostility	-0.03	0.05	-0.02	-0.26*	0.5*
BPAQ-SF Anger	-0.07	0.05	0.04	-0.27*	0.42*
BBQ Indirect	0.06	-0.04	0.01	0.03	0.27*
BBQ Physical direct	0.16	0	-0.01	-0.04	0.19
BBQ Verbal direct	0.07	0	0.09	-0.11	0.32*

Note. *Statistically significant ($p \leq .05$)

Conscientiousness – Hypothesis 1

Hypothesis 1 (H1): Individuals scoring low in Conscientiousness will demonstrate an increased likelihood of taking part in bullying behaviours.

Table 4 shows that Conscientiousness has very weak relationships with all the scales included in the study and that none of the path coefficients are statistically significant.

Conscientiousness in part refers to a person's tendency to be dependable, reliable, and to

stick to one's principles (dutifulness) (Taylor & de Bruin, 2016; Wilson & Nagy, 2017), the lack of relationship between Conscientiousness and bullying behaviours are surprising. This finding is also in contrast with several authors' findings that lower levels of Conscientiousness are associated with workplace bullying (Bollmann & Krings, 2016; Eschleman et al, 2015; Hunter, 2014; Mitsopoulou & Giovazolias, 2015; Wilson and Nagy (2017). Hypothesis 1 is thus found to be false; Conscientiousness does not influence the likelihood of taking part in bullying behaviours.

Openness to experience – Hypothesis 2

Hypothesis 2 (H2): Individuals scoring low in Openness to Experience will demonstrate an increased likelihood of taking part in bullying behaviours.

Table 4 shows that Openness to Experience has very weak relationships with all the scales included in the study, and all but one of the path coefficients are statistically insignificant. Openness to experience shows a weak, but statistically significant positive relationship with the BPAQ-SF Verbal Aggression subscale. Unfortunately, this is not echoed by a relationship with the BBQ Verbal Direct subscale. Openness to experience further shows a weak, near statistically significant positive relationship with the BBQ Physical direct subscale at $p = .06$, which is also notable. Once again, however, this finding is not echoed by a relationship with the BPAQ-SF Physical Aggression subscale. It does appear as if Openness to Experience has a very slight positive relationship with workplace bullying, but the lack of similarity across the scales causes doubt.

Little has been found in the research to compare this finding with, but it does contradict a study conducted by Mitsopoulou and Giovazolias (2015) amongst school children who found that Openness to Experience is negatively associated with both bullying and victimization. Hypothesis 2 is thus found to be false; Openness to Experience does not convincingly influence the likelihood of taking part in bullying behaviours.

Agreeableness – Hypothesis 3

Hypothesis 3 (H3): Individuals scoring low in Agreeableness will demonstrate an increased likelihood of taking part in bullying behaviours.

Table 4 shows that Agreeableness has weak relationships with many of the scales included in the study, and all but four of the path coefficients are statistically significant. Agreeableness has the strongest relationship with the BPAQ-SF, indicating that increased Agreeableness is associated with decreased aggression. These findings are in agreement with those of several authors who found that lower levels of Agreeableness were associated with workplace bullying (Bollmann & Krings, 2016; Eschleman et al, 2015; Mitsopoulou & Giovazolias, 2015; Wilson and Nagy (2017).

Disappointingly, there are no significant relationships between Agreeableness and the BBQ subscales. Findings by Hunter (2014) might shed some light on this finding. Hunter found that Agreeableness showed a non-significant relationship with CWBs. In explaining this finding, Hunter suggests that individuals who score high in Agreeableness could be associated with low assertiveness, consequently lacking resistance against group pressures or deviant norms. Regardless, there is enough evidence in support of Hypothesis 3; Individuals scoring low in Agreeableness will demonstrate an increased likelihood of taking part in bullying behaviours.

Neuroticism – Hypothesis 4

Hypothesis 4 (H4): Individuals scoring high in Neuroticism will demonstrate an increased likelihood of taking part in bullying behaviours.

Table 4 shows that Neuroticism has weak to moderate relationships with many of the scales included in the study, and all but two of the path coefficients are statistically significant. It is also notable that the two insignificant coefficients were very close to statistically significant, namely Neuroticism's relationship with SD3 Narcissism ($p = .06$), and

the BBQ Physical Direct ($p = .08$). All subscales, with the exception of SD3 Neuroticism, have a positive relationship with the workplace bullying subscales. These findings are in agreement with those of several authors who found that higher levels of Neuroticism were associated with workplace bullying (Hunter, 2014; Mitsopoulou & Giovazolias, 2015; Wilson & Nagy, 2017).

Neuroticism's weak negative relationship with SD3 Narcissism, in contrast with the other positive relationships, also makes sense in the light of earlier findings in section 5.2.1 that Narcissism is not well correlated with either aggressive or bullying behaviours. Thus, there is enough evidence in support of Hypothesis 4; Individuals scoring high in Neuroticism will demonstrate an increased likelihood of taking part in bullying behaviours.

Extraversion - Hypothesis 5

Hypothesis 5 (H5): Individuals scoring high in Extraversion will demonstrate an increased likelihood of taking part in bullying behaviours.

Table 4 shows that Extraversion only has statistically significant relationships with the SD3 subscales, showing weak to moderate relationships. Extraversion understandably has a moderately strong relationship with SD3 Narcissism, as Narcissists are known to seek attention and admiration, and excessively rely on others for the regulation of their self-esteem and self-definition; their goals are based on gaining approval from others (American Psychiatric Association, 2013). Raskin and Terry (1988) further found that Narcissists are relatively exhibitionistic, impulsive, dominant, self-indulgent, and self-centred, and importantly, extraverted.

Extraversion also shows a weak positive relationship with SD3 Machiavellianism and Psychopathy. While Extraversion's role in predicting workplace bullies lacks research, studies amongst schoolchildren found bullies to be self-confident, aggressive, and impulsive (Glasø et al., 2007), pointing to the likelihood of bullies being more extroverted. Mitsopoulou and Giovazolias (2015) provide support for this hypothesis, having found that higher levels of

Extraversion are associated with bullying. It is also relevant to mention that Extraversion in itself is not a problematic personality trait, but may trigger bullying behaviours when coupled with a high degree of neuroticism. High levels of extraversion and neuroticism in bullies are in line with Eysenck's theory of criminality (Eysenck & Eysenck, as cited in Mitsopoulou & Giovazolias, 2015).

It is thus interesting that Extraversion does not show a significant relationship with either aggression (BPAQ-SF) or overt workplace bullying (BBQ), especially since the SD3 did show moderate convergent validity with both the BBQ and BPAQ-SF. It is therefore likely that Extraversion's relationship with the Dark Triad personality types is more related to the fact that personality as a general construct underlies both scales, and not because extraversion has some sort of effect on workplace bullying behaviours. The results indicate that neither aggression nor overt workplace bullying behaviours have a relationship with the person's degree of Extraversion; someone might display workplace bullying behaviour, regardless of their degree of sociability. Hypothesis 5 is thus found to be false; Extraversion does not influence the likelihood of taking part in bullying behaviours.

Summary of principal findings

Hypothesis 1, 2, and 5 formulated in chapter 2 of this study was found to be false, while evidence was found in support of hypothesis 3 and 4. The findings indicated that Conscientiousness, Openness to Experience and Extraversion does not influence the likelihood of taking part in bullying behaviours, while low levels of Agreeableness and high levels of Neuroticism will result in an increased likelihood of taking part in bullying behaviours. It is thus suggested that in attempting to predict workplace bullies through personality, only Agreeableness and Neuroticism are used, where a high degree of Neuroticism and a low degree of Agreeableness would be undesirable. If any scale based on the Five Factor Model of personality is therefore used by organisations, only the scores

on Agreeableness and Neuroticism should be considered when attempting to predict workplace bullying.

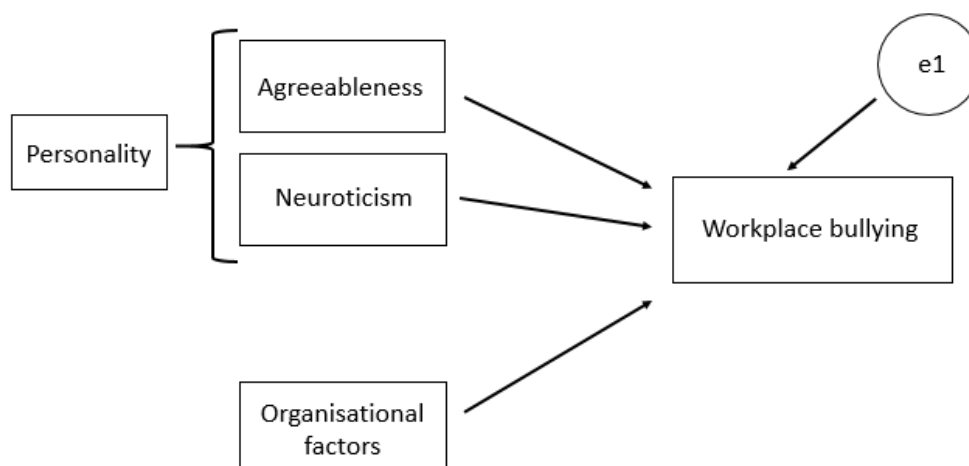
It is, however, suggested to not only use a personality scale in attempting to predict workplace bullies, as personality as a general construct does not fully explain the display of such behaviours. When looking for a supplementary scale to directly measure workplace bullying, it suggested that the BBQ is the best choice to measure workplace bullying reliably. Alternatives could be the BPAQ-SF with the Anger subscale removed, or the SD3 with the Narcissism subscale removed.

Where organisations do not want to use bullying scales, it could perhaps be more valuable to the organisation to rather assess factors other than personality, such as how the organisational culture, social climate and/or leadership style is perceived. What would constitute a positive or negative finding in this regard is however depending on the scale/method of measurement that is used.

In light of these findings, Figure 5 (the *proposed Workplace Bullying structural model*) was updated to reflect a newly proposed Workplace Bullying structural model. This new Workplace Bullying structural model is depicted in Figure 6.

Figure 6

The new Workplace Bullying structural model



Limitations

Like with all research, there are some methodological limitations to this study that could hinder the generalisability of the findings. One limitation of this study was the use of self-report measures to evaluate respondents' standing on the latent variables, be it personality or workplace bullying. While the self-report method is a convenient and quick technique for collecting data from a large number of people at a relatively low cost, the use of self-administered questionnaires leaves a lot of room for response biases (Howard & Dailey, 1979). Self-report questionnaires include biases and limitations such as social desirability bias, introspective ability, repeated extreme (or neutral) responses, acquiescence, or dissent bias (Johnson, 2019).

The chosen sampling method is the second limitation of this study. A combination of snowball sampling and purposive sampling was used as the method of selecting participants for this study. The survey was sent to participants who were already known to the researcher, which was further sent along to potential candidates who were known to the original round of participants. While the method was found to be satisfactorily effective in terms of the availability of potential candidates, the participants were often colleagues, family members, or friends of each other whose occupations, industries and race groups were very similar to their own. Thus, even though a variety of age groups, occupations, males and females, etc were eventually included in the study, the findings cannot be seen to be broadly representative of all race groups in South Africa. It is thus suggested that generalising the findings of this study to anyone other than White South Africans is exercised with caution.

Another limitation arising from the chosen sampling method of this study is that those individuals who opted to complete the survey are the sort of people who will complete a survey, and are notably also comfortable answering a survey on workplace bullying specifically. It could be theorised that those individuals who know themselves to be workplace bullies would opt out of the survey, either because of the discomfort it would

bring, or because of a purposeful disregard. As a result, few workplace bullies would have answered the survey, and any valuable insights into their personality and behaviour would have been lost. Similarly, those partaking in workplace bullying could have been dishonest in their responses as answering truthfully would have caused feelings of guilt/discomfort.

Practical implications for Human Resource Managers

HR managers are responsible for providing those mechanisms that ensure employees maintain their productivity. Workplace bullying, however, has several negative consequences on the productivity of the organisation, which demands action from HRM. Thus, one of the main objectives of this study was to develop suggestions as to how the measurement of personality traits can be used to exclude candidates in recruitment and selection that have significant potential to end up a bully.

This study recommends that the measurement of personality traits during recruitment and selecting are a viable option when attempting to predict workplace bullying, but only the scores on Agreeableness and Neuroticism should be considered (if a personality assessment based on the Five Factor Model of personality is used).

It is, however, suggested to not only use a personality scale in attempting to predict workplace bullies, as personality as a general construct does not fully explain the display of such behaviours. HR Managers should supplement the personality assessment with an assessment that directly measures workplace bullying, such as the BBQ used in this study. Alternatives could be the BPAQ-SF with the Anger subscale removed, or the SD3 with the Narcissism subscale removed. In addition, organisations must do adequate reference checks, security checks, and any other methods that will provide unbiased information on the applicant and their past conduct.

To further attempt to exclude workplace bullies during the recruitment process, more structured interviews like the “Targeted Selection” interview could be considered, where the

focus is placed on the past behaviours and experiences of the applicant, and to what extent these predict how well-qualified the applicant is for the position (Nall, 2017). Interviews like these allow the panellists to explore certain instances of misconduct in the applicant's past, and what it means for the organisation should the person be hired.

It is no easy task for most HR managers to deal with workplace bullying, some even claiming that workplace bullying complaints are one of the most demanding aspects of their job. If these complaints are not actively and efficiently dealt with, parties to the situation may experience prolonged personal harm, a loss in productivity, absenteeism, and even resignation (Catley et al, 2017). Considering this, it is clear that the measures suggested above to exclude bullies during recruitment and selection are critical. There is a clear business case to take the measures seriously, as well as organisations having a moral responsibility to protect their staff.

An important insight gained from this study, however, is that HR Managers cannot simply attempt to stop workplace bullies from entering the organisation; this is not enough. Organisations are perhaps better off in ensuring the internal environment is not enabling workplace bullying in the first place, i.e. that non-bullies do not become bullies only after entering the organisation. The work environment plays an important role in the occurrence of bullying. It is well documented by researchers that workers in a bullying situation are merely acting out larger, systemic organisational problems, and therefore merely acting within an already toxic environment (Smit, 2014).

