THE RELATIONSHIP BETWEEN ANXIETY SYMPTOMS AND BEHAVIOURAL INHIBITION IN YOUNG SOUTH AFRICAN CHILDREN

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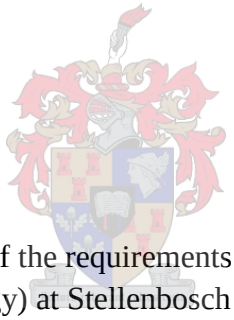

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DECLARATION

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ABSTRACT

Childhood fears and anxiety are considered to be common and part of typical child development. In some cases, however, these fears can be regarded as a serious psychiatric problem which may have a major influence on children's functioning. Anxiety disorders are classified as the most common psychiatric disorders among adults and children in the international as well as the South African context. Although research on anxiety in adults and older children has received much attention, research regarding anxiety among young children has been neglected. Anxiety symptoms in young children often go unnoticed and therefore these children are not referred for treatment in time, causing the anxiety to have a major impact on their lives. In order to reduce the possible effect of anxiety on children's lives, children who are vulnerable to the development of anxiety have to be identified at a young age so that early intervention and prevention programmes can be implemented.

Behavioural inhibition or shyness in early childhood has been identified as a risk factor for the development of anxiety symptoms. These symptoms may persist into adolescence and adulthood if not addressed timeously. The association between anxiety and behavioural inhibition has been widely researched internationally. However, as far as could be ascertained, no studies in this regard have been conducted within the South African context.

With this in mind, the present study aimed to explore the relationship between anxiety symptoms and behavioural inhibition in a sample of young South African children.

A cross-sectional research design was employed and data were collected quantitatively. The data for the research were obtained from parents and teachers who reported on the anxiety symptoms and behavioural inhibition in a group of 107 young South African children, divided into two age groups—2- to 3-year-olds and 4- to 6-year-olds—by means of two

questionnaires, the Revised Preschool Anxiety Scale (PAS-R) and the Behavioral Inhibition Questionnaire (BIQ).

Results of the PAS-R and BIQ scores indicated that there was a positive relationship between anxiety symptoms and behavioural inhibition in young South African children, as reported by both the parents and the teachers. Teacher reports, more so than parent reports indicated a strong relationship between anxiety symptoms and behavioural inhibition. No significant gender differences were found with regard to either anxiety symptoms or behavioural inhibition. Parent reports did not indicate significant age differences regarding anxiety symptoms but teacher reports did. Teachers reported the older group of 4- to 6-year-old children to have higher scores on the Generalized anxiety subscale than the younger group of 2- to 3-year-olds. Lastly, no significant age differences were found with regard to behavioural inhibition according to either the parents or the teachers.

In conclusion, this study makes an important contribution to the current literature and also for future studies that would be conducted in this regard.

OPSOMMING

Angs en vrese tydens die kinderjare word beskou as algemeen en deel van enige kind se ontwikkeling. In sommige gevalle kan hierdie vrese egter ŉ psigiatriese probleem wees wat ŉ groot invloed op ŉ kind se funksionering kan hê. Angsversteurings word geklassifiseer as die mees algemene psigiatriese versteurings onder volwassenes en kinders, sowel internasionaal as in Suid-Afrika. Navorsing oor angssimptome by volwassenes en ouer kinders is meer algemeen en het reeds heelwat aandag geniet, maar wêreldwyd is weinig navorsing in verband met angs onder jonger kinders gedoen. Omdat angssimptome by jong kinders dikwels nie raakgesien word nie, word hulle ook nie betyds verwys vir behandeling nie en dan kan die angssimptome ŉ groot impak op die lewens van hierdie kinders hê. Om die effek van angs op kinders se lewens te verminder, is dit noodsaaklik om kinders wat vatbaar is vir die ontwikkeling van angssimptome reeds op ŉ jong ouderdom te identifiseer sodat vroeë intervensie kan plaasvind en voorkomingsprogramme geïmplimenteer kan word.

Daar is bevind dat gedragsinhibisie of skaamheid in die vroeë kinderjare ŉ risikofaktor vir die ontwikkeling van angssimptome kan wees wat dan kan voortduur tot adolessensie en selfs tot in volwassenheid as dit nie betyds aangespreek word nie. Die verband tussen angs en gedragsinhibisie is wyd nagevors in die internasionale konteks, maar sover as wat vasgestel kon word, is geen studies in hierdie verband in Suid-Afrika gedoen nie.

Teen hierdie agtergrond is met die huidige studie gepoog om die verband tussen angssimptome en gedragsinhibisie by ŉ groep jong Suid Afrikaanse kinders te ondersoek.

ŉ Deursnee-ontwerp is gebruik en data is kwantitatief ingesamel deurdat die ouers en onderwysers van die kinders twee vraelyste moes voltooi oor die angssimptome en gedragsinhibisies van die betrokke kinders. Die twee vraelyste wat vir die doel gebruik is, was die Voorskoolse Angsskaal (PAS-R) en die Gedragsinhibisie Vraelys (BIQ). Die groep het

bestaan uit 107 Suid-Afrikaanse kinders wat in twee groepe verdeel is volgens hul ouderdomme, naamlik 2- tot 3-jariges en 4- to 6-jariges.

Die resultate van die PAS-R en die BIQ het aangedui dat daar ŉ positiewe verband is tussen angssimptome en gedragsinhibisie by jong Suid-Afrikaanse kinders volgens die ouer- en onderwyserverslae. Tog het die verslae van die onderwysers ŉ sterker verband tussen angssimptome en gedragsinhibisie aangetoon as die van die ouers. Volgens beide ouer- en onderwyserverslae is geen beduidende geslagsverskille gevind met betrekking tot angssimptome en gedragsinhibisie nie. Daar is ook geen beduidende ouderdomsverskille gevind vir angssimptome volgens ouerverslae nie. Daar is egter ŉ beduidende oudersdomsverskil gevind ten opsigte van angssimptome volgens die onderwysers se verslae. Die onderwysers se verslae het getoon dat die ouer groep kinders, die 4- tot 6-jariges, hoër tellings op die subskaal Veralgemeende angs as die jonger kinders ervaar het. Volgens die verslae van beide die ouers en onderwysers was daar geen beduidende ouderdomsverskille ten opsigte van gedragsinhibisie nie.

Ten slotte, hierdie studie maak ‘n belangrike bydrae tot die huidige literatuur asook tot toekomstige studies wat uitgevoer sal word in hierdie verband.

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DEDICATION

This thesis is dedicated to my parents, Cloete and Marie Wege. Thank you for providing me with the opportunity to study, for always believing in me and most of all for all your love and unending support.

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CHAPTER 1

INTRODUCTION, MOTIVATION AND AIMS OF THE STUDY

Chapter 1 consists of a general introduction to the present study, the key concepts used in the study as well as the motivation for the research. Thereafter, the research problem, aims and objectives of the study are stated. The chapter concludes with the outline of the thesis.

1.1 Introduction

Anxiety disorders are increasingly being recognized as a common psychiatric problem among adults and children worldwide (Muris & Broeren, 2009). In the United States of America a national comorbidity study showed that 28.8 % of people in an adult community sample met the DSM-IV criteria of lifetime prevalence for an anxiety disorder, according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) (Kessler, Berglund et al., 2005) and a 12-month prevalence of 18.1% (Kessler, Chiu, Demler, & Walters, 2005). In a nationally representative study among adults in the New Zealand Mental Health Survey it was also found that anxiety disorders were the most prevalent group of disorders, with 14.8% of the people in the sample exhibiting symptoms of an anxiety disorder (Wells et al., 2006).

Similarly, in the South African Stress and Health (SASH) study, anxiety disorders were reported to be the most prevalent class of disorders (Stein et al., 2008; Williams et al., 2008) with 15.8% of people among a nationally representative sample of 4 351 adults experiencing anxiety problems (Stein et al., 2008). According to Herman et al. (2009) anxiety disorders were not only the most prevalent 12-month and lifetime disorder in general in South Africa, compared to other countries, but they also appeared to be among the highest incidences of psychiatric disorders in the Western Cape Province specifically.

Childhood anxiety disorders were also found to be one of the most frequently occurring psychiatric disorders among children and adolescents (Cartwright-Hatton, Mc Nicol, & Doubleday, 2006; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Rapee, Schniering, & Hudson, 2009). This is supported by results of a longitudinal study with 1420 children in the conducted by Costello et al. (2003). These results suggested 9.9 % of children would receive a diagnosis of an anxiety disorder by the age of 16 years.

The prevalence of anxiety symptoms in South African children was also found to be quite high (Burkhardt, Loxton, & Muris, 2003; Muris et al., 2006; Muris, Schmidt, Engelbrecht, & Perold, 2002), especially among children from African and Coloured communities (Muris et al., 2002). Compared to children in Western countries, for example Dutch children (e.g, Broeren & Muris, 2008), South African children showed higher levels of anxiety symptoms (Burkhardt et al., 2003; Muris et al., 2002; Muris et al., 2006).

