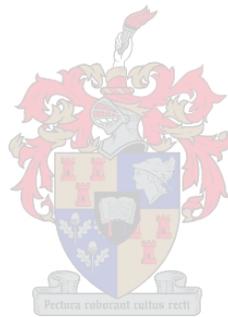


Quality of life of tertiary students and their attachment to a companion animal.

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Thesis presented in fulfillment of the requirements for the degree of a Master of Arts in the Faculty of Arts and Social Sciences (Psychology) at Stellenbosch University

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March 2016

DECLARATION

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ABSTRACT

Companion animals have become an important aspect in the lives of many individuals (Serpell, 2010). It has been shown that attachment to a companion animal may have a beneficial impact on several aspects of an individual's life (O'Haire, 2010). Collectively, these aspects can influence an individual's assessment of their quality of life (Bourssa et al., 2015). The primary aim of the study was to determine the relationship between attachment to companion animals and quality of life of companion animal owning students at a local university. A secondary aim was to investigate the difference between companion animal owners and non-owners with regards to their quality of life. Three theories were utilised in the current study namely attachment theory (Kurdek, 2009), social support theory (Lakely & Cohen, 2000) and the biophilia hypothesis (Amiot & Bastian, 2014). Quantitative data was collected through self-report questionnaires, namely the Lexington Attachment to Pets Scale (LAPS) and the World Health Organisation Quality of Life Assessment-Brief (WHOQOL-BREF) and was analysed in order to answer the research questions.

Data was collected from 276 students at a local university in the Western Cape. The participants ranged between 18 and 56 years, with an average age of 23 years. The participants were mostly white, female and undergraduate students. The majority of the participants were currently companion animal owners (n=211). The results revealed no significant correlation between attachment to a companion animal and quality of life total scores. Significant correlations were found between the general attachment subscale of the LAPS and the social relationships subscale of the WHOQOL-BREF. Significant correlations were also found between the animal rights subscale of the LAPS and psychological health subscale of the WHOQOL-BREF, as well as the WHOQOL-BREF (Total score). It was also found that companion animal owners scored significantly higher on their quality of life total scores than non-owners. Women scored significantly higher than men on the LAPS. Men scored significantly higher on the WHOQOL-BREF (Total score) than women. Limitations of the current study and recommendations for future study are discussed.

Keywords: Companion animal, attachment, quality of life, tertiary students.

OPSOMMING

Troeteldiere as geselskapsdiere speel 'n belangrike rol in die lewens van baie mense (Serpell, 2010). Dit is bewys dat 'n gehegtheid aan geselskapsdiere 'n voordelige impak kan hê op verskeie aspekte van 'n individu se lewe (O'Haire, 2010). Gesamentlik vorm hierdie aspekte van menslike uitlewing dit wat individue oorweeg by die beoordeling van hul lewenskwaliteit (Bourssa et al., 2015). Die primêre doel van hierdie studie is om die verhouding tussen die gehegtheid aan geselskapsdiere en die lewenskwaliteit van eienaars van hierdie diere te bepaal, spesifiek met betrekking tot studente wat geselskapsdiere eienars is by 'n plaaslike universiteit. 'n Sekondêre doel is om die verskil in lewenskwaliteit tussen eienaars en nie-eienaars van geselskapsdiere te ondersoek. Drie teorieë is gebruik vir studie, naamlik die gehegtheidsteorie (Kurdek 2009), sosiale ondersteuningsteorie (Lakely & Cohen, 2000) en die biophilia hipotese (Amiot & Bastian, 2014). Kwantitatiewe data is ingesamel deur middel van selfvoltooiingsvraelyste, naamlik die Lexington Skaal vir Gehegtheid aan Troeteldiere (LSGT), en die Wêreld Gesondheid Organisasie Lewens Kwaliteit Assessering - Kort (WGOLA-KORT). Die resultate is ontleed ten einde die navorsingsvrae te beantwoord.

Data is ingesamel uit 'n steekproef van 276 studente by 'n enkele plaaslike universiteit in die Wes-Kaap. Die deelnemers aan die steekproef se ouderdomme het gewissel tussen 18 en 56 jaar, met 'n gemiddelde ouderdom van 23 jaar. Die deelnemers was meestal wit, vroulik en voorgraadse studente. Die meerderheid van die deelnemers was eienaars van geselskapsdiere (n=211). Die resultate van die studie het bewys dat daar geen beduidende korrelasie tussen gehegtheid aan geselskapsdiere en die kwaliteit van lewe volgens die totale tellings is nie. Beduidende korrelasies is wel gevind tussen die algemene gehegtheid subskaal van die LSGT en die sosiale verhoudings subskaal van die WGOLA-KORT. Beduidende korrelasies is ook gevind tussen die regte-van-diere subskaal van die LSGT en sielkundige gesondheid subskaal van die WGOLA-KORT (Totale telling). Daar is ook bevind dat eienaars van die geselskapsdiere aansienlik hoër tellings op persoonlike lewenskwaliteitmetings behaal het in vergelyking met nie-eienaars. Vrouens het aansienlik hoër tellings as mans behaal het op die LSGT en die LSGT subskale. Mans het aansienlik hoër tellings op die WGOLA-KORT (Totale telling) behaal in vergelyking

met vrouens. Die beperkinge van die huidige studie en aanbevelings vir toekomstige studies word bespreek.

Trefwoorde: Geselskapsdiere, gehegtheid, lewenskwaliteit, tersiêre studente

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CHAPTER 1

INTRODUCTION AND MOTIVATION

1.1 INTRODUCTION

Throughout history, humans and animals have been a part of one another's lives in various ways. Animals have assisted humans in hunting, providing protection and even in performing daily activities. This unique relationship between humans and animals has been well documented in various written forms, from ancient texts through to current fiction and non-fiction accounts (Serpell, 2010). Over time, interest in this relationship has increased, acting as a catalyst for research and literature in the field of human-animal interactions (HAI) (Fine & Beck, 2010).

The research on HAI has brought to light findings that suggest that animals have come to play a meaningful role in improving the overall health and quality of life of humans (Fine & Beck, 2010). Quality of life has become an increasingly important focus in health research, as it provides a more holistic view of health, encompassing both mental health and physical health (Mueller, 2014). A full description of quality of life will be provided in later sections. Based on findings that animals may play a role in improvement of health, various activities and therapies such as equine-facilitated psychotherapy, hippo-therapy, animal-assisted activities and animal-assisted therapy have developed (Kurger & Serpell, 2010). These are only a few examples of how animals have become part of a process aimed at benefiting and enhancing a person's quality of life (Kruger & Serpell, 2010).

There has been a natural need to understand the particular mechanisms of HAI that bring about the health benefits that people have experienced. It is through understanding these mechanisms that mutually beneficial behaviours for animals and humans, can be established and

promoted (Mueller, 2014). It has been suggested that ownership of, or attachment to, an animal acts as the mechanism through which individuals lives are enhanced. Attachment can be understood as an emotional bond that is formed between two parties. A full description of attachment is provided in later sections.

To date literature has shown that individuals are able to form strong attachment bonds with their companion animals, similar to those formed among family members (Cohen, 2002; Julius, Beetz, Kotrschal, Turner, & Uvnäs-Moberg, 2013; Kurdek, 2008, 2009; Risley-Curtiss, 2010; Smolkovic, Fajar, & Milnarie, 2012). Further studies have also been able to link attachment to a companion animal with improvements in the health of individuals, suggesting that this is an area of particular importance for further research endeavours (Cohen, 2002; Kurdek, 2009).

While there has been growth in the literature in HAI and in particular attachment to companion animals, certain gaps and limitations still exist. Firstly, much of the literature on attachment consists mainly of anecdotal evidence or is only focused on how attachment has affected one specific facet of an individual's life (Cohen, 2002; Kurdek, 2009). This study hopes to address these gaps in our knowledge by providing empirical evidence and a holistic approach to examining attachment to companion animals and the effect thereof on a person's life. It also aims to take the South African context into consideration, as literature pertaining to the above is limited with regards to this context (Lubbe & Scholtz, 2013). In later sections, key concepts and definitions relevant to the study will be clarified and described.

1.2 MOTIVATION

As already stated, while the interest in HAI has grown, resulting in an increase in literature and research in this field, much of it consists of anecdotal accounts (Knight & Herzog, 2009). This

has resulted in an increasing need for empirical research and scientific evidence to support these anecdotal accounts of HAI (Nimer & Lundahl, 2007). This study aims to contribute quantitative, scientific evidence to the existing literature on HAI. Research ultimately provides evidence from which policy makers, managers, academics and potential clients may make informed decisions (Gilbey & Tani, 2015). Empirical studies are needed to provide evidence for therapies and activities such as AAA or AAT and are of importance to assess whether or not the abovementioned therapies/activities can actually be effective (Fine & Beck, 2010). The activities of AAA/AAT are not the main focus of this study. However, supplementary knowledge of HAI, especially with regard to a student population, may result in these activities becoming more prevalent and hopefully impacting upon and improving an individual's life.

A large portion of the existing literature on HAI has been conducted in developed countries; thus it is unclear whether the results of previous studies are applicable to South African communities (Andreassen, Stenvold, & Rudmin, 2013; Brown, 2002; Mariti et al., 2013; Netting et al., 2013; Zilcha-Mano, Mikulincer, & Shaver, 2011). While literature on HAI in South African communities is growing, there is a definite need for further research (Lubbe & Scholtz, 2013). Further, much of the research that has been conducted in a South African context has had a specific focus on the efficacy of AAA/AAT (Le Roux & Kemp, 2009; Le Roux, Swartz, & Swart, 2014; Lubbe & Scholtz, 2013; Odendaal, 2000). By conducting the study at a local university in South Africa, this study aims to take the South African context and communities into consideration.

This study aims to incorporate all areas of an individual's life and which have an impact on the assessment of life satisfaction. It will do so by making use of a quality of life measurement, which allows researchers to make assumptions regarding individuals' physical and

mental health, as well as their social relationships and environments. Previous studies on HAI or attachment to companion animals have only focused on one aspect of physical health or mental health, such as heart disease or depression. Further, these studies have only focused on only one type of companion animal, i.e. dogs (Andreassen et al., 2013; Mariti et al., 2013; Netting et al., 2013; Pitteri, Mongilli, Adamelli, Bonichini, & Marinelli, 2014; Prato-Previde, Fallani, & Valsecchi, 2006). This study will attempt to include all types of companion animals, in an attempt to provide a more holistic approach to HAI.

This study will be focusing on a population group of tertiary students, as there has only been a small portion of studies done on this group (Bjick, 2013; Brown, 2002; Shore, Douglas, & Riley, 2005; Wells & Perrine, 2001; Young, 2012). Much of the current literature on tertiary students and companion animals has focused on their attitudes and opinions towards animals and not on particular aspects of their own mental or physical health (Amiot & Bastian, 2014). The existing research has typically been conducted on children and adolescents or older population groups (Cohen, 2002; Mueller, 2014; Netting et al., 2013). For many individuals at tertiary institutions, their time there is often one of social, educational and emotional change and adjustment (David & Nita, 2014). It is therefore of interest to consider this time period in an individual's life and to examine the factors that may influence their quality of life and level of success at these institutions.

Finally, a study by Lewis, Krägeloh, and Shepherd (2009), which explored the relationship between attachment and quality of life, has become the basis on which this study has been conducted. This study attempted to establish if similar findings exist in a South African student community in comparison to the New Zealand student community. The study by Lewis et al. (2009) found the attachment scale, namely the Pat Attachment Questionnaire (PAQ) to be

problematic and was thus reported as one of the limitations of their study. In an attempt to address this limitation, this study has made use of the Lexington Attachment to Pets Scale (LAPS), a commonly used scale which contains more items than the PAQ (Lewis et al, 2009; Netting et al., 2013; Pitteri et al., 2014; Shore et al., 2005; Williams, Muldoon, & Lawrence, 2010; Zasloff, 1996).

1.3 DEFINITIONS

1.3.1 Companion animal

The terms ‘pet’ and ‘companion animal’ are often used interchangeably in much of the literature regarding HAI. The term ‘companion’ can be understood as an individual that provides company and can be associated towards (Oxford English Dictionary, n.d.). Therefore a companion animal is an animal that individuals chose to provide company and that individuals spend time with. The term ‘pet’ holds many different meanings, which include a party that is treated favourably and a domestic animal that is kept for pleasure rather than utility (Merriam-Webster’s online dictionary, n.d.).

While both terms refer to animals in an affectionate sense, the term companion animal is the preferred term among scholars and professionals in the field (Walsh, 2009). The term ‘companion animal’ holds more clarity than the term pet, due to ‘pet’ having various meanings. The term ‘companion animal’ describes more of a psychological bond between the human owner and the animal. This also refers to an equal and mutually beneficial relationship between both parties (Walsh, 2009). It is due to the aforementioned that the term ‘companion animal’ will be used throughout the study. As a final note, it should be mentioned that a companion animal may

be anything from a therapy or service animal to a family or communal ‘pet’ (Gilbey & Tani, 2015).

1.3.2 Human-animal-bond (HAB)

The human-animal-bond is the dynamic relationship between animals and humans. This relationship is mutually beneficial and influences the psychological and physiological states of both parties involved in the relationship (Russow, 2002).

1.3.3 Attachment

Attachment can be understood as an affectional tie or bond that is formed between two parties (Levy, Ellsion, Scott, & Bernecker, 2011). Attachment is often conceptualised through attachment theory, in which the main features of attachment include a need to have regular contact with the attachment figure and the experience of distress during a period of separation from this figure (Levy et al., 2011). Attachment theory is discussed in detailed in Chapter 3.

This study will make use of this basic definition of attachment, when applying the concept of attachment to HAI, as has been done in previous studies (Kurdek, 2008, 2009). In later sections there will be further discussion of attachment between humans and companion animals.

1.3.4 Quality of life

According to the WHOQoL Group (1998, p.552) ‘quality of life is an individual’s perception of his/her position in life in the context of the culture and value systems in which he/she lives and in relation to his goals, expectations, standards and concerns’. Quality of life attempts to encompass all parts of an individual’s life, such as their social relationships, their physical health and

abilities, their cognitive abilities, mental health and the environments in which they exist (Bourassa, Memel, Woolverton, & Sbarra, 2015).

Quality of life can further be understood as a holistic approach to viewing an individual's life. It is holistic in the sense that it encompasses all aspects of an individual's life, which would include both his social and personal environments, and overall health (Higginson & Carr, 2001).

1.4 AIMS OF STUDY

This study aims to explore the following research question: Is there a significant relationship between an individual's quality of life and his/her attachment to his/her companion animal? The primary aim of the study is to determine whether there are differences in quality of life scores in individuals with high scores in attachment to their companion animals in comparison to those with lower scores as measured by the Lexington Attachment to Pets Scale (LAPS). The secondary aim is to determine if there is a difference in quality of life scores between individuals with a companion animal and those without.

1.5 OUTLINE OF THE THESIS

Chapter 2 will consist of a review of the literature that is relevant to the current study. The literature review will briefly discuss the origins of HAI. This will be followed by a discussion on what is known about people's attachment to animals and the it's impact on people. The concept of quality of life will also be discussed in this section, including what this concept entails and how it is relevant to this study.

Chapter 3 will provide a description of the theoretical framework used to interpret the findings of the study. It will describe the constructs of the theories used, as well as their application in this study.

The methodology employed in this study will be discussed in Chapter 4. The research design, followed by a description of the participants and an explanation of the quantitative measures used will then be described. This chapter will also discuss the procedures of the study and the ethical considerations that were taken into account.

Chapter 5 will include the results of this study and Chapter 6 will provide the discussion of these results, followed by a conclusion and summary of the thesis.

1.6 CONCLUSION

Chapter 1 has acted as an introduction into this study. It is evident that there is a definite relationship between humans and animals, and that the forms this relationship takes can vary. Important concepts and their definitions have been described, in order to clarify and provide context. HAI have started to play a role in the various fields of health sciences and it is thus of importance to begin to understand what the workings of these interactions, are as well as to determine to what extent they can impact on an individual's life. The next chapter will provide an understanding into what is currently known about human and animal interactions. There will be a focus the individual's attachment to companion animals and the influence of companion animals on the individual's quality of life.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter the available literature on human-animal interactions (HAI) will be discussed. Firstly, attachment relationships that result from ownership of companion animals will be described. This will be followed by a discussion on quality of life and the beneficial influence that a companion animal, particularly one with which an attachment bond is shared, may have on overall quality of life.

2.2 HUMAN-ANIMAL INTERACTIONS (HAI): A BRIEF OVERVIEW

The impact of animals has always been prevalent in many facets of people's lives (Serpell, 2010). The earliest interactions between humans and animals have mainly involved the human's need for survival (Julius et al., 2013). Animals would often be used to aid in hunting and also acted as a form of protection. Early societies would often observe animals to learn more about new environments and how to adapt to these environments (Serpell, 2010).

Over time, human interaction with animals has evolved from simply observing them in nature, to incorporating animals into various facets of daily life. There are various activities that require the services and assistance of animals. In police services, for example, dogs are often required to assist in detecting certain scents (drugs, explosives and human scent when tracking missing persons), and to provide protection (Hováth, Igyártó, Magyar, & Miklós, 2007; Sanders, 2006; Schoon & De Bruin, 1994). Further, there are service animals for individuals with visual impairments or for a variety of other disorders such as Autism Spectrum Disorder. These animals assist these individuals in the performing of many of their daily activities (Burrows, Adams, &

Spiers, 2008). Animals have also become a part of various therapeutic interventions with the goal being an improvement in an individual's quality of life, as is evidenced by the growing use of AAA or AAT interventions (Friedmann, Son, & Tsai, 2010; Julius et al., 2013; Steinpresis, 1996).

HAI does not merely involve animals providing service to humans, including the therapeutic service described above, but also the personal role that they play in many people's lives. Most importantly, animals are often kept as companions in many households and are even seen as an extension of the family. In most societies it is common for households to have at least one companion animal (Amiot & Bastian, 2014; Julius et al., 2013).