Organisations should assess their current organisational culture, social climate, the leadership styles in the organisation, etc. to determine whether there are any problem areas, whether this be through surveys, focus groups, targeted conversations, etc. An audit of the "ways of work" should also be considered; e.g. do employees have too little work control, unchallenging work, experience role conflicts, role ambiguity, work changes, work pressure, high-performance demands, and so forth. Potential interventions could include conducting awareness workshops, clear "zero tolerance" policies with regards bullying/conduct, and

training colleagues (managers and employees alike) on the handling of conflict, disagreements etc.

Recommendations for future research

Several recommendations to enhance future research in this domain can be suggested. Firstly, the creation of a South African workplace bullying scale would be of value. Workplace bullying in South African is likely intertwined with our ripe history of racism; if a person belongs to a minority group, the likelihood of being bullied increases radically (Cunniff & Mostert, 2012). A bullying scale suitable for use in South Africa's complex socio-economic environment would need to reflect these nuances, and be validated within a South African context.

Secondly, a lot more research is still needed in determining the main factors that influence workplace bullying – especially in South Africa as mentioned above. This study made a valuable contribution in determining the influence of personality. Next, the external environment needs to be considered. The results would contribute to the expansion of the Workplace Bullying structural model formulated in this study. Phenomena to investigate could include the leadership style in the organisation (Hoel et al., 2010), organisational culture, processes, structure and systems (Smit, 2014), little work control, unchallenging work, role conflicts, low levels of satisfaction with leadership, the social climate, etc (Einarsen, Raknes, & Matthiesen, 1994; Glasø et al., 2007; Pilch & Turska, 2015). It might also be that the complex interactions between personality traits and the organisational environment plays a determining role in bullying behaviour (Björkqvist, Österman, & Hjelt-Bäck, 1994), which could further be investigated, for example how the environment influences how personality presents itself in the workplace.

Thirdly, it would be valuable to conduct research on how the results of this study differs between the different cultural/racial groups in South Africa, as well as across different

industries. South Africa's diverse population might result in not only different displays of personality characteristics, but also how bullying is enacted and experienced.

The last recommendation is to include, in future workplace bullying studies, a question on how often workplace bullying is experienced in the workplace – a question this study overlooked to ask. The researcher could find only a limited amount of research on the prevalence of workplace bullying in South Africa, and more information in this regard would thus be valuable in ensuring a more thorough understanding of the seriousness of the phenomenon in the country.

Conclusion

The purpose of this study was to explore the role of the Big Five personality traits plays in predicting workplace bullying perpetrators in South Africa. This was done by exploring how the relationship between the Big Five personality traits, namely Extraversion, Agreeableness, Neuroticism, Openness to Experience, and Conscientiousness, with three chosen scales that measure workplace bullying.

Evidence was found for two of the five formulated hypotheses. The findings indicated that Conscientiousness, Openness to Experience and Extraversion does not influence the likelihood of taking part in bullying behaviours, while low levels of Agreeableness and high levels of Neuroticism will result in an increased likelihood of taking part in bullying behaviours. It was thus suggested that, in attempting to predict workplace bullies through personality, only Agreeableness and Neuroticism are used, where a high degree of Neuroticism and a low degree of Agreeableness would be undesirable. It is further established that personality, in general, does not play such a notable role in workplace bullying, pointing towards the organisational environment perhaps playing a more prominent role.

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Appendix A: Ethical clearance approval (REC: Humanities)**NOTICE OF APPROVAL**

REC: Social, Behavioural and Education Research (SBER) - Initial Application Form

30 June 2020

Project number: 11626

Project Title: **ROLE OF THE BIG FIVE PERSONALITY TRAITS IN PREDICTING WORKPLACE BULLYING IN SOUTH AFRICA**

Dear Miss Mari Van Der Westhuizen

Your response to stipulations submitted on 30 May 2020 was reviewed and approved by the REC: Social, Behavioural and Education Research (REC: SBE).

Please note below expiration date of this approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
23 April 2020	22 April 2021

SUSPENSION OF PHYSICAL CONTACT RESEARCH DURING THE COVID-19 PANDEMIC

Due to the Covid-19 pandemic and resulting lockdown measures, all research activities requiring physical contact or being in undue physical proximity to human participants has been suspended by Stellenbosch University. Please refer to a [formal statement](#) issued by the REC: SBE on 20 March for more information on this.

This suspension will remain in force until such time as the social distancing requirements are relaxed by the national authorities to such an extent that in-person data collection from participants will be allowed. This will be confirmed by a new statement from the REC: SBE on the university's dedicated [Covid-19 webpage](#).

Until such time online or virtual data collection activities, individual or group interviews conducted via online meeting or web conferencing tools, such as Skype or Microsoft Teams are strongly encouraged in all SU research environments.

If you are required to amend your research methods due to this suspension, please submit an amendment to the REC: SBE as soon as possible. The instructions on how to submit an amendment to the REC can be found on this webpage: [\[instructions\]](#), or you can contact the REC Helpdesk for instructions on how to submit an amendment: applyethics@sun.ac.za.

GENERAL REC COMMENTS PERTAINING TO THIS PROJECT:**INVESTIGATOR RESPONSIBILITIES**

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: SBE, the researcher must notify the REC of these changes.

Please use your SU project number (11626) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

You are required to submit a progress report to the REC: SBE before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary).

Once you have completed your research, you are required to submit a final report to the REC: SBE for review.

Included Documents:

Document Type	File Name	Date	Version
Research Protocol/Proposal	Thesis_Mari FULL	26/10/2019	1
Proof of permission	BTI permission form	21/01/2020	
Informed Consent Form	Informed consent (electronic)	01/02/2020	1
Information sheet	Information sheet	01/02/2020	1
Letter of support_counselling	REC Humanities- REC-2020	11/03/2020	1
Data collection tool	Full Survey	14/03/2020	1
Recruitment material	Email to potential respondents	18/03/2020	1
Informed Consent Form	Informed consent (electronic)	19/05/2020	2
Information sheet	Information sheet	19/05/2020	2
Default	Ethical Clearance Response Letter_18432891	25/05/2020	1

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Social, Behavioral and Education Research

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.

The Research Ethics Committee: Social, Behavioural and Education Research complies with the SA National Health Act No.61 2003 as it pertains to health research. In addition, this committee abides by the ethical norms and principles for research established by the Declaration of Helsinki (2013) and the Department of Health Guidelines for Ethical Research: Principles Structures and Processes (2nd Ed.) 2015. Annually a number of projects may be selected randomly for an external audit.

Principal Investigator Responsibilities

Protection of Human Research Participants

As soon as Research Ethics Committee approval is confirmed by the REC, the principal investigator (PI) is responsible for the following:

Conducting the Research: The PI is responsible for making sure that the research is conducted according to the REC-approved research protocol. The PI is jointly responsible for the conduct of co-investigators and any research staff involved with this research. The PI must ensure that the research is conducted according to the recognised standards of their research field/discipline and according to the principles and standards of ethical research and responsible research conduct.

Participant Enrolment: The PI may not recruit or enrol participants unless the protocol for recruitment is approved by the REC. Recruitment and data collection activities must cease after the expiration date of REC approval. All recruitment materials must be approved by the REC prior to their use.

Informed Consent: The PI is responsible for obtaining and documenting affirmative informed consent using **only** the REC-approved consent documents/process, and for ensuring that no participants are involved in research prior to obtaining their affirmative informed consent. The PI must give all participants copies of the signed informed consent documents, where required. The PI must keep the originals in a secured, REC-approved location for at least five (5) years after the research is complete.

Continuing Review: The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, it is the PI's responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur. Once REC approval of your research lapses, all research activities must cease, and contact must be made with the REC immediately.

Amendments and Changes: Any planned changes to any aspect of the research (such as research design, procedures, participant population, informed consent document, instruments, surveys or recruiting material, etc.), must be submitted to the REC for review and approval before implementation. Amendments may not be initiated without first obtaining written REC approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

Adverse or Unanticipated Events: Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research-related injuries, occurring at this institution or at other performance sites must be reported to the REC within **five (5) days** of discovery of the incident. The PI must also report any instances of serious or continuing problems, or non-compliance with the REC's requirements for protecting human research participants.

Research Record Keeping: The PI must keep the following research-related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence and approvals from the REC.

Provision of Counselling or emergency support: When a dedicated counsellor or a psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

Final reports: When the research is completed (no further participant enrolment, interactions or interventions), the PI must submit a Final Report to the REC to close the study.

On-Site Evaluations, Inspections, or Audits: If the researcher is notified that the research will be reviewed or audited by the sponsor or any other external agency or any internal group, the PI must inform the REC immediately of the impending audit/evaluation.

**Appendix B: Items included in the Buss-Perry Aggression Questionnaire-Short
Form (BPAQ-SF)**

Scoring:

Extremely uncharacteristic of me	Somewhat Uncharacteristic of me	Neither Uncharacteristic Nor Characteristic of me	Somewhat Characteristic of me	Extremely characteristic of me
1	2	3	4	5

Items:

1. Given enough provocation, I may hit another person. (P)
2. I often find myself disagreeing with people. (V)
3. At times I feel I have gotten a raw deal out of life. (H)
4. There are people who have pushed me so far that we have come to blows. (P)
5. I can't help getting into arguments when people disagree with me. (V)
6. Sometimes I fly off the handle for no good reason. (A)
7. Other people always seem to get the breaks. (H)
8. I have threatened people I know. (P)
9. My friends say that I'm somewhat argumentative. (V)
10. I have trouble controlling my temper. (P)
11. I wonder why sometimes I feel so bitter about things. (H)
12. I sometimes feel like a powder keg ready to explode. (A)

Note: The subscale headings are indicated as below:

- Hostility is indicated with (H).
- Physical Aggression is indicated with (P).
- Verbal Aggression is indicated with (V).
- Anger is indicated with (A).

Appendix C: Items included in the Short Dark Triad (SD3)**Scoring:**

Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly
1	2	3	4	5

Items:

Machiavellianism:

1. It's not wise to tell your secrets.
2. I like to use clever manipulation to get my way.
3. Whatever it takes, you must get the important people on your side.
4. Avoid direct conflict with others because they may be useful in the future.
5. It's wise to keep track of information that you can use against other people later.
6. You should wait for the right time to get back at people.
7. There are things you should hide from other people to preserve your reputation.
8. Make sure your plans benefit yourself, not others.

Narcissism:

1. Most people can be manipulated.
2. People see me as a natural leader.
3. I hate being the center of attention. (R)
4. Many group activities tend to be dull without me.
5. I know that I am special because everyone keeps telling me so.
6. I like to get acquainted with important people.
7. I feel embarrassed if someone compliments me. (R)
8. I have been compared to famous people.
9. I am an average person. (R)
10. I insist on getting the respect I deserve.

Psychopathy:

1. I like to get revenge on authorities.
2. I avoid dangerous situations. (R)
3. Payback needs to be quick and nasty.

4. People often say I'm out of control.
5. It's true that I can be mean to others.
6. People who mess with me always regret it.
7. I have never gotten into trouble with the law. (R)
8. I enjoy having sex with people I hardly know.
9. I'll say anything to get what I want.

Note: The subscale headings should be removed before the SD3 is administered. Items should be kept in the same order. Reversals are indicated with (R).

Appendix D: Informed consent form to participate in research**INFORMATION SHEET****MARI VAN DER WESTHUIZEN****18432891**

**ROLE OF THE BIG FIVE PERSONALITY TRAITS IN PREDICTING WORKPLACE
BULLYING IN SOUTH AFRICA**

Dear prospective participant,

My name is Mari van der Westhuizen. I am a Master's student at the University of Stellenbosch, aiming to obtain my MCom degree in Industrial Psychology, to which your participation in this survey will contribute. This research study has been cleared by Research Ethics Committee for Social, Behavioural and Education Research, and has institutional permission. Please take some time to read the information presented here, which will explain the details of this project.

PURPOSE OF THE STUDY

This study specifically aims to explore bullying behaviours in South African organisations, and to what extent personality characteristics contributes to the occurrence of bullying in the workplace. In addition, this study aims to assist employers to identify and establish proactive interventions to prevent bullying in the workplace. By participating in this study you are contributing to improving the social reality of South African workplaces.

PROCEDURE

The study involves the completion of basic demographic information and the completion of 4 short questionnaires. These are the Basic Traits Inventory, the Short Dark Triad, a Bullying Questionnaire (Baughman et al., 2012), and the Buss-Perry Aggression Questionnaire-Short Form. This process will take approximately 45 minutes to complete. Please complete the survey in a private space if this is possible, given the sensitive nature of some of the questionnaire items.

Please see below more information on each questionnaire:

The Basic Traits Inventory - Short Form: This questionnaire measures the Big Five factors of personality, namely conscientiousness, extraversion, agreeableness, openness to experience and neuroticism, as well as social desirability. It consists of 77 items, measured on a 5-point Likert scale

The Short Dark Triad: This questionnaire will be used to measure the Dark Triad of personality traits, namely Narcissism, Psychopathy, and Machiavellianism, to establish to what degree the participant displays bullying tendencies. It consists of 27 items, measured on a 5-point Likert scale.

Baughman et al.'s Bullying Questionnaire: This questionnaire assesses bully status and type. Participants are asked to indicate how frequently they have engaged in each of the 17 bullying behaviours during the past month on a 5-point Likert scale.

The Buss-Perry Aggression Questionnaire - Short Form: This questionnaire will be used to measure the degree of aggression in the participant. It consists of 12 items, measured on a 5-point Likert scale.

PARTICIPATION AND WITHDRAWAL

Please take note that your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from completing the survey at any time, even after you opted to take part, by closing the browser. The researcher will not be able to view any unsubmitted responses, and no reason will be asked. Please ensure you are happy to share your responses before submitting the survey.

The study is **completely anonymous**, therefore, it does not require you to provide your name or any other identifying information that can be linked back to your answers on the survey. As a result, it would not be possible to withdraw from the study after submitting your responses, as your responses cannot be identified.

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 Mrs Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

CONFIDENTIALITY

Any information that is obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of keeping the data in a secured, password-protected file and in a locked room. No data will be made available to anyone outside the research team. Results from the research will be published; however no identifiable information will be printed and the confidentiality of research participants will be maintained. The data will be kept for potential future research studies by the researcher, stored safely and confidentially.