Although childhood anxiety disorders are considered to be a serious psychiatric problem (Muris & Broeren, 2009), it should be noted that the experience of normal fears and anxiety is quite common during childhood and considered to be part of typical child development (Gullone, 2000; Last, 2006; Rockhill et al., 2010). These childhood fears and anxiety are usually only temporary (Cartwright-Hatton et al., 2006). However, in some cases “normal” childhood fears and anxiety have the potential to develop into an anxiety disorder (Cartwright-Hatton et al., 2006; Last, 2006). The development of anxiety problems during childhood is problematic, because anxiety has a large impact on child development (Rapee et al., 2009) and can be just as debilitating as any other psychiatric disorder, for example depression (Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001).

Research on anxiety disorders in adults and children has been of great interest over the past 25 years (Boschen 2008; Muris & Broeren, 2009). Most researchers seemed to have focussed on

older children and adolescents (e.g., Costello et al., 2003), whereas anxiety disorders in preschool children have received much less attention (Cartwright-Hatton et al., 2006; Egger & Angold, 2006; Eley et al., 2003). It was not until recently that researchers began to recognize preschool anxiety disorders to be very similar to anxiety disorders in adolescent children, and thus reflect subtypes of anxiety disorders which are comparable to the DSM–IV classification system (Egger & Angold, 2006; Spence, Rapee, Mc Donlad, & Ingram, 2001).

South African research on fear and anxiety in South African youths also focused on older children and adolescents. For example, Burkhardt et al. (2003) studied 9–13 year old children, Muris, Du Plessis and Loxton (2008) focussed on the 10–14 year old children, and Muris et al. (2006) did their research with children and adolescents between 8 and 18 years old. Loxton (2009) confirmed the lack of, and expressed the need for, research regarding anxiety in young children within the South African context, aimed at working preventatively.

Given the difficulties encountered in research with such a young population group, it is understandable that research on anxiety in young children has been neglected (Edwards, Rapee, Kennedy, & Spence, 2010). Another explanation for the lack of research might be that children with anxiety problems are often overlooked (Donavan & Spence, 2000; Tomb & Hunter, 2004). The reason for this is the internalizing nature of anxiety disorders (Tomb & Hunter, 2004) as well as the fact that young children have not yet developed the ability to communicate their symptoms (Warren, Umylny, Aron, & Simmens, 2006). Consequently, by the time treatment for anxiety is sought, it is usually long after the onset of the problem and as a result children live with the burdens associated with anxiety disorders (Rapee, 2002; Thompson, Hunt, & Issakidis, 2004).

The scarcity of research regarding anxiety in young children is very disappointing according to Edwards et al. (2010), especially since it is important to intervene early so that anxiety

disorders can be prevented. More importantly, for intervention strategies to be most effective in preventing anxiety disorders across child development it should already be implemented during early childhood or the preschool years (Bienvenu & Ginsburg, 2007; Egger & Angold, 2006; Hirschfeld-Becker et al., 2008).

Hirschfeld-Becker et al. (2008) stressed the importance of early intervention for children with anxiety problems. Early intervention has the potential not only to reduce the burdensome symptoms of anxiety (Bienevu & Ginsburg, 2007), but also to change the course of anxiety disorders (Hirsfeld-Becker & Biederman, 2002; Rapee, 2002) and possibly even prevent anxiety disorders from developing (Craske & Zucker, 2002).

For selective intervention strategies to be introduced successfully, it is necessary to first identify the risk factors which contribute to the development of anxiety symptoms in children (Craske & Zucker, 2002; Rapee, Kennedy, Ingram, Edwards & Sweeney, 2005).

One factor that has been recognized for the role it plays in the development of anxiety disorders is the temperament style behavioural inhibition (Hudson, Dodd, & Bovopoulos, 2011; Rapee et al., 2009; Vreeke et al., 2012). Approximately 15% to 20 % of children are considered behaviourally inhibited during the early childhood stage (Chronis- Tuscano et al., 2009; Fox, Henderson, Marshall, Nichols, & Ghera, 2005). According to Vreeke et al. (2012) behavioural inhibition is an important construct for identifying vulnerable, anxious children at an early stage during their development. Behavioural inhibition is a temperamental trait that refers to the tendency to react with extreme shyness and withdrawal to new or unfamiliar objects, situations and people (Kagan, Reznick, & Snidman, 1988).

The association between anxiety and behavioural inhibition has been widely researched internationally (e.g., Biederman et al., 2001; Chronis- Tuscano et al., 2009; Hirsfeld-Becker et

al., 2007; Muris, Van Brakel, Arntz, & Schouten, 2011; Prior, Smart, Sanson, & Oberklaid, 2000; Vreeke et al., 2012).

As far as the researcher could determine, no studies regarding the association between anxiety and behavioural inhibition have been conducted in the South African context. To address this knowledge gap, the aim of this study was to investigate the relationship between anxiety symptoms and behavioural inhibition in a group of young South African children, between the ages of 2 and 6, by means of parent and teacher reports.

1.2. Key concepts

In the following section the key concepts and terms used in the study will be defined.

1.2.1 Childhood anxiety symptoms

Although anxiety is a normal emotion during childhood (Mash & Wolfe, 2010) it is mostly associated with intense negative feelings of tension, fear, apprehension and worry (Barlow 2002; Gregory & Eley, 2007; Muris, 2007). These feelings may be due to a specific experience, for instance in the case of danger, or an experience which is only perceived as threatening (Gregory & Eley, 2007). Intense feelings of stress and worry may therefore be present with or without the actual experience of a threat (Muris, 2007).

Barlow (2002) distinguished between normal anxiety and an anxiety disorder. Normal anxiety differs from an anxiety disorder in terms of intensity and duration. Normal anxiety would be characterized by the symptoms of anxiety (i.e. fear, tension, apprehension and worry) although it would only last temporarily and mostly in the presence of fearful or stressful situations. Anxiety is classified as a disorder, when the symptoms of anxiety are persistent and severe enough to cause disruption and impairment (Barlow 2002). This coincides with

Craske's (2003) explanation of an anxiety disorder as continuous symptoms of anxiety which have the ability to cause impairment and interfere with the functioning of the child.

Individuals with continuously high levels of anxiety symptoms might meet the DSM-IV criteria for an anxiety disorder. Craske (2003) explained that anxiety disorders share the same basis and is characterized by fear, worry and avoidant behaviours, but the DSM-IV categorizes anxiety disorders in terms of the object causing the feelings of anxiety.

Anxiety in young children is comparable to that of older children (Broeren & Muris, 2008; Egger & Angold, 2006). According to Spence et al. (2001) anxiety in young children cluster into categories that are similar to those of the anxiety disorders described in the DSM-IV (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000).

For the sake of clarity, the terms 'anxiety' and 'anxiety symptoms' will be used interchangeably throughout the present study, and will refer to the symptoms of anxiety as it is described above. Edwards et al. (2010) and Spence et al. (2001) used 'anxiety' and 'anxiety symptoms' interchangeably.

1.2.2 Behavioural inhibition

The most commonly used definition of behavioural inhibition is that of Kagan et al. (1988) who defined it as a temperamental trait that is characterised by a reaction of extreme shyness, fearfulness and withdrawal to unknown objects, when in new situations or when meeting unfamiliar people (e.g., Bishop, Spence, & McDonald, 2003; Broeren & Muris, 2010; Vreeke et al., 2012). For the sake of clarity, the terms 'behavioural inhibition', 'shyness' and 'inhibited' or 'fearful temperament' will be used interchangeably throughout the study.

1.2.3 Young children within the South African context

For the purposes of this study, a distinction is made between two age groups. Although the concept of young children refers to children in their early years, also known as the early childhood stage of approximately 2 to 6 years old (Berger, 2001), the two groups were divided according to two developmentally different stages—toddlerhood and early school age/ preschool (Botha, Van Ede, Louw, Louw & Ferns, 1998). This division was based on the classification of Newman and Newman (2009) who referred to the period from 2 to 3 years old as toddlerhood, and the period from 4 to 6 years old as early school age/ preschool. The term 'young children' will be used interchangeably with the terms 'toddlers' and 'preschool children' throughout the study to refer to the group of children between the ages of 2 years old and 6 years old.

Children are the most vulnerable members in any society and are dependent on others such as their parents, families and the state to be protected and cared for (UNICEF, 2007). The current Minister of the Department for Women, Children and People with Disabilities, Lulu Xingwana, stated in a report on A Review of Equity and Child Rights undertaken by the South African Human Rights commission and UNICEF South Africa that every child deserves to be loved, protected, and cared for. All children should be healthy, listened to, have the opportunity to grow, learn and to develop their full potential. She further stated it is important to be committed in adhering to the rights of children to create a country where children can feel safe, cared for and be protected (South African Human Rights Commission, SAHRC & UNICEF, 2011). The South African Constitution**,** therefore**,** regards children's needs as a main priority. The ideal is the implementation of children's rights to ensure equality for all children so that they would have equal opportunities and enjoy life, as stated by the current South African Human Rights Commissioner, Lindiwe Mokate (SAHRC & UNICEF, 2011).