What is clear from the above, is that animals have become an integral part of the lives of humans, a trend which seems to be on the increase. In many culture's spiritual and religious belief systems animals hold significant meaning and prominence (Ambros, 2010; Serpell, 2005). Animals have formed part of mythology and folklore, at times being depicted as gods (Serpell, 2005). Clearly, animals are considered to be valuable to humans and society. The establishment of animal welfare and animal rights organisations, and the increased interest in the protection of animals is further evidence of this (Amiot & Bastian, 2014). The relationship between humans and companion animals shall be discussed in more detail in the sections that follow.

2.3 ATTACHMENT

Companion animals have become an almost vital component in many people's lives. In the United States alone, the pet industry has grown to a billion dollars in value, which is an indication of just how valuable companion animals can be to individuals (Fine & Beck, 2010). For many individuals, owning a companion animal goes beyond merely tending to an animal's needs. People have been known to describe their companion animals as a part of their family

(Cohen, 2002). It is common for newly wed or childless couples to refer to their companion animal as their 'child' and they tend to treat the animal accordingly. It is also not uncommon for companion animal owners to take the animal along on holiday, share a bed with the animal and even celebrate the animal's birthday (Cohen, 2002). These behaviours suggest an emotional bond between animal and owner - this bond being one of attachment (Kurdek, 2008, 2009).

Attachment is typically understood as the bond that is formed between a child and the primary caregiver, usually the child's mother (Ainsworth, 1979). While attachment theory is usually used to conceptualise the relationship between a child and a primary caregiver, it has also been applied to a variety of relationships, such as siblings, romantic partners, peers, leaders and even religious figures such as God (Cicirelli, 2004; Davidovitz, Mikulincer, Shaver, Izsak, & Popper, 2007; Fraley & Shaver, 2000; Freeman & Brown, 2001; Siebert & Kerns, 2009).

This implies that an attachment figure need not necessarily be the primary caregiver, and that individuals merely need to meet most of the prerequisites of an attachment bond to act as attachment figures. These prerequisites would be the provision of a secure base as well as providing a safe haven for the individual, and for the individual to need to remain near the attachment figure (proximity maintenance) and a feeling of being distressed when separated (Ainsworth, 1979). Attachment bonds can exist between individuals and their companion animals and it has been suggested that these are as meaningful as the attachment bond between two human individuals.

Attachment, which is a fundamental concept in developmental psychology, has frequently been linked to the understanding of HAI (Amiot & Bastian, 2014). It has been somewhat unclear how attachment can exist between humans and animals. There have been various attempts at defining attachment between humans and their companion animal(s) (Knight

& Herzog, 2009; Prato-Previde et al., 2006). These include definitions which consider attachment to be a purely hierarchical relationship or at the other end of the spectrum, defining it as something deeper, such as an emotional bond that is both expressed and felt by both owner and animal (Crawford, Worsham, & Swinehart, 2006). Various biological and evolutionary mechanisms have been suggested to explain how attachment bonds may form between humans and animals (Julius et al., 2013; Serpell, 2010). Further studies by Kurdek (2008, 2009) have taken to applying attachment theory to companion animals, and examined the extent to which companion animals fit within the model.

It is theorised that because humans and certain companion animals, specifically mammals such as cats and dogs, have shared a similar evolutionary path (Hohenhaus, 2004; Julius et al., 2013). It is for this reason that it has been suggested that humans and companion animals are able to have close relationships. This shared evolutionary path has resulted in humans and these companion animals having similar mechanisms and organisational schemas for social behaviours (Julius et al., 2013). To support this view, bonding and attachment type relationships have been found among mammals (Handlin, Nilsson, Ejdebäck, Hydbring-Sandberg & Uvnäs-Moberg, 2012; Julius et al., 2013). This suggests that there is an almost innate need for humans and animals to interact with one another.

There has been some biological evidence to further suggest that humans and animals are capable of having meaningful relationships with one another. The hormone oxytocin plays an important role in pair bonding, and it is during the process of bonding that oxytocin is released. Oxytocin has been known to aid in increasing social skills, forming trust and decreasing anxiety (Uvnäs-Moberg & Peterson, 2010). Studies have found that oxytocin levels increase during HAI, for both the human and the animal (Fine & Beck, 2010; Handlin et al., 2012; Nagasawa, Kikusui,

Onaka, & Ohta, 2009). This suggests that bonding is taking place between companion animal and owner and furthermore, that it is a two way process.

The abovementioned observations describe possible mechanisms through which attachment bonds between humans and companion animal(s) may form. Apart from these biological and evolutionary perspectives, attachment theory (see Chapter 3) has been used to understand the more philosophical aspects of an attachment relationship between humans and companion animals.

Studies by Kurdek (2008, 2009) investigated whether a companion animal could act as an attachment figure for individuals and meet their attachment needs. It was found that in the relationship between the participants and their companion animals, the prerequisite of proximity maintenance and a secure base were fulfilled. Individuals have stated that their companion animal(s) provide them with emotional security, further evidence that companion animals may act as a secure base for their owners (Crawford et al., 2006). Kurdek's (2008, 2009) studies revealed that participants would give companion animals an equal rating with regards to the prerequisites of an attachment bond to that of the participant's fathers, siblings or friends.

It was also found that companion animals acted as a source of comfort and support in times of distress and they were described as providing unconditional affection (Kurdek, 2009). Thus, based on the study by Kurdek (2008, 2009) and other studies, it can be said that a companion animal is able to act as an attachment figure and is able to meet the prerequisites of an attachment bond (Amiot & Bastian, 2014; Crawford et al., 2006).

2.3.1 Factors that influence attachment to a companion animal

There are various considerations that influence an individual's decision to own a companion animal. These include cost involved, the level of care involved, perceptions of animals and size

of the property where the animal will stay, to name a few (Downes, Canty, & More, 2009). It has also been found that there may be factors that could influence the extent to which individuals may become attached to a companion animal (Cohen, 2002). These factors, which include gender, age and ethnicity, will be discussed in relation to their impact on attachment. A few additional factors such as the type of companion animal will also be discussed, as studies have shown that this may also have an effect on attachment to a companion animal (Mueller, 2014).

Men and women have shown slight differences in their attachment ratings towards a companion animal, with woman tending to be more attached to companion animals than men (Lewis et al., 2009). This is in line with findings in human attachment that also show that women report to be more attached to other people than what men are (Schmitt et al., 2003). However, it should be noted that there are many studies that report these differences as not always being statistically significant (Cohen, 2002; Herzog, 2007; Marks &, Koepe, & Bradley, 1994; Prato-Previde et al., 2006).

Significant differences have been found in the behaviours displayed by men and women. It has been found that women are more likely than men to communicate verbally with their companion animal. Women in particular tend to use more 'baby talk' or 'motherese' when communicating with their companion animal (Prato-Previde et al., 2006). Other notable differences that have been found, include the observation that women are more likely to own large numbers of companion animals and take part in animal activism, while men are more likely to engage in the hunting of animals and are more likely to donate money to animal research causes (Herzog, 2007).

There have been some findings that suggest that differences between racial groups and attitudes towards companion animals exist (Brown, 2002). Specifically, that caucasian American

students appeared to have more favourable attitudes towards companion animals than African American students (Brown 2002). Differences between racial groups have also been found in the desire to care for a companion animal, experiences with companion animals and the level of commitment towards a companion animal (Johnson & Meadows, 2002).

It has also been shown that caucasians, particularly in student populations, are more likely to own a companion animal than other racial groups (Brown, 2002; Risley-Curtiss, Holley and Wolf, 2006). There has also been a lack of racial diversity amongst students enrolled at various veterinary schools, with caucasians being in the majority (Brown, 2002). This lack of racial diversity has been attributed to differences in attitudes and perceptions regarding animals (Brown, 2002).

While there may be differences in degree of prevalence of companion animal ownership between different racial groups, companion animal owners from the different groups do not show any difference in the level of emotional support the individuals feel they receive from their companion animal (Risley-Curtiss et al., 2006). It has, however, been reported that the ways in which attachment to a companion animal is expressed may be different in different cultures (Brown, 2002). Certain cultures may feel more sentimental towards their companion animals whereas others hold a more utilitarian view.

The age of the individual does not appear to have any significant influence on ownership of a companion animal. Various studies have been conducted in different age groups and have shown that individuals may feel attached to a companion animal at any point during their life (Brown, 2002; Marks et al., 1994; Mueller, 2014; Netting et al., 2013). The findings regarding age of an individual and its potential effect on attachment to a companion animal have been inconclusive. There are findings that suggest that the elderly find their relationship to a

companion animal particularly meaningful (Cohen, 2002). However, other findings have indicated that younger dog owners appear to be more attached than older dog owners (Byers et al., 2014). Therefore more research would be needed to determine the effects of age with regard to attachment to a companion animal.

Apart from the above-mentioned factors, the type of the companion animal may have an influence on whether an attachment relationship is formed. While attachment bonds can be formed with various types of animals, including cats, snakes and rabbits, most literature indicates that individuals are most commonly attached and share the strongest attachment bond with dogs (Kurdek, 2008; Sable, 2013). It has been suggested that the particularly strong attachment to dogs may be due to dogs having evolved alongside humans, and their sensitivity above other animals, to people's social cues (Mueller, 2014). This sensitivity to social cues allows dogs to interact more with their owners and to fit in more easily into their owner's family (Downes et al., 2009). This viewpoint may be biased, as much of the literature on HAI, specifically in terms of attachment, has solely focused on dogs (Andreassen et al., 2013; Mariti et al., 2013; Netting et al., 2013; Pitteri et al., 2014; Prato-Previde et al., 2006; Young, 2012).

Furthermore, it has been shown that individuals often select a companion animal based on traits the animal shows which the individual identifies strongly with, showing some similarity to themselves. Therefore it is possible that an attachment bond will not be formed if the companion animal's character traits are perceived as dissimilar to the individual (Andreassen et al., 2013; Mariti et al., 2013; Netting et al., 2013; Pitteri et al., 2014; Prato-Previde et al., 2006; Young, 2012).

It has been found that individuals whose family owned a companion animal during their childhood maintained more favourable attitudes towards companion animals in adulthood. Thus,

owning a companion animal during childhood may impact on whether an attachment bond could be formed later in life (Williams, Muldoon, & Lawrence, 2010). It has also been found that whether or not families owned a companion animal during an individual's childhood is linked to individuals being more empathetic in adulthood towards all animals. This includes not only the typical, domesticated companion animals such as cats or dogs but also other wildlife, including lions or elephants (Amiot & Bastian, 2014).

Lastly, the length of time for which the companion animal has been owned, appears to affect the attachment bond (Marinelli, Adamelli, Normando, & Bono, 2007). Thus an owner who has only had their companion animal for a short period of time would be less attached than one who has had a companion animal for several years. However, it appears that these varying factors may only have a subtle impact, suggesting that attachment to a companion animal is possible for almost all individuals (Herzog, 2007).

2.3.2 Concerns regarding attachment to companion animals

While literature has shown that attachment to a companion animal may have numerous physical and mental health benefits, it may also, at times, be detrimental (Julius et al., 2013). Individuals have been known to disregard their own health and at times even their safety in favour of the companion animal(s), as has been seen in evacuation efforts during natural disasters (Fine & Beck, 2010; McNicholas et al., 2005). Individuals with allergies to animals who are told they should no longer own a companion animal may choose to disregard the advice of medical professionals to the detriment to their physical health (McNicholas et al., 2005).

Attachment to a companion animal can become unhealthy and problematic to an individual, usually when individuals begin to view the companion animal as a person and not an animal, by placing unrealistic expectations on the animal (Fine & Beck, 2010). This is known as

anthromorphism, which is defined as the practice of assigning human characteristics to non-human life forms such as plants or animals (McConnell, Brown, Shoda, Stayton, & Martin, 2011). The companion animal cannot fulfil all the same functions as humans, thus anthropomorphizing them may lead to severe disappointment for the owner. Furthermore, these individuals may be hindered when it comes to human companionship, believing that their companion animal will fulfil their social needs (Black, 2012; Crawford et al., 2006; Fine & Beck, 2010).

One of the most notable concerns raised would be the likely loss of, or separation from, a companion animal. The death of a companion animal is a highly common occurrence for animal owners. Further, it is highly likely that a companion animal owner may experience this with more than one of his/her animals (Sharkin & Knox, 2003). Companion animals are often described as family members, thus their death can have the same effect as losing a human family member (Toray, 2004). It is for these reasons that the death of companion animals needs to be treated with the same sensitivity and significance as one would the death of a person (Fine & Beck, 2010; Sharkin & Knox, 2003).

In the unfortunate event of the loss of a companion animal, individuals who are highly attached may experience similar grief and despair to what they would for a person in their life. This experience is equally true for cases where a companion animal must be given up due to relocation or allergic reactions (McNicholas et al., 2005). The experience of losing a companion animal, like losing a close relation, is a natural occurrence and not necessarily entirely negative. It is when others in the individual's life do not treat the loss with sensitivity and respect, that the experience may become dysfunctional in nature.

Loss or removal of a companion animal may be so severe for the individual that depression may develop and there may be severe disruptions in the individual's functioning (McNicholas et al., 2005). In some cases, the whole family's functioning may be affected by the loss (Sharkin & Knox, 2003). Death of companion animals is frequently not acknowledged as a serious event. There is often an expectation placed on individuals by friends, family and sometimes even mental health practitioners, to merely 'get over' the death. If the appropriate support is not received then grief response may last for longer periods than they would otherwise, which is detrimental to the individual (Sharkin & Knox, 2003).

Finally, it has been noted that, at times, social interactions between the owner and companion animal may not be entirely beneficial for both parties (Ng et al., 2014). There have been findings that during these interactions the companion animal may be experiencing stress. This has been found through studies that observed the cortisol levels of some dogs being raised during social interactions, indicating a stress response in the animal (Ng et al., 2014).

While the above is important to acknowledge in discussions regarding attachment to companion animals, it is also a good indicator of just how powerfully beneficial an attachment bond with a companion animal may be. Further, many of the above concerns are generally uncommon or can be managed (as in the case of the death of the animal). It has been found that companion animals generally have far more positive effects on individuals than negative (O'Haire, 2010). These will be touched on in later sections. In order to understand these positive effects it is important to first understand the concept of quality of life and how individuals assess their quality of life.

2.4 QUALITY OF LIFE

Interest in the concept of quality of life has grown significantly, particularly in the fields of philosophy, politics and mental health (Rapley, 2003). It is a term that is often used interchangeably with “happiness”, “life-satisfaction” and “self-actualisation”. Defining and conceptualizing quality of life has, however, sparked much debate. This is due to differing viewpoints and approaches, and not one particular definition being ultimately perfect. A common theme that has emerged in the literature is to understand quality of life as both an objective evaluation and a subjective experience of life circumstances (Rapley, 2003). Quality of life can be seen as objectively measuring certain life conditions such as physical health, social relationships, economic or cultural influences, personal circumstances and the individual’s subjective, personal level of satisfaction with these conditions (Lin et al., 2009).

Quality of life has become an increasingly important concept in healthcare settings, as has understanding how to improve quality of life (Higginson & Carr, 2001). There has been a shift in focus to providing more patient-centred treatment of individuals with various afflictions. In taking a patient-centred approach, the goal would not only be to treat symptoms, but to improve the overall experience of an individual’s life (Hsiung, Fang, Chang, Chen, & Wang, 2005; Smith, Taylor, & Mitchell, 2000).

Improving quality of life is an important outcome in providing adequate service delivery, especially when it involves those with health problems or disabilities, where their quality of life is already impaired (Lin et al., 2009). Treatments and therapies may have an impact beyond the period they cover, and thus it is vital to consider how the individual will view their life after the treatment is completed when making treatment decisions (Schalock, 2004).

Measuring quality of life allows health care professionals, among others, to make assumptions with regards to people's personal contexts. It is through the use of these measurements that treatment/therapeutic approaches are weighed against one another (Higginson & Carr, 2001). These measurements allow the users to prioritize problems and aid in the communication of problems to the patient. Further, use of quality of life measurements help to empower individuals by allowing them to take part in the decision making process. Finally, these measurements can be used to investigate which activities result in the improvement of an individual's perception of his/her quality of life (Higginson & Carr, 2001).

A widely used instrument in measuring quality of life is the short version of the World Health Organisation Quality of Life Assessment – 100 (WHOQOL-100): the World Health Organisation Quality of Life Assessment – Brief (WHOQOL-BREF) (Berlim, Pavenello, Calideraro, & Felck, 2005; Chan, Chiu, Chien, Thompson, & Lam, 2006; Hsiung et al., 2005; Skevington, Lofty & O'Connell, 2004). The WHOQOL-100 and the WHOQOL-BREF were developed in order to create a universal measure of quality of life, that would be applicable to use in a variety of contexts (Skevington et al., 2004). Further these measures attempted to create a consensus on the facets that impact quality of life. This study made use of the WHOQOL-BREF as it's quality of life measurement.

2.4.1 Factors that influence quality of life

There are a number of factors that may influence an individual's perceptions of the level of quality of life they enjoy. These may include social relationships, physical health, cognitive ability, work or home environments, to name but a few (Bourssa et al., 2015). Through the development of the World Health Organisation Quality of Life Assessment – 100, an international undertaking by the WHOQOL Group, certain factors were decided upon as integral

in relation to quality of life (WHOQOL GROUP, 1998). In total there were 24 factors chosen as influential to the level of quality of life an individual will experience. After further analyses and research by the WHOQOL Group, these factors were grouped into four general domains. These domains being an individual's environment, social relationships, physical health and psychological health (WHOQOL GROUP, 1998).

Briefly the environmental domain involves aspects of an individual's life that include safety, home environment, resources available and transport. While the social relationships domain includes factors such as personal relationships, sex and the social support available to an individual (Skevington et al., 2004). The physical health domain encompasses factors that are related to health and independence such as sleeping patterns, dependence on medication, energy levels, mobility, and the work capacity. Finally, the psychological health domain incorporates factors such as spirituality, personal beliefs, self-esteem, body image and moods (Skevington et al., 2004). All the abovementioned domains are closely linked to one another and thus collectively determine quality of life.