POTENTIAL RISKS AND DISCOMFORTS

During the research process, it is possible that you might feel some discomfort or encounter psychological distress. You are encouraged to inform the researcher of any discomfort. Counselling services will be made readily available to all research participants by Mrs. M de Wet, a registered Industrial Psychologist with experience in trauma counselling.

PRIZE FOR PARTICIPATION

The option to enter a **lucky draw** upon completion of the survey will be presented where **2** participants can win vouchers worth **R 500 each**. Your email address will be required which will be stored on a separate data base, and which can in no way be connected to your responses on this survey. Please note that participants will not be entered into the lucky draw if they do not complete the full survey or submit the relevant contact details.

IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact Miss Mari van der Westhuizen (marivdwes@gmail.com) or Mrs Marietha de Wet (mdew@sun.ac.za). To save a copy of this text, please create a screenshot of this page or copy the information onto a separate platform.

***START SURVEY**

By clicking “Yes” to the questions below, you are confirming that you have read and understood the above explanation about the study, and you agree to participate.

I confirm that I have read and understood the information provided for the current study.	YES	NO
	<input type="checkbox"/>	<input type="checkbox"/>
I agree that my data may be kept for future research.	YES	NO
	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in this survey.	YES	NO
	<input type="checkbox"/>	<input type="checkbox"/>