The reality is that South Africa is faced with problems such as very high rates of crime and violence, extreme poverty, unemployment and poor health (Coovida et al., 2009; Demombynes & Özler; 2005; Özler, 2007; Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009). Unfortunately it is in this context that South African children are raised. There are still many South African children who are denied their basic rights**,** who live in poverty and who do not have proper resources (SAHRC & UNICEF, 2011).

According to Statistics South Africa's mid-year population estimates in 2010, the population structure of South Africa is skewed towards children, as 18 million (37%) of the total South African population are children under the age of 18 and approximately 6 million children between the ages of 2 and 6 years old (in SAHRC & UNICEF, 2011). It therefore seems wise to invest in the welfare of children as they are the future of our country (SAHRC &UNICEF, 2011). Loxton (2004) said, "the time spent in developing a greater understanding and appreciation of this special population should be a worthwhile investment for the future" (p.9).

1.3 Motivation for the study

The motivation for the present study originated from the need for research regarding anxiety symptoms and behavioural inhibition in young South African children to gain more insight into this under-researched phenomenon. The study sought to use the information gathered to contribute to the current South African literature regarding this topic and to form a basis for further research to be done in this regard.

The social relevance of the study is in line with the convention on the rights of children, (UNICEF, 2013) in which children's development is of high priority. Children are vulnerable and dependent on adults, therefore all adults must regard children's best interests as their primary concern to ensure that children's rights are adhered to and to ensure that all children

have equal opportunities (SAHRC & UNICEF, 2011). All children have the right to special care and support and to health and safety so that they can develop their potential and live quality lives.

Behaviourally inhibited or shy children are more at risk for the development of an anxiety disorder than their uninhibited peers (Muris, 2007; Muris et al., 2011; Vreeke et al., 2012). It is therefore very important to identify children at risk to implement timeous intervention (Edwards et al., 2010) and thereby reduce the burdensome symptoms of anxiety or prevent the development of anxiety disorders (Hirschfeld-Becker et al., 2008; Kennedy, Rapee, & Edwards, 2009).

Significant individuals in children's lives, such as parents and teachers, are not always aware of children with anxiety problems due to the internalizing nature of anxiety (Donovan & Spence, 2000; Tomb & Hunter, 2004). Informing parents and teachers about anxiety in young children would therefore be necessary (Tomb & Hunter, 2004), especially as their involvement is required in intervention programmes aimed at reducing the number of children with anxiety problems (Hirschfeld-Becker et al., 2008; Tomb & Hunter, 2004).

By using parent- and teacher reports this study attempted to create awareness among the participating adults by providing them with feedback of the results obtained from their reports. An advantage of using parent- and teacher reports is that children can be observed across the different developmental stages, in different situations and over a long period of time (Fonseca & Perrin, 2011). It can therefore contribute to the knowledge regarding anxiety symptoms and behavioural inhibition in young South African children. This information can be communicated back to the community and thereby create an awareness of acting preventatively.

This study intended to be the basis of a longitudinal study in which the group of children, currently 2- to 6 years old, would be followed up during different developmental stages by means of the similar parent-and teacher reports. In doing so, the knowledge gained from this study would add to the development of a future anxiety prevention programme aimed at promoting quality of life and psychological well-being in young South African children.

1.4 The research problem, aims and objectives of the study

As far as the researcher could ascertain, no studies regarding anxiety symptoms and behavioural inhibition in young children have been conducted in South Africa.

This study sought to expand the current literature base on the relationship between anxiety symptoms and behavioural inhibition in young South African children

The aims of the study were:

- to investigate whether there was a relationship between anxiety symptoms and behavioural inhibition in a group of young South African children as reported by their parents and teachers
- to investigate the relationship between anxiety symptoms and behavioural inhibition in a group of young South African children with respect to the predictor variables age and gender, as reported by their parents and teachers.

More specifically, the study sought to achieve the following objectives:

- to determine whether there was a significant correlation between anxiety symptoms and behavioural inhibition according to parent reports
- to determine whether there was a significant correlation between anxiety symptoms and behavioural inhibition according to teacher reports

- to determine whether there was a significant correlation between PAS-R scores derived from parent reports and PAS-R scores derived from teacher reports
- to determine whether there was a significant correlation between BIQ scores derived from parent reports and BIQ scores derived from teacher reports
- to determine whether there were significant differences in PAS-R scores pertaining to gender as reported by parents and teachers respectively
- to determine whether there were a significant differences in PAS-R scores pertaining to age as reported by parents and teachers respectively
- to determine whether there were significant differences in BIQ scores pertaining to gender as reported by parents and teachers respectively
- to determine whether there were significant differences in BIQ scores pertaining to age as reported by parents and teachers respectively

1.5 Outline of the thesis

Chapter 1 provides a general introduction regarding anxiety symptoms and behavioural inhibition as well as the key terms used in the present study. The motivation for conducting the research based on the scientific and social relevancy is outlined as well as the research problem, aims and objectives of the study. Chapter 1 concludes with an outline of the thesis.

An overview of the literature concerning anxiety symptoms and behavioural inhibition follows in Chapter 2.

The relevant theories pertaining to anxiety and behavioural inhibition in children are discussed in Chapter 3.

In Chapter 4 the methodology used to obtain and analyse data for the research is discussed.

In Chapter 5 the results of the study regarding the relationship between anxiety symptoms and behavioural inhibition in young South African children as reported by their parents and teachers are presented systematically according to the outline of the objectives.

Chapter 6 consists of a discussion of the results of the research study.

In Chapter 7 conclusions regarding the study's results are drawn. The limitations as well as the implications of the research study are discussed. The chapter ends with recommendations that may be applicable to future research.

1.6 Chapter summary

Chapter 1 provided a general introduction to the research and the key terms used in the present study. This was followed by the motivation for the research as well as the research problem, aims and objectives of the study. The chapter ended with an outline of the thesis.

CHAPTER 2

LITERATURE REVIEW

In this chapter an overview of the relevant literature relating to the two constructs, anxiety and behavioural inhibition in young children, is provided. The discussion starts by providing an overview of each construct respectively, followed by the measuring instruments and a discussion of the two constructs with regards to gender and age. The chapter concludes with a discussion of the relationship between anxiety and behavioural inhibition in young children by referring to the relevant literature on the subject.

2.1 Anxiety in young children

Anxiety and fear are two closely related emotions and it is therefore important to distinguish between them (Mash & Wolfe, 2010). Although the terms 'fear' and 'anxiety' are often used synonymously in literature, there are still important differences between them, according to Barlow (2002). Fear is different from anxiety as it is a "present-oriented" emotion, whereas anxiety is a "future-oriented" emotion (Mash & Wolfe, 2010, p. 194). Fear is a reaction to a current situation or to specific stimuli in which danger or a real threat is perceived. It results in avoidance and feelings of discomfort (Barlow, 2002; Muris, 2007). Anxiety, on the other hand, is characterized by intense feelings of worry about and fear of specific stimuli or future events that may or may not present a real threat (Barlow, 2002). A person can therefore experience symptoms of anxiety without the presence of an actual threat (Muris, 2007).

The experience of fear and anxiety during childhood is considered to be a common phenomenon (Mash & Wolfe, 2010) and part of typical child development (Muris, Merckelbach, Mayer, & Prins, 2000). There appears to be age differences in the expression of childhood anxiety symptoms (Weems & Costa, 2005). Therefore, in agreement with Erikson's

(1968) psychosocial developmental theory, children experience different types of anxiety symptoms at different developmental stages (Mash & Wolfe, 2010; Nauta, 2005, Weems & Costa, 2005). For example, infants between 7 and 12 months develop a fear of strangers and fear of separation from caregivers develops around 12 months (Louw & Louw, 2007; Warren & Sroufe, 2004). This seems to decrease between the ages of approximately 2 to 3 years (Warren & Sroufe, 2004). Weems and Costa (2005) found that children aged 6 to 9 years had higher symptoms of separation anxiety whereas older children, aged 14 to 17, had higher symptoms of social anxiety.

Childhood anxiety symptoms are usually not severe and only last temporarily (Cartwright-Hatton et al., 2006). However, normal childhood anxiety becomes a problem when the anxiety symptoms become severe enough to interfere with the child's daily functioning and occur beyond what is regarded as developmentally appropriate (Mash & Wolfe, 2010; Nauta, 2005). If untreated these early experiences of anxiety problems might continue into later childhood, adolescence and even into adulthood and have the potential to develop into anxiety disorders (Cartwright-Hatton et al., 2006).