These factors and domains that impact on quality of life will often differ in importance for different individuals and in different stages of an individual's life. However, all factors do contribute at some level to quality of life (Spirduso & Cronin, 2001). Understanding the factors that may have an impact on the individual's perceptions of his/her quality of life is of value beyond that of health care settings. An individual's perception of their quality of life has an impact on the extent to which they view their lives as meaningful (Nell, 2014). Positive perceptions of an individual's quality of life is often what drives the individual to accomplish future goals and take part in society in a meaningful way (Wrosch, Scheier, Miller, Schulz, & Carver, 2003). Studies have indicated that having that having companion animals, or the

involvement of animals in an individual's life, may have an influence on the factors that effect quality of life. This shall be discussed in the sections to follow.

2.4.2 Quality of life and tertiary students

The transition from high school to university can prove to be a difficult adjustment period for many individuals. There are new challenges and demands that life will place on an individual during this period. These demands can affect various areas of an individual's life, including social, emotional and academic ability. The adjustment to these new demands may provoke anxiety and undermine an individual's self-confidence, thus coping strategies may be necessary (Sennet, Finchilescu, Gibson, & Strauss, 2003).

While many of the challenges and demands of this period of an individual's life are new and unique to this stage of life, the factors that influence the tertiary student's quality of life are much the same as those that will influence quality of life throughout his/her life. Studies have found that aspects of physical health such as exercise, nutrition, sleeping habits, mental health (in particular stress management), spirituality and social support are some of the factors that tertiary students perceive to affect the level of quality of life they experience (Joseph, Royse, Benitez, & Pekmezi, 2014; Lau, Hui, Lam, Lau, & Cheung, 2014; Trockel, Barnes, & Egget, 2000).

There have been findings to suggest that there is a connection between an individual's assessment of his/her well-being and his/her ability to succeed academically (Henning, Hawken, Krägeloh, Zhao, & Doherty, 2011) . Academic achievement has appeared to be problematic at various South African universities, in that many individuals are not achieving favourable results (Nell, 2014). It is for this reason that it is important to discover potential resources for improvement of quality of life, particularly during this unique phase of an individual's life.

2.5 QUALITY OF LIFE AND HUMAN-ANIMAL INTERACTIONS

Animals, and in particular companion animals, have frequently been linked to improvement in the individual's wellbeing (O'Haire, 2010). This has been seen in interventions such as ATT and AAA, which have been found to be successful for a variety of disorders or health problems (Martin & Farnum, 2002). In support of this finding, there has been evidence that having an animal as a part of the therapeutic process has led to an increase in attendance of therapeutic sessions, compliance with therapeutic goals and retention (O'Haire, 2010). This will ultimately lead to a greater success of the therapeutic intervention and improvements in overall wellbeing and therefore improved quality of life.

Many studies have found that attachment to, and ownership of, a companion animal may be beneficial to various domains of an individual's life (Mueller 2014; O'Haire, 2010). This finding has further been also found to be true, for not only for typical companion animals such as dogs or cats, but also for non-typical companion animals such as snakes or lizards (Crawford et al., 2006). Positive effects have been seen in the following facets of an individual's life: mental health, physical health, social relationships and the environments in which individuals live and interact (Baun & Johnson, 2010; Black, 2012; Cohen, 2002; Odendaal, 2000). All together these facets influence an individual's overall assessment of their quality of life (Julius et al., 2013; WHOQOL Group, 1998). The benefits of HAI in relation to quality of life will be discussed in the sections that follow.

2.5.1 Companion animals and physical health

Physical health can be understood as pertaining to all aspects of an individual's physical sensations and experiences. This will include mobility, feelings of discomfort, dependence on

medical care and ability to carry out daily activities (WHOQoL GROUP, 1998). Studies on companion animals have shown that there are various health benefits linked to the ownership of a companion animal or animals. These benefits range from improvement of minor health problems to positive impacts on serious health conditions (Fine & Beck, 2010; Julius et al., 2013). It has been found that companion animal owners report to have better life satisfaction, perception of health and sense of well-being than those who do not have a companion animal (O’Haire, 2010). The various health benefits that have been linked to companion animals will all be discussed in the sections to follow.

2.5.1.1 General health

Companion animal owners in comparison to non-owners, appear to have fewer reports of minor health problems. These may include incidents of the common cold and problems relating to high blood pressure (Andreassen et al., 2013; Baun & Johnson, 2010; Friedmann et al., 2010; Lewis et al., 2009). This has been supported by findings that indicate companion animal owners have fewer visits to the doctor and appear to require less medication (Crawford et al., 2006; Friedmann et al., 2010). This finding has been shown to be especially true for individuals who are highly attached to their companion animals (Crawford et al., 2006). In individuals suffering from illness, a companion animal may also act as a distraction from the illness or physical pain, providing some relief (Fine & Beck, 2010).

It has been found that for those with Alzheimer’s disease, who reside in long-term care facilities, having an aquarium in the dining area may lead to increased nutritional intake (Mueller, 2014). This will ultimately lead to an improvement in overall health in those with Alzheimer’s. It has also been shown that in patients who have suffered a stroke, brushing an animal’s fur led to improvements in muscle condition (Stanley-Hermanns & Miller, 2002).

Companion animal owners appear to have fewer reports of sleeping difficulties, and appear to spend less on health care than non-owners (O’Haire, 2010). It has been found that having an aquarium in a doctor’s office lead to some hypertension patients experiencing lower blood pressure than normal (Mueller, 2014; O’Haire, 2010). A study by Odendaal (2000), reported similar findings that an individual’s blood pressure may significantly decrease after only a few minutes of interacting with an animal. The positive effects on lowering blood pressure have been found in all age groups, from children through to adults (O’Haire, 2010).

A commonly cited benefit of companion animal ownership, particularly in dog owners, is the increase of physical exercise that occurs during walking with the animal (McNicholas & Collis, 2000). It has been found that dog walkers in particular spend more time walking and do so at a faster pace than non-dog walkers. Further, dog walking in older populations has been linked to limiting the effects of chronic illnesses and preventing disabilities (Baun & Johnson, 2010). Dog walking allows individuals to achieve the recommended levels of physical activity (Byers et al., 2014). Finally, dog walking is not only beneficial to the owner but also to the animal (Baun & Johnson, 2010).

2.5.1.2 Cardiovascular health

Companion animals have frequently been linked to cardiovascular health (Allen, Blascovich, & Mendes, 2002; Cohen, 2002; Cutt, Giles-Corti, Knuiiman, & Burke, 2007; Fine & Beck, 2010; Odendaal, 2000; O’Haire, 2010). Further, it has been shown that speaking to, touching, and stroking a companion animal may lead to lowered cardiovascular responses (Allen et al., 2002; Fine & Beck, 2010). Individuals who are attached to their companion animals appear to survive longer after a heart attack. Further, it was found that attached individuals have lower cholesterol than non-owners and those who are not attached to their companion animal (Cohen, 2002; Cutt et

al., 2007). Those who are attached to a companion animal have shown lower triglyceride levels. High triglyceride levels are one of the risk factors for heart disease (Stanley-Hermanns & Miller, 2002). The beneficial impact on heart health, has been found to be true regardless of whether or not the companion animal owner exercises or not. High blood pressure has been noted as a potential risk factor for cardiovascular problems (Odendaal, 2000). As previously mentioned, companion animal owners tend to have lower blood pressure, and the presence of an animal has the ability to lower blood pressure (Odendaal, 2000; Odendaal & Meintjies, 2003; O’Haire, 2010; Stanley-Hermanns & Miller, 2002).

A possible reason for the reduction in cardiovascular health problems may be due to the fact that ownership of a companion animal has also been linked to reductions in stress and anxiety (Baun & Johnson, 2010). Severe distress can contribute to cardiovascular health problems, as well as other health problems both physical and psychological. Thus lowering severe distress will result in improvement in the individual’s condition (Friedmann et al., 2010; Urbanski & Lazenby, 2012). The link between interaction with companion animals and reduction in anxiety or stress will be elaborated on in later sections.

2.5.2 Companion animals and psychological health

Psychological health encompasses aspects such as an individual’s feelings, emotions, cognitions, self-image and spirituality. This can also be understood as the mental health of the individual, as well as their personal perceptions thereof (WHOQoL GROUP, 1998). In various populations, individuals suffering from a variety of mental health problems have been found to have benefitted by interacting with companion animals. In those with Alzheimer’s disease, which is a form of dementia and a degenerative disorder, the presence of a companion animal has resulted in a decrease in incidents of agitated behaviour (Baun & Johnson, 2010).

AAT interventions conducted with individuals diagnosed with schizophrenia have been shown to improve impulse control, social functioning and the ability to carry out daily activities in these patients (Stanley-Hermanns & Miller, 2002). Further, cuddling with an animal has been found to reduce anger and hostility. AAA has also been linked to improvements in cognitive abilities, as has been found in AAA reading programmes where children have shown to improve their reading fluency (Jalongo, Asterino, & Bombay, 2004). These are merely a few examples of the effects on a person's psychological health that companion animals have been linked to.

It has been found that the presence of a companion animal may improve morale and have positive impacts on the mood of individuals (Baun & Johnson, 2010). This is further supported by findings that petting an animal cause an increase in the release of neurochemicals that are involved in mood, well-being and relaxation (Odendaal, 2000). Elderly women in long-term care facilities who were attached to their companion animal were noted as being happier than those who did not own a companion animal or were not attached to one (Baun & Johnson, 2010). It has also been found that owning a companion animal impacts on the way individuals view themselves, this is evidenced through findings that owners have higher levels of self-esteem than non-owners, and statements by owners that the companion animal aids in increasing their self-worth and competence (Black, 2012; Netting et al., 2013).

Animals have proven to be effective in aiding the therapeutic process as can be seen in AAA/AAT. Those who have taken part in AAA/AAT have noted that the animal acts as a more positive focus of attention and through personally identifying with animals, individuals are able to relay their own experiences by relating them to the animal (Coetzee, Beukes & Lynch, 2013). Apart from the abovementioned effects there have been other significant findings, particularly in the areas of depression, anxiety and in various developmental disorders such as Autistic

Spectrum Disorder and Attention Deficit Hyperactivity Disorder (ADHD) (Black, 2012; Shiloh, Sorek, & Trekel, 2003; Souter & Miller, 2007). These will each be discussed in the sections that follow.

2.5.2.1 Depression

Depression, which is classified as a mood disorder, can result in feelings of sadness, loss of energy, lack of pleasure and difficulties with sleep, to name but a few symptoms (Burke, 2009). Depression has been linked to a variety of medical conditions and has an overall negative impact on an individual's wellbeing (Burke, 2009). Companion animals have been frequently been linked to aiding in the alleviation of depressive symptoms and the treatment of depression (Andreassen et al., 2013; Souter & Miller, 2007; Urbanski & Lazenby, 2012). It has also been reported that owners of companion animals experience depression less frequently than non-owners (Allen et al., 2002).

This appears to be particularly true for elderly communities, where owning a companion animal has given these individuals a sense of purpose and lessened their feelings of loneliness (Pitteri et al., 2014). In a study by Le Roux and Kemp (2009), which examined residents of a long-term care facility, it was found that implementing an AAA programme did have a positive impact on depression levels among those who take part in the therapy. Furthermore it has been stated that the companion animal serves as a form of entertainment and change to a daily routine, which can also help to alleviate symptoms of depression (Crawford et al., 2006).

2.5.2.2 Anxiety

Anxiety, often used interchangeably with the term stress, can be understood as feelings of discomfort, unease and nervousness (Lake, 2009). Anxiety can be understood as a state, which is

a temporary emotion, or it may be seen as behavioural tendency or trait (Crawford et al., 2006). As stated in previous sections, the experience of stress may lead to disruptions in an individual's physical health, but it may also lead to disruptions in psychological functioning. Anxiety disorders are extremely prevalent in many communities and therefore it is important to find buffers against the effects of anxiety (Kessler, Ruscio, Shear, & Wittchen, 2010). Companion animals have proven to be particularly helpful in this regard. It has been found that even basic interactions such as petting an animal or watching animals can reduce anxiety in individuals (Fine & Beck, 2010).

Companion animals often assist in various interventions as the animal is viewed as less threatening or stress provoking than the therapist or another person (Melson, 2003; Risley-Curtiss, 2010; Shiloh et al., 2003). In tasks that test an individual's comprehension or cognitive abilities, anxiety may be provoked and it has been found that having an animal nearby can moderate this effect (Le Roux et al., 2014). Therefore companion animals or animals that are part of AAA may lessen the anxiety experienced by individuals. Finally, in further support of these findings it has been reported that interactions with a dog can be as relaxing as reading a book (Odendaal & Meintjies, 2003).

2.5.2.3 Developmental Disorders

There have been many reports of the successful use of AAT or AAA and companionship of animals in individuals with Pervasive Developmental Disorders (PDD) such as Autistic Spectrum Disorder, Conduct Disorder, Asperger's Disorder, Attention-Deficit Hyperactivity Disorder (ADHD) and Pervasive Developmental Disorders Not Otherwise Specified (Burrows et al., 2008; Martin & Farnum, 2002; O'Haire, 2010; Sams, Fortney, & Willenbring, 2006; Solomon, 2010; Vorster, 2009). These are disorders which usually begin early in an individual's

life and impact on the development of that individual (Vorster, 2009). In disorders of this nature traditional therapy is not always the most helpful or applicable, and thus finding alternatives to improve these individuals' lives is of great importance (Martin & Farnum, 2002).

It has been found that in children with the abovementioned disorders the difficulties experienced in forming connections with people do not appear to be applicable when it comes to forming similar connections with animals (Martin & Farnum, 2002). Thus in therapeutic situations, it has been proven to be useful to have an animal with which the child may first form a bond that can later be transferred to the therapist. In AAA/AAT it has been found that the children appear to be happier, more energetic, are less distracted and are able to maintain interest in the session, which has led to more meaningful discussions being able to take place between therapist and child (Martin & Farnum, 2002).

In individuals with Autistic Spectrum Disorder (ASD), it has been found that AAT has aided in increased engagement when learning and in pro-social behaviour (O'Haire, 2010). Individuals with ASD have even experienced a reduction in sleep disturbances when sleeping with a companion animal and have less anxiety, as evidenced through a reduction in the cortisol (often called the stress hormone) levels that are secreted (Viau et al., 2010).

Further, it has been found that the involvement of a companion animal creates a less stressful environment for those with conduct disorder, Asperger's and ADHD (Martin & Farnum, 2002; O'Haire, 2010). Ownership of a companion animal has also appeared to lead to an increase in positive behaviours, energy and concentration levels aiding in better social interactions and the learning of new skills. This is especially true for children with these disorders (Burrows et al., 2008; Martin & Farnum, 2002; Sams et al., 2006; Solomon, 2010).

2.5.3 Companion animals and social relationships

The social relationships domain encompasses all interpersonal relations and social structures that form part of an individual's social network (WHOQoL GROUP, 1998). A companion animal can often fulfil an important social function in an individual's life, as well as aid individuals in forming social relationships with others (Black, 2012). It has been shown that even on a physiological level, by examining the hormones released during HAI, companion animals meet the need of humans for affiliation and affiliative behaviour (Odendaal & Lehmann, 2000). Furthermore, it appears that companion animals owners are more likely to possess traits that make them more socially competent (McConnell et al., 2011). This suggests that a particular type of person would own a companion animal and therefore be able to compliment their social network with their companion animal. Social interactions may be a protective factor against mental illness, which can result from loneliness and isolation and can improve mental health. Experiences in an individual's social life may impact on psychological functioning, just as psychological functioning may impair an individual's ability to partake in social relationships (Black, 2012; O'Haire, 2010; WHOQoL GROUP, 1998).

2.5.3.1 Loneliness

The feeling of loneliness can be seen as an unpleasant experience that occurs when an individual feels their social needs are not being met (Gilbey & Tani, 2015; Heinrich & Gullone, 2006). Humans have an innate need to belong, and in conjunction with this need there is the desire to form and maintain personal relationships with others (Heinrich & Gullone, 2006). The experience of loneliness may be the result of an actual lack of social outlets and relationships or merely the individual's perception thereof (Gilbey & Tani, 2015). While loneliness is a normal

sensation and an experience most individuals will have at some point, it can become pathological if it is a sustained experience (Heinrich & Gullone, 2006). Loneliness can become so disruptive to an individual's mental and physical health that it has even been linked to higher mortality rates (Gilbey & Tani, 2015). It has been found that a companion animal has the ability to reduce feelings of loneliness and act as a form of social stimulus (Mitchell & Sinkhorn, 2014; O'Haire, 2010).

A possible reason this effect that companion animals are able to have on an individual's feelings of loneliness is that they form a part of an individual's social capital. Social capital can be understood as a valuable network from which an individual may draw support and that promotes adequate functioning in his/her daily life (Mitchell & Sinkhorn, 2014). Companion animals may therefore be an extension to an existing social network and they provide support in times when other people are not available (Kurdek, 2008; McNicholas & Collis, 2000).

This is further supported by individuals who have indicated that they are just as likely to seek out the assistance of a companion animal during times of distress, as they would their mother, a sibling or a close friend, with romantic partners being the only exception to this (Mueller, 2014). This has been found to be true for both cat and dog owners (Crawford et al., 2006). People are able to fulfil their need for physical contact more easily with a companion animal, as it is more appropriate to pet an animal than it is to reach out and touch other people (Parish-Plass, 2008). Physical contact can play a key role in alleviating feelings of loneliness and isolation.

Individuals have even reported to prefer the company of companion animals, possibly due to the unconditional support provided by the animal (Black, 2012). Lastly, even in communities such as those people living with HIV/Aids (where there have been no significant

findings regarding a relationship with a companion animal), it is reported that their animals are a form of emotional support (Crawford et al., 2006). It must however be noted that there has been some critique with regards to the idea that companion animals alleviate loneliness. As mentioned earlier, those who highly attached to their companion animal(s) and anthropomorphise the animal(s) may be more likely to suffer from loneliness in the long term (Epley, Waytz, Akalis & Cacioppo, 2008). The reason for this effect is that these owners do not seek out any human support, as they feel the companion animal fulfils the need. However, the animal cannot fulfil all human functions and thus loneliness may result. It is important to see the companion animal as a secondary source of social interaction but it cannot replace *all* human interaction (Epley et al., 2008).