Appendix E: Demographical output

Figure 1: Gender

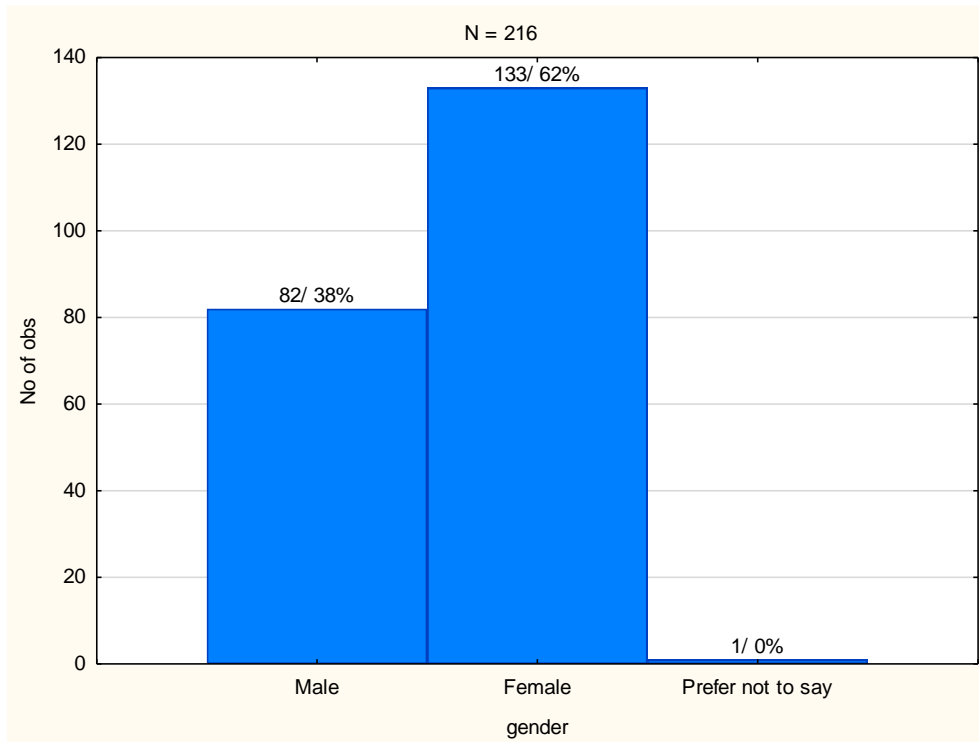


Figure 2: Race

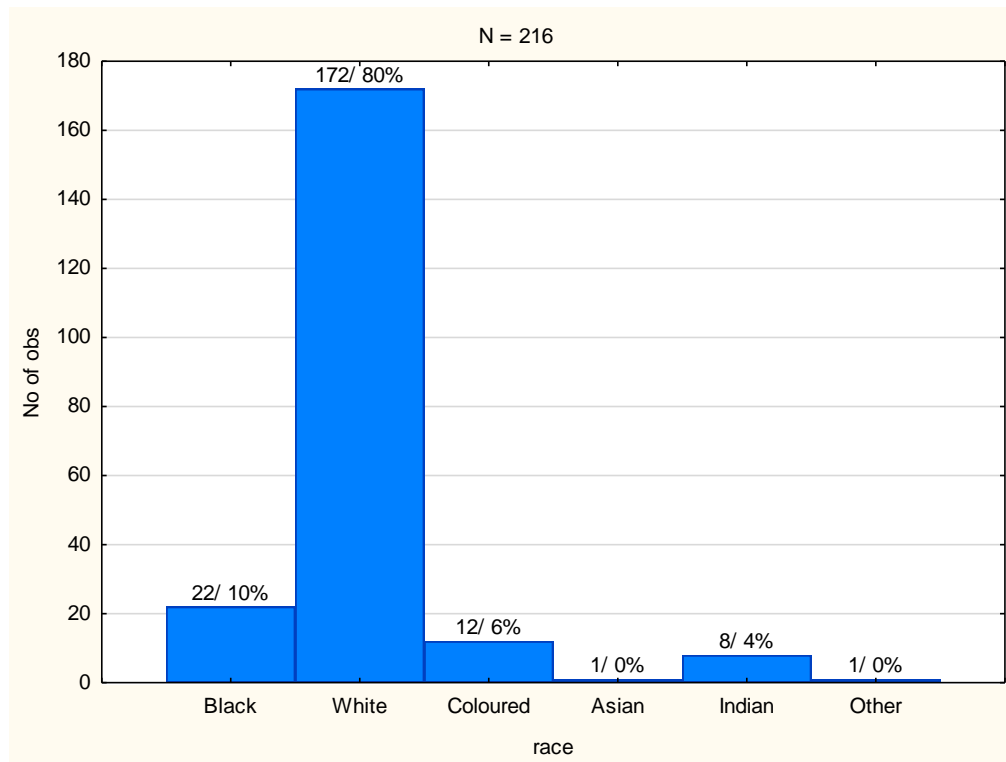


Figure 3: Province

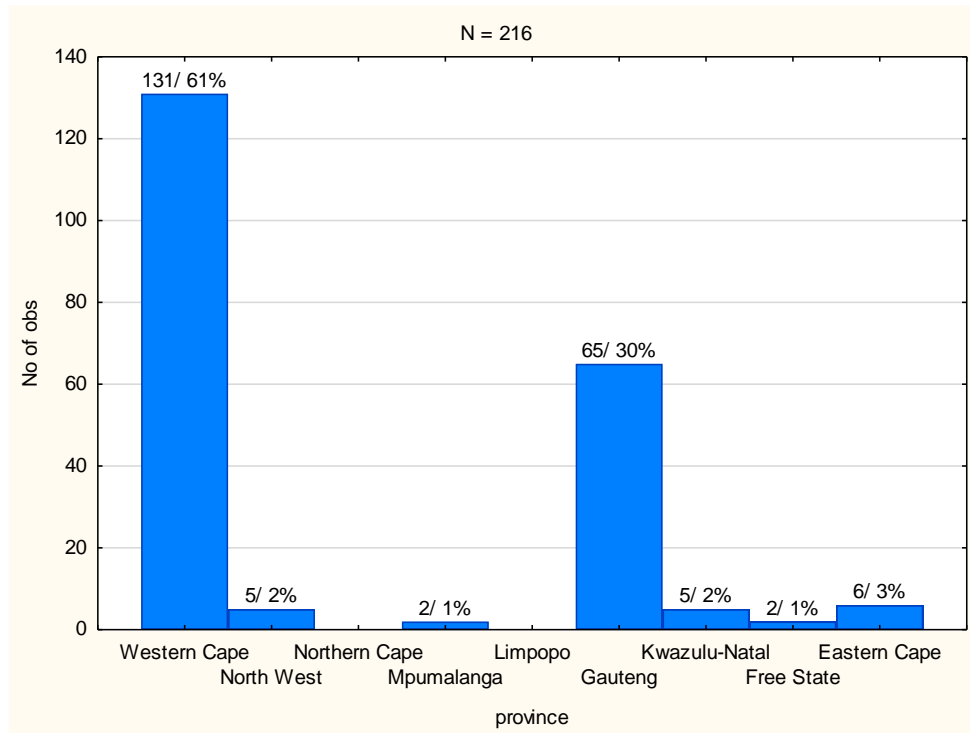


Figure 4: Age

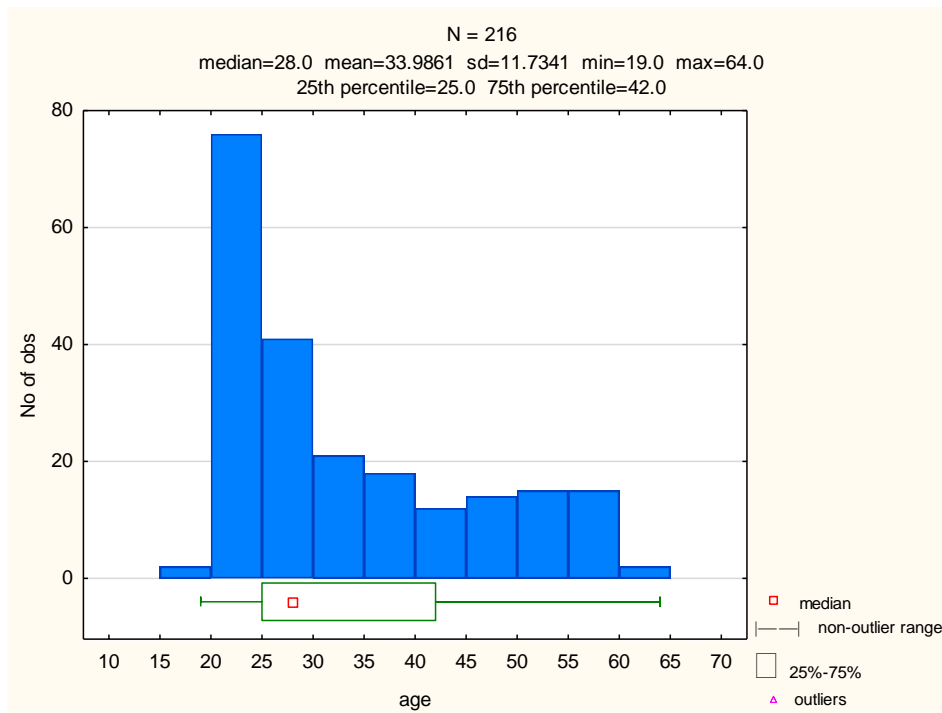


Figure 5: Length of employment

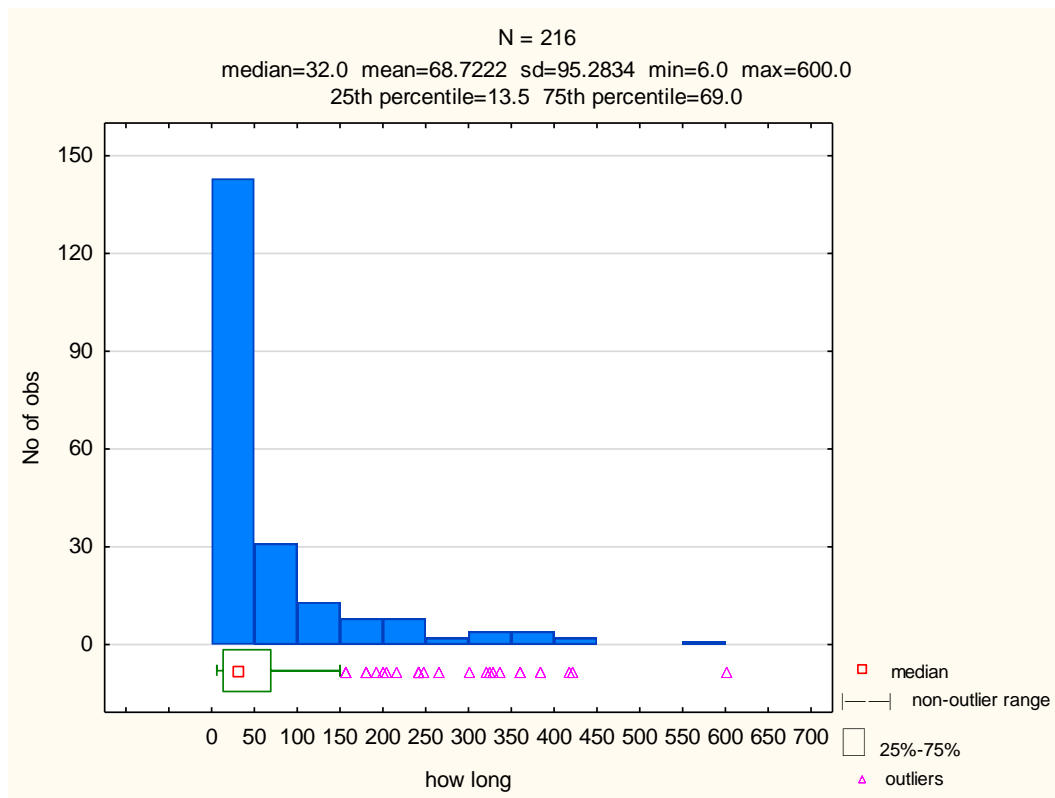


Figure 6: Industry

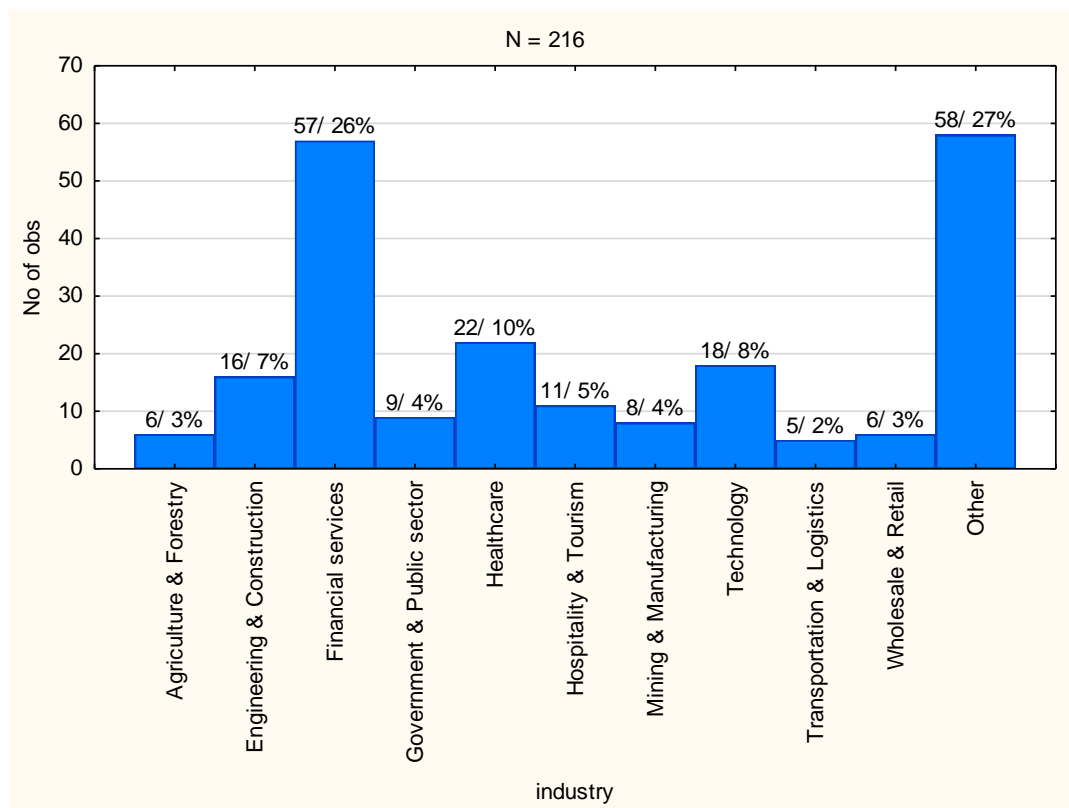


Table 1: "Other " Industries

"Other" industries	Count
Education	15
Religious services	6
Sports industry	4
Law	3
Marketing	3
Media	3
NGO	3
Professional services	2
Admin	1
Child development	1
Design & museum education/Design History	1
Economics	1
Entertainment	1
Human Resources	1
Image consulting	1
Managing Agent	1
Military	1
OHS	1
Organizational development consulting	1
Private Practice	1
Property management	1
Real estate	1
Security	1
Signage	1
Special Needs Research	1
Veterinary Services	1
Welfare	1

Appendix F: Reliability analysis of chosen measurement instruments*Table 1: Reliability of the BTI Extraversion subscale*

variable	Cronbach's alpha and 95% CI: 0.84(0.79, 0.88) Summary for scale: Mean=42.5185 Std.Dv.=6.57618 Valid N:216 Standardized alpha: 0.84 Average inter-item corr.: 0.32	
	Itm-Totl Correl.	Alpha if deleted
BTI_E1	0.39	0.84
BTI_E2	0.44	0.83
BTI_E3	0.34	0.84
BTI_E4	0.65	0.82
BTI_E5	0.54	0.83
BTI_E6	0.55	0.83
BTI_E7	0.46	0.83
BTI_E8	0.5	0.83
BTI_E9	0.57	0.83
BTI_E10	0.49	0.83
BTI_E11	0.59	0.82
BTI_E12	0.58	0.82

Table 2: Reliability of the BTI Neuroticism subscale

variable	Cronbach's alpha and 95% CI: 0.92(0.90, 0.93) Summary for scale: Mean=30.7037 Std.Dv.=9.14916 Valid N:216 Standardized alpha: 0.92 Average inter-item corr.: 0.49	
	Itm-Totl Correl.	Alpha if deleted
BTI_N1	0.57	0.92
BTI_N2	0.54	0.92
BTI_N3	0.65	0.91
BTI_N4	0.7	0.91
BTI_N5	0.6	0.91
BTI_N6	0.77	0.91
BTI_N7	0.63	0.91
BTI_N8	0.82	0.9
BTI_N9	0.63	0.91
BTI_N10	0.66	0.91
BTI_N11	0.68	0.91
BTI_N12	0.73	0.91

Table 3: Reliability of the BTI Conscientiousness subscale

variable	Cronbach's alpha and 95% CI: 0.85(0.81, 0.89) Summary for scale: Mean=45.2176 Std.Dv.=6.18128 Valid N:216 Standardized alpha: 0.85 Average inter-item corr.: 0.34	
	Itm-Totl Correl.	Alpha if deleted
BTI_C1	0.41	0.85
BTI_C2	0.48	0.85
BTI_C3	0.54	0.84
BTI_C4	0.57	0.84
BTI_C5	0.63	0.84
BTI_C6	0.58	0.84
BTI_C7	0.43	0.85
BTI_C8	0.41	0.85
BTI_C9	0.64	0.84
BTI_C10	0.51	0.84
BTI_C11	0.56	0.84
BTI_C12	0.54	0.84

Table 4: Reliability of the BTI Openness to experience subscale

variable	Cronbach's alpha and 95% CI: 0.84(0.80, 0.87) Summary for scale: Mean=45.9630 Std.Dv.=6.07768 Valid N:216 Standardized alpha: 0.84 Average inter-item corr.: 0.31	
	Itm-Totl Correl.	Alpha if deleted
BTI_O1	0.42	0.83
BTI_O2	0.55	0.82
BTI_O3	0.56	0.82
BTI_O4	0.61	0.82
BTI_O5	0.46	0.83
BTI_O6	0.38	0.83
BTI_O7	0.36	0.84
BTI_O8	0.55	0.82
BTI_O9	0.55	0.82
BTI_O10	0.52	0.83
BTI_O11	0.54	0.82
BTI_O12	0.55	0.82

Table 5: Reliability of the BTI Agreeableness subscale

variable	Cronbach's alpha and 95% CI: 0.77(0.70, 0.81) Summary for scale: Mean=47.4306 Std.Dv.=4.55098 Valid N:216 Standardized alpha: 0.78 Average inter-item corr.: 0.23	
	Itm-Totl Correl.	Alpha if deleted
BTI_A1	0.35	0.76
BTI_A2	0.28	0.76
BTI_A3	0.28	0.77
BTI_A4	0.49	0.74
BTI_A5	0.32	0.76
BTI_A6	0.41	0.75
BTI_A7	0.49	0.74
BTI_A8	0.44	0.75
BTI_A9	0.54	0.74
BTI_A10	0.45	0.74
BTI_A11	0.49	0.74
BTI_A12	0.44	0.75

Table 6: Reliability of the BPAQ-SF (Total)

variable	Cronbach's alpha and 95% CI: 0.84(0.80, 0.87) Summary for scale: Mean=7.79938 Std.Dv.=2.82280 Valid N:216 Standardized alpha: 0.84 Average inter-item corr.: 0.58	
	Itm-Totl Correl.	Alpha if deleted
BPAQ_Physical aggression	0.71	0.79
BPAQ_Verbal aggression	0.61	0.82
BPAQ_Hostility	0.63	0.81
BPAQ_Anger	0.75	0.76

Table 7: Reliability of the BPAQ-SF Physical Aggression subscale

variable	Cronbach's alpha and 95% CI: 0.69(0.60, 0.76) Summary for scale: Mean=6.73148 Std.Dv.=2.91940 Valid N:216 Standardized alpha: 0.70 Average inter-item corr.: 0.37	
	Itm-Totl Correl.	Alpha if deleted
BPAQ_P1	0.46	0.64
BPAQ_P2	0.5	0.62
BPAQ_P3	0.5	0.63
BPAQ_P4	0.48	0.63

Table 8: Reliability of the BPAQ-SF Verbal Aggression subscale

variable	Cronbach's alpha and 95% CI: 0.71(0.62, 0.77) Summary for scale: Mean=6.81482 Std.Dv.=2.53771 Valid N:216 Standardized alpha: 0.71 Average inter-item corr.: 0.45	
	Itm-Totl Correl.	Alpha if deleted
BPAQ_V1	0.5	0.65
BPAQ_V2	0.56	0.58
BPAQ_V3	0.52	0.63

Table 9: Reliability of the BPAQ-SF Anger subscale

variable	Cronbach's alpha and 95% CI: 0.75(0.64, 0.84) Summary for scale: Mean=3.45833 Std.Dv.=1.85476 Valid N:216 Standardized alpha: 0.76 Average inter-item corr.: 0.61	
	Itm-Totl Correl.	Alpha if deleted
BPAQ_A1	0.61	
BPAQ_A2	0.61	

Table 10: Reliability of the BPAQ-SF Hostility subscale

variable	Cronbach's alpha and 95% CI: 0.75(0.68, 0.81) Summary for scale: Mean=6.34722 Std.Dv.=2.76772 Valid N:216 Standardized alpha: 0.76 Average inter-item corr.: 0.51	
	Itm-Totl Correl.	Alpha if deleted
BPAQ_H1	0.6	0.66
BPAQ_H2	0.58	0.68
BPAQ_H3	0.58	0.68

Table 11: Reliability of the SD3 (Total)

variable	Cronbach's alpha and 95% CI: 0.65(0.57, 0.72) Summary for scale: Mean=7.34825 Std.Dv.=1.34617 Valid N:216 Standardized alpha: 0.66 Average inter-item corr.: 0.40	
	Itm-Totl Correl.	Alpha if deleted
SD3_Machiavellianism	0.59	0.46
SD3_Narcissism	0.34	0.76
SD3_Psychopathy	0.59	0.48

Table 12: Reliability of the SD3 Machiavellianism subscale

variable	Cronbach's alpha and 95% CI: 0.82(0.78, 0.85) Summary for scale: Mean=22.8194 Std.Dv.=6.09306 Valid N:216 Standardized alpha: 0.82 Average inter-item corr.: 0.35	
	Itm-Totl Correl.	Alpha if deleted
SD3_M1	0.26	0.83
SD3_M2	0.57	0.8
SD3_M3	0.55	0.8
SD3_M4	0.51	0.81
SD3_M5	0.71	0.78
SD3_M6	0.56	0.8
SD3_M7	0.55	0.8
SD3_M8	0.61	0.79
SD3_M9	0.42	0.82

Table 13: Reliability of the SD3 Narcissism subscale

variable	Cronbach's alpha and 95% CI: 0.69(0.61, 0.75) Summary for scale: Mean=25.5509 Std.Dv.=4.97970 Valid N:216 Standardized alpha: 0.69 Average inter-item corr.: 0.20	
	Itm-Totl Correl.	Alpha if deleted
SD3_N1	0.35	0.66
SD3_N2(reversed)	0.41	0.65
SD3_N3	0.47	0.64
SD3_N4	0.43	0.65
SD3_N5	0.46	0.64
SD3_N6(reversed)	0.23	0.69
SD3_N7	0.33	0.67
SD3_N8(reversed)	0.39	0.65
SD3_N9	0.2	0.69

Table 14: Reliability of the SD3 Psychopathy subscale

variable	Cronbach's alpha and 95% CI: 0.74(0.67, 0.79) Summary for scale: Mean=16.2269 Std.Dv.=4.83105 Valid N:216 Standardized alpha: 0.78 Average inter-item corr.: 0.30	
	Itm-Totl Correl.	Alpha if deleted
SD3_P1	0.59	0.69
SD3_P2(reversed)	0.16	0.76
SD3_P3	0.62	0.69
SD3_P4	0.54	0.7
SD3_P5	0.46	0.71
SD3_P6	0.59	0.69
SD3_P7(reversed)	0.11	0.79
SD3_P8	0.5	0.7
SD3_P9	0.55	0.7

Table 15: Reliability of the BBQ (Total)

variable	Cronbach's alpha and 95% CI: 0.83(0.77, 0.87) Summary for scale: Mean=4.05450 Std.Dv.=1.01869 Valid N:216 Standardized alpha: 0.83 Average inter-item corr.: 0.62	
	Itm-Totl Correl.	Alpha if deleted
BBQ_Physical Direct	0.69	0.75
BBQ_Verbal Direct	0.75	0.69
BBQ_Indirect	0.63	0.81

Table 16: Reliability of the BBQ Physical direct subscale

variable	Cronbach's alpha and 95% CI: 0.65(0.53, 0.73) Summary for scale: Mean=6.62037 Std.Dv.=1.93964 Valid N:216 Standardized alpha: 0.70 Average inter-item corr.: 0.32	
	Itm-Totl Correl.	Alpha if deleted
BBQ_PD1	0.42	0.59
BBQ_PD2	0.44	0.59
BBQ_PD3	0.49	0.56
BBQ_PD4	0.39	0.64
BBQ_PD5	0.46	0.61

Table 17: Reliability of the BBQ Verbal direct subscale

variable	Cronbach's alpha and 95% CI: 0.81(0.76, 0.84) Summary for scale: Mean=10.4537 Std.Dv.=3.14128 Valid N:216 Standardized alpha: 0.81 Average inter-item corr.: 0.39	
	Itm-Totl Correl.	Alpha if deleted
BBQ_VD1	0.49	0.79
BBQ_VD2	0.49	0.79
BBQ_VD3	0.55	0.78
BBQ_VD4	0.58	0.77
BBQ_VD5	0.72	0.74
BBQ_VD6	0.49	0.79
BBQ_VD7	0.54	0.79

Table 18: Reliability of the BBQ Indirect subscale

variable	Cronbach's alpha and 95% CI: 0.66(0.54, 0.75) Summary for scale: Mean=6.18518 Std.Dv.=1.69348 Valid N:216 Standardized alpha: 0.68 Average inter-item corr.: 0.30	
	Itm-Totl Correl.	Alpha if deleted
BBQ_In1	0.46	0.61
BBQ_In2	0.42	0.6
BBQ_In3	0.44	0.6
BBQ_In4	0.4	0.61
BBQ_In5	0.44	0.61