Anxiety disorders are considered to be highly prevalent and have been found to be some of the most common psychiatric disorders among children and adolescents, with approximately 5% of children in community samples meeting the diagnostic criteria of an anxiety disorder at some point during their development (Costello et al., 2003; Rapee et al., 2009). Furthermore, childhood anxiety disorders tend to have a long-term and severe impact on the lives of children (Rapee et al., 2009).

In South African studies levels of childhood anxiety symptoms have also been found to be quite high (e.g., Burkhardt et al., 2003; Muris et al., 2006; Muris et al., 2002). South African children showed higher levels of anxiety compared to Dutch children (e.g, Broeren & Muris,

2008). However, most South African studies relating to fear and anxiety in youths focussed on older children and adolescents (e.g. Burkhardt et al., 2003; Muris et al., 2006; Muris et al., 2008). For the purposes of this study the focus will be on anxiety symptoms in young children, aged 2 to 6 years.

The manifestation of anxiety symptoms among young (preschool-aged) children were also researched internationally (Egger & Angold, 2006; Spence et al., 2001), although little is known about anxiety in children of this age group (Egger & Angold, 2006; Eley et al., 2003). According to Loxton (2009) there is a lack of research regarding anxiety in young children, especially within the South African context. Loxton (2009) conducted one of the first studies with preschool children aged 5 to 7 years old in South Africa, although her study focused on the expressed fears in this age group and not on anxiety symptoms.

Because symptoms of anxiety are often overlooked in young children and therefore not treated, it can cause anxiety symptoms to persist into later childhood or adulthood (Cartwright-Hatton et al., 2006; Tomb & Hunter, 2004). Many children are referred for treatment long after the onset of the problem, causing them to live with the debilitating effects of anxiety disorders (Rapee, 2002; Thompson et al., 2004). It is therefore important to identify children with anxiety problems early. Intervention and prevention programmes can then be implemented to reduce the symptoms of anxiety and to prevent the possible development of anxiety disorders (Kennedy et al., 2009; Rapee et al., 2005). According to Vreeke et al. (2012) behavioural inhibition or shyness in children seems to be a particularly valuable construct to identify children who are vulnerable to the development of anxiety problems. Extreme symptoms of behavioural inhibition have been recognized as a risk factor for the development of anxiety problems in children (Fox et al., 2005; Kagan et al., 1988; Muris, 2007; Muris et al., 2011; Vreeke et al., 2012).

2.1.1 Measuring anxiety in young children

Childhood anxiety and symptoms can be assessed in various manners, for example, diagnostic interviews, direct observation, children's self-reports and third-party reports, such as parent and teacher reports (Fonseca & Perrin, 2011; Nauta, 2005).

The diagnostic interview includes interviews with parents and children and is the most commonly used method for the assessment of childhood anxiety (Fonseca & Perrin, 2011; Nauta, 2005). The method of diagnostic interviews, however, has some limitations as it is considered to be a very time-consuming means of assessing anxiety in children (Nauta et al., 2004). According to Fonseca and Perrin (2011) there are some advantages in using direct observation for the assessment of childhood anxiety. With direct observation individuals are able to focus on specific behaviours and to determine which behaviours are important to target in intervention programmes. Nevertheless, there are still some aspects of childhood anxiety symptoms that are undetected during direct observation since many anxiety symptoms are of an internal nature and therefore not visible to the observers. Children's self-report measures are also a valuable method for measuring anxiety symptoms in children (Nauta, 2005) although it can be challenging to use with very young children since they find it difficult to report their state and extent of felt anxiety (Warren et al., 2006).

Questionnaires completed by third-party reporters, such as parents and teachers, are frequently used in the assessment of anxiety symptoms in children. The advantage of using parent and teacher reports of childhood anxiety is that these adults observe children across the different developmental stages, in different settings and over a long period of time (Fonseca & Perrin, 2011).

Although it is so important to identify anxiety problems early in childhood, only a few psychometric measures are specifically developed to assess anxiety symptoms, fear and worry

in very young children (Edwards et al., 2010). According to these researchers, the measures mostly used in the assessment of anxiety problems in young children address a broad overview of internalizing problems that combine depression, anxiety and withdrawal. For example, *The Children's Moods, Fears & Worries Questionnaire*, is a parent report questionnaire that is used for assessing internalizing problems in toddler and preschool children (Bayer, Sanson, & Hemphill, 2006). Also, *The Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997), a parent and teacher report questionnaire, was designed to measure broader constructs like conduct problems, emotional symptoms, hyperactivity, peer relationships and pro-social behaviour in children in the ages ranging from 4 to 16 years (Goodman, 1997). Other questionnaires were designed to measure phobic fears specifically and not anxiety symptoms in young children. *The Fear Survey Schedule for Children (preschool)* (FSSC-IIP; Bouldin & Pratt, 1998) is an example of a parent report questionnaire that measures fears in children between the ages of 3 and 8.

The Preschool Anxiety Scale (PAS; Spence et al., 2001) is the only parent report questionnaire that was specifically designed to measure anxiety symptoms in preschool-aged children of 2 to 6 years of age (Edwards et al., 2010). For this reason the revised version of the Preschool Anxiety Scale (PAS-R; Edwards et al., 2010) was used in the present study—by means of parent and teacher reports—to measure anxiety symptoms in the group of children between the ages of 2 and 6.

There is a possibility of differences between the observations of informants in third-party reports of anxiety symptoms in children (e.g. DiBartollo & Grills, 2006; Edwards et al., 2010, Spence et al., 2001). Edwards et al. (2010) and Spence et al. (2001) used the PAS and found mothers reported more anxiety symptoms in their children than fathers. According to De Los Reyes and Kazdin (2005), it is not uncommon to find differences between the reports of different informants in childhood psychopathology, especially with regard to anxiety, because

the symptoms are not easily observed in children. Informants therefore interpret children's behaviour based on their own judgement, which leads to differences in reports on the same behaviour in children (Kagan, Snidman, & Arcus, 1992).

2.1.2 Anxiety in young children and gender as a variable

Spence et al. (2001) found no significant gender differences on either the total scale or the subscales of the Preschool Anxiety Scale (PAS) in a sample of 755 Australian preschool children between the ages of 3 and 5 of which the majority were from a Caucasian ethnic group. This is consistent with Egger and Angold (2006) who reported no significant gender differences in either overall anxiety or a specific anxiety disorder in preschool children of 2 to 5 years of age. The same was found by Edwards et al. (2010) in a sample of 764 Australian children of 3 to 5 years old. The only gender difference found in this study was according to the mother reports on the PAS-R. According to the mothers the girls had higher rates of specific fears than the boys.

In contrast with these findings, studies with older children revealed girls had higher levels of anxiety symptoms than boys. In a study by Muris, Dreessen, Bögels, Weckx, and Van Melick (2004) with a group of older Dutch children and adolescents, aged 7 to 17, the girls had significantly higher levels of anxiety than the boys. Other researchers also reported significantly higher levels of anxiety in older and adolescent girls than in boys of the same age group (Costello et al., 2003; Prior et al., 2000; Rapee et al., 2009). Consistent with this, Muris et al. (2006) found higher levels of anxiety symptoms among South African girls between the ages of 8 and 18 years.

2.1.3 Anxiety in young children and age as a variable

Significant differences were found between age groups, specifically according to mother reports. According to the mother reports 3-year-old children displayed higher levels of anxiety symptoms on the total scale as well as on the subscales of the PAS in comparison to 4- and 5-year-old children (Spence et al., 2001). Edwards et al. (2010) reported no significant differences with regards to age and anxiety in a sample of children aged 3 to 5 years but, based on father reports, found a significant effect on the generalized anxiety scale.

2.2 Behavioural inhibition in young children

Behavioural inhibition is a temperamental trait which refers to young children's initial reactions to unfamiliarity. This may include unfamiliar toys, places or people (Hirshfeld-Becker et al., 2007; Kagan et al., 1988). When confronted with novel situations or objects or when in the presence of unfamiliar people young children usually withdraw from the unfamiliar situation. They tend to be quieter around unfamiliar people (Kagan et al., 1988) and they seek the close proximity of their caregivers (Kagan, Reznick, Clarke, Sindman, & Garcia-Coll, 1984). Children with this typical response to novelty are referred to as behaviourally inhibited or shy children (Kagan et al., 1984). Behavioural inhibition can thus also refer to shyness in children (Coplan, Prakash, O'Neil, & Armer, 2004), especially since there appears to be an overlap between these two constructs (Rubin, Coplan, & Bowker, 2009).

Behavioural inhibition is relatively stable throughout childhood and adolescence (Degnan & Fox, 2007; Fox, Henderson, Rubin, Calkins, & Schmidt, 2001). It seems inhibited children have a heritable temperament and differ from uninhibited children in terms of their unique physiology (Fox et al., 2005; Kagan et al., 1988; Schmidt et al., 1997).