2.5.3.2 Social interactions

A companion animal often acts as a catalyst for social approaches and encourages other individuals to approach a companion animal owner (O'Haire, 2010). A study by Le Roux and Kemp (2009), which examined anxiety and depression in residents of a long-term care facility, found that participants would discuss the dogs that were a part of the AAA amongst each other. This demonstrated how animals could result in increased social interactions amongst people. A further demonstration of this is a study by Coetzee et al. (2013) which examined the effect of AAT on substance abuse inpatients. It was found that there was an increase in interactions among participants, specifically regarding the animal's use in the AAT, and an increase in pro-social behaviours by the patients.

Further, the AAT has aided individuals in rebuilding relationships and creating new trusting relationships, which can be essential to their recovery process. The participants of the AAT study stated that due to the lack of any judgement from the animal, they felt more confident

and secure, and thus were therefore able to interact more with other people as a result thereof (Coetzee et al., 2013).

Beyond providing additional support to an existing social network, companion animals can act as a catalyst for new social interactions. Companion animals facilitate conversations between strangers by acting as a starting point for conversation. This is especially true for individuals with unique companion animals such as rabbits, turtles or snakes. Furthermore, companion animals provide opportunities for individuals to be in social areas such as parks. This is supported by findings that dog walkers are more likely to experience social contact with others by visiting parks (McNicholas & Collis, 2000; Wood, Giles-Corti, & Bulsara, 2005).

In individuals who were confined to a room, as with those in long-term care facilities, it was found that having a companion animal, such as a bird in the room with them, the interest of others was drawn and thus the companion animal owner had more visitors (Crawford et al., 2006). Companion animals have been shown to be very effective in assisting social interactions amongst children with disabilities. It has been found that children without disabilities are far more likely to approach a child with a disability if that child is accompanied by an animal (Jalongo et al., 2004). Finally, individuals with companion animals are often viewed by others in their community as friendlier and as happier than those without such animals (Black, 2012).

2.5.4 Companion animals and environment

The environment domain can be understood as encompassing an individual's physical living space, his/her financial resources, public resources and health care. It also includes access to information and feelings of security (WHOQoL Group, 1998). Individuals generally view their work and home environments as important places and hold various associations and assumptions regarding these places (Wells & Perrine, 2001). It is also not uncommon for people to make

judgements regarding others based on the appearance of these spaces. It has been found that having an animal in the work place can create a positive experience for both those within the work place and those who may be visiting these places (Wells & Perrine, 2001). Companion animals allow individuals to engage better in the environments in which they interact or live (Baun & Johnson, 2010).

A study by Wood, Giles-Corti, Bulsara, & Bosch (2007) found that companion animals facilitate communication between individuals in a community and provide a sense of security for that community. In therapeutic situations, many individuals have stated that AAT creates a non-threatening environment in which they feel secure and comfortable and as a result are more likely to share their experiences (Coetzee et al., 2013; Marr et al., 2000).

2.5.5 HAI and implications for tertiary students

As stated previously, tertiary students experience unique challenges during this period of their life. These include changing academic demands, new social situations and personal growth. As can be seen from the previous sections, companion animals hold value in improving a variety of areas of an individual's life (O'Haire, 2010). This is important when considering a student population who are going through potentially stressful changes in their lives. There have been some reports of the impact companion animals may have on student populations. In a study by Young (2012), nursing students were given the opportunity to interact with a dog in the library before exams. It was found that those who took part in the interactions with the dog reported lower test anxiety than those who did not. Lower test anxiety or anxiety in general is of vital importance for students, as the feeling of anxiety could hinder potential academic success.

The perceptions that students hold regarding their environment has also been shown to impact on their subjective rating of quality of life (McFarland, Waliczek, & Zajicek, 2010). In

college, it has been found that a companion animal in the office of a lecturer or professor creates a more welcoming and less anxiety provoking environment for students. This ultimately allows college students to feel more inclined to approach professors with questions and concerns (Wells & Perrine, 2001). Lastly, it has been shown that tertiary students can, and often do, have attached relationships with their companion animals (Barlow, Demari Comer, Caron & Freyd, 2012). Findings such as the above are vitally important and set the foundation for future research or AAA/AAT interventions that could be held at tertiary institutions to benefit the academic progress of the students, and their overall quality of life.

2.6 CONCLUSION

This chapter has described the various interactions humans and animals have shared over time. It has discussed how a companion animal has become a meaningful commodity in many individuals' lives. Further, it has discussed how the bonds developed between humans and animals may be just as strong as those developed between humans (Kurdek, 2009). Quality of life was conceptualised and companion animal's potential influence on quality of life was described. In particular, the benefits that companion animals may provide in the domains of physical and psychological health, as well as social relationships were discussed.

It was found that companion animals have a positive impact on people's lives and this can translate into their perception of their quality of life. Quality of life is of importance when trying to provide the best outcome for an individual in a setting, which may include health-care settings or policies a country adopts (Higginson & Carr, 2001). In the chapter that follows, the theories used to conceptualise this study will be described and discussed.

CHAPTER 3

THEORETICAL FRAMEWORK

3.1 INTRODUCTION

The primary theory used in this study, in order to conceptualise it, is attachment theory (Ainsworth, 1979; Bowlby, 1977). As humans and animals appear to share similar mechanisms and organisation of social behaviour, it does not appear to be necessary to make any adjustments to the theory in order to apply it to human/animal interactions (Cohen, 2002; Julius et al., 2013; Risley-Curtiss, 2010). In conjunction with attachment theory, additional theories were also applied to the study, namely the biophilia hypothesis (Amiot & Bastian, 2014) and social support theory (Lakey & Cohen, 2000). These theories will be briefly explained and will be followed by a description of their application and relevance to the study.

3.2 THEORIES

3.2.1 Attachment theory

Attachment theory developed by both Bowlby (1977) and Ainsworth (1979), describes an individual's attachment system, which consists of a unique emotional bond that is formed between two individuals. This bond is persistent, emotionally significant and specific between two parties, namely the attachment figure and another individual (Ainsworth, 1979; Kurdek, 2009). Attachment theory originated from the description of the bond and relationship between a child and its mother (Davidovitz et al., 2007). It has since been applied to various other relationships, however for the purpose of describing the theory, the child and primary caregiver will be referred to (Cicirelli, 2004; Fraley & Shaver, 2000; Davidovitz et al., 2007). It is

theorised that one's attachment system is innate and is present in individuals from birth, where it is at its most critical phase, and continues to develop throughout an individual's lifespan (Mikulincer, Gillath, & Shaver, 2002). The attachment bond will develop regardless of whether or not the primary caregiver is attuned to the needs of the child (Shaver & Mikulincer, 2002).

The attachment figure is a central concept to an individual's attachment system, and has typically been referred to as the primary caregiver (Fine & Beck, 2010). The attachment figure is essentially a supportive figure perceived as someone who is better equipped to cope with the world and sought for security (Fine & Beck, 2010; Mikulincer, Shaver, & Pereg, 2003). An individual will display certain behaviours in an attempt to remain close and connected to the attachment figure (Fine & Beck, 2010). The attachment figure is usually the primary caregiver to an individual and is in most cases an individual's mother. However, studies have shown that the attachment figure may change throughout one's lifespan (Collins & Feeney, 2004; Julius et al., 2013; Kurdek, 2009; Mikulincer et al., 2002; Mikulincer et al., 2003).

In an attachment relationship there are four distinct behaviours that an individual will display towards, and/or require from, the attachment figure (Mikulincer et al., 2002). These concepts include proximity maintenance, safe haven, secure base and separation distress (Kurdek, 2009), and shall be discussed in the section that follows. It is usually in the presence of a threat, physical or psychological, that an individual's attachment system will become activated and these behaviours become present (Mikulincer et al., 2002).

Proximity maintenance is the desire of an individual to stay close to the attachment figure, as well as that individual enjoying the attachment figure's company (Kurdek, 2009; Mikulincer et al., 2002). Proximity maintenance has an evolutionary element to it, as staying physically close to a protective figure ensures the best chance of survival (Mikulincer et al.,

2002). An attachment figure acts as a safe haven, through lessening distress and providing comfort and support to an individual in times of need or when the attachment system is activated (Mikulincer et al., 2002).

In terms of a secure base, an individual will perceive the attachment figure as a reliable source of comfort and protection, thus feeling safe when moving away from the attachment figure to explore surroundings and develop individually (Kurdek, 2009). Separation distress describes how an individual experiences being away from the attachment figure, and is key in illustrating the importance the attachment bond holds for individuals (Kurdek, 2009). These behaviours can be understood as prerequisites that are necessary to an attachment bond, and these needs need to be met in order for an individual to be viewed as an attachment figure (Amiot & Bastian, 2014).

The final aspect in understanding attachment theory would be the attachment style individuals develop through interactions with an attachment figure (Shaver & Mikulincer, 2002). Attachment styles can be divided in two broad categories: secure and insecure. From the categories of secure and insecure, an additional four attachment styles have been identified and will be briefly described, namely: secure attachment, anxious-avoidant attachment, anxious-ambivalent attachment and disorganised attachment (Diamond & Hicks, 2005; Shaver & Mikulincer, 2002).

In a *secure attachment* style, the child will explore their environment in the presence of the primary caregiver and will display separation anxiety if the caregiver leaves the child. Upon return of the caregiver the child's attachment system will become activated and the child will attempt to remain close to the caregiver (O'Shaughnessy & Dallos, 2009). Over time the child does not become distressed at the caregiver's absences as they feel secure in the knowledge that

the caregiver will return. A secure attachment style usually forms if the caregiver has been sensitive towards the needs of the child.

In the *insecure attachment* styles of anxious-avoidant, anxious-ambivalent and disorganised, the caregiving has been unresponsive, uncaring, unreliable and even neglectful to the needs to the child (Shaughnessy & Dallos, 2009). These children usually do not explore their environment much or do not explore them at all, regardless of whether the caregiver is present or not. Usually the caregiver is not viewed as a source of security (O'Shaughnessy & Dallos, 2009). Further, upon return of the caregiver after an absence the child's behaviour can range from disinterested to unpredictable or contradictory. Ainsworth (1979) suggests that children with insecure attachment styles are in an almost constant state of distress and develop these styles as coping mechanisms.

Attachment styles not the main focus of the current study, and therefore it will only briefly be explained for the purposes of understanding attachment theory. An individual's attachment style can be viewed as a set system or an internal working model, encompassing that individual's expectations, emotions, needs and behaviours (Beetz, Julius, Turner & Kotrschal, 2012; O'Shaughnessy & Dallos, 2009). It has been suggested that an individual's initial attachment, and the resulting attachment style, serves as the foundation for future regulation of emotions and behaviour. This internal working model will thus serve as the guide for all future relationships that the child has as an adult (Beetz et al., 2012; Honari & Saremi, 2015). Those with insecure attachment styles are often at risk for behavioural problems and have difficulties in interpersonal relationships as adults (Shaver & Mikulincer, 2002).

To test attachment, a procedure was developed and is known as the Ainsworth Strange Situation Procedure (ASSP), also referred to as the Strange Situation Test (Amiot & Bastian,

2014). The aim of the ASSP is to assess whether there is an attachment relationship and this is done through viewing the response of the child during separation from their primary caregiver, who would be the attachment figure. In the ASSP, the child and a primary caregiver, enter a room with an unfamiliar person. During random intervals the primary caregiver will leave the room, thus separating from the child and leaving the child with the unfamiliar person. Upon re-entering the room, the child's attachment system should become activated and attachment behaviours will be displayed. (Palmer & Custance, 2008).

3.2.1.1 Attachment theory: Application of theory

The attachment bond is essentially an individual's internal working model and thus acts as a blueprint from which individuals form future relationships and attachments (Fine & Beck, 2010; Geist, 2011). Attachment bonds are vital to individuals as they can act as a buffer against mental health and psychosocial problems that may develop by influencing an individual's ability to cope with stressors (Crawford et al., 2006; Peluso, Peluso, White & Kern, 2004). It has been suggested that companion animals may act as a substitute or a transitional object for attachment relationships.

Companion animals are always available to their owners and are perceived as non-judgemental. As such, the animal can fulfil the attachment need of the owner if human attachment is not available (Fine & Beck, 2010). As a transitional object, a companion animal allows an individual to build an attachment bond to it, which can then translate to other relationships with people (Fine & Beck, 2010). Furthermore, in order for people to experience the various health benefits that companion animals seemingly provide (see Chapter 2), it seems it is necessary that the individual be attached to the animal (Mueller, 2014).

Studies by Kurdek (2008, 2009) support the statement that companion animals are substitutes for human attachment relationships. These studies explored how a companion animal, specifically a dog, could function as a type of attachment figure, using the same conceptualisation of attachment theory as it would be applied to humans. In these studies the dog was seen as the attachment figure and individuals were asked to rate their dog on the characteristics that a human attachment figure would possess. It was found that while companion animals do not fully possess all the features of an attachment figure, many of the features they were rated highly on were similar to those of certain family members. Companion animals were rated particularly highly on the features of proximity maintenance and secure base, showing that companion animals do fulfil an important attachment need, especially in times of distress (Kurdek, 2008; 2009).

Companion animals, specifically dogs, have been found to be attached to people as evidenced through the ASSP (Marinelli et al., 2007). Dogs appear to behave in a similar manner to a child that is separated and display attachment behaviours upon the return of their owner. While it was suggested that this may merely be out of preference for the owner versus a stranger, studies have shown that this is not true and that this is evidence of an attached relationship (Palmer & Custance, 2008). Therefore the attachment bond between human and companion animal can be understood in a similar sense to the one between a child and their primary caregiver.

3.2.2 Social support theory

Humans are innately social beings, and the social support individuals receive from others, and the individual's perceptions thereof, have important implications for overall well-being (Lakey & Cohen, 2000). Social support can be understood as networks of relationships, in which

individuals are assisted in performing daily functions and aided in meeting their needs. Further, individuals within this network show care and concern for the well-being of the person who relies on this network (Orrick et al., 2011). An individual's social support network is usually called upon during times of stress and is expected to provide assistance during those times (Cohen, Gottlieb, & Underwood, 2000). Before further discussion of social support, it is important to note that social support theory is closely linked to attachment theory as both theories speak to a human's need to maintain close relationships (Bjick, 2013).

Social support encompasses a variety of actions, which can be grouped into the following categories: emotional, instrumental and informative (Lakey & Cohen, 2000). A social support network can include an individual's family, friends, co-workers and as suggested in the literature review, a companion animal (Cohen, Gottlieb, & Underwood, 2000; Lakey & Cohen, 2000). It should be noted that in order for individuals to receive benefits from their social support systems, their social relationships should be strong in nature and frequent contact between participants is required (Cohen et al., 2000). A social support network is essential in buffering against stressors and therefore key in preventing mental illness that may result (Orrick et al., 2011).

3.2.2.1 Social support theory: Application of theory

As mentioned previously, social support is important for maintaining an individual's overall well-being. It has been suggested that social support may act as a buffer for situations that can cause distress, as the individual feels there are others that can assist during these times (Cohen et al., 2000). Studies have found that a social support network may have positive impacts on an individual's self-esteem and may reduce anxiety, which in turn contributes to protecting against general health issues (Colins & Feeney, 2004; Mikulincer et al., 2003). Furthermore, it has been shown that even if an individual merely *perceives* their social support network to be strong it can

still have the same positive impact on his well-being, even if this may not be what is actually available to the individual (Collins & Feeney, 2004).

Companion animals are seen as readily available and as non-judgmental and thus can provide social support when other people are not available, and may buffer against distressing situations (Bjick, 2013). Individuals often describe their companion animals as providing them with unconditional support and love. Finally, they are catalysts for social interaction and are in and of themselves viewed as a valid form of social interaction (O’Haire, 2010).

3.2.3 Biophilia hypothesis

The biophilia hypothesis is a commonly cited hypothesis to explain the reasons behind human’s interest in, and connection to, nature, with specific regard to animals (Amiot & Bastian, 2014). According to the biophilia hypothesis, there is an innate drive in humans to be affiliated with, and remain connected to, natural systems. In the past this would have aided humans in their survival and evolution. Today, focusing on other living things is still a pleasant experience and of interest to humans (O’Haire, 2010). These natural systems include plants and animals, to name but two (Amiot & Bastian, 2014).

It has further been suggested that in addition to the innate drive within humans to pay attention to natural systems, the learning and cultural beliefs or settings of humans trigger emotional reactions toward these systems (Amiot & Bastian, 2014). It has also been suggested that animals, especially young animals, resemble human babies in that they are both considered ‘cute’ and helpless (Amiot & Bastian, 2014). Thus, humans are drawn to protect animals and have similar emotional reactions to them as they would have to their own children. This response towards animals appears to continue even into the adulthood of the animal, as humans continue to view them as dependent (Amiot & Bastian, 2014; Crawford et al., 2006). This

hypothesis stems from evolutionary theories, which state that humans needed to pay close attention to the natural world, having a direct impact on the chance of their survival (Bjick, 2013).

3.2.3.1 Biophilia hypothesis: Application of theory

According to the biophilia hypothesis, a humans' well-being in both mental and physical health is closely related to their connections with natural systems. There are findings that suggest that positive correlation between exposure to nature (including animals) and health benefits, such as a decrease in anxiety (Bjick, 2013). It has also been reported that there may be educational benefits for adolescents and college students in particular, from exposure to nature (Bjick, 2013). There have been studies which support the idea that the desire to affiliate with animals is innate in humans. It has been shown that children tend to favour toy objects which resemble animals, over other toys that the children value (Amiot & Bastian, 2014).

Thus, the biophilia hypothesis has important implications with regards to improvement of quality of life. It suggests, and findings have supported the suggestion, that nature can play an important role in the betterment of various aspects of an individual's life, which can lead to overall life satisfaction. The biophilia hypothesis further suggests a possible reason as to why humans can experience these benefits from nature: humans are instinctively attuned to nature (Bjick, 2013).