Appendix G: Correlations between chosen bullying scales*Table 1: Correlation set between BPAQ-SF and BBQ*

	variable 1	variable 2	Pearson	Pearson p-val	Spearman	Spearman p-val
1	BPAQ_Physical aggression	BBQ_Physical Direct	0.38	<0.01	0.4	<0.01
2	BPAQ_Physical aggression	BBQ_Verbal Direct	0.42	<0.01	0.44	<0.01
3	BPAQ_Physical aggression	BBQ_Indirect	0.3	<0.01	0.34	<0.01
4	BPAQ_Physical aggression	BBQ total	0.43	<0.01	0.46	<0.01
5	BPAQ_Verbal aggression	BBQ_Physical Direct	0.34	<0.01	0.34	<0.01
6	BPAQ_Verbal aggression	BBQ_Verbal Direct	0.42	<0.01	0.44	<0.01
7	BPAQ_Verbal aggression	BBQ_Indirect	0.28	<0.01	0.32	<0.01
8	BPAQ_Verbal aggression	BBQ total	0.41	<0.01	0.45	<0.01
9	BPAQ_Hostility	BBQ_Physical Direct	0.34	<0.01	0.33	<0.01
10	BPAQ_Hostility	BBQ_Verbal Direct	0.4	<0.01	0.39	<0.01
11	BPAQ_Hostility	BBQ_Indirect	0.37	<0.01	0.34	<0.01
12	BPAQ_Hostility	BBQ total	0.43	<0.01	0.41	<0.01
13	BPAQ_Anger	BBQ_Physical Direct	0.2	<0.01	0.24	<0.01
14	BPAQ_Anger	BBQ_Verbal Direct	0.34	<0.01	0.37	<0.01
15	BPAQ_Anger	BBQ_Indirect	0.28	<0.01	0.29	<0.01
16	BPAQ_Anger	BBQ total	0.32	<0.01	0.36	<0.01
17	BPQA total	BBQ_Physical Direct	0.37	<0.01	0.4	<0.01
18	BPQA total	BBQ_Verbal Direct	0.48	<0.01	0.5	<0.01
19	BPQA total	BBQ_Indirect	0.38	<0.01	0.39	<0.01
20	BPQA total	BBQ total	0.48	<0.01	0.51	<0.01

Table 2: Correlation set between BPAQ-SF and SD3

	variable 1	variable 2	Pearson	Pearson p-val	Spearman	Spearman p-val
1	BPAQ_Physical aggression	SD3_Machiavellianism	0.32	<0.01	0.37	<0.01
2	BPAQ_Physical aggression	SD3_Narcissism	0.13	0.06	0.12	0.08
3	BPAQ_Physical aggression	SD3_Psychopathy	0.52	<0.01	0.56	<0.01
4	BPAQ_Physical aggression	SD3 total	0.49	<0.01	0.53	<0.01
5	BPAQ_Verbal aggression	SD3_Machiavellianism	0.38	<0.01	0.4	<0.01
6	BPAQ_Verbal aggression	SD3_Narcissism	0.17	0.01	0.17	0.01
7	BPAQ_Verbal aggression	SD3_Psychopathy	0.44	<0.01	0.51	<0.01
8	BPAQ_Verbal aggression	SD3 total	0.48	<0.01	0.5	<0.01
9	BPAQ_Hostility	SD3_Machiavellianism	0.37	<0.01	0.38	<0.01
10	BPAQ_Hostility	SD3_Narcissism	0	0.97	0.03	0.68
11	BPAQ_Hostility	SD3_Psychopathy	0.42	<0.01	0.45	<0.01
12	BPAQ_Hostility	SD3 total	0.46	<0.01	0.47	<0.01
13	BPAQ_Anger	SD3_Machiavellianism	0.29	<0.01	0.36	<0.01
14	BPAQ_Anger	SD3_Narcissism	0.11	0.1	0.12	0.08
15	BPAQ_Anger	SD3_Psychopathy	0.41	<0.01	0.49	<0.01
16	BPAQ_Anger	SD3 total	0.37	<0.01	0.46	<0.01
17	BPQA total	SD3_Machiavellianism	0.41	<0.01	0.46	<0.01
18	BPQA total	SD3_Narcissism	0.12	0.07	0.15	0.03
19	BPQA total	SD3_Psychopathy	0.54	<0.01	0.69	<0.01
20	BPQA total	SD3 total	0.54	<0.01	0.59	<0.01

Table 2: Correlation set between BBQ and SD3

	variable 1	variable 2	Pearson	Pearson p-val	Spearman	Spearman p-val
1	BBQ_Physical Direct	SD3_Machiavellianism	0.36	<0.01	0.35	<0.01
2	BBQ_Physical Direct	SD3_Narcissism	0.15	0.03	0.15	0.02
3	BBQ_Physical Direct	SD3_Psychopathy	0.43	<0.01	0.45	<0.01
4	BBQ_Physical Direct	SD3 total	0.66	<0.01	0.61	<0.01
5	BBQ_Verbal Direct	SD3_Machiavellianism	0.42	<0.01	0.39	<0.01
6	BBQ_Verbal Direct	SD3_Narcissism	0.16	0.02	0.14	0.03
7	BBQ_Verbal Direct	SD3_Psychopathy	0.5	<0.01	0.47	<0.01
8	BBQ_Verbal Direct	SD3 total	0.63	<0.01	0.57	<0.01
9	BBQ_Indirect	SD3_Machiavellianism	0.38	<0.01	0.32	<0.01
10	BBQ_Indirect	SD3_Narcissism	0.1	0.14	0.16	0.02
11	BBQ_Indirect	SD3_Psychopathy	0.5	<0.01	0.43	<0.01
12	BBQ_Indirect	SD3 total	0.56	<0.01	0.48	<0.01
13	BBQ total	SD3_Machiavellianism	0.45	<0.01	0.41	<0.01
14	BBQ total	SD3_Narcissism	0.16	0.02	0.18	<0.01
15	BBQ total	SD3_Psychopathy	0.48	<0.01	0.45	<0.01
16	BBQ total	SD3 total	0.47	<0.01	0.43	<0.01

Appendix H: Relationship between BTI and SD3 - Statistical output**Outer model***Table 1: Composite reliability*

	Loading	95% lower	95% upper
BTI_Agreeableness	0.83	0.8	0.87
BTI_Conscientiousness	0.88	0.85	0.91
BTI_Extraversion	0.88	0.84	0.9
BTI_Neuroticism	0.93	0.92	0.94
BTI_Openness	0.87	0.85	0.9
SD3 Machiavellianism	0.86	0.83	0.89
SD3 Narcissism	0.78	0.71	0.82
SD3 Psychopathy	0.84	0.78	0.86

Table 2: Average Variance Extracted (AVE)

	Loading	95% lower	95% upper
BTI_Agreeableness	0.3	0.25	0.35
BTI_Conscientiousness	0.39	0.33	0.45
BTI_Extraversion	0.37	0.31	0.45
BTI_Neuroticism	0.53	0.48	0.58
BTI_Openness	0.37	0.32	0.42
SD3 Machiavellianism	0.42	0.37	0.47
SD3 Narcissism	0.29	0.25	0.34
SD3 Psychopathy	0.4	0.33	0.46

Table 3: Discriminant validity

	Heterotrait-Monotrait ratio					
	from	to	Ratio	95% lower	95% upper	Discriminate
BTI_Conscientiousness -> BTI_Agreeableness	BTI_Conscientiousness	BTI_Agreeableness	0.42	0.32	0.51	yes
BTI_Extraversion -> BTI_Agreeableness	BTI_Extraversion	BTI_Agreeableness	0.48	0.35	0.55	yes
BTI_Extraversion -> BTI_Conscientiousness	BTI_Extraversion	BTI_Conscientiousness	0.39	0.27	0.48	yes
BTI_Neuroticism -> BTI_Agreeableness	BTI_Neuroticism	BTI_Agreeableness	0.27	0.2	0.34	yes
BTI_Neuroticism -> BTI_Conscientiousness	BTI_Neuroticism	BTI_Conscientiousness	0.28	0.18	0.35	yes
BTI_Neuroticism -> BTI_Extraversion	BTI_Neuroticism	BTI_Extraversion	0.31	0.19	0.4	yes
BTI_Openness -> BTI_Agreeableness	BTI_Openness	BTI_Agreeableness	0.34	0.27	0.39	yes
BTI_Openness -> BTI_Conscientiousness	BTI_Openness	BTI_Conscientiousness	0.27	0.24	0.27	yes
BTI_Openness -> BTI_Extraversion	BTI_Openness	BTI_Extraversion	0.42	0.24	0.57	yes
BTI_Openness -> BTI_Neuroticism	BTI_Openness	BTI_Neuroticism	0.15	0.14	0.14	yes
SD3 Machiavellianism -> BTI_Agreeableness	SD3 Machiavellianism	BTI_Agreeableness	0.27	0.18	0.29	yes
SD3 Machiavellianism -> BTI_Conscientiousness	SD3 Machiavellianism	BTI_Conscientiousness	0.18	0.15	0.16	yes
SD3 Machiavellianism -> BTI_Extraversion	SD3 Machiavellianism	BTI_Extraversion	0.24	0.21	0.24	yes
SD3 Machiavellianism -> BTI_Neuroticism	SD3 Machiavellianism	BTI_Neuroticism	0.29	0.18	0.38	yes
SD3 Machiavellianism -> BTI_Openness	SD3 Machiavellianism	BTI_Openness	0.18	0.15	0.18	yes
SD3 Narcissism -> BTI_Agreeableness	SD3 Narcissism	BTI_Agreeableness	0.37	0.3	0.38	yes

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SD3 Narcissism -> BTI_Conscientiousness	SD3 Narcissism	BTI_Conscientiousness	0.26	0.23	0.24	yes
SD3 Narcissism -> BTI_Extraversion	SD3 Narcissism	BTI_Extraversion	0.66	0.53	0.73	yes
SD3 Narcissism -> BTI_Neuroticism	SD3 Narcissism	BTI_Neuroticism	0.31	0.23	0.35	yes
SD3 Narcissism -> BTI_Openness	SD3 Narcissism	BTI_Openness	0.31	0.24	0.34	yes
SD3 Narcissism -> SD3 Machiavellianism	SD3 Narcissism	SD3 Machiavellianism	0.51	0.41	0.56	yes
SD3 Psychopathy -> BTI_Agreeableness	SD3 Psychopathy	BTI_Agreeableness	0.33	0.25	0.38	yes
SD3 Psychopathy -> BTI_Conscientiousness	SD3 Psychopathy	BTI_Conscientiousness	0.22	0.16	0.24	yes
SD3 Psychopathy -> BTI_Extraversion	SD3 Psychopathy	BTI_Extraversion	0.27	0.21	0.28	yes
SD3 Psychopathy -> BTI_Neuroticism	SD3 Psychopathy	BTI_Neuroticism	0.31	0.21	0.4	yes
SD3 Psychopathy -> BTI_Openness	SD3 Psychopathy	BTI_Openness	0.18	0.17	0.17	yes
SD3 Psychopathy -> SD3 Machiavellianism	SD3 Psychopathy	SD3 Machiavellianism	0.79	0.71	0.86	yes
SD3 Psychopathy -> SD3 Narcissism	SD3 Psychopathy	SD3 Narcissism	0.5	0.36	0.58	yes

Table 4: Outer loadings

	manifest variable	latent variable	Loading	95% lower	95% upper	p- value from T- test
BTI_A1 <- BTI_Agreeableness	BTI_A1	BTI_Agreeableness	0.47	0.36	0.57	<0.01
BTI_A10 <- BTI_Agreeableness	BTI_A10	BTI_Agreeableness	0.59	0.49	0.67	<0.01
BTI_A11 <- BTI_Agreeableness	BTI_A11	BTI_Agreeableness	0.62	0.53	0.71	<0.01
BTI_A12 <- BTI_Agreeableness	BTI_A12	BTI_Agreeableness	0.57	0.46	0.65	<0.01
BTI_A2 <- BTI_Agreeableness	BTI_A2	BTI_Agreeableness	0.42	0.29	0.55	<0.01
BTI_A3 <- BTI_Agreeableness	BTI_A3	BTI_Agreeableness	0.41	0.3	0.52	<0.01
BTI_A4 <- BTI_Agreeableness	BTI_A4	BTI_Agreeableness	0.62	0.52	0.7	<0.01
BTI_A5 <- BTI_Agreeableness	BTI_A5	BTI_Agreeableness	0.47	0.34	0.58	<0.01
BTI_A6 <- BTI_Agreeableness	BTI_A6	BTI_Agreeableness	0.53	0.43	0.63	<0.01
BTI_A7 <- BTI_Agreeableness	BTI_A7	BTI_Agreeableness	0.6	0.51	0.68	<0.01
BTI_A8 <- BTI_Agreeableness	BTI_A8	BTI_Agreeableness	0.54	0.44	0.64	<0.01
BTI_A9 <- BTI_Agreeableness	BTI_A9	BTI_Agreeableness	0.65	0.55	0.73	<0.01
BTI_C1 <- BTI_Conscientiousness	BTI_C1	BTI_Conscientiousness	0.52	0.41	0.62	<0.01
BTI_C10 <- BTI_Conscientiousness	BTI_C10	BTI_Conscientiousness	0.6	0.5	0.69	<0.01
BTI_C11 <- BTI_Conscientiousness	BTI_C11	BTI_Conscientiousness	0.65	0.55	0.73	<0.01
BTI_C12 <- BTI_Conscientiousness	BTI_C12	BTI_Conscientiousness	0.62	0.52	0.71	<0.01
BTI_C2 <- BTI_Conscientiousness	BTI_C2	BTI_Conscientiousness	0.58	0.45	0.69	<0.01
BTI_C3 <- BTI_Conscientiousness	BTI_C3	BTI_Conscientiousness	0.63	0.56	0.7	<0.01
BTI_C4 <- BTI_Conscientiousness	BTI_C4	BTI_Conscientiousness	0.66	0.58	0.74	<0.01
BTI_C5 <- BTI_Conscientiousness	BTI_C5	BTI_Conscientiousness	0.71	0.64	0.77	<0.01
BTI_C6 <- BTI_Conscientiousness	BTI_C6	BTI_Conscientiousness	0.67	0.6	0.72	<0.01
BTI_C7 <- BTI_Conscientiousness	BTI_C7	BTI_Conscientiousness	0.55	0.43	0.65	<0.01
BTI_C8 <- BTI_Conscientiousness	BTI_C8	BTI_Conscientiousness	0.53	0.39	0.65	<0.01