According to Kagan (1997) most children are relatively shy or self-conscious in unfamiliar settings or in the presence of strangers—whether these are adults or peers. Approximately 10% to 15% of children are considered to be very shy or highly inhibited (Kagan, 1997; Kagan et al., 1984). Extremely shy or inhibited children tend to avoid social interactions and they withdraw from situations that involve peer interaction (Kagan, 1997). They would watch other children rather than join in their play (Coplan et al., 2004; Coplan, De Bow, Schneider, & Graham, 2009). These children wish to stay close to their parents (Kagan, 1997) and usually spend more time with their teachers at school (Coplan et al., 2004). In the face of novel situations shy children often experience anxiety symptoms to such a degree that it causes them to struggle in social interactions with adults and peers and although they might have a desire for social interaction, they tend to avoid these unfamiliar situations because of their anxiety symptoms (Coplan, Arbeau, & Armer, 2008).

Shy children are more prone than their non-shy peers to experience problems with adjusting to school settings. They may have scholastic difficulties and experience peer rejection which may result in school refusal (Coplan, Closson, & Arbeau, 2007). Socio-emotional problems such as low self-esteem and particularly internalizing problems such as loneliness, depression and anxiety are other problems related to shyness in childhood (Coplan et al., 2004; Coplan et al., 2008). The experience of shyness in early childhood is considered to be normal and typical of young children. It is the extremely shy or inhibited child who is vulnerable to the development of adjustment problems (Volbrecht & Goldsmith, 2010).

More importantly, children who are considered extremely inhibited or shy during early childhood are also—more than their uninhibited peers—prone to anxiety disorders in later childhood (Fox et al., 2005; Muris, 2007; Rapee & Coplan, 2010; Volbrecht & Goldsmith, 2010).

2.2.1 Measuring behavioural inhibition in young children

Behavioural inhibition has been measured in various manners by different researchers and different methods of assessment have been emphasized (Bishop et al., 2003). The most commonly used measures for behavioural inhibition in young children have been laboratory procedures and behavioural observations (Broeren & Muris, 2010; Van Brakel, Muris & Bögels, 2004). In these laboratory procedures children are exposed to social (e.g. unfamiliar peer or adult) and non-social (e.g. new computer game) situations while observations regarding their behaviour are made. The children's reactions in these situations, for example seeking closeness to parents or a reluctance to talk, are then considered to be an indication of whether a child has an inhibited temperament or not (Broeren & Muris, 2010; Vreeke et al., 2012). Studies that have employed laboratory procedures in the assessment of behavioural inhibition are those of Biederman et al. (2001), Garcia-Coll, Kagan and Reznick (1984), Hirshfeld-Becker et al. (2007), Kagan et al. (1984), and Shamir- Essakow, Ungerer and Rapee (2005).

Every method of assessing behavioural inhibition has its advantages and disadvantages with regard to reliability, validity, cost and feasibility (Bishop et al., 2003). Laboratory observations are considered to be a valuable method in order to gain knowledge regarding behavioural inhibition. It is, however, a time-consuming method of measuring behavioural inhibition in children which is a disadvantage, because researchers want to identify young children who are at risk for the development of an anxiety disorder as early as possible (Van Brakel et al., 2004; Vreeke et al., 2012).

It is for this reason that other measures have been developed to measure behavioural inhibition in children, like the Behavioural Inhibition Scale (BIS) (Van Brakel & Muris, 2006). Although the BIS is thought to be a valid and reliable scale for measuring behavioural

inhibition as well as a good alternative for laboratory procedures, it may put too much emphasis on the social aspect of behavioural inhibition. The Behavioral Inhibition Questionnaire (BIQ) (Bishop et al., 2003) is therefore an improvement since it measures both the social and non-social aspects of behavioural inhibition. Several studies have examined the psychometric properties of the BIQ and found positive results (Bishop et al., 2003; Broeren & Muris, 2010; Kim et al., 2011). It is also considered to be especially valuable in measuring behavioural inhibition in preschool children, because it is a parent-report measure (Broeren & Muris, 2010; Van Brakel & Muris, 2006; Vreeke et al., 2012).

Parent reports are considered a valuable method to obtain data regarding behavioural inhibition since they are faster than laboratory observations and more economical, considering the importance of early detection (Bishop et al., 2003). Other researchers who used third-party reporting, such as parent and teacher reports, as a method of obtaining behavioural inhibition data are Chronis-Tuscano et al. (2009) and Essex, Klein, Slattery, Goldsmith and Kalin (2010).

Parents and teachers play a significant role in the lives of children (Appleton, 2008; Fox et al., 2005). Reports from parents are therefore valuable because children of this young age do not have the ability to report on their own symptoms (Warren et al., 2006). It is also valuable considering the importance of recognizing children at risk early in their development (Bishop et al., 2003; Vreeke et al., 2012).

Bishop et al. (2003) found parents and teachers can provide valid and reliable reports of behavioural inhibition in young children. These researchers examined the reliability and validity of parent and teacher reports on behavioural inhibition in 3- to 5-year-old children. Parent and teacher reports were compared with other methods of observing social behaviours shown to be suggestive of behavioural inhibition and used to categorize children into

inhibited and uninhibited groups (Kagan et al., 1984). Van Brakel et al. (2004) also studied the relationship between behavioural observations and third-party reports of behavioural inhibition. It was conducted by means of the BIS and a moderately significant relationship was found between the behavioural observation index and the parent and teacher reports on behavioural inhibition. Garcia-Coll et al. (1984) found significant correlations between mother and father reports on behavioural inhibition and laboratory observations of the same behaviours. Significant positive correlations were also found between mother and teacher reports on the BIQ (Bishop et al., 2003). It can therefore be concluded that both parent and teacher reports on behavioural inhibition in young children are valid and reliable.

2.2.2 Behavioural inhibition in young children and gender as a variable

Edwards (2007) found no significant gender differences on behavioural inhibition between father and teacher reports using the BIQ whereas, according to mother reports, boys scored significantly higher than girls on the BIQ subscales, public performance and separation.

Bishop et al. (2003) found significant gender differences with regard to behavioural inhibition in their study with 3- to 5-year-old children. Their results showed mothers reported girls to be more inhibited in Performance and Adult situations. There were no gender differences in any of the other subscales of the BIQ. According to father reports girls were more inhibited than boys in Adult situations and teacher reports showed that girls were more inhibited than boys in Physical situations. In their study with children and adolescents aged between 4 and 15 years, Broeren and Muris (2010) found that boys were significantly more inhibited than girls on the BIQ subscale, Performance situations. Kim et al. (2011) used parent and teacher reports on 3-year-old children and found no significant gender differences on the total scale of the BIQ. However, they reported that boys scored significantly higher on the Performance situations subscale, which is consistent with Broeren and Muris's (2010) finding, as reported

by parents and teachers. They also found parents reported boys to be significantly more inhibited than girls on the Separation subscale. Finally, girls were rated by parents to be significantly more inhibited than boys on the Physical activities subscale of the BIQ.

In their study with a large sample of 2 343 preschool children aged between 2.5 and 6 years old, Vreeke et al. (2012) found no significant differences between boys and girls on the Total scale of the BIQ-SF. Parent reports showed that boys were significantly more inhibited than girls in the Performance situations subscale of the BIQ-SF and girls scored significantly higher on the Unfamiliar adults subscale of the BIQ-SF. Teacher reports, on the other hand, showed no significant gender differences with regard to Behavioural inhibition. Rubin et al. (2009) found no significant gender differences in inhibition and shyness.

2.2.3 Behavioural inhibition in young children and age as a variable

Broeren and Muris (2010) found some significant age group differences in a sample of children between the ages of 4 and 15, divided into three different age groups namely, 4 to 7 years, 8 to 11 years and 12 to 15 years. They reported that the 12 to 15 year-old children had significantly higher scores in the BIQ subscale Performance situations that the 8 to 11-year-olds. Compared to the 4- to 7-year-old and the 8- to 11-year-old groups the 12- to 15-year-old children had significantly higher scores on the Physical challenge subscale.

2.3 The relationship between anxiety and behavioural inhibition in young children

There is a growing body of evidence suggesting childhood behavioural inhibition may be an important risk factor for the development of anxiety problems (e.g. Muris, Merckelbach, Wessel Van de Ven, 1999; Muris, Merckelbach, Schmidt, Gadet & Bogie, 2001; Muris, Meesters & Spinder, 2003; Muris et al., 2009) and social anxiety in particular (e.g Gladstone, Parker, Mitchell, Wilhelm, & Malhi, 2005; Mick & Telch, 1998; Rotge et al., 2011). These

studies, however, were conducted with adolescents (Muris et al., 1999, 2001, 2003, 2009) or adults' retrospective reports of their own childhood behavioural inhibition (Gladstone et al., 2005; Mick & Telch, 1998; Rotge et al., 2011). For the purposes of the present study the focus was on behavioural inhibition in young children as a risk factor for the development of anxiety symptoms.