3.3 CONCLUSION

In this chapter the attachment theory, along with the additional theories that include social support theory and biophilia hypothesis were described and discussed. Attachment bonds act as the internal working model from which individuals operate, in order to form future attachment

relationships. Attachment and social support are closely linked, and may act as buffers against stressful situations and may even provide protection in those situations. Finally it was shown that nature, in particular companion animals, may act as a form of social support and that individuals can form strong attachment bonds with them. It is from these perspectives that the findings of this study will be conceptualised. The methodology of the study will be discussed in the next chapter.

CHAPTER 4

METHODOLOGY

4.1 INTRODUCTION

The primary aim of the study was to determine whether there is a relationship between individual's quality of life scores and their scores on attachment to their companion animals as measured by the Lexington Attachment to Pets Scale (LAPS). The secondary aim is to determine if there is a difference in quality of life scores as measured by the World Health Organisation Quality of Life Assessment –Brief (WHOQOL-BREF) of individual's who own a companion animal and those who do not own a companion animal.

This chapter will discuss the research design that was used in the current study. Data collection procedures, measures used and data analyses will be described. Ethical considerations that were taken in this study will also be discussed.

4.2 RESEARCH DESIGN

The research design can be understood as the strategy the researcher utilises to conduct a study (Trafford & Leshem, 2008). This study utilised a correlational, quantitative survey research design. Correlational designs aim to measure the relationship between two variables (Creswell, 2013; Grazino & Raulin, 2004).

Survey designs are used often in research and particularly with research that is descriptive in nature. Survey designs attempt to provide a numeric representation of the opinions or trends in a sample of a population (Creswell, 2013). Surveys can be used to execute a study with ease and are recommended when gathering a population's opinions (Grazino & Raulin, 2004).

The study made use of convenience sampling, in an attempt to provide a representative sample of the population (Bless, Higson-Smith, & Kagee, 2006; De Vos, Strydom, Fouche, & Delpont, 2005). The quantitative data was collected through the use of two self-report questionnaires. The participants of this study will be described in the next sections.

4.3 PARTICIPANTS

Participants of this study consisted of students currently enrolled at a local university in the Western Cape. Participants were either fluent in Afrikaans and or English, as the questionnaires were only available in these two languages. These languages are also the two official mediums of instruction at the university. Apart from the abovementioned criteria, participants were of differing ages and races and lived in different types of residences. Both undergraduate and postgraduate students were included in the current study. It was not necessary for participants to be pet owners or have a pet currently living with them in their residence to take part in this study.

Many students were approached to take part in the study and a total of 300 questionnaires were ultimately collected. Of the collected questionnaires, a total number of 24 questionnaires had to be excluded as they were incomplete. The final sample size of the study was 276 participants. The age range of participants ranged between 18 and 56 years, with an average age of 23 years ($M = 22.7$, $SD = 3.71$). Further demographic characteristics of the participants are described in Table 4.1.

Table 4.1

Demographic Characteristics of the Sample (N = 276)

		n	%
Gender	Female	179	64.9
	Male	97	35.1
Race	White	234	84.8
	Coloured	22	8.0
	Black	16	5.8
	Other	4	1.4
Home Language	English	146	52.9
	Afrikaans	118	42.8
	Other	12	4.3
Studies	Undergraduate	176	63.8
	Postgraduate	100	36.2
Residence	Private residence	171	62.0
	Family home	62	22.5
	University residence	43	15.6
Companion Animal Owners	Yes	211	76.4
	No	65	23.6

Note: The category ‘race other’ consists of “white Indian”, “white African” and “Asian”. The category ‘home language other’ consists of French, German, Swahili, isiXhosa and Dutch as reported by the participants.

As seen in Table 4.1 the sample consisted of mostly white (85%), female (65%) and undergraduate students (64%). The majority of the sample were currently companion animal owners (76%). The sample was mainly English speaking (53%) and most lived in private residences (62%). The different types of companion animals owned by participants are listed in Table 4.2. It should be noted that terms ‘coloured’ and ‘black’ are controversial in a South Africa. These terms have been referred to in this study for the sole purpose of reporting the descriptions of previous articles and to distinguish between racially different South African

communities that exist as a result of the country's political past. These terms are not intended to be discriminatory.

Table 4.2
Companion Animals Owned by Participants (n= 211)

	n	%
Dog	155	57.2
Cat	84	30.9
Bird	12	4.4
Fish	11	4.1
Horse	4	1.5
Rabbit	3	1.1
Bearded Dragon	1	0.4
Tortoise	1	0.4

Note: The above numbers reflect companion animals reported by participants, some participants (n=54) owned more than one type of companion animal.

The participants in the study were mostly dog owners (57%), followed by cat owners (31%). Table 4.3 provides a breakdown of the history of participants who were companion animal owners.

Table 4.3

Companion Animal Ownership History of Participants that Currently Own a Companion Animal (n=211)

		n	%
Has owned a companion animal in the past	Yes	200	94.8
	No	3	1.4
Would like to own a companion animal in the future	Yes	51	24.4
	No	7	3.3
Family owns a companion animal that is not theirs	Yes	124	78.0
	No	78	37.0
Companion animal lives in owner's residence	Yes	94	44.5
	No	115	54.5
Companion animal lives in family residence	Yes	115	54.5
	No	2	0.9

Note: An option of 'not applicable' was provided which participants could select. These answers were not included in the above table.

Table 4.3 indicated the majority of the current companion animal owners, have also owned a companion animal in the past (95%) and would own one in the future (24%). Lastly, 45% of these participants had the animal living with them in their residence and 55% had the animal living at their family's residence. Table 4.4 provides a breakdown of the history of participants who were not companion animal owners.

Table 4.4

Companion Animal Ownership History of Participants that Currently Do Not Own a Companion Animal (n=65)

		n	%
Has owned a companion animal in the past	Yes	54	83.1
	No	10	15.4
Would like to own a companion animal in the future	Yes	52	80.0
	No	7	10.8
Family owns a companion animal that is not theirs	Yes	29	44.6
	No	33	50.8

Note: An option of ‘not applicable’ was provided which participants could select. These answers were not included in the above table.

Table 4.4 shows that participants who currently do not own a companion animal, 83% indicated that they have owned a companion animal in the past and 80% would own one in the future.

4.4 MEASURING INSTRUMENTS

This study has made use of two self-report questionnaires and a demographic questionnaire. Self-report questionnaires were chosen as they are often the best instrument with which to assess beliefs, attitudes and perceptions (Fernandez-Ballesteros, 2004). The questionnaires will each be described in the sections to follow.

4.4.1 Demographic Questionnaire

The demographic questionnaire (see Appendix A), designed by the researcher, gathered information on the participant’s age, gender, race and language. It determined whether participants were completing their undergraduate or postgraduate studies and the type of

residence participants were currently living in. Finally, the questionnaire contained information regarding their companion animals.

4.4.2 Lexington Attachment to Pets Scale

The Lexington Attachment to Pets Scale (LAPS) (see Appendix B) was developed by Johnson, Garrity and Stallones (1992) and measures an individual's attachment to a companion animal (Anderson, 2007). The scale was developed based on items from earlier scales including the Pet Attitude Scale (PAS) and the Companion Animal Bonding Scale (CABS). This scale has mainly been used in studies with cat and dog owners. However, as no reference is made to a specific type of companion animal in any of the items, the scale is applicable to any type of companion animal (Anderson, 2007). The LAPS is a commonly used scale, which has been used in various population groups and purports to have sound psychometric properties (Netting et al., 2013; Pitteri et al., 2014; Shore et al., 2005; Zasloff, 1996). To the best of the researcher's knowledge this measurement has not previously been used on a South African sample. However, it was chosen for this study due to the sound psychometric properties of the scale and the various samples it had been used in, previously (González Ramírez, del Carmen, Berumen, & Hernández, 2014; Netting et al., 2013; Pitteri et al., 2014; Shore et al., 2005; Zasloff, 1996).

The scale contains 23 items which include items such as “my pet means more to me than any of my friends” and “I often talk to other people about my pet”. Items of LAPS are measured on a 4-point likert scale ranging from 0 (*disagree strongly*) to 3 (*agree strongly*). Items numbered 8 and 21 had to be reverse scored with 0 (*agree strongly*) and 3 (*strongly disagree*). High scores were an indication of higher attachment to a companion animal.

The LAPS has three subscales as suggested by previous studies (González Ramírez et al., 2014). The first of these subscales being *general attachment (GA)*, which included items 10, 11,

12, 13, 15, 17, 18, 19, 21, 22 and 23. The second subscale *person substitution (PS)* included items 1, 2, 4, 5, 6, 7 and 9. Finally the third subscale *animal rights/animal welfare (AR)* includes the items 3, 8, 14, 16 and 20. The subscales and the items within them remained as they had been used in a study by (González Ramírez et al., 2014). The current study found the reliability of all three subscales to be satisfactory with Cronbachs alpha scores ranging between .71 to .86.

The current study found the LAPS total score to have a Cronbach's alpha score of .94 indicating that it had a good internal consistency. This is similar to previous studies that have reported Cronbach's alpha scores between .80 and .94 (Mueller, 2014; Netting et al., 2013; Pitteri et al., 2014; Shore et al., 2005; Zasloff, 1996).

4.4.3 World Health Organisation Quality of Life Assessment – Brief

The World Health Organisation Quality of Life Assessment – Brief (WHOQOL-BREF) (see Appendix C) developed by the WHOQoL Group (1998) is the abbreviated version of the World Health Organisation Quality of Life Assessment (WHOQOL-100). It was developed to be universally applicable and suitable for as many differing cultures and contexts as possible (WHOQoL GROUP, 1998). It is also a more suitable measurement for use in contexts where resources are limited and time constraints exist (Skevington, Lofty, & O'Connell, 2004). The Afrikaans version of the WHOQOL-BREF had been used in South Africa by Janse van Rensburg (2013). The WHOQOL-BREF was chosen as the quality of life measurement for this study due to its universal applicability, ease of use and sound psychometric properties.

The WHOQOL-BREF has 26 items, which include items such as, “how satisfied are you with conditions of your living place” and “how satisfied are you with your life”. The WHOQOL-BREF is measured on a 5-point likert scale, thus participants were required to indicate a response between 1 and 5. Low total scores indicate poor quality of life and high scores indicate a good

quality of life (WHOQoL GROUP, 1998). Item numbers 3, 4 and 26 had to be reverse scored, a score of 5 would then be allocated where the response with a score of 1 is ordinarily chosen and vice versa.

The WHOQOL-BREF has four subscales, namely 1) *physical health (PHYS)*, 2) *psychological health (PSYCH)*, 3) *social relationships (SOC)* and 4) *environment (ENV)* (WHOQoL GROUP, 1998). Items 3, 4, 10, 15, 16, 17, and 18 measured physical health and items 5, 6, 7, 11, 19 and 26 measured psychological health. Items 20, 21 and 22 measured social relationships and finally items 8, 9, 12, 13, 14, 24 and 25 measured the environment subscale. Items 1 and 2 measured a general rating of quality of life, which were added to the final total score (WHOQoL GROUP, 1998).

The current study found the WHOQOL-BREF total score to have a Cronbach's alpha score of 0.89. Further each subscale of the measure reported Cronbach's alpha scores of between 0.64 and 0.77. These findings are similar to what has been reported in previous studies, where Cronbach's alpha scores for the WHOQOL-BREF were reported to be between 0.67 and 0.86 (Berlim et al., 2005; Chan et al., 2006; Hsiung et al., 2005).

4.4.4 Translations of measuring instruments

An academic translator translated the demographic questionnaire and the LAPS into Afrikaans. The translated versions were then back translated from Afrikaans to English. This ensured that the translations were of a high quality and as clear as possible for participants. The WHOQOL-BREF had an existing Afrikaans translated version, that had been used of in a previous study (Janse van Rensburg, 2013). The study by Janse van Rensburg (2013) made use of the Brislin method of back-translation to translate the WHQOL-BREF.

4.5 DATA COLLECTION PROCEDURES

Permission to conduct the study was applied for and granted by the Research Ethics Committee: Human Research (Humaniora) Ethics Committee and the local university in the Western Cape (see Appendices D-E). The study made use of self-report questionnaires (see Appendices A-C), which were mainly distributed by the researcher to individuals who agreed to participate in the study. The questionnaires took approximately 10 minutes to be completed by participants. Before participants could partake in the study, consent forms (see Appendix F) providing information about the nature of the study and the participant's options should they no longer wish to partake, had to be completed.

Participants were approached at several locations on the university's main campus. The main locations where data collection took place included the library and the cafeteria area. Lecturers in the psychology department were approached via email to assist in the study. The lecturers who agreed to cooperate presented a slide show of the study to some of their classes, which provided information on the study and how individuals could participate. Several participants distributed questionnaires on behalf of the researcher. These were then collected at the end of the data collection period. All questionnaires were completed independently of the researcher and incomplete questionnaires were excluded from the study. The data collection period lasted approximately 3 months. This allowed enough time for questionnaires distributed by third parties or via email correspondence to be returned.

4.6 DATA ANALYSIS

At the end of the data collection period the data from the questionnaires were firstly entered into an Excel spreadsheet, after which the excel document was entered into the Statistical Package for

the Social Sciences (SPSS) Version 20. Once the data was entered into SPSS the data were sorted and the reverse scoring of items took place. Before analyses took place, the researcher consulted with Prof. Martin Kidd (mkidd@sun.ac.za, 021-808-2561) at the Centre for Statistical Consultation with regards to which analyses should be run on the data. The data was then ready for analyses, the first of which included determining the reliability coefficients using Cronbach's alpha of the LAPS and the WHOQOL-BREF and various descriptive statistics regarding the sample (Field, 2009).

Pearson correlations were conducted in order to ascertain whether there is a significant relationship between attachment and quality of life (Field, 2009). Independent sample t-tests were then performed, in order to determine whether there were significant differences in quality of life ratings between companion animal owners and non-owners animals (Field, 2009). A level of significance of .05 was used in the analysis.

4.7 ETHICAL CONSIDERATIONS

The study commenced after the necessary permissions were obtained from the Research Ethics Committee: Human Research (Humanities) Ethics Committee (HS1105/2014) and institutional permission from the university at which the study took place (see Appendices D-E). The study was declared as low-risk and therefore did not appear to pose any ethical problems or other issues for the participants of the study. The following sections will lay out all ethical considerations that had been taken into account during the implementation of the study.

4.7.1 Informed consent

Each of the participants was provided with an informed consent form (see Appendix F), along with the questionnaires. Questionnaires and consent forms were provided in English and

Afrikaans (see Appendices A, B, C & F) which are the two official languages of the university, in an attempt to avoid discrimination against any participants. Participants were given an opportunity to read through this form and were required to give their written consent. Within this consent form the study, along with its aims, were explained to the participants. In the consent form it is explained that participation in the study is voluntary and that a participant could withdraw at any point.

4.7.2 Anonymity and confidentiality

Participants identities are not disclosed at any time in the study and personal information regarding a participant's name and other identifiable factors were not asked for nor required in this study. This was also explained in the consent form given to participants. Only the researcher had access to the questionnaires and consent forms. All data was entered electronically and stored in password secured folders, to which only the researcher had access. The research supervisor only viewed the data files during consultations.

4.7.3 Further considerations

While the study had been declared as low-risk, the researcher felt that some of the questions contained in the WHOQOL-BREF were of a sensitive nature. As an additional precaution the contact details of Stellenbosch University's Centre for Student Counselling and Development (CSCD) (contact number 082-557-0880) were made available for participants. Furthermore, participants were required to complete an informed consent form before partaking in the study (see Appendix F). Within the consent form the nature of the study was described and it was made clear that participation was voluntary and should a participant wish to withdraw, they could do so without discrimination (Bless et al., 2006).

4.8 CONCLUSION

This chapter described the research design, participants and quantitative measures used in this study. The data had been collected using self-report questionnaires and the analyses used to interpret these measures were discussed. Finally ethical considerations taken in this study are described. Results of the analyses performed on the data will be reported in Chapter 5.

CHAPTER 5

RESULTS

5.1 INTRODUCTION

This chapter will present the results of the data analyses done in order to answer the questions laid out by the objectives of this study. This study attempted to determine what the relationship is between the two variables of attachment to a companion animal and quality of life. The primary objective of the study was to determine whether there was a relationship between quality of life scores of participants and their attachment to a companion animal score. The quality of life scores were measured by the WHOQL-BREF and the attachment scores were measured by the LAPS. The secondary objective was to determine if there were significant differences in quality of life scores in owners of companion animals and non-owners. Further analyses such as gender, age and other differences in participants will also be reported.

5.2 PEARSON'S CORRELATIONS

A Pearson correlation was calculated to determine the relationship between the LAPS ($M = 51.23$, $SD = 11.29$) and the WHOQOL-BREF ($M = 104.69$, $SD = 10.99$). This would give an indication of the relationship between an individual's attachment to a companion animal and whether this had a bearing on their quality of life. The results are reported in Table 5.1.

Table 5.1

Pearson Correlations of the LAPS and the WHOQOL-BREF and their Subscales (n=211)

	LAPS	GA	PS	AR	WHOQOL- BREF	ENV	SOC	PHYS	PSYCH
LAPS	-								
GA	.932**	-							
PS	.900**	.718**	-						
AR	.848**	.727**	.678	-					
WHOQOL-BREF	-.086	-.043	-.081	-.144*	-				
ENV	-.070	-.057	-.048	-.103	.800**	-			
SOC	.067	.143*	-.012	-.018	.592**	.329**	-		
PHYS	-.071	-.064	-.047	-.094	.786**	.461**	.338**	-	
PSYCH	-.129	-.081	-.106	-.210**	.829**	.489**	.437**	.587**	-

Note: LAPS = Lexington Attachment to Pets Scale (Total score); WHOQOL-BREF = World Health Organisation Quality of Life Assessment-Brief (Total score); GA = General Attachment; PS= Person Substitution; AR = Animal Rights/Welfare; ENV = Environment; SOC = Social Relationships; PHYS = Physical Health; PSYCH= Psychological Health; * p < .05 ; ** p < .01.

As can be seen from Table 5.1, the correlation between the LAPS (total) and the WHOQOL-BREF (total) was non-significant, (see Figure 5.1). Significant correlations were found between the AR subscale of the LAPS and the WHOQOL-BREF (total). There were also significant correlations between the GA subscale of the LAPS and the SOC subscale of the WHOQOL-BREF. The same had also been found between the AR subscale of the LAPS and PSYCH subscale of the WHOQOL-BREF.