BTI_C9 <- BTI_Conscientiousness	BTI_C9	BTI_Conscientiousness	0.72	0.63	0.78	<0.01
BTI_E1 <- BTI_Extraversion	BTI_E1	BTI_Extraversion	0.51	0.39	0.61	<0.01
BTI_E10 <- BTI_Extraversion	BTI_E10	BTI_Extraversion	0.6	0.48	0.7	<0.01
BTI_E11 <- BTI_Extraversion	BTI_E11	BTI_Extraversion	0.68	0.58	0.75	<0.01
BTI_E12 <- BTI_Extraversion	BTI_E12	BTI_Extraversion	0.67	0.58	0.74	<0.01
BTI_E2 <- BTI_Extraversion	BTI_E2	BTI_Extraversion	0.53	0.44	0.61	<0.01
BTI_E3 <- BTI_Extraversion	BTI_E3	BTI_Extraversion	0.45	0.35	0.55	<0.01
BTI_E4 <- BTI_Extraversion	BTI_E4	BTI_Extraversion	0.72	0.64	0.79	<0.01
BTI_E5 <- BTI_Extraversion	BTI_E5	BTI_Extraversion	0.62	0.55	0.69	<0.01
BTI_E6 <- BTI_Extraversion	BTI_E6	BTI_Extraversion	0.65	0.53	0.74	<0.01
BTI_E7 <- BTI_Extraversion	BTI_E7	BTI_Extraversion	0.57	0.46	0.67	<0.01
BTI_E8 <- BTI_Extraversion	BTI_E8	BTI_Extraversion	0.61	0.5	0.71	<0.01
BTI_E9 <- BTI_Extraversion	BTI_E9	BTI_Extraversion	0.67	0.56	0.76	<0.01
BTI_N1 <- BTI_Neuroticism	BTI_N1	BTI_Neuroticism	0.65	0.56	0.73	<0.01
BTI_N10 <- BTI_Neuroticism	BTI_N10	BTI_Neuroticism	0.72	0.65	0.78	<0.01
BTI_N11 <- BTI_Neuroticism	BTI_N11	BTI_Neuroticism	0.73	0.67	0.79	<0.01
BTI_N12 <- BTI_Neuroticism	BTI_N12	BTI_Neuroticism	0.78	0.73	0.83	<0.01
BTI_N2 <- BTI_Neuroticism	BTI_N2	BTI_Neuroticism	0.62	0.54	0.7	<0.01
BTI_N3 <- BTI_Neuroticism	BTI_N3	BTI_Neuroticism	0.71	0.64	0.78	<0.01
BTI_N4 <- BTI_Neuroticism	BTI_N4	BTI_Neuroticism	0.76	0.69	0.81	<0.01
BTI_N5 <- BTI_Neuroticism	BTI_N5	BTI_Neuroticism	0.67	0.57	0.74	<0.01
BTI_N6 <- BTI_Neuroticism	BTI_N6	BTI_Neuroticism	0.81	0.76	0.86	<0.01
BTI_N7 <- BTI_Neuroticism	BTI_N7	BTI_Neuroticism	0.7	0.61	0.77	<0.01
BTI_N8 <- BTI_Neuroticism	BTI_N8	BTI_Neuroticism	0.85	0.82	0.89	<0.01
BTI_N9 <- BTI_Neuroticism	BTI_N9	BTI_Neuroticism	0.69	0.62	0.76	<0.01

BTI_O1 <- BTI_Openness	BTI_O1	BTI_Openness	0.53	0.42	0.63	<0.01
BTI_O10 <- BTI_Openness	BTI_O10	BTI_Openness	0.62	0.52	0.7	<0.01
BTI_O11 <- BTI_Openness	BTI_O11	BTI_Openness	0.63	0.53	0.71	<0.01
BTI_O12 <- BTI_Openness	BTI_O12	BTI_Openness	0.64	0.54	0.72	<0.01
BTI_O2 <- BTI_Openness	BTI_O2	BTI_Openness	0.66	0.56	0.74	<0.01
BTI_O3 <- BTI_Openness	BTI_O3	BTI_Openness	0.66	0.56	0.75	<0.01
BTI_O4 <- BTI_Openness	BTI_O4	BTI_Openness	0.69	0.62	0.75	<0.01
BTI_O5 <- BTI_Openness	BTI_O5	BTI_Openness	0.57	0.48	0.66	<0.01
BTI_O6 <- BTI_Openness	BTI_O6	BTI_Openness	0.5	0.36	0.6	<0.01
BTI_O7 <- BTI_Openness	BTI_O7	BTI_Openness	0.46	0.35	0.56	<0.01
BTI_O8 <- BTI_Openness	BTI_O8	BTI_Openness	0.64	0.56	0.71	<0.01
BTI_O9 <- BTI_Openness	BTI_O9	BTI_Openness	0.65	0.57	0.73	<0.01
SD3_M1 <- SD3 Machiavellianism	SD3_M1	SD3 Machiavellianism	0.31	0.12	0.48	<0.01
SD3_M2 <- SD3 Machiavellianism	SD3_M2	SD3 Machiavellianism	0.69	0.55	0.79	<0.01
SD3_M3 <- SD3 Machiavellianism	SD3_M3	SD3 Machiavellianism	0.62	0.43	0.74	<0.01
SD3_M4 <- SD3 Machiavellianism	SD3_M4	SD3 Machiavellianism	0.59	0.46	0.69	<0.01
SD3_M5 <- SD3 Machiavellianism	SD3_M5	SD3 Machiavellianism	0.81	0.73	0.85	<0.01
SD3_M6 <- SD3 Machiavellianism	SD3_M6	SD3 Machiavellianism	0.72	0.61	0.79	<0.01
SD3_M7 <- SD3 Machiavellianism	SD3_M7	SD3 Machiavellianism	0.72	0.62	0.79	<0.01
SD3_M8 <- SD3 Machiavellianism	SD3_M8	SD3 Machiavellianism	0.72	0.6	0.8	<0.01
SD3_M9 <- SD3 Machiavellianism	SD3_M9	SD3 Machiavellianism	0.53	0.38	0.65	<0.01
SD3_N1 <- SD3 Narcissism	SD3_N1	SD3 Narcissism	0.61	0.42	0.72	<0.01
SD3_N2(reversed) <- SD3 Narcissism	SD3_N2(reversed)	SD3 Narcissism	0.68	0.54	0.78	<0.01
SD3_N3 <- SD3 Narcissism	SD3_N3	SD3 Narcissism	0.62	0.48	0.72	<0.01
SD3_N4 <- SD3 Narcissism	SD3_N4	SD3 Narcissism	0.53	0.36	0.67	<0.01

SD3_N5 <- SD3 Narcissism	SD3_N5	SD3 Narcissism	0.55	0.35	0.69	<0.01
SD3_N6(reversed) <- SD3 Narcissism	SD3_N6(reversed)	SD3 Narcissism	0.45	0.2	0.61	<0.01
SD3_N7 <- SD3 Narcissism	SD3_N7	SD3 Narcissism	0.43	0.22	0.61	<0.01
SD3_N8(reversed) <- SD3 Narcissism	SD3_N8(reversed)	SD3 Narcissism	0.6	0.43	0.72	<0.01
SD3_N9 <- SD3 Narcissism	SD3_N9	SD3 Narcissism	0.24	0	0.44	0.04
SD3_P1 <- SD3 Psychopathy	SD3_P1	SD3 Psychopathy	0.7	0.55	0.79	<0.01
SD3_P2(reversed) <- SD3 Psychopathy	SD3_P2(reversed)	SD3 Psychopathy	0.19	- 0.05	0.42	0.12
SD3_P3 <- SD3 Psychopathy	SD3_P3	SD3 Psychopathy	0.74	0.62	0.83	<0.01
SD3_P4 <- SD3 Psychopathy	SD3_P4	SD3 Psychopathy	0.7	0.58	0.79	<0.01
SD3_P5 <- SD3 Psychopathy	SD3_P5	SD3 Psychopathy	0.75	0.65	0.82	<0.01
SD3_P6 <- SD3 Psychopathy	SD3_P6	SD3 Psychopathy	0.71	0.57	0.8	<0.01
SD3_P7(reversed) <- SD3 Psychopathy	SD3_P7(reversed)	SD3 Psychopathy	0.05	- 0.17	0.27	0.63
SD3_P8 <- SD3 Psychopathy	SD3_P8	SD3 Psychopathy	0.66	0.51	0.74	<0.01
SD3_P9 <- SD3 Psychopathy	SD3_P9	SD3 Psychopathy	0.73	0.61	0.81	<0.01

Inner model*Table 5: R²*

	R Square	R Square Adjusted
SD3 Machiavellianism	0.15	0.13
SD3 Narcissism	0.31	0.29
SD3 Psychopathy	0.14	0.12

Table 6: Multicollinearity

	Variance Inflation Factors (VIF)		
	SD3 Machiavellianism	SD3 Narcissism	SD3 Psychopathy
BTI_Agreeableness	1.262	1.262	1.262
BTI_Conscientiousness	1.173	1.173	1.173
BTI_Extraversion	1.313	1.313	1.313
BTI_Neuroticism	1.103	1.103	1.103
BTI_Openness	1.173	1.173	1.173
SD3 Machiavellianism			
SD3 Narcissism			
SD3 Psychopathy			

Appendix I: Relationship between BTI and BPAQ-SF - Statistical output**Outer model***Table 1: Composite reliability*

	Loading	95% lower	95% upper
BPAQ Anger	0.89	0.84	0.92
BPAQ Hostility	0.86	0.82	0.89
BPAQ Physical aggression	0.8	0.67	0.84
BPAQ Verbal aggression	0.84	0.8	0.87
BTI_Agreeableness	0.83	0.8	0.87
BTI_Conscientiousness	0.88	0.86	0.91
BTI_Extraversion	0.88	0.84	0.9
BTI_Neuroticism	0.93	0.92	0.94
BTI_Openness	0.87	0.85	0.9

Table 2: Average Variance Extracted (AVE)

	Loading	95% lower	95% upper
BPAQ Anger	0.8	0.73	0.86
BPAQ Hostility	0.67	0.61	0.72
BPAQ Physical aggression	0.5	0.39	0.57
BPAQ Verbal aggression	0.63	0.57	0.69
BTI_Agreeableness	0.3	0.25	0.35
BTI_Conscientiousness	0.39	0.34	0.45
BTI_Extraversion	0.37	0.31	0.44
BTI_Neuroticism	0.53	0.48	0.58
BTI_Openness	0.37	0.32	0.42

Table 3: Discriminant validity

	Heterotrait-Monotrait ratio					
	from	to	Ratio	95 % lower	95 % upper	Discriminate
BPAQ Hostility -> BPAQ Anger	BPAQ Hostility	BPAQ Anger	0.82	0.67	0.94	yes
BPAQ Physical aggression -> BPAQ Anger	BPAQ Physical aggression	BPAQ Anger	0.97	0.87	1.06	no
BPAQ Physical aggression -> BPAQ Hostility	BPAQ Physical aggression	BPAQ Hostility	0.73	0.57	0.86	yes
BPAQ Verbal aggression -> BPAQ Anger	BPAQ Verbal aggression	BPAQ Anger	0.77	0.62	0.9	yes
BPAQ Verbal aggression -> BPAQ Hostility	BPAQ Verbal aggression	BPAQ Hostility	0.65	0.48	0.79	yes
BPAQ Verbal aggression -> BPAQ Physical aggression	BPAQ Verbal aggression	BPAQ Physical aggression	0.8	0.67	0.92	yes
BTI_Agreeableness -> BPAQ Anger	BTI_Agreeableness	BPAQ Anger	0.44	0.3	0.57	yes
BTI_Agreeableness -> BPAQ Hostility	BTI_Agreeableness	BPAQ Hostility	0.47	0.33	0.6	yes
BTI_Agreeableness -> BPAQ Physical aggression	BTI_Agreeableness	BPAQ Physical aggression	0.33	0.24	0.4	yes
BTI_Agreeableness -> BPAQ Verbal aggression	BTI_Agreeableness	BPAQ Verbal aggression	0.24	0.14	0.3	yes
BTI_Conscientiousness -> BPAQ Anger	BTI_Conscientiousness	BPAQ Anger	0.16	0.08	0.23	yes
BTI_Conscientiousness -> BPAQ Hostility	BTI_Conscientiousness	BPAQ Hostility	0.19	0.12	0.25	yes
BTI_Conscientiousness -> BPAQ Physical aggression	BTI_Conscientiousness	BPAQ Physical aggression	0.16	0.13	0.17	yes
BTI_Conscientiousness -> BPAQ Verbal aggression	BTI_Conscientiousness	BPAQ Verbal aggression	0.17	0.13	0.18	yes
BTI_Conscientiousness -> BTI_Agreeableness	BTI_Conscientiousness	BTI_Agreeableness	0.42	0.28	0.5	yes
BTI_Extraversion -> BPAQ Anger	BTI_Extraversion	BPAQ Anger	0.28	0.17	0.35	yes
BTI_Extraversion -> BPAQ Hostility	BTI_Extraversion	BPAQ Hostility	0.31	0.16	0.41	yes