Prior et al. (2000) assessed whether young children with a shy or inhibited temperament would exhibit anxiety symptoms in adolescence. In their longitudinal study a community sample of 2 443 infants had been measured across a 13-year time span until when they reached adolescence at 14 years of age. The researchers found a moderate relationship between shyness in young children—infants and preschoolers—and anxiety in later childhood. However, 42% of the children who had displayed persistent shyness or inhibition during the course of this study had anxiety problems in adolescence, as reported by both the children and their parents. These results indicated a moderate, but still clinically significant, relationship between continuing shyness in early childhood and later anxiety symptoms.

Biederman et al. (2001) investigated the association between behavioural inhibition and social anxiety disorder in children with and without behavioural inhibition by means of laboratory observations. The sample of 129 children between the ages of 2 and 6 were divided into four groups; children of parents with major depression and panic disorder, children of parents with only panic disorder and major depression respectively, and children of parents with no history of either panic disorder or depression. The children who were rated as behaviourally inhibited were compared with their behaviourally uninhibited peers. The results revealed a significant relationship between behavioural inhibition in children and a variety of anxiety disorders. Children in the behaviourally inhibited category were significantly more likely to develop social phobia, with 17% of these children meeting the criteria for social phobia in comparison with only 5% of the children in the uninhibited group meeting these criteria.

Hirshfeld-Becker et al. (2007) conducted a longitudinal study with children between the ages of 21 months and 6 years old. The sample consisted of 284 preschool children. Some were at risk of developing an anxiety disorder since their parents had panic disorder and/or major depression and some were children of parents with no history of mood or anxiety disorders. These children were firstly assessed for behavioural inhibition in the laboratory as well as by means of diagnostic interviews. The follow-up assessment was done five years later with 215 of the original sample of children. The results indicated that the behaviourally inhibited children displayed significantly higher levels of social anxiety compared to the non-inhibited children.

To examine the degree to which stable behavioural inhibition in childhood predicted the development of an anxiety disorder in adolescence, Chronis-Tuscano et al. (2009) measured children during infancy, at 4 months old, at 24 months old, at the age of 4 years and again at 7 years of age. This was done by means of mother reports and/or behavioural observations. The same sample of children was measured for psychiatric symptoms by means of semi-structured diagnostic interviews with both parents and adolescents when they reached adolescence at age between14 and 16 years. According to these researchers stable behavioural inhibition in infancy, as reported by mothers, predicted a greater risk for the development of social anxiety disorder during adolescence.

Essex et al. (2010) explored the relationship between chronic high behavioural inhibition and social anxiety disorder in a community sample of children. In their longitudinal study, 238 children were followed from birth to adolescence in Grade 9. Of these 238 children, 60 had a history of psychopathology. Mothers, teachers and the children themselves were asked to report on the children's behavioural inhibition. The findings indicated that 50% of the children with persistently high levels of behavioural inhibition received a lifetime diagnosis of social anxiety disorder, while none of the children with low behavioural inhibition received

such a diagnosis. These findings were consistent with previous research findings which had asserted that there was an existing link between behavioural inhibition in early childhood and an increased risk of developing social anxiety disorder by middle childhood.

These findings indicated that current research on the development of anxiety symptoms consistently regards behavioural inhibition as an important vulnerability factor (Muris, 2007; Vreeke et al., 2012). Behavioural inhibition as a vulnerability factor for the development of anxiety was also investigated together with other vulnerability factors, such as insecure attachment (Shamir-Essakow et al., 2005) and parenting styles and attachment (Muris et al., 2011). Shamir-Essakow et al. (2005) investigated the relationship between insecure attachment, behavioural inhibition and anxiety in at-risk preschool children between 3 and 4 years of age. The sample of preschool children was considered to be at risk for the development of an anxiety disorder as 72 of the preschoolers were behaviourally inhibited and 32 uninhibited. They found that the children with behavioural inhibition and an insecure attachment, independently of each other, had higher levels of anxiety than children without behavioural inhibition.

In a longitudinal study Muris et al. (2011) investigated the interactive effects of behavioural inhibition and other vulnerability factors, like parenting styles and attachment, in the development of anxiety problems during childhood. They examined the relationship between behavioural inhibition and social anxiety disorder, anxiety disorders in general and other psychological problems. The sample consisted of 261 children between 5 and 8 years of age who were assessed on three occasions over a 3-year period. Using information gathered by means of parent reports, the group of children were divided into two groups. One group comprised 124 children who were identified as behaviourally inhibited and the other group comprised 137 uninhibited children and served as control group. The results indicated that behavioural inhibition was a specific risk factor for the development of social anxiety

symptoms in children. However, the relationship between behavioural inhibition and other anxiety disorders was not as strong. No relationship between behavioural inhibition and other psychological symptoms was revealed. These findings indicated that behavioural inhibition tends to increase the risk of developing social anxiety symptoms.

These findings emphasized the importance of behavioural inhibition as a construct for the early identification of children who are vulnerable to the development of anxiety symptoms (Vreeke et al., 2012). The association between anxiety and behavioural inhibition in young children has been widely researched internationally. As far as could be ascertained, there has been no research of this kind done in South Africa to date. The present study therefore aimed to investigate the relationship between anxiety symptoms and behavioural inhibition in a group of young South African children.

2.4 Chapter Summary

An overview of the relevant literature regarding anxiety symptoms and behavioural inhibition in young children was provided. This included a discussion on both constructs, namely anxiety and behavioural inhibition in general. It was followed by a discussion of the two constructs in terms of measuring instruments, gender and age. The chapter concluded with a discussion about the relationship between anxiety and behavioural inhibition in young children.

CHAPTER 3

THEORETICAL FRAMEWORK

In this chapter the theoretical framework for the study is presented. There are a number of theories that propose to provide an explanation for the development of anxiety in children (Mash & Wolfe, 2010). Firstly, the contextual perspective is discussed. It provides a meta-theoretical framework for contextualising anxiety in young children as it takes into account both developmental and environmental influences. It is important to take all contributing factors into consideration when aiming to understand the developing child. This is followed by a discussion on the role that temperament or behavioural inhibition and early attachment play in contributing to the risk of developing anxiety symptoms. Lastly, two development theories, the social learning theory and the psychosocial theory, are discussed.

3.1 The contextual perspective

In the contextual perspective, child development is described with reference to the environment's influence, as well as all the different systems that have an influence on child development (Louw & Kail, 2007). The systems comprise parents, siblings, other family members, friends and teachers. These systems further include the institutions that have an influence on child development; for example schools, television, the parents' workplace and the church. All these systems together form the child's culture, which determines the context in which the child will develop, and therefore these systems have a very large influence on development throughout childhood (Louw & Kail, 2007).

Bronfenbrenner's (1977, 1979) ecological model supports the contextual view of child development (Louw & Kail, 2007). According to Bronfenbrenner (1979), human development takes place across a variety of interrelated or interconnected systems. These

interdependent systems make up the social context within which the individual lives. Nelson and Prilleltensky (2010) explained that there is an interactive relationship between an individual and the larger social context in which the individual lives. Therefore, to be able to understand an individual as a whole, that individual must be understood from within the larger social context.

In Bronfebrenner's (1979) ecological systems theory the child's social context is described as interacting dimensions which are nested together, continuously influencing one another. These interacting dimensions are portrayed as concentric levels with the child at the centre or the core of these dimensions (Mash & Wolfe, 2010). In order to understand child development, all of these interactive dimensions should be taken into account. They are the microsystem (the child's immediate environment), the mesosystem (the relationship between microsystems), the exosystem (settings outside the child's immediate environment which still have an effect on the child's development) and the macrosystem (the larger societal and cultural context) (Dawes & Donald, 1994; Scillepi, Teed, & Torres, 2000). Since all of these systems are interconnected, changes in one part may have an impact on other levels of the system (Nelson & Prilleltensky, 2010).

Dawes and Donald (1994) noted that in order to understand child development according to the ecological model, four factors should be considered across all the levels of the ecological model. These factors include personal factors (the child's temperament), process factors (the interaction process of the family), contextual factors (family or neighbourhood) and time (the changes that take place over time within the individual or the environment).

Bronfenbrenner's (1979) ecological model serves as a framework to explain and understand anxiety and behavioural inhibition in young South African children. Childhood anxiety cannot

be understood without considering individual children within their unique social context (Appleton, 2008).

The first level of Bronfenbrenner's (1979) ecological model is the microsystem, which refers to the child's immediate environment. The microsystem comprises the home environment or neighbourhood settings which consist of the people that the child has the most interaction with and who are most influential in the child's life. They are the child's parents, siblings, other family members, friends, teachers and classmates (Dawes & Donald, 1994; Scillepi et al., 2000). The preschool settings are also part of the microsystem (Louw & Kail, 2007).