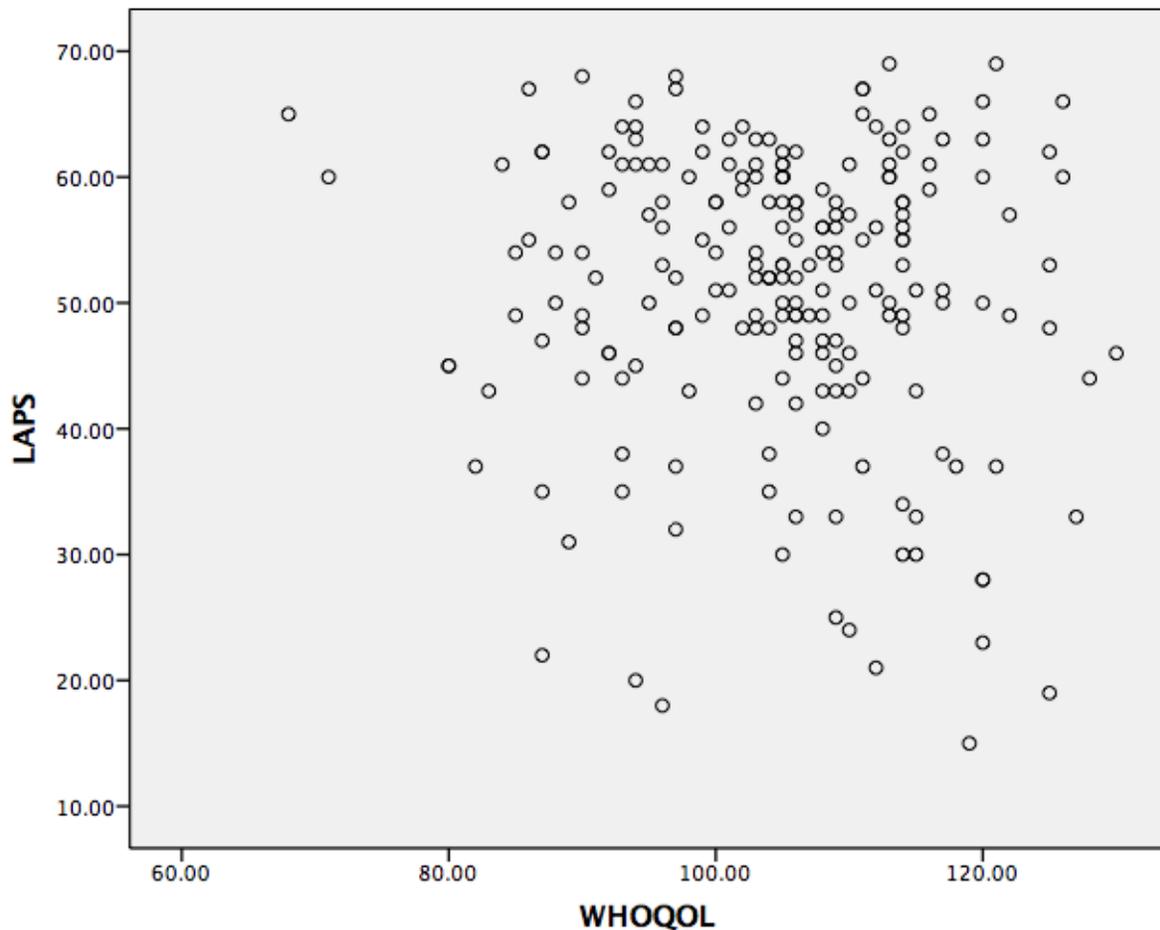


Figure 5.1. Scatter plot showing the relationship between the LAPS and the WHOQOL.

5.3 DIFFERENCES IN COMPANION ANIMAL OWNERS VERSUS NON-OWNERS

An independent sample t-test was calculated to determine if differences exist in the quality of life scores of companion animal owners versus those reported by non-owners. The results are presented in Table 5.2 below.

Table 5.2

Independent Sample t-Test Results of Companion Animal Owner and Non-Owner Differences on the WHOQOL-BREF (N=276)

Variable	Owner	M	SD	df	t	p
WHOQOL-BREF	Yes (n=211)	104.69	10.99			
	No (n=65)	100.80	9.91	274	2.55	.011*
ENV	Yes	32.56	4.07			
	No	30.88	4.35	274	2.87	.004**
SOC	Yes	12.11	1.90			
	No	11.78	1.71	274	1.25	.212
PHYS	Yes	28.22	3.58			
	No	27.89	3.28	274	.654	.513
PSYCH	Yes	23.06	3.46			
	No	21.89	2.95	274	2.46	.014*

Note: WHOQOL-BREF = World Health Organisation Quality of Life Assessment-Brief (Total score); ENV = Environment; SOC = Social Relationships; PHYS = Physical Health; PSYCH= Psychological Health; * = $p < .05$; ** = $p < .01$.

As seen from Table 5.2 companion animal owners scored significantly higher in WHOQOL-BREF (Total score) ratings than non-owners. Significant findings were also reported in the WHOQOL-BREF subscales of ENV and PSYCH, with companion animal owners having significantly higher mean scores on both subscales.

As the focus of the current study was specifically on companion animal owners, the gender, age and whether or not the non-owners were undergraduate or postgraduate students will

not be elaborated on. Non-owners are however used in the analyses of the WHOQOL-BREF measures.

5.4 GENDER DIFFERENCES

An independent sample t-test was calculated to ascertain whether differences existed between men and women and their attachment to a companion animal and their quality of life. The results are reported in Table 5.3.

Table 5.3

Independent Sample t-Test Results of Gender Differences on the WHOQOL-BREF, LAPS and Their Subscales (N=276)

Variable	Gender	M	SD	df	t	p
LAPS	Female (n=144)	52.83	10.70			
	Male (n=67)	47.79	11.82	209	3.08	.002**
GA	Female	26.62	5.14			
	Male	24.31	5.55	209	2.96	.003**
PS	Female	13.72	4.33			
	Male	12.15	4.86	209	2.35	.020*
AR	Female	12.50	2.47			
	Male	11.32	2.65	209	3.13	.002**
WHOQOL-BREF	Female (n=179)	103.60	10.75			
	Male (n=97)	107.01	11.21	209	-2.12	.035*
ENV	Female	32.26	3.99			
	Male	33.21	4.19	209	-.157	.125
SOC	Female	12.24	1.97			
	Male	11.84	1.72	209	1.46	.147
PHYS	Female	27.82	3.56			
	Male	29.07	3.48	209	-2.40	.017*

Table 5.3 *continued*.

Variable	Gender	M	SD	df	t	p
PSYCH	Female	22.61	3.42			
	Male	24.03	3.38	209	-2.82	.005**

Note: LAPS = Lexington Attachment to Pets Scale (Total score); WHOQOL-BREF = World Health Organisation Quality of Life Assessment-Brief (Total score); GA = General Attachment; PS= Person Substitution; AR = Animal Rights/Welfare; ENV = Environment; SOC = Social Relationships; PHYS = Physical Health; PSYCH= Psychological Health; * = $p < .05$; ** = $p < .01$.

As can be seen from Table 5.3 women have scored significantly higher than men on the LAPS (Total score) and on the GA, PS and AR subscales.

Men scored significantly higher than women on the WHOQOL-BREF (Total score) and on the PSYCH and PHYS subscales.

5.5 AGE DIFFERENCES

A one-way between subjects ANOVA was calculated to determine if the age of the participants had an effect on their attachment to companion animals and quality of life. Before the ANOVA was calculated the participants were divided into three different age groups, *21 & under* (n=87) which represented participants between the ages of 18 and 21, *22-23 year olds* (n=124) and *24 & above* (n=60) group, which represented participants between the ages of 24 and 56. The results of the one-way between subject ANOVA's can be seen in Table 5.4.

Table 5.4

Results of the one-way ANOVA of the LAPS, WHOQOL-BREF and Their Subscales and the Participants Age (N=276)

Variable	Age	M	SD	df	F
LAPS	21 & under (n=75)	49.01	13.79		
	22-23 (n=94)	52.04	10.13		
	24 & above (n=42)	53.38	7.82	210	2.487
GA	21 & under	24.83	6.86		
	22-23	26.45	4.37		
	24 & above	26.52	4.02	210	2.298
PS	21 & under	12.27	5.23		
	22-23	13.62	4.33		
	24 & above	14.02	3.40	210	2.702
AR	21 & under	11.92	2.91		
	22-23	11.98	2.49		
	24 & above	12.83	2.05	210	1.984
WHOQOL-BREF	21 & under (n=87)	104.70	13.79		
	22-23 (n=129)	103.23	10.13		
	24 & above (n=60)	103.58	7.82	275	.486
ENV	21 & under	33.11	12.22		
	22-23	32.01	9.80		
	24 & above	31.11	10.99	275	4.287*
SOC	21 & under	12.23	4.28		
	22-23	12.02	3.84		
	24 & above	11.80	4.56	275	.967
PHYS	21 & under	27.89	1.20		
	22-23	27.98	1.63		
	24 & above	28.87	2.11	275	1.667

Table 5.4 *continued*.

Variable	Age	M	SD	df	F
PSYCH	21 & under	22.76	3.67	275	.550
	22-23	22.64	3.14		
	24 & above	23.79	3.46		

Note: LAPS = Lexington Attachment to Pets Scale (Total score); WHOQOL-BREF = World Health Organisation Quality of Life Assessment-Brief (Total score); GA = General Attachment; PS = Person Substitution; AR = Animal Rights/Welfare; ENV = Environment; SOC = Social Relationships; PHYS = Physical Health; PSYCH = Psychological Health; * = $p < .05$.

According to Table 5.4 the results of the one-way between subjects ANOVA indicated that there was a no significant difference in the LAPS (Total score) and the subscales for the three age groups.

There was a significant difference between the different age groups and their scores on the WHOQOL-BREF subscale ENV. A Least Significant Difference (LSD) post hoc test revealed that the mean score for the age group 21 & under ($M = 33.11$, $SD = 4.28$) were significantly higher than the age group 24 & above ($M = 31.12$, $SD = 4.56$).

5.6 POST- & UNDER- GRADUATE STUDENT DIFFERENCES

Further t-tests were calculated to determine if there were differences in quality of life and attachment to a companion animal between undergraduate and postgraduate students. The results of the t-tests are reported in Table 5.5.

Table 5.5

Independent Sample t-Test Results of Under- (n=176) and Post- (n=100) Graduate Student Differences in the LAPS, WHOQOL-BREF and Their Subscales (N=276)

Variable	Student	M	SD	df	t	p
LAPS	Undergraduate	50.31	12.43			
	Postgraduate	52.91	8.67	209	-1.601	.110
GA	Undergraduate	25.39	6.01			
	Postgraduate	26.77	3.82	209	-1.792	.075
PS	Undergraduate	12.96	4.77			
	Postgraduate	13.69	4.12	209	-1.128	.261
AR	Undergraduate	11.96	2.80			
	Postgraduate	12.44	2.12	209	-1.305	.193
WHOQOL-BREF	Undergraduate	103.45	10.82			
	Postgraduate	104.34	10.94	274	-.655	.513
ENV	Undergraduate	32.18	4.13			
	Postgraduate	32.15	4.32	274	.50	.960
SOC	Undergraduate	11.98	1.89			
	Postgraduate	12.14	1.79	274	-.699	.485
PHYS	Undergraduate	27.95	3.58			
	Postgraduate	28.47	3.56	274	-1.175	.241
PSYCH	Undergraduate	22.70	3.28			
	Postgraduate	22.93	3.56	274	-.532	.596

Note: LAPS = Lexington Attachment to Pets Scale (Total score); WHOQOL-BREF = World Health Organisation Quality of Life Assessment-Brief (Total score); GA = General Attachment; PS= Person Substitution; AR = Animal Rights/Welfare; ENV = Environment; SOC = Social Relationships; PHYS = Physical Health; PSYCH= Psychological Health.

The results as shown in Table 5.5, indicate that there is no significant difference in quality of life or attachment to companion animal's scores between postgraduate and undergraduate participants.

5.7 CONCLUSION

This chapter presented the results of the various analyses of the data. Correlations, t-tests and a one-way ANOVA were calculated in order to answer the questions set out by the objectives of the study. The primary objective of the study was to determine whether there was a relationship between quality of life scores of participants and their attachment to their companion animal scores. No significant correlation analyses were found between these two variables, in the total scores, however significant correlations were found in the subscales of the two measures.

The secondary objective was to determine if there were significant differences within quality of life scores in owners of companion animals and non-owners. The t-test analyses indicated that there was indeed a significant difference in quality of life total scores between non-companion animal owners and companion animal owners. Therefore it can be said that the secondary objective of the study was achieved. Other significant gender differences were found. The results of the data analyses shall be discussed in further detail in Chapter 6.

CHAPTER 6

DISCUSSION, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This study aimed to ascertain whether a relationship between an individual's quality of life and his/her attachment to his/her companion animal exists. In Chapter 5, the results of the study were reported in terms of the study's aims and whether or not attachment with a companion animal correlated with an individual's quality of life. In this chapter a summary of the study will be given and the findings will be discussed. The limitations, recommendations for future research and the implications for practice will be described.

6.2 SUMMARY OF THE STUDY

Literature has indicated that animals have long played a role in human's lives (Julius et al., 2013; Serpell, 2010). Previous studies have shown that attachment bonds, similar to those between a child and primary caregiver, can occur between individuals and their companion animals (Cohen, 2002; Fine & Beck, 2010; Kurdek, 2009). Moreover, the attachment to and ownership of a companion animal may play a significant role in the lives of humans, creating experiences that are beneficial to the mental and physical health of these humans, as well as bettering their overall experience of life (Black, 2012; Burrows et al., 2008; Crawford et al., 2006; Odendaal, 2000; O'Haire, 2010; Wells & Perrine, 2001).

This study aimed to address certain gaps in literature such as focusing on quality of life in it's totality with regards to attachment, instead of just one aspect thereof as has often been done in the past (Andreassen et al., 2013; Lewis et al., 2009). This study focussed on previously

overlooked populations by using students from a South African university (Lubbe & Scholtz, 2013). This study hoped to add to the existing body of knowledge of HAI, which could have meaningful impacts for future AAA/AAT interventions.

In order to conceptualise and interpret the data certain theories were utilised, namely: attachment theory, the biophilia hypothesis and social support theory. Attachment theory was used to conceptualise the relationship between humans and their companion animals. It further described the need for security and unconditional love that this type of relationship fulfils (Ainsworth, 1979). The biophilia hypothesis describes an innate need for nature and natural elements in human's lives and it further provides explanation as to why humans display an interest in and care for, nature (Amiot & Bastian, 2014; Bjick, 2013). It is on the basis of the biophilia hypothesis that it is suggested that humans require nature, including animals, in order to experience life satisfaction. Finally, social support theory was used to conceptualise how humans desire and need, to feel a sense of belonging, as well as requiring social support to cope with potential stressors (Colins & Feeney, 2004; Orrick et al., 2011). Companion animals are often seen as an extension of a social network and thus can fulfil this function for humans (Lakey & Cohen, 2000).

The research question of the current study was if there is a relationship between tertiary student's attachment to a companion animal and the students's quality of life. In order to answer the research question the study had certain aims. Firstly, to determine whether there is a relationship between quality of life and attachment to a companion animal. The second aim of this study was to determine if there is a difference in quality of life scores between individuals who own a companion animal and those who do not own a companion animal.

The study made use of three questionnaires, a biographical questionnaire, the Lexington Attachment to Pets Scale (LAPS) and the World Health Organisation Quality of Life Assessment – Brief (WHOQOL-BREF). The data collected from these questionnaires were analysed using SPSS, reliability analyses, t-tests, correlations and ANOVAs were calculated.

The final sample of the study consisted of 276 students from a local university in South Africa, of which 211 were companion animal owners and 65 were non-owners. The participants were between the ages of 18 and 56 years. The students were mostly female (65%), English speaking (53%) and undergraduate students (64%). Most of the companion animal owners were dog (57%) and cat (31%) owners. The results of the current study will be discussed in the next sections.

6.3 DISCUSSION OF RESULTS

6.3.1 Pearson's Correlations

A Pearson correlation between the LAPS (Total score) and the WHOQOL-BREF (Total score) found a non-significant correlation ($p > .05$) (Johnson et al., 1992; WHOQoL GROUP, 1998). A possible reason for this finding was that the scores of participants on both measures were high, resulting in a possible ceiling effect. This is supported by Figure 5.1 which revealed that the data clustered around a specific point and therefore no significant relationship could be found. A study by Lewis et al. (2009), which examined quality of life and attachment to companion animals, found a similar ceiling effect. It was determined that the attachment measure used had resulted in the ceiling effect in that study (Lewis et al., 2009).

Table 5.1 revealed that there were 3 statistically significant correlations between subscales of the LAPS and the WHOQOL-BREF. A positive relationship was found between the

GA subscale of the LAPS and the SOC subscale of the WHOQOL-BREF ($p < .05$). Indicating that higher general attachment to a companion animal was associated with higher ratings of human social relationships (Johnson et al., 1992; WHOQoL GROUP, 1998).

It should be understood that the SOC subscale of the WHOQOL-BREF included items such as “how satisfied are you with the support you get from your friends” and “how satisfied are you with your personal relationships”. While the GA subscale of the LAPS included items such as “my pet knows when I’m feeling bad” and “owning a pet adds to my happiness” (Johnson et al., 1992; WHOQoL GROUP, 1998). A key feature of attachment bonds is the perception that the attachment figure is a safe haven during periods of distress (Crawford et al., 2006). Viewing a companion animal as safe haven as been evidenced in a study by Kurdek (2009) which found that dogs could be seen as attachment figures and that some individuals will seek the comfort of their dogs over fellow humans during times of distress.