BTI_Extraversion -> BPAQ Physical aggression	BTI_Extraversion	BPAQ Physical aggression	0.23	0.17	0.26	yes
BTI_Extraversion -> BPAQ Verbal aggression	BTI_Extraversion	BPAQ Verbal aggression	0.23	0.15	0.27	yes
BTI_Extraversion -> BTI_Agreeableness	BTI_Extraversion	BTI_Agreeableness	0.48	0.34	0.56	yes
BTI_Extraversion -> BTI_Conscientiousness	BTI_Extraversion	BTI_Conscientiousness	0.39	0.27	0.47	yes
BTI_Neuroticism -> BPAQ Anger	BTI_Neuroticism	BPAQ Anger	0.55	0.42	0.67	yes
BTI_Neuroticism -> BPAQ Hostility	BTI_Neuroticism	BPAQ Hostility	0.65	0.52	0.76	yes
BTI_Neuroticism -> BPAQ Physical aggression	BTI_Neuroticism	BPAQ Physical aggression	0.34	0.23	0.43	yes
BTI_Neuroticism -> BPAQ Verbal aggression	BTI_Neuroticism	BPAQ Verbal aggression	0.39	0.25	0.53	yes
BTI_Neuroticism -> BTI_Agreeableness	BTI_Neuroticism	BTI_Agreeableness	0.27	0.2	0.33	yes
BTI_Neuroticism -> BTI_Conscientiousness	BTI_Neuroticism	BTI_Conscientiousness	0.28	0.19	0.34	yes
BTI_Neuroticism -> BTI_Extraversion	BTI_Neuroticism	BTI_Extraversion	0.31	0.2	0.41	yes
BTI_Openness -> BPAQ Anger	BTI_Openness	BPAQ Anger	0.18	0.1	0.24	yes
BTI_Openness -> BPAQ Hostility	BTI_Openness	BPAQ Hostility	0.16	0.1	0.2	yes
BTI_Openness -> BPAQ Physical aggression	BTI_Openness	BPAQ Physical aggression	0.17	0.13	0.17	yes
BTI_Openness -> BPAQ Verbal aggression	BTI_Openness	BPAQ Verbal aggression	0.23	0.14	0.29	yes
BTI_Openness -> BTI_Agreeableness	BTI_Openness	BTI_Agreeableness	0.34	0.25	0.38	yes
BTI_Openness -> BTI_Conscientiousness	BTI_Openness	BTI_Conscientiousness	0.27	0.25	0.26	yes
BTI_Openness -> BTI_Extraversion	BTI_Openness	BTI_Extraversion	0.42	0.24	0.57	yes
BTI_Openness -> BTI_Neuroticism	BTI_Openness	BTI_Neuroticism	0.15	0.14	0.14	yes

Table 4: Outer loadings

	manifest variable	latent variable	Loading	95% lower	95% upper	p-value from T-test
BPAQ_A1 <- BPAQ Anger	BPAQ_A1	BPAQ Anger	0.88	0.81	0.93	<0.01
BPAQ_A2 <- BPAQ Anger	BPAQ_A2	BPAQ Anger	0.91	0.86	0.94	<0.01
BPAQ_H1 <- BPAQ Hostility	BPAQ_H1	BPAQ Hostility	0.81	0.73	0.87	<0.01
BPAQ_H2 <- BPAQ Hostility	BPAQ_H2	BPAQ Hostility	0.79	0.69	0.85	<0.01
BPAQ_H3 <- BPAQ Hostility	BPAQ_H3	BPAQ Hostility	0.86	0.81	0.89	<0.01
BPAQ_P1 <- BPAQ Physical aggression	BPAQ_P1	BPAQ Physical aggression	0.56	0.24	0.73	<0.01
BPAQ_P2 <- BPAQ Physical aggression	BPAQ_P2	BPAQ Physical aggression	0.66	0.41	0.79	<0.01
BPAQ_P3 <- BPAQ Physical aggression	BPAQ_P3	BPAQ Physical aggression	0.67	0.45	0.81	<0.01
BPAQ_P4 <- BPAQ Physical aggression	BPAQ_P4	BPAQ Physical aggression	0.89	0.81	0.95	<0.01
BPAQ_V1 <- BPAQ Verbal aggression	BPAQ_V1	BPAQ Verbal aggression	0.79	0.68	0.87	<0.01
BPAQ_V2 <- BPAQ Verbal aggression	BPAQ_V2	BPAQ Verbal aggression	0.8	0.7	0.87	<0.01
BPAQ_V3 <- BPAQ Verbal aggression	BPAQ_V3	BPAQ Verbal aggression	0.79	0.67	0.87	<0.01
BTI_A1 <- BTI_Agreeableness	BTI_A1	BTI_Agreeableness	0.47	0.35	0.57	<0.01
BTI_A10 <- BTI_Agreeableness	BTI_A10	BTI_Agreeableness	0.59	0.5	0.68	<0.01
BTI_A11 <- BTI_Agreeableness	BTI_A11	BTI_Agreeableness	0.62	0.52	0.71	<0.01
BTI_A12 <- BTI_Agreeableness	BTI_A12	BTI_Agreeableness	0.57	0.47	0.65	<0.01
BTI_A2 <- BTI_Agreeableness	BTI_A2	BTI_Agreeableness	0.42	0.28	0.54	<0.01
BTI_A3 <- BTI_Agreeableness	BTI_A3	BTI_Agreeableness	0.41	0.29	0.52	<0.01
BTI_A4 <- BTI_Agreeableness	BTI_A4	BTI_Agreeableness	0.62	0.52	0.7	<0.01
BTI_A5 <- BTI_Agreeableness	BTI_A5	BTI_Agreeableness	0.47	0.33	0.59	<0.01
BTI_A6 <- BTI_Agreeableness	BTI_A6	BTI_Agreeableness	0.53	0.42	0.63	<0.01
BTI_A7 <- BTI_Agreeableness	BTI_A7	BTI_Agreeableness	0.6	0.52	0.68	<0.01
BTI_A8 <- BTI_Agreeableness	BTI_A8	BTI_Agreeableness	0.54	0.44	0.64	<0.01

BTI_A9 <- BTI_Agreeableness	BTI_A9	BTI_Agreeableness	0.65	0.55	0.73	<0.01
BTI_C1 <- BTI_Conscientiousness	BTI_C1	BTI_Conscientiousness	0.52	0.41	0.62	<0.01
BTI_C10 <- BTI_Conscientiousness	BTI_C10	BTI_Conscientiousness	0.6	0.49	0.69	<0.01
BTI_C11 <- BTI_Conscientiousness	BTI_C11	BTI_Conscientiousness	0.65	0.55	0.72	<0.01
BTI_C12 <- BTI_Conscientiousness	BTI_C12	BTI_Conscientiousness	0.62	0.52	0.7	<0.01
BTI_C2 <- BTI_Conscientiousness	BTI_C2	BTI_Conscientiousness	0.58	0.46	0.69	<0.01
BTI_C3 <- BTI_Conscientiousness	BTI_C3	BTI_Conscientiousness	0.63	0.56	0.7	<0.01
BTI_C4 <- BTI_Conscientiousness	BTI_C4	BTI_Conscientiousness	0.66	0.58	0.73	<0.01
BTI_C5 <- BTI_Conscientiousness	BTI_C5	BTI_Conscientiousness	0.71	0.65	0.77	<0.01
BTI_C6 <- BTI_Conscientiousness	BTI_C6	BTI_Conscientiousness	0.67	0.59	0.73	<0.01
BTI_C7 <- BTI_Conscientiousness	BTI_C7	BTI_Conscientiousness	0.55	0.41	0.65	<0.01
BTI_C8 <- BTI_Conscientiousness	BTI_C8	BTI_Conscientiousness	0.53	0.4	0.64	<0.01
BTI_C9 <- BTI_Conscientiousness	BTI_C9	BTI_Conscientiousness	0.72	0.64	0.78	<0.01
BTI_E1 <- BTI_Extraversion	BTI_E1	BTI_Extraversion	0.51	0.39	0.62	<0.01
BTI_E10 <- BTI_Extraversion	BTI_E10	BTI_Extraversion	0.6	0.47	0.7	<0.01
BTI_E11 <- BTI_Extraversion	BTI_E11	BTI_Extraversion	0.68	0.58	0.76	<0.01
BTI_E12 <- BTI_Extraversion	BTI_E12	BTI_Extraversion	0.67	0.58	0.74	<0.01
BTI_E2 <- BTI_Extraversion	BTI_E2	BTI_Extraversion	0.53	0.44	0.61	<0.01
BTI_E3 <- BTI_Extraversion	BTI_E3	BTI_Extraversion	0.45	0.34	0.55	<0.01
BTI_E4 <- BTI_Extraversion	BTI_E4	BTI_Extraversion	0.72	0.64	0.79	<0.01
BTI_E5 <- BTI_Extraversion	BTI_E5	BTI_Extraversion	0.62	0.55	0.69	<0.01
BTI_E6 <- BTI_Extraversion	BTI_E6	BTI_Extraversion	0.65	0.54	0.74	<0.01
BTI_E7 <- BTI_Extraversion	BTI_E7	BTI_Extraversion	0.57	0.46	0.67	<0.01
BTI_E8 <- BTI_Extraversion	BTI_E8	BTI_Extraversion	0.61	0.5	0.71	<0.01
BTI_E9 <- BTI_Extraversion	BTI_E9	BTI_Extraversion	0.67	0.56	0.76	<0.01

BTI_N1 <- BTI_Neuroticism	BTI_N1	BTI_Neuroticism	0.65	0.55	0.73	<0.01
BTI_N10 <- BTI_Neuroticism	BTI_N10	BTI_Neuroticism	0.72	0.64	0.78	<0.01
BTI_N11 <- BTI_Neuroticism	BTI_N11	BTI_Neuroticism	0.73	0.67	0.79	<0.01
BTI_N12 <- BTI_Neuroticism	BTI_N12	BTI_Neuroticism	0.78	0.72	0.83	<0.01
BTI_N2 <- BTI_Neuroticism	BTI_N2	BTI_Neuroticism	0.62	0.53	0.7	<0.01
BTI_N3 <- BTI_Neuroticism	BTI_N3	BTI_Neuroticism	0.71	0.64	0.78	<0.01
BTI_N4 <- BTI_Neuroticism	BTI_N4	BTI_Neuroticism	0.76	0.69	0.81	<0.01
BTI_N5 <- BTI_Neuroticism	BTI_N5	BTI_Neuroticism	0.67	0.58	0.74	<0.01
BTI_N6 <- BTI_Neuroticism	BTI_N6	BTI_Neuroticism	0.81	0.76	0.86	<0.01
BTI_N7 <- BTI_Neuroticism	BTI_N7	BTI_Neuroticism	0.7	0.61	0.76	<0.01
BTI_N8 <- BTI_Neuroticism	BTI_N8	BTI_Neuroticism	0.85	0.82	0.89	<0.01
BTI_N9 <- BTI_Neuroticism	BTI_N9	BTI_Neuroticism	0.69	0.62	0.75	<0.01
BTI_O1 <- BTI_Openness	BTI_O1	BTI_Openness	0.53	0.43	0.63	<0.01
BTI_O10 <- BTI_Openness	BTI_O10	BTI_Openness	0.62	0.53	0.7	<0.01
BTI_O11 <- BTI_Openness	BTI_O11	BTI_Openness	0.63	0.54	0.72	<0.01
BTI_O12 <- BTI_Openness	BTI_O12	BTI_Openness	0.64	0.54	0.71	<0.01
BTI_O2 <- BTI_Openness	BTI_O2	BTI_Openness	0.66	0.56	0.73	<0.01
BTI_O3 <- BTI_Openness	BTI_O3	BTI_Openness	0.66	0.56	0.75	<0.01
BTI_O4 <- BTI_Openness	BTI_O4	BTI_Openness	0.69	0.62	0.76	<0.01
BTI_O5 <- BTI_Openness	BTI_O5	BTI_Openness	0.57	0.48	0.65	<0.01
BTI_O6 <- BTI_Openness	BTI_O6	BTI_Openness	0.5	0.37	0.61	<0.01
BTI_O7 <- BTI_Openness	BTI_O7	BTI_Openness	0.46	0.36	0.56	<0.01
BTI_O8 <- BTI_Openness	BTI_O8	BTI_Openness	0.64	0.55	0.71	<0.01
BTI_O9 <- BTI_Openness	BTI_O9	BTI_Openness	0.65	0.56	0.73	<0.01

Inner model*Table 5: R²*

	R Square	R Square Adjusted
BPAQ Anger	0.28	0.26
BPAQ Hostility	0.38	0.36
BPAQ Physical aggression	0.16	0.14
BPAQ Verbal aggression	0.17	0.15

Table 6: Multicollinearity

	Variance Inflation Factors (VIF)			
	BPAQ Anger	BPAQ Hostility	BPAQ Physical aggression	BPAQ Verbal aggression
BPAQ Anger				
BPAQ Hostility				
BPAQ Physical aggression				
BPAQ Verbal aggression				
BTI_Agreeableness	1.262	1.262	1.262	1.262
BTI_Conscientiousness	1.173	1.173	1.173	1.173
BTI_Extraversion	1.313	1.313	1.313	1.313
BTI_Neuroticism	1.103	1.103	1.103	1.103
BTI_Openness	1.173	1.173	1.173	1.173

Appendix J: Relationship between BTI and BBQ - Statistical output**Outer model***Table 1: Composite reliability*

	Loading	95% lower	95% upper
BBQ_Indirect	0.79	0.55	0.84
BBQ_Physical Direct	0.78	0.27	0.84
BBQ_Verbal Direct	0.86	0.81	0.88
BTI_Agreeableness	0.83	0.8	0.86
BTI_Conscientiousness	0.88	0.86	0.91
BTI_Extraversion	0.88	0.84	0.9
BTI_Neuroticism	0.93	0.92	0.94
BTI_Openness	0.87	0.85	0.9

Table 2: Average Variance Extracted (AVE)

	Loading	95% lower	95% upper
BBQ_Indirect	0.44	0.26	0.52
BBQ_Physical Direct	0.42	0.19	0.52
BBQ_Verbal Direct	0.47	0.4	0.52
BTI_Agreeableness	0.3	0.25	0.35
BTI_Conscientiousness	0.39	0.34	0.45
BTI_Extraversion	0.37	0.31	0.44
BTI_Neuroticism	0.53	0.48	0.58
BTI_Openness	0.37	0.32	0.42