During the development of children, the microsystem, which is the child's immediate environment, has a significant influence on the child and subsequently has a significant impact on any child's development (Dawes & Donald, 1994; Louw & Kail, 2007; Scillepi et al., 2000). More importantly, the child's relationship with the people in the microsystem or the child's immediate circumstances can contribute to the development of anxiety symptoms. The family environment, parenting styles, parent-child relationships, the school settings and the child's relationship with teachers and peers are all examples of factors that may contribute to the development of anxiety problems in children. Similarly, it is also the influences in the microsystem, such as that of parents and teachers that may play a significant role in the prevention of anxiety symptoms in children (Hirschfeld-Becker et al., 2008; Tomb & Hunter, 2004).

Parenting style and parents' beliefs can play a significant role in the development of anxiety in children, in particular overprotective parenting styles and parents who are constantly fearful (Last, 2006; Rubin et al., 2009). Parents who view the world as frightening and unpredictable may reinforce their own fears and anxieties in their children without realizing it, instead of trying to reduce their children's anxieties. These parents may adopt an overprotective

parenting style in an attempt to protect their children from the world (Last, 2006). Although they are only trying to protect their child from stressful life events, they unintentionally prevent the child from developing the necessary coping mechanisms (Mash & Wolfe, 2010). Therefore, children with overprotective parents are more likely to develop symptoms of anxiety, because they have learned from their parents to be anxious and fearful (Last, 2006). This confirms Bandura's (1977, 1986) social learning theory. He believed children can learn behaviour simply through observation or modelling, called vicarious learning. This is evident from a South African study conducted by Muris et al. (2006) in which parental style, in particular anxious rearing and parental overprotection, were found to be significantly associated with anxiety symptoms in children and are considered to be predictors of anxiety symptoms in children.

Shy or behaviourally inhibited children with worried or overprotective parents have an increased risk of developing anxiety symptoms (Coplan et al., 2008). This is because they already have a fearful temperament and the message they then receive from their parents, that the world is unsafe, (Mash & Wolfe, 2010) may discourage independent behaviour even further. It also undermines the child's ability to develop necessary coping strategies (Rubin et al., 2009).

Not all children with an inhibited temperament in early childhood develop anxiety problems later in their development. It is the relationship between the parent and child, as well as the family environment that may determine whether the inhibited child will develop anxiety problems or not (Degnan & Fox, 2007; Rubin, Burgess, & Coplan, 2002).

A behaviourally inhibited child will also have more difficulties adjusting to school settings than a child that is not behaviourally inhibited (Coplan et al., 2008). According to Last (2006) changes in a child's immediate environment, for example a new home, a new school or a new

neighbourhood, can contribute to the development of anxiety in the child. Since behaviourally inhibited children already struggle to adjust to novelty (Kagan et al., 1988) and to school settings (Coplan et al., 2008), a major change in their environment may cause shy children to become anxious (Last, 2006).

According to Coplan et al. (2008) shy children are more likely to experience problems with peer and teacher relationships (Coplan et al., 2008). Teachers often view shy or behaviourally inhibited children as less competent with regard to academic performance (Coplan, Gavinski-Molina, Lagace-Seguin, & Wichmann, 2001; Colpan et al., 2008; Crozier & Hostettler, 2003; Crozier & Perkins, 2002). Shy children are frequently rejected or excluded by their peers (Gazelle & Ladd, 2003) and are often victims of bullying (Perren & Alsaker, 2006). Peer relationships and friendships are very important in the early years since this helps children to develop a sense of self-worth (Appleton, 2008). Peer rejection and victimization may therefore contribute to the development of anxiety symptoms in children (Appleton, 2008; Bond, Carlin, Thomas, Rubin, & Patton, 2001).

Children, however, can learn from their parents to cope with stressful life events. This makes parents important role players in the prevention of anxiety developing in behaviourally inhibited children (Hirschfeld-Becker et al., 2008). According to Mash and Wolfe (2010) a child who is taught from a young age to cope with stressful situations will be less likely to develop anxiety symptoms

The next level of Bronfenbrenner's (1979) ecological model is called the mesosystem, which consists of the links between two or more microsystems. This may be the links between home, friends and school or the parent's involvement with the school (Bensch, 2010; Scillepi et al., 2000) and what happens in one microsystem will most probably have an effect on another system (Louw & Kail, 2007). For example, a behaviourally inhibited child who has to

change schools might experience anxiety symptoms due to the difficulties in adjustment (Coplan et al., 2008). The child may withdraw from social interaction with peers, which could then lead to the child feeling excluded from peer activities, leading to feelings of rejection. This could cause even more anxiety (Gazelle & Ladd, 2003). A caring teacher can provide a positive environment for the development of the child's self-esteem (Dawes & Donald, 2000), which may make the adjustment easier for the shy child.

The third level of Bronfebrenner's model is the exosystem. This level refers to the interaction between the microsystem and other systems with which the child is not directly involved. This interaction still has an influence on the development of the child, because it has the potential to affect the child's immediate environment (Louw & Kail, 2007). The exosystem comprises the parent's relationship with the neighbourhood, the parent's work place, the school board (Bensch, 2010; Dawes & Donald, 1994), the parent's friends and the availability of the family's support systems (Mash & Wolfe, 2010; Sameroff, 2006). The parent's workplace, for example, does not affect the child directly, but a stressful work environment might have an influence on the child's relationship with the parent (Dawes & Donald, 1994), because under such circumstances the parent might pay less attention to the child (Louw & Kail, 2007). According to Louw and Kail (2007) the exosystem still has a great influence on child development, even although its influences are not direct.

The fourth level of the ecological model is the macrosystem, which refers to the larger political and cultural context in which the other systems, the micro-, meso- and exosystems, are embedded (Louw & Kail, 2007). The values, norms and ideologies of a culture as well as economic and political conditions form the macrosystem (Scillepi et al., 2000). This includes the cultural beliefs on child rearing practices, the society's ethical guidelines that determine how children should be treated and whether certain behaviours are regarded as acceptable in the particular society (Achenbach & Rescorla, 2007; Bensch, 2010). In South Africa, an

example of what a society regard as important might be their concern for the scarcity of mental health services for children (Bensch, 2010; Du Plessis, 2006).

Another example is the differences in cultural beliefs about child rearing practices, and it is these cultural norms that guide parents' beliefs about appropriate discipline strategies for children (Achenbach & Rescorla, 2007). According to previous research harsh disciplining strategies or controlling child rearing practices might contribute to the development of anxiety in children (Lansford et al., 2005; Rapee, 1997).

The chronosystem refers to the changes the developing child experiences over time (Dawes & Donald, 1994; Nelson & Prilleltensky, 2010). These changes are changes in the personal characteristics of the child and also environmental changes that occur over time. Such changes may be changes in the family structure, such as divorce, or it may be changes in the socio-economic status of the family if a parent loses a job (Bronfenbrenner, 1994).

Sameroff (2006) stated that it is not one single factor, either within the child, the family or the larger social context, but rather a combination of factors that cause problems. All of these factors should therefore be considered in trying to understand the individual child and in particular to understand the development of anxiety symptoms in young children. Understanding the significant influences in the development of anxiety symptoms in young children can contribute to the early intervention efforts—so important in the prevention of anxiety disorders in children (Rapee et al., 2005; Tomb & Hunter, 2004).

3.2 Temperament

Temperament is an inherent aspect of a person's personality and characterizes the way in which a person would respond to certain stimuli. Temperament is linked to emotions in that it

has an influence on a person's feelings and how these feelings are expressed (Louw & Louw, 2007).

According to Thomas and Chess (1977), the child's temperament plays a significant role in his or her psychosocial adjustment and can also change depending on the child's environmental influences. Mash and Wolfe (2010) explained that, because of their temperamental style, children differ in the way they react to situations. The reason is a variation in children's temperamental styles because of an inherited difference in the neurochemistry of the brain structures (Mash & Wolfe, 2010). Some children tend to react with wariness or fearfulness in response to novel events or situations. These children who react with fearfulness and withdrawal in novel situations are believed to be behaviourally inhibited (Coplan et al., 2004; Kagan et al., 1988; Rapee & Coplan, 2010).

Behavioural inhibition is therefore defined as a temperamental trait which is characterized by the tendency to be unusually shy and respond with fearfulness and withdrawal in novel situations (Kagan et al., 1988). Behavioural inhibition develops from a biological disposition that causes an individual to have an emotional readiness to react with fear and wariness in unfamiliar situations (Rubin et al., 2002; Rubin et al., 2009).

According to Louw and Louw (2007), research on behavioural inhibition and temperamental difficulty revealed some interesting findings. Studies on behavioural inhibition (e.g. Degnan & Fox, 2007; Fox et al., 2001) indicated that extreme inhibition seems to be relatively stable from early infancy into toddlerhood and childhood. According to Louw and Louw (2007) a difficult temperament in infancy is linked to psychosocial difficulties later in childhood.