The current study confirms the notion that attachment and social support are closely linked, as has been suggested in existing literature (Colins & Feeney, 2004; Crawford et al., 2006). Furthermore, the findings of this study also confirm that of the study by Kurdek (2009), higher ratings of general attachment to a companion animal correlated with higher ratings of social relationships. A companion animal can act as an extension of an individuals social network, and helps alleviate feelings of loneliness which may have a negative impact on individual’s perceptions of their social relationships (Palmer & Custance, 2008).

Furthermore, Mueller (2014) found that adolescents who were attached to a companion animal had increased connections with other people. It was suggested that the attachment bond with the animal increased the adolescent’s ability to form emotional bonds with other human individuals, resulting in the adolescent having a larger social network (Mueller, 2014). The

findings of the current study are consistent with those of Mueller (2014), as participants that had higher general attachment scores to their companion animals also had higher social relationships scores.

Finally, a study by Lewis et al. (2009) looked at the differences between owners of cats and dogs and owners of other types of companion animals. They found that owners of other types of companion animals scored significantly higher on the SOC subscale of the WHOQOL-BREF, which differs from the results of the current study. Of the participants in the current study who were companion animal owners, the majority were cat and dog owners. In the current study there was a significantly higher scores in the SOC subscale of the WHOQOL-BREF. The difference in the results may be due to the use of different attachment measures. Further findings of differences in companion animal owners, which were the main focus of the current study will be discussed in later sections.

A significant negative relationship was found between the AR subscale of the LAPS and the WHOQOL-BREF (Total score) and the AR subscale of the LAPS and the PSYCH subscale of the WHOQOL-BREF. Indicating that higher ratings of animal rights/welfare were associated with lower ratings of overall quality of life and in the psychological health domain and vice versa. The AR subscale of LAPS included items such as “I believe pets should have the same rights and privileges as family members” and “pets deserve as much respect as humans do” (Johnson et al., 1992).

In a study by Furnham, McManus and Scott (2003) it was found that empathic concern is a strong predictor for interest in animal rights and welfare. Empathic concern can be understood as having empathy for another’s distress, and usually causes distress within the individual themselves (Furnham, et al., 2003). This could be a possible reason for the negative relationship

between the AR subscale and the WHOQOL-BREF (Total score) and the PSYCH subscale. As individuals who score highly on the AR subscale may be experiencing empathic concern for companion animals, it may impact negatively on their quality of life ratings.

6.3.2 Companion animal owners versus non-owners

Significant differences were found between companion animal owners and non-owners in WHOQOL-BREF (Total score), as highlighted by Table 5.2. Companion animal owners had significantly higher mean scores in the WHOQOL-BREF (Total score) and the ENV and PSYCH subscales of the WHOQOL-BREF. It is also important to note that while they were not significant, higher mean scores in the SOC and PHYS subscales of the WHOQOL-BREF were found in the companion animal owners.

It has been theorised that an attachment bond is a key factor to experiencing the benefits that a companion animal may provide (Mueller, 2014), this being confirmed by the findings of the current study. Overall, companion animal owners had higher scores on the WHOQOL-BREF (Total score) and on the subscales of the WHOQOL-BREF (Johnson et al., 1992; WHOQoL GROUP, 1998). A longitudinal study by Heady and Grabka (2006) found that companion animal owners were healthier, as concluded by comparing the average number of visits to a doctor, than non-owners. The results of the current study are consistent with these findings as the quality of life ratings of companion animal owners were significantly higher than those of non-owners. One of the aspects that affect how individual's perceive their quality of life is their perceptions of their health (Bourssa et al., 2015). Finally, the biophilia hypothesis states that nature, which includes animals, plays a key role in improving life satisfaction, due to human's innate desire to affiliate with nature (Amiot & Bastian, 2014).

The current study found that companion animal owners had significantly higher ratings on the PSYCH subscale of the WHOQOL-BREF. The PSYCH subscale included items such as “to what extent do you find your life to be meaningful” and “how often do you have negative feelings such as blue mood, despair, anxiety or depression” (WHOQoL GROUP, 1998). In social support theory it is stated that having a network of individuals who provide support during times of distress can buffer against these stressors and thus improve mental well-being (Orrick et al., 2011).

In a review of literature, Wells (2009) highlighted that companion animals play a role in improving psychological health among owners. Specifically, there have been positive links between alleviating depression and companion animal ownership. This finding of the current study did differ from findings by Lewis et al. (2009), in which no effect was found on the PSYCH subscale.

Finally, it was also found in the current study that companion animal owners scored significantly higher on the ENV subscale of the WHOQOL-BREF. The ENV subscale included items such as “do you have enough money to meet your needs” and “how healthy is your physical environment” (WHOQoL GROUP, 1998). Economic factors are a consideration when deciding to own a companion animal as animals are an expensive commodity, or a luxury even, suggesting that companion animal owners may be in a higher socio-economic bracket (Brown 2002; Kurdek, 2009). While the current study did not investigate the income of the participants, making it impossible to reach specific conclusions. However it is speculated that, based on these economic factors previously mentioned, the companion animal owners of this study may be from a higher income bracket, resulting in higher scores in the ENV subscale.

6.3.3 Gender differences

Table 5.3 revealed that women had significantly higher LAPS (Total score) mean scores than men, as well as in all 3 of the subscales of the LAPS. It was also found that men had significantly higher mean scores in the WHOQOL-BREF (Total score) and the PHYS and PSYCH subscales of the WHOQOL-BREF.

Studies have revealed different findings on gender differences and attachment to companion animals (O’Haire, 2010; Prato-Previde et al., 2006). A study by Brown (2002) which examined ethnic variations in attachment to companion animals, found that females, specifically white females, had the highest scores on attachment to companion animals. The current study confirms these findings, as the sample consisted of mostly white females, who scored significantly higher on the LAPS than males. The current study’s findings are also consistent with findings that women report higher attachment in human relationships than men (Schmitt et al., 2003). This suggests that women are more inclined to form attachment bonds than men.

The study by Herzog (2007) found no significant difference between men and women in attachment ratings, though it was revealed that women had more favourable attitudes towards animals. The current study supports the finding that women appear to have more favourable attitudes towards animals, as can be seen in their higher attachment scores. The LAPS includes items such as “I believe that loving my pet helps me stay healthy” and “I feel that my pet is part of my family”, thus higher attachment scores would be indicative of a more favourable attitude.

A study by Riegel et al. (2003) which examined adults with heart failure found that there were no differences between men and women on quality of life ratings. Findings from a study by Michel, Bisegger, Fuhr, and Abel (2009) revealed that children reported no gender differences in quality of life. However, as age increased, females reported lower scores of quality of life than

males. The findings of the current study are consistent these of Michel et al. (2009) as females scored lower on the WHOQOL-BREF (Total score).

The findings of the current study are contradictory to those found by Kirchengast and Haslinger (2008). Kirchengast and Haslinger (2008) focused on an elderly population and their study revealed that women rated their WHOQOL-BREF (Total score) as significantly higher. Further, women scored significantly higher on the ENV subscale of the WHOQOL-BREF which differed from the current study. Kirchengast and Haslinger (2008) had also reported that women and men had similar ratings on the PSYCH subscale of the WHOQOL-BREF, where the current study found that men scored higher. Finally, the current study differed from findings by Vaez and Laflamme (2003) which discovered that female university students had higher quality of life ratings than male university students.

6.3.4 Age differences

The results of the one way ANOVAs indicated one significant difference in the comparisons of the age groups, as shown in Table 5.4. Post hoc comparisons using the LSD test revealed that in the ENV subscale of the WHOQOL-BREF, the 21 & under group had significantly higher mean scores than the 24 & above age group ($p < .05$).

Various studies have indicated that individuals of any age may feel an attachment bond to a companion animal (Brown, 2002; Mueller, 2014; Netting et al., 2013). It has been suggested that older individuals may have higher attachment ratings than younger individuals (Cohen, 2002). However, the current study has found that age does not appear to be a factor in determining whether an individual will have higher attachment scores to a companion animal.

There have been indications that the individual rates the aspects of quality of life differently during the various stages of their life (Spirduso & Cronin, 2001). This may be the

reason that the results of the current study revealed that younger students had significantly higher scores in the ENV subscale of the WHOQOL-BREF than older students.

6.3.5 Under- & post- graduate student differences

As previously stated it has been shown that individuals may form attachment bonds during any stage of their lives and attachment bonds to companion animals have been found among university students (Brown, 2002; Mueller, 2014; Netting et al., 2013). Companion owners of this study did show high attachment total scores. However, Table 5.5 highlighted the fact that there were no significant differences between undergraduate students and postgraduate students. A possible reason for the lack of a difference between the two groups of students may be that the students are experiencing a similar life stage and thus their perceptions of their quality of life may be similar (Spirduso & Cronin, 2001).

6.4 LIMITATIONS AND RECOMMENDATIONS

6.4.1 Limitations

There are several limitations in the current study, which should be emphasized. Firstly, the data collected from the participants may be influenced by biases which are commonly found in the use of self-report measures (Kurdek, 2009). Secondly, as the participants were students, mostly white, female, dog and cat owners, the data cannot be generalised to the broader community. Thirdly, it was later revealed that the demographic questionnaire, and the LAPS had problematic questions, as various participants had pointed out to the researcher that certain questions were unclear and open to interpretation. To the best of the researchers knowledge the LAPS had not previously been used on a South African population or on any population of tertiary students.

Finally, due to possible ceiling effect in the data the results from correlations between the LAPS (Total score) and the WHOQOL-BREF (Total score) were inconclusive. It is on the basis of these limitations that certain recommendations are made for future research, which will be described in the sections that follow.

6.4.2 Recommendations

There are several recommendations made for future studies. Firstly, in order to have a more representative sample of the South African population, it is suggested that future studies include a more ethnically diverse sample (Brown, 2002; Mueller, 2014). Secondly, it is recommended that more than one attachment to companion animals scale be used, to avoid potential ceiling effects. It would be of even more value to develop a companion animal attachment scale specifically for a South African population. It has been suggested that many attachment scales are biased, as they have been developed based on certain populations such as white, middle class individuals (Brown, 2002). Thirdly, because no differences were found in the current study between undergraduate and postgraduate students, it may be of value to compare a sample of tertiary students to a sample adults who are not studying at the time or of adolescents. As no differences were found in the current study between undergraduate and postgraduate students.

Fourthly, it is suggested that adjustments to the demographic questionnaire be made, in order for the questions to read more clearly for participants. Finally, a mixed methods research design is recommended for future studies. This research design may provide a more indepth explanation for many of the differences found in the current study, and provide insight into the participants subjective experience of companion animals.

6.5 CONCLUSION

The current study had two aims. Firstly, to determine whether there was a relationship between attachment to a companion animal and quality of life. Secondly, to determine if there were differences between companion animal owners and non-owners in ratings of quality of life.

This correlational, quantitative study revealed no significant correlations between attachment and quality of life. However, significant correlations were however found between the subscales of the measures and these were discussed. Significant differences were found between companion animal owners and non-owners, along with differences in gender and age. These differences were described and discussed.

The results of the current study were compared with existing literature regarding companion animals and quality of life. The results were also related to the theoretical frameworks utilised in the study, these being attachment theory (Ainsworth, 1979), social support theory (Lakey & Cohen, 2000) and the biophilia hypothesis (Amiot & Bastain, 2014). Finally, the limitations of the current study and recommendations for future studies that aim to contribute to the current body of knowledge of HAI were presented. It is clear from this study that companion animals do play a significant role in the quality of life of companion animal owners.

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APPENDIX A

BIOGRAPHICAL AND PET HISTORY QUESTIONNAIRE

All information disclosed in this questionnaire will remain confidential.

Indicate answers with a 'X' in the applicable boxes.

BIOGRAPHICAL INFORMATION

Age

Sex

Male Female

Race

Black White Coloured Indian
 Asian Other: _____

Home language

Afrikaans English Ndebele Northern Sotho
 Sotho Swazi Tswana Tsonga
 Venda Xhosa Zulu Other: _____

Type of study

Undergraduate Postgraduate

Current residence

Family home University residence Private residence

PET HISTORY INFORMATION

Do you like animals?

Yes No N/A

Do you currently own a pet?

Yes No N/A

If yes, please specify type of pet
(Tick all that apply)

Cat Dog Bird
 Fish Other: _____

Des this pet currently reside in your home with you?

Yes No N/A

If no, does this pet live your family's home?

Yes No N/A

Have you owned a pet in the past?

Yes No N/A

If you do not currently own a pet would you want to own one
in the future?

Yes No N/A

Does your family own a pet that is not yours? Yes No N/A

APPENDIX A (continued)

BIOGRAFIESE EN TROETELDIER GESKIEDENIS VRAELYS

Alle inligting in openbaar in hierdie vraelys sal vertroulik bly.

Dui jou antwoorde aan met 'n 'X' langs die mees toepaslike opsie.

BIOGRAFIESE INLIGTING

Ouderdom

Geslag

Manlik Vroulik

Ras

Swart Wit Kleurling Indiër
 Asiaat Ander: _____

Huis taal

Afrikaans Engels Ndebele Noord Sotho
 Sotho Swazi Tswana Tsonga
 Venda Xhosa Zulu Ander: _____

Studie

Voorgraads Nagraads

Waar woon jy tans?

Ouer huis Kos Huis Gedeelte woning

TROETELDIER GESKIEDENIS INLIGTING

Hou jy van diere?

Ja Nee N/A

Het jy tans 'n troeteldier?

Ja Nee N/A

Indien wel, dui asseblief aan watter tipe troeteldier(e) (merk al die toepaslike opsies)

Kat Hond Voël

Vis Ander: _____

Bly die troeteldier tans saam met jou in jou huis?

Ja Nee N/A

Indien nee, bly hierdie troeteldier tans in jou ouer huis?

Ja Nee N/A

As jy nie tans 'n troeteldier het nie, sal jy graag in die toekoms een wil hê?

Ja Nee N/A

Het jou gesien 'n troeteldier wat nie joune is nie?

Ja

Nee

N/A

APPENDIX B

LEXINGTON ATTACHMENT TO PETS SCALE (LAPS)

Please tell us whether you agree or disagree with some brief statements about your favourite pet. For each statement, check whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree.

	AGREE STRONGLY	AGREE SOMEWHAT	DISAGREE SOMEWHAT	DISAGREE STRONGLY
1. My pet means more to me than any of my friends.				
2. Quite often I confide in my pet.				
3. I believe pets should have the same rights and privileges as family members.				
4. I believe my pet is my best friend.				
5. Quite often my feelings toward people are affected by the way they react to my pet.				
6. I love my pet because he/she is more loyal to me than most of the people in my life.				
7. I enjoy showing other people pictures of my pet.				
8. I think my pet is just a pet.				
9. I love my pet because it never judges me.				
10. My pet knows when I'm feeling bad.				
11. I often talk to other people about my pet.				
12. My pet understands me.				
13. I believe that loving my pet helps me stay healthy.				
14. Pets deserve as much respect as humans do.				
15. My pet and I have a very close relationship.				
16. I would do almost anything to take care of my pet.				

Appendix B: Lexington Attachment To Pets Scale (LAPS) (continued)				
	AGREE STRONGLY	AGREE SOMEWHAT	DISAGREE SOMEWHAT	DISAGREE STRONGLY
17. I play with my pet quite often.				
18. I consider my pet to be a great companion.				
19. My pet makes me feel happy.				
20. I feel that my pet is a part of my family.				
21. I am not very attached to my pet.				
22. Owning a pet adds to my happiness.				
23. I consider my pet to be a friend.				

APPENDIX B (continued)				
LEXINGTON SKAAL VIR GEHEGTHEID AAN TROETELDIERE (LSGT)				
Sê asseblief vir ons of jy met 'n paar kort stellings oor jou gunsteling troeteldier saam stem of nie saam stem nie. Dui by elke stelling of jy beslis saamstem, ietwat saamstem, ietwat nie saamstem nie of beslis nie saamstem nie.				
	STEM BESLIS SAAM	STEM IETWAT SAAM	STEM IETWAT NIE SAAM NIE	STEM BESLIS NIE SAAM NIE
1. My troeteldier beteken vir my meer as engie van my vriende				
2. Ek vertel dikwels my harts geheime vir my troeteldier				
3. Ek glo troeteldiere behoort dieselfde regte en voorregte as gesinslede te hê.				
4. Ek glo my troeteldier is my beste vriend.				
5. My gevoelens oor mense word dikwels beïnvloed deur hulle reaksies op my troeteldier.				
6. Ek is lief vir my troeteldier want hy/sy is meer lojaal aan my as die meeste mense in my lewe.				
7. Ek geniet di tom foto's van my troeteldier vir ander mense te wys.				
8. Ek dink my troeteldier is net 'n troeteldier.				
9. Ek is lief vir my troeteldier want hy oordeel my nooit.				
10. My troeteldier weet wanneer ek sleg voel.				
11. Ek praat dikwels met ander mense oor my troeteldier.				
12. My troeteldier verstaan my.				
13. Ek glo om vir my troeteldier lief te wees help my om gesond te bly.				
14. Troeteldiere verdien net soveel respek as mense.				

Appendix B: LEXINGTON SKAAL VIR GEHEGTHEID AAN TROETELDIERE (LSGT) (vervolg)				
	STEM BESLIS SAAM	STEM IETWAT SAAM	STEM IETWAT NIE SAAM NIE	STEM BESLIS NIE SAAM NIE
15. Ek en my troeteldier het 'n baie hegte verhouding.				
16. Ek sal by na enige iets te nom vir my troeteldier te sorg.				
17. Ek speel heel dikwels met my troeteldier.				
18. Ek beskou my troeteldier as 'n wonderlike maat.				
19. My troeteldier laat my gelukkig voel.				
20. Ek voel my troeteldier is deel van my gesin.				
21. Ek is nie baie geheg aan my troeteldier nie.				
22. Ek is nie baie geheg aan my troeteldier te hê dra by tot my geluk.				
23. Ek beskou my troeteldier as 'n vriend.				