Table 3: Discriminant validity

	Heterotrait-Monotrait ratio					
	from	to	Ratio	95 % lower	95 % upper	Discriminate
BBQ_Physical Direct -> BBQ_Indirect	BS_Physical Direct	BS_Indirect	0.81	0.68	0.95	yes
BBQ_Verbal Direct -> BBQ_Indirect	BS_Verbal Direct	BS_Indirect	0.83	0.77	0.94	yes
BBQ_Verbal Direct -> BBQ_Physical Direct	BS_Verbal Direct	BS_Physical Direct	0.9	0.81	0.99	yes
BTI_Agreeableness -> BBQ_Indirect	BTI_Agreeableness	BS_Indirect	0.21	0.17	0.2	yes
BTI_Agreeableness -> BBQ_Physical Direct	BTI_Agreeableness	BS_Physical Direct	0.2	0.18	0.19	yes
BTI_Agreeableness -> BBQ_Verbal Direct	BTI_Agreeableness	BS_Verbal Direct	0.22	0.17	0.24	yes
BTI_Conscientiousness -> BBQ_Indirect	BTI_Conscientiousness	BS_Indirect	0.21	0.14	0.23	yes
BTI_Conscientiousness -> BBQ_Physical Direct	BTI_Conscientiousness	BS_Physical Direct	0.17	0.15	0.17	yes
BTI_Conscientiousness -> BBQ_Verbal Direct	BTI_Conscientiousness	BS_Verbal Direct	0.17	0.14	0.18	yes
BTI_Conscientiousness -> BTI_Agreeableness	BTI_Conscientiousness	BTI_Agreeableness	0.42	0.31	0.5	yes
BTI_Extraversion -> BBQ_Indirect	BTI_Extraversion	BS_Indirect	0.2	0.16	0.22	yes
BTI_Extraversion -> BBQ_Physical Direct	BTI_Extraversion	BS_Physical Direct	0.22	0.17	0.23	yes
BTI_Extraversion -> BBQ_Verbal Direct	BTI_Extraversion	BS_Verbal Direct	0.25	0.18	0.29	yes
BTI_Extraversion -> BTI_Agreeableness	BTI_Extraversion	BTI_Agreeableness	0.48	0.33	0.56	yes
BTI_Extraversion -> BTI_Conscientiousness	BTI_Extraversion	BTI_Conscientiousness	0.39	0.27	0.48	yes
BTI_Neuroticism -> BBQ_Indirect	BTI_Neuroticism	BS_Indirect	0.33	0.21	0.45	yes

BTI_Neuroticism -> BBQ_Physical Direct	BTI_Neuroticism	BS_Physical Direct	0.2 1	0. 14	0. 25	yes
BTI_Neuroticism -> BBQ_Verbal Direct	BTI_Neuroticism	BS_Verbal Direct	0.3 3	0. 22	0. 42	yes
BTI_Neuroticism -> BTI_Agreeableness	BTI_Neuroticism	BTI_Agreeableness	0.2 7	0. 2	0. 32	yes
BTI_Neuroticism -> BTI_Conscientiousness	BTI_Neuroticism	BTI_Conscientiousness	0.2 8	0. 19	0. 34	yes
BTI_Neuroticism -> BTI_Extraversion	BTI_Neuroticism	BTI_Extraversion	0.3 1	0. 21	0. 42	yes
BTI_Openness - > BBQ_Indirect	BTI_Openness	BS_Indirect	0.1 3	0. 14	0. 14	yes
BTI_Openness - > BBQ_Physical Direct	BTI_Openness	BS_Physical Direct	0.2 1	0. 15	0. 23	yes
BTI_Openness - > BBQ_Verbal Direct	BTI_Openness	BS_Verbal Direct	0.1 9	0. 17	0. 2	yes
BTI_Openness - > BTI_Agreeableness	BTI_Openness	BTI_Agreeableness	0.3 4	0. 26	0. 38	yes
BTI_Openness - > BTI_Conscientiousness	BTI_Openness	BTI_Conscientiousness	0.2 7	0. 24	0. 24	yes
BTI_Openness - > BTI_Extraversion	BTI_Openness	BTI_Extraversion	0.4 2	0. 24	0. 58	yes
BTI_Openness - > BTI_Neuroticism	BTI_Openness	BTI_Neuroticism	0.1 5	0. 13	0. 13	yes

Table 4: Outer loadings

	manifest variable	latent variable	Loading	95% lower	95% upper	p-value from T-test
BBQ_In1 <- BBQ_Indirect	BS_In1	BS_Indirect	0.62	0.15	0.77	<0.01
BBQ_In2 <- BBQ_Indirect	BS_In2	BS_Indirect	0.67	0.38	0.79	<0.01
BBQ_In3 <- BBQ_Indirect	BS_In3	BS_Indirect	0.69	0.38	0.83	<0.01
BBQ_In4 <- BBQ_Indirect	BS_In4	BS_Indirect	0.68	0.32	0.82	<0.01
BBQ_In5 <- BBQ_Indirect	BS_In5	BS_Indirect	0.65	0.27	0.81	<0.01
BBQ_PD1 <- BBQ_Physical Direct	BS_PD1	BS_Physical Direct	0.51	-0.05	0.76	0.02
BBQ_PD2 <- BBQ_Physical Direct	BS_PD2	BS_Physical Direct	0.62	0.03	0.83	<0.01
BBQ_PD3 <- BBQ_Physical Direct	BS_PD3	BS_Physical Direct	0.57	0.02	0.79	<0.01
BBQ_PD4 <- BBQ_Physical Direct	BS_PD4	BS_Physical Direct	0.83	0.24	0.92	<0.01
BBQ_PD5 <- BBQ_Physical Direct	BS_PD5	BS_Physical Direct	0.65	0.07	0.87	<0.01
BBQ_VD1 <- BBQ_Verbal Direct	BS_VD1	BS_Verbal Direct	0.67	0.53	0.78	<0.01
BBQ_VD2 <- BBQ_Verbal Direct	BS_VD2	BS_Verbal Direct	0.54	0.33	0.7	<0.01
BBQ_VD3 <- BBQ_Verbal Direct	BS_VD3	BS_Verbal Direct	0.62	0.46	0.75	<0.01
BBQ_VD4 <- BBQ_Verbal Direct	BS_VD4	BS_Verbal Direct	0.77	0.66	0.84	<0.01
BBQ_VD5 <- BBQ_Verbal Direct	BS_VD5	BS_Verbal Direct	0.83	0.73	0.89	<0.01
BBQ_VD6 <- BBQ_Verbal Direct	BS_VD6	BS_Verbal Direct	0.64	0.47	0.75	<0.01
BBQ_VD7 <- BBQ_Verbal Direct	BS_VD7	BS_Verbal Direct	0.66	0.49	0.76	<0.01
BTI_A1 <- BTI_Agreeableness	BTI_A1	BTI_Agreeableness	0.47	0.36	0.57	<0.01
BTI_A10 <- BTI_Agreeableness	BTI_A10	BTI_Agreeableness	0.59	0.49	0.67	<0.01
BTI_A11 <- BTI_Agreeableness	BTI_A11	BTI_Agreeableness	0.62	0.51	0.71	<0.01
BTI_A12 <- BTI_Agreeableness	BTI_A12	BTI_Agreeableness	0.57	0.47	0.65	<0.01
BTI_A2 <- BTI_Agreeableness	BTI_A2	BTI_Agreeableness	0.42	0.28	0.55	<0.01

BTI_A3 <- BTI_Agreeableness	BTI_A3	BTI_Agreeableness	0.41	0.28	0.52	<0.01
BTI_A4 <- BTI_Agreeableness	BTI_A4	BTI_Agreeableness	0.62	0.51	0.7	<0.01
BTI_A5 <- BTI_Agreeableness	BTI_A5	BTI_Agreeableness	0.47	0.33	0.59	<0.01
BTI_A6 <- BTI_Agreeableness	BTI_A6	BTI_Agreeableness	0.53	0.42	0.62	<0.01
BTI_A7 <- BTI_Agreeableness	BTI_A7	BTI_Agreeableness	0.6	0.53	0.68	<0.01
BTI_A8 <- BTI_Agreeableness	BTI_A8	BTI_Agreeableness	0.54	0.44	0.63	<0.01
BTI_A9 <- BTI_Agreeableness	BTI_A9	BTI_Agreeableness	0.65	0.55	0.73	<0.01
BTI_C1 <- BTI_Conscientiousness	BTI_C1	BTI_Conscientiousness	0.52	0.42	0.61	<0.01
BTI_C10 <- BTI_Conscientiousness	BTI_C10	BTI_Conscientiousness	0.6	0.51	0.69	<0.01
BTI_C11 <- BTI_Conscientiousness	BTI_C11	BTI_Conscientiousness	0.65	0.55	0.72	<0.01
BTI_C12 <- BTI_Conscientiousness	BTI_C12	BTI_Conscientiousness	0.62	0.53	0.7	<0.01
BTI_C2 <- BTI_Conscientiousness	BTI_C2	BTI_Conscientiousness	0.58	0.45	0.68	<0.01
BTI_C3 <- BTI_Conscientiousness	BTI_C3	BTI_Conscientiousness	0.63	0.55	0.7	<0.01
BTI_C4 <- BTI_Conscientiousness	BTI_C4	BTI_Conscientiousness	0.66	0.57	0.74	<0.01
BTI_C5 <- BTI_Conscientiousness	BTI_C5	BTI_Conscientiousness	0.71	0.64	0.77	<0.01
BTI_C6 <- BTI_Conscientiousness	BTI_C6	BTI_Conscientiousness	0.67	0.59	0.73	<0.01
BTI_C7 <- BTI_Conscientiousness	BTI_C7	BTI_Conscientiousness	0.55	0.43	0.65	<0.01
BTI_C8 <- BTI_Conscientiousness	BTI_C8	BTI_Conscientiousness	0.53	0.4	0.64	<0.01
BTI_C9 <- BTI_Conscientiousness	BTI_C9	BTI_Conscientiousness	0.72	0.63	0.79	<0.01
BTI_E1 <- BTI_Extraversion	BTI_E1	BTI_Extraversion	0.51	0.39	0.61	<0.01
BTI_E10 <- BTI_Extraversion	BTI_E10	BTI_Extraversion	0.6	0.49	0.71	<0.01
BTI_E11 <- BTI_Extraversion	BTI_E11	BTI_Extraversion	0.68	0.58	0.76	<0.01
BTI_E12 <- BTI_Extraversion	BTI_E12	BTI_Extraversion	0.67	0.59	0.74	<0.01
BTI_E2 <- BTI_Extraversion	BTI_E2	BTI_Extraversion	0.53	0.44	0.61	<0.01
BTI_E3 <- BTI_Extraversion	BTI_E3	BTI_Extraversion	0.45	0.34	0.54	<0.01

BTI_E4 <- BTI_Extraversion	BTI_E4	BTI_Extraversion	0.72	0.64	0.78	<0.01
BTI_E5 <- BTI_Extraversion	BTI_E5	BTI_Extraversion	0.62	0.55	0.69	<0.01
BTI_E6 <- BTI_Extraversion	BTI_E6	BTI_Extraversion	0.65	0.54	0.74	<0.01
BTI_E7 <- BTI_Extraversion	BTI_E7	BTI_Extraversion	0.57	0.46	0.67	<0.01
BTI_E8 <- BTI_Extraversion	BTI_E8	BTI_Extraversion	0.61	0.5	0.71	<0.01
BTI_E9 <- BTI_Extraversion	BTI_E9	BTI_Extraversion	0.67	0.56	0.75	<0.01
BTI_N1 <- BTI_Neuroticism	BTI_N1	BTI_Neuroticism	0.65	0.56	0.73	<0.01
BTI_N10 <- BTI_Neuroticism	BTI_N10	BTI_Neuroticism	0.72	0.65	0.78	<0.01
BTI_N11 <- BTI_Neuroticism	BTI_N11	BTI_Neuroticism	0.73	0.67	0.79	<0.01
BTI_N12 <- BTI_Neuroticism	BTI_N12	BTI_Neuroticism	0.78	0.73	0.83	<0.01
BTI_N2 <- BTI_Neuroticism	BTI_N2	BTI_Neuroticism	0.62	0.54	0.69	<0.01
BTI_N3 <- BTI_Neuroticism	BTI_N3	BTI_Neuroticism	0.71	0.64	0.78	<0.01
BTI_N4 <- BTI_Neuroticism	BTI_N4	BTI_Neuroticism	0.76	0.69	0.81	<0.01
BTI_N5 <- BTI_Neuroticism	BTI_N5	BTI_Neuroticism	0.67	0.58	0.74	<0.01
BTI_N6 <- BTI_Neuroticism	BTI_N6	BTI_Neuroticism	0.81	0.76	0.86	<0.01
BTI_N7 <- BTI_Neuroticism	BTI_N7	BTI_Neuroticism	0.7	0.61	0.77	<0.01
BTI_N8 <- BTI_Neuroticism	BTI_N8	BTI_Neuroticism	0.85	0.81	0.88	<0.01
BTI_N9 <- BTI_Neuroticism	BTI_N9	BTI_Neuroticism	0.69	0.62	0.75	<0.01
BTI_O1 <- BTI_Openness	BTI_O1	BTI_Openness	0.53	0.42	0.62	<0.01
BTI_O10 <- BTI_Openness	BTI_O10	BTI_Openness	0.62	0.53	0.7	<0.01
BTI_O11 <- BTI_Openness	BTI_O11	BTI_Openness	0.63	0.54	0.72	<0.01
BTI_O12 <- BTI_Openness	BTI_O12	BTI_Openness	0.64	0.54	0.72	<0.01
BTI_O2 <- BTI_Openness	BTI_O2	BTI_Openness	0.66	0.56	0.74	<0.01
BTI_O3 <- BTI_Openness	BTI_O3	BTI_Openness	0.66	0.57	0.74	<0.01
BTI_O4 <- BTI_Openness	BTI_O4	BTI_Openness	0.69	0.62	0.76	<0.01

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BTI_O5 <- BTI_Openness	BTI_O5	BTI_Openness	0.57	0.48	0.65	<0.01
BTI_O6 <- BTI_Openness	BTI_O6	BTI_Openness	0.5	0.37	0.6	<0.01
BTI_O7 <- BTI_Openness	BTI_O7	BTI_Openness	0.46	0.35	0.55	<0.01
BTI_O8 <- BTI_Openness	BTI_O8	BTI_Openness	0.64	0.56	0.71	<0.01
BTI_O9 <- BTI_Openness	BTI_O9	BTI_Openness	0.65	0.56	0.73	<0.01

Inner model*Table 5: R²*

	R Square	R Square Adjusted
BBQ_Indirect	0.08	0.06
BBQ_Physical Direct	0.06	0.04
BBQ_Verbal Direct	0.12	0.1

Table 6: Multicollinearity

	Variance Inflation Factors (VIF)		
	BBQ_Indirect	BBQ_Physical Direct	BBQ_Verbal Direct
BBQ_Indirect			
BBQ_Physical Direct			
BBQ_Verbal Direct			
BTI_Agreeableness	1.262	1.262	1.262
BTI_Conscientiousness	1.173	1.173	1.173
BTI_Extraversion	1.313	1.313	1.313
BTI_Neuroticism	1.103	1.103	1.103
BTI_Openness	1.173	1.173	1.173