APPENDIX C

THE WORLD HEALTH ORGANISATION QUALITY OF LIFE ASSESSMENT – BRIEF (WHOQOL-BREF)

The following questions ask how you feel about your quality of life, health, or other areas of your life. **Please choose the answer that appears most appropriate.** If you are unsure about which response to give a question, the first response you think of is often the best one.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the **last four weeks.**

	VERY POOR	POOR	NEITHER POOR NOR GOOD	GOOD	VERY GOOD
1. How would you rate your quality of life?					
	VERY DIS-SATISFIED	DIS-SATISFIED	NEITHER SATISFIED NOR DIS-SATISFIED	STATISFIED	VERY SATISFIED
2. How satisfied are you with your life?					

The following questions ask about **how much** you have experience certain things in the last **four weeks.**

	NOT AT ALL	A LITTLE	A MODERATE AMOUNT	VERY MUCH	AN EXTREME AMOUNT
3. To what extent do you feel that physical pain prevents you from doing what you need to do?					
4. How much do you need any medical treatment to function in your daily life?					
5. How much do you enjoy life?					
6. To what extent do you feel your life to be meaningful?					
7. How well are you able to concentrate?					
8. How safe do you feel in your daily life?					
9. How healthy is your physical environment?					
The following questions ask about how completely you experience or were able to do certain things in the last four weeks.					
10. Do you have enough energy for everyday life?					
11. Are you able to accept your bodily appearance?					
12. Have you enough money to meet your needs?					
13. How available to you is the information that you need in your day-to-day life?					
14. To what extent do you have opportunity for leisure activities?					

Appendix C: World Health Organisation Quality of Life Assessment-Brief (WHOQOL-BREF) (continued)					
	VERY POOR	POOR	NEITHER POOR NOR GOOD	GOOD	VERY GOOD
15. How well are you able to get around?					

	VERY DIS- SATISFIED	DIS- SATISFIED	NEITHER SATISFIED NOR DIS- SATISFIED	STATISFIED	VERY SATISFIED
16. How satisfied are you with your sleep?					
17. How satisfied are you with your ability to perform your daily activities?					
18. How satisfied are you with your capacity for work?					
19. How satisfied are you with yourself?					
20. How satisfied are you with your personal relationships?					
21. How satisfied are you with your sex life?					
22. How satisfied are you with the support you get from friends?					
23. How satisfied are you with the conditions of your living place?					
24. How satisfied are you with your access to health services?					
25. How satisfied are you with your transport?					

	NEVER	SELDOM	QUITE OFTEN	VERY OFTEN	ALWAYS
26. How often do you have negative feelings such as blue mood, despair, anxiety or depression?					

APPENDIX C (continued)**DIE WERELD GESONDHEID ORGANISASIE LEWENS KWALITEIT ASSESSERING – KORT (WGOLA-KORT)**

Die volgende vrae handel oor hoe jy voel oor jou lewens kwaliteit, gesondheid en ook ander aspekte van jou lewe. **Kies asseblief die antwoord wat jou die beste pas.** As jy onseker is oor wat om te antwoord, kies die eerste opsie wat opkom. Dit is gewoonlik die beste antwoord.

Hoe asseblief jou eie verwagtinge, bekommernisse en geluk in gedagte. Dink aan jou lewe in die **laaste vier weke.**

	BAIE SLEG	SELG	GEMIDDELD	GOED	BAIE GOED
1. Hoe sal jy jou lewens kwaliteit beskryf?					
	BAIE ON-TEVREDE	ON-TEVREDE	GEMIDDELD	TEVREDE	BAIE TEVREDE
2. Hoe tevrede is jy met jou gesondheid?					

Die volgende vrae handel oor **hoe goed** jy sekere ondervindings die afgelope **vier weke** ervaar het.

	GLAD NIE	EFFENS	GEMIDDELD	BAIE	BAIE TEVREDE
3. Tot watter mate hou fisiese pyn jou terug om dinge te doen wat jy moet doen?					
4. Hoe gereeld het jy mediese behandeling nodig om met jou dag aan te gaan?					
5. Hoe baie geniet jy die lewe?					
6. Hoe betekenis vol voel jy is jou lewe?					
7. Hoe goed kan jy konsentreer?					
8. Hoe veilig voel jy in jou daagslik lewe?					
9. Hoe gesond is jou omgewing?					

Die volgende vrae behandel hoe goed jy dinge ervaar het as ook om dit uit te voer die afgelope **vier weke.**

10. Het jy elke dag genoeg energie?					
11. Kan jy met jou liggaams bou saam leef?					
12. Het jy genoeg geld om jou behoeftes te bevredig?					
13. Hoe beskikbaar is inligting wat jy daaglik benodig?					
14. Hoeveel toe gang het jy tot ontspanning					

	BAIE SLEG	SLEG	GEMIDDELD	GOED	BAIE GOED
15. Hoe goed kan jy van punt A na punt B kom?					

Appendix C: Die Wereld Gesonheid Organisasie Lewens Kwaliteit Assessering – Kort (WGOLA-KORT) (vervolg)					
	BAIE ON-TEVREDE	ON-TEVREDE	GEMIDDELD	TEVREDE	BAIE TEVREDE
16. Hoe tevrede is jy met jou slaap?					
17. Hoe tevrede is jy met jou vermoë om daaglikse take uit tevoer?					
18. Hoe tevrede is jy met jou vermoë om te werk?					
19. Hoe gelukkig is jy met jouself?					
20. Hoe tevrede is jy met jou persoonlike verhoudings?					
21. Hoe tevrede is jy met jou seks lewe?					
22. Hoe tevrede is jy met jou vriende se ondersteuning?					
23. Hoe tevrede is jy met die omstandighede waarin jy lewe?					
24. Hoe tevrede is jy met die gesondheidsdienste tot jou beskikking?					
25. Hoe tevrede is jy met jou vervoer?					

	NOOIT	SOMS	GEREELD	BAIE GEREELD	ALTYD
26. Hoe gereeld het jy negatiewe gevoelens soos angs, depressie, moedeloos, blou Maandag ens?					

Appendix D



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Approved with Stipulations

New Application

05-Aug-2014
Gerber, Michelle M

Proposal#: HS1105/2014

Title: The relationship between quality of life of tertiary students and their attachment to a companion animal

Dear Ms Michelle Gerber,

Your **New Application** received on **10-Jul-2014**, was reviewed by the Research Ethics Committee: Human Research (Humanities) via Committee Review procedures on **31-Jul-2014**.

Please note the following information about your approved research proposal:

Proposal Approval Period: **31-Jul-2014 – 30-Jul-2015**

Present Committee Members:

De Villiers, Mare MRH
Theron, Carl CC
Viviers, Suzette S
Hansen, Leonard LD
Nel, Michelle M
Hom, Lynette LM
Hendricks, Anri AJ
Hendriks, Johann J
De Villiers-Botha, Tanya T
Beukes, Winston WA
Graham, Clarissa Jane
Lesch, Anthea AM

The following stipulations are relevant to the approval of your project and must be adhered to:

Please make all changes on the ORIGINAL proposal using TRACK CHANGES. Furthermore, it is required that a letter be sent to the REC, responding to each of the REC's concerns and comments in NUMBERED FORMAT, indicating the page numbers/documents on which the changes were made.

1. INSTITUTIONAL PERMISSION

The researcher is reminded that institutional permission should be obtained from Stellenbosch University's Division for Institutional Research and Planning (amlitwa@sun.ac.za). The researcher is requested to forward a copy of the institutional permission to the REC once received.

2. INFORMED CONSENT FORM (ICF)

2.1) The Afrikaans informed consent form needs to be edited. There are several instances where the spaces between word have been omitted e.g. "lewetusseneienaars" in sentence 2 under "1. Doel van die studie".

2.2) In both the English and Afrikaans versions of the ICF, students are informed that the risk of participation in the study is low or minimal, yet in the research proposal, DESC checklist form and the REC application form, the risk is indicated as medium. The researcher is requested to explain this discrepancy or alternatively alter the ICFs to correspond with the risk as classified in the aforementioned documents.

Please provide a letter of response to all the points raised IN ADDITION to HIGHLIGHTING or using the TRACK CHANGES function to indicate ALL the corrections/amendments of ALL DOCUMENTS clearly in order to allow rapid scrutiny and appraisal.

Appendix D (continued)

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

Please remember to use your **proposal number (HS1105/2014)** on any documents or correspondence with the REC concerning your research proposal.

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.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

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

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 0218089183.

Included Documents:

Informed consent form_AFR
Questionnaire
DESC application
Research proposal
Informed consent form_eng
REC application form

Sincerely,
Clarissa Graham
REC Coordinator
Research Ethics Committee: Human Research (Humanities)

Appendix E:



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jou kennisvennoot • your knowledge partner

29 August 2014

Ms Michelle Gerber
Department of Psychology
Stellenbosch University

Dear Ms Gerber

Concerning research project: *The relationship between quality of life of tertiary students and their attachment to a companion animal*

The researcher has institutional permission to proceed with this project as stipulated in the institutional permission application. This permission is granted on the following conditions:

- Participation is voluntary.
- Persons may not be coerced into participation.
- Persons who choose not to participate may not be penalized as a result of non-participation.
- Persons who choose to participate must be informed of the purpose of the research, all the aspects of their participation, the risks to participation, their role in the research and their rights as participants. Participants must consent to participation. The researcher may not proceed until she is confident that all the before mentioned has been established and recorded.
- Participants may withdraw their participation at any time, and without consequence.
- Data must be collected in a way that ensures the anonymity of all participants.
- The data collected must be responsibly and suitably protected.
- The data collected may only be used for the purpose of this study.
- Individuals may not be identified in the report(s) or publication(s) of the results of the study.
- The privacy of individuals must be respected and protected.
- The researcher must conduct her research within the provisions of the Protection of Personal Information Act, 2013.

Best wishes,

Prof Ian Cloete
Senior Director: Institutional Research and Planning



Afdeling Institusionele Navorsing en Beplanning • Institutional Research and Planning Division
Privaatsak/Private Bag X1 • Stellenbosch • 7602 • Suid-Afrika/South Africa
Tel. + 27 21 808 3967 • Faks/Fax + 27 21 808 4533

Appendix F:



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jou kennisvenoot • your knowledge partner

STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

The relationship between quality of life of tertiary students and their attachment to a companion animal.

You are asked to participate in a research study conducted by Michelle Gerber, BA Hons Psychology, from the Psychology Department at Stellenbosch University. The results of this study will contribute to a thesis in fulfilment of the Masters Programme. As a student at Stellenbosch University you have been selected as a possible participant in this study

1. PURPOSE OF THE STUDY

The proposed study's main objective is to assess the relationship between an individual's quality of life and their attachment to a companion animal.

A secondary objective is to establish whether or not differences exist in quality of life ratings between owners of companion animals and those who do not own a companion animal.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

- Complete a demographic questionnaire
- Complete the Lexington Attachment to Pets Scale
- Complete the World Health Organization Quality of Life Assessment

The above questionnaires should take no longer than 6 minutes to complete. Please return completed questionnaires to the researcher.

3. POTENTIAL RISKS AND DISCOMFORTS

There are only low or minimal risks associated with your participation in this study. Certain questions in the above mentioned questionnaires are of a personal nature and may cause discomfort. Should you feel uncomfortable about the subject matter discussed in the questionnaires, please feel free to contact the Stellenbosch University's Centre for Student Counselling and Development (CSCD). The CSCD can be reached at (021) 808 4994 for therapy and personal development queries and at 0825570880 for their 24 hour crisis service. They can also be found at their physical location which is 37 Victoria Street, Stellenbosch. The CSCD provides counselling services free of charge.

If you no longer wish to participate in the study, you may withdraw at any point and your data will be not used in the study.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

There may be no direct benefits to you for participating in this study. However, you will be making an important contribution to this research in this field that may benefit others in the future.

Appendix F (continued)

5. PAYMENT FOR PARTICIPATION

While you will not be paid to take part in this study, all questionnaires and materials to complete the questionnaires will be provided at no cost to you.

6. CONFIDENTIALITY

Your participation in the study will be regarded as strictly confidential. In order to protect your identity and the information provided by yourself, no names will be used on any of the questionnaires.

Your identity will not be revealed at any time to people outside of the study. All questionnaires filled out by you will only be seen by the researcher and no other parties will have access to the questionnaires. If results of the study get published, your identity will thus be protected.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact (me) Michelle Gerber at 16177436@sun.ac.za or alternatively Dr. M.C Le Roux at mclr@sun.ac.za.

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
--

The information above was described to me (the participant) by Michelle Gerber (principal investigator) in English and I am in command of this language or it was satisfactorily translated to me. I (the participant) was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of Participant

Signature of Participant

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document. [He/She] was encouraged and given ample time to ask me any questions. This conversation was conducted in English

Signature of Investigator

Date

Appendix F (vervolg)



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UNIVERSITEIT STELLENBOSCH INWILLIGING OM DEEL TE NEEM AAN NAVORSING

The relationship between quality of life of tertiary students and their attachment to a companion animal.

U word gevra om asseblief deel te neem aan 'n navorsingstudie wat gedoen word deur Michelle Gerber, BA Hons Sielkunde, van die Department Sielkunde aan die Universiteit Stellenbosch. Die resultate van hierdie studies al bydra tot 'n tesis in vervulling van die Meestersprogram. U is as moontlike deelnemer aan die studie gekies omdat u 'n student aan die Universiteit Stellenbosch is.

1. DOEL VAN STUDIE

Die voorgestelde studie poog om vas te stel of daar 'n verhouding is tussen 'n individu se kwaliteit van lewe, en hulle gehegheid aan 'n troeteldier. Die doel van die studie is om vas te stel of daar verskille bestaan in die kwaliteit van lewe tussen eienaars van troeteldiere en individue wat nie 'n troeteldiere besit nie.

2. PROSEDURES

Indien u inwillig om aan die studie deel te neem, vra ons dat u die volgende moet doen:

- Complete a demographic questionnaire 'n biografiese vraelys te voltooi
- Die Lexington-Skaal vir Gehegtheid aan Troeteldiere te voltooi
- Die Wêreld Gesondheid Organisaie Kwaliteit van Lewe Assessring te voltooi

Die bogenoemde vraelyste sal nie langer as 6 minute neem om te voltooi te word. Gee asseblief voltooië vraelyste vir die navorser.

3. MOONTLIKE RISKO'S EN ONGEMAKLIKHEID

Daar is slegs minimale of lae risiko verbonde aan jou deelneming aan hierdie studie. Sekere vrae in die bogenoemde vraelyste is van 'n persoonlike aard en kan moontlike ongemak veroorsaak. Indien u ongemaklik voel oor die onderwerpe wat bespreek word in die vraelyste, kan u die Universiteit Stellenbosch se Sentrum vir Studentvoorligting en –ontwikkeling (SSVO) kontak.

Die SSVO kan by (021) 808 4994 gekontak word vir terapie en persoonlike ontwikkeling en hul 24-uur krisis diens kan gekontak word by 0825570880. Hul perseel/kantoor is geleë te Victoriastraat 37, Stellenbosch. Die SSVO se berading dienste is gratis vir student. As u op enige stadium nie meer wil deelneem aan die studie nie, kan u deelname onmiddelik beëindig.

4. MOONTLIKE VOORDELE VIR PROEFPERSONE EN/OF VIR DIE SAMELEWING

Daar is geen direkte voordele aan u se deelname aan hierdie studie nie, u sal egter 'n belangrike bydrae maak tot navorsing in hierdie veld wat van baat kan wees aan andere in die toekoms.

5. VERGOEDING VIR DEELNAME

U sal nie betaal word om deel te neem aan hierdie studie nie, maar alle vraelyste en materiaal om die vraelyste te voltooi sal voorsien word teen geen koste aan u.

Appendix F (vevolg)

6. VERTROULIKHEID

U deelname aan hierdie studies al as vertroulik hanteer word, om u identiteit en anoimiteit van wat u verskaf te beskerm, sal geen name of ander persoonlike inligting gebruik word op enige van die van die vraelyste nie. Engie inligting wat deur middle van die navorsing verkry word en wat met u in verband gebring kan word, sal vertroulik bly en nie aan ekstrene partye wat nie verwant is aan die studie bekend gemaak word nie. Alle voltooide vraelyste sal slegs deur die navorser hanteer word en geen ander partye sal toegang hê tot die vraelyste nie. As die resultate van die studie gepubliseer word, sal u identiteit derhalwe beskerm wees.

7. DEELNAME EN ONTTREKING

U kan self besluit of u aan die studie wil deelneem of nie. Indien u inwillig om aan die studiedeel te neem, kan u te eniger tyd daaraan onttrek sonder enige nadelige gevolge. U kan ook weier om op bepaalde vrae te antwoord, maar steeds aan die studie deelneem. Die ondersoeker kan u aan die studie onttrek indien omstandighede dit genoodsaak.

8. INDETFIKASIE VAN ONDERSOEKERS

Indien u enige vrae of besorgheid omtrent die navorsing het, staan dit u vry om in verbinding te tree met Michelle Gerber (die navorser) by 16177436@sun.ac.za of Dr. M.C Le Roux by mclr@sun.ac.za.

9. REGTE VAN PROEFPERSONE

U kan te enige tyd onttrek en u deelname beëindig, sonder enige nadelige gevolge vir u. Deur deel te neem aan die navorsing doen u geensins afstand van enige wetlike regte, eise of regsmiddel nie. Indien u vrae het oor u regte as proefpersoon by navorsing, skakel met Me Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] van die Afdeling Navorsingsontwikkeling.

VERKLARING DEUR PROEFPERSOON OF SY/HAAR REGSVERTREENWOORDIGER

Die bostaande inligting is aan my, die deelnemer, gegee en verduidelik deur Michelle Gerber in Afrikaans en ek (die deelnemer) is die taal magtig of dit is bevredigend vir my vertaal. Ek is die geleentheid gebied om vrae te stel en my vrae is tot my bevrediging beantwoord.

Ek willig hiermee vrywiling in om deel te neem aan die studie. 'n Afskrif van hierdie vorm is aan my gegee.

Naam van deelnemer

Handtekening van deelnemer

Datum

VERKLARING DEUR ONDERSOEKER

Ek verklaar dat ek die inligting in hierdie dokument vervat verduidelik het. [Hy/Sy] is aangemoedig en oorgenoeg tyd gegee om vrae aan my te stel. Die gesprek is in Afrikaans gevoer

Hantekening van ondersoeker

Datum