Behavioural inhibition has been identified as a predisposing factor in the development of anxiety symptoms, and therefore behaviourally inhibited individuals have a higher risk of developing anxiety symptoms than their uninhibited counterparts (Fox, et al., 2005; Rapee &

Coplan, 2010). However, although behavioural inhibition is a predisposing factor for the development of anxiety symptoms, anxiety is not a definite outcome for behaviourally inhibited children (Prior et al., 2000). Children who are extremely shy or behaviourally inhibited in infancy or early childhood do not always develop anxiety symptoms in later childhood or adolescence (Degnan & Fox, 2007; Rubin et al., 2002). According to Degnan and Fox (2007) there are certain factors that may either cause behavioural inhibition to continue from infancy into adulthood, or cause this temperamental trait to discontinue.

Louw and Louw (2007) further explained that, according to the goodness-of-fit model, which focuses on the nature of the interaction between an infant's temperament and the environment, the family environment should be compatible with the temperament of the child, because a bad fit between parent and child might lead to psychosocial or adjustment difficulties experienced by the child (Coplan et al., 2008; Louw & Louw, 2007).

Therefore, the family environment and more specifically parenting styles or the quality of parent-child relationships, may serve as protective factors against the stability of an inhibited temperament which increases the risk of developing anxiety symptoms (Bögels & Brechman-Toussaint; 2006; Degnan & Fox, 2007; Rubin et al., 2002; Rubin et al., 2009).

3.3 Attachment theory

Attachment refers to the relationship or emotional bond that forms between the infant and parents, usually the mother, or other significant individuals (Mash & Wolfe, 2010; Rubin et al., 2009). According to Bowlby's (1973) theory of attachment, the early attachment formed between an infant and the primary caregiver has a significant influence on the social and emotional development of a child and in particular the security which develops from this early relationship. The quality of the attachment relationship is predicted by parental behaviour (Rubin et al., 2002; Rubin et al., 2009). Therefore, the sensitivity and responsiveness

displayed by the caregiver towards the infant has an influence on whether the attachment relationship will be secure or insecure (Ainsworth, Blehar, Walter, & Wall, 1978). The parent-child relationship or the quality of the attachment between a child and the caregiver can contribute to the development of fear and anxiety in children (Mash & Wolfe, 2010).

Mash and Wolfe (2010) explained the development of fear and anxiety in children according to Bowlby's (1973) theory of attachment. Emotional attachment is important for infants' survival, as their physical and emotional needs are fulfilled by being close to their caregivers. Infant behaviour, such as crying, fear of strangers and distress when separated from caregivers, is an attempt from the infant to maintain the closeness with the caregiver. This suggests that children are biologically programmed to behave in a way that will enhance proximity to the caregiver (Bögels & Brechman-Toussaint, 2006; Mash & Wolfe, 2010). When separated from their caregivers, infants display anxiety and distress but become less distressed by separation from their caregivers as they grow older (Louw & Louw, 2007). However, if this separation occurs too early an insecure attachment might form between the child and the caregiver. Children may internalize this early insecure attachment and start to see the world as threatening and other people as hostile and unavailable, which may cause them to develop anxiety symptoms later in life (Bögels & Brechman-Toussaint, 2006; Mash & Wolfe, 2010; Shamir-Essakow et al., 2005;Van Brakel, Muris, Bögels, & Thomassen, 2006). This is especially true for a child with an inhibited temperament (Rubin et al., 2002; Rubin et al., 2009). According to Bowlby's attachment theory (1973), based on the quality of this early attachment relationship, children develop an internal working model of relationships which determines how the child regards and relates to other people (Mash & Wolfe, 2010; Rubin et al., 2002), and it is carried into relationships with others (Mash & Wolfe, 2010). The child's internal working model also has an influence on his or her confidence, which causes the child to either actively explore new, unfamiliar situations or to regard the world as an

unsafe, threatening place resulting in avoidance of unfamiliar settings (Mash & Wolfe, 2010; Rubin et al., 2002). Therefore, it might be the interacting effects between the attachment relationship and temperament—behavioural inhibition—that can increase the risk for the development of anxiety problems in children (Rubin et al., 2009; Shamir-Essakow et al., 2005; Van Brakel et al., 2006).

3.4 Social learning theory

The social learning theory focuses on learning that occurs in the environment and social contexts (Louw & Kail, 2007). According to Bandura's (1977, 1986) social learning explanation, behaviour is learned through observation or vicarious learning. Children can learn behaviour by simply observing another person, without that behaviour being reinforced or practised (Louw & Kail, 2007; Mash & Wolfe, 2010). Observational learning can occur through the imitation and modelling of role models such as parents or other significant individuals (Louw & Kail, 2007). Imitation is a significant process during the phase of toddlerhood as toddlers seem to imitate most things that they observe, for example in adult conversations or on television (Newman & Newman, 2009).

According to Bandura and Walters (1963) fear can also be learned. Children can learn to fear a certain object by observing another person's fear of that object, without the child being directly exposed to the feared stimulus (Mash & Wolfe, 2010). This is evident in a study conducted by Muris, Steerman, Mercklebach and Meesters (1996), where fearfulness in mothers was found to correlate significantly with fearfulness in children. These researchers suggested that the children had modelled the fearful behaviour of their mothers. Children can also learn anxiety through observation and modelling the anxious behaviour they observe in their parents (Bögels & Brechman-Toussaint, 2006; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Bögels and Brechman-Toussaint (2006) explained that observing their parents talking

or acting in an anxious manner during specific situations might cause children to react in the same manner when they are in similar situations.

3.5 Psychosocial theory

According to Erikson's (1968) psychosocial theory of development, children actively contribute to their development through their efforts to adapt to the environment. He suggested that important developmental changes occur throughout the human life span, from infancy through to old age. He divided the life cycle into eight stages which he believed reflected the stages of human development (Louw & Kail, 2007). According to Erikson's (1968) theory each stage of development has an approximate age group. During each stage children are confronted with new challenges that are characteristic of that particular age and as the children grow older they face new challenges (Louw & Kail, 2007).

For the purposes of this study, the second and third stage of Erikson's theory will be discussed as the children in the present study were divided into two age groups—toddlers (2 to 3 years old) and preschoolers (4 to 6 years old).

During the second stage of Erikson's theory, children between 1 year old and 3 years old experience the major psychosocial crisis known as autonomy versus shame and doubt. They are faced with the challenge of realizing they are independent and can make their own decisions (Louw & Kail, 2007). An important characteristic of toddlerhood is to become aware of one's autonomy and it is during this stage that children explore their independence (Newman & Newman, 2009). If the child successfully completes this stage autonomy is enhanced which results in the child feeling secure and confident. According to Erikson (1963) some children may fail to master the challenges they are confronted with during this stage because continuous criticism or discouragement from their parents can result in shame and

self-doubt. In order to keep from experiencing shame, children would avoid attempting new tasks or activities.

Parents who are overprotective or over-controlling tend to regulate and control children's activities. This approach discourages children to be independent and it limits problem-solving skills and the development of autonomy in children (Bögels & Brechman-Toussaint, 2006; Wood et al., 2003). This is especially true in the case of behaviourally inhibited or shy children (Rapee et al., 2002). Because these children are socially fearful, parents might try to help their children by manipulating and controlling their behaviour, but in effect they prevent the child from learning coping strategies, causing feelings of insecurity and self-doubt (Rapee et al., 2002). During the third stage of Erikson's psychosocial theory of development, when children are 3 to 6 years old, the developmental crisis is the conflict of initiative versus guilt. During this stage the challenge is to learn to attempt new things and to handle failure (Louw & Kail, 2007). According to Erikson (1963) initiative refers to the investigation of the world and children's willingness to investigate is based on whether they successfully completed the previous psychosocial crises, the development of autonomy or independence. According to the psychosocial theoretical approach to development, unresolved conflicts might result in anxiety in young children (Loxton, 2004).

3.6 Chapter summary

This chapter presented the theoretical framework for the present research study as well as some of the relevant theories that offer an explanation for anxiety symptoms and behavioural inhibition in young children. The contextual perspective was discussed with reference to Bronfenbrenner's (1979) ecological model which serves as a framework for contextualising anxiety problems in young children. This was followed by a discussion of the role that an inhibited temperament plays in the development of childhood anxiety. Bowlby's (1973)

attachment theory was discussed with reference to how early attachment relationships can contribute to the development of anxiety. The chapter further included an overview of the relevance of Bandura's social learning theory as well as Erikson's psychosocial theory

CHAPTER 4

RESEARCH METHODOLOGY

In this chapter the method and procedures used for doing the research study is discussed.

4.1 Introduction

The primary aim of the study was to investigate whether there was a relationship between anxiety symptoms and behavioural inhibition in a group of young South African children of between 2 and 6 years of age. This entailed obtaining parent and teacher reports of the same group of children within the specific age range.

The secondary aim of the study was to investigate the relationship between anxiety symptoms and behavioural inhibition in a group of young South African children aged 2 to 6 years with regard to the predictor variables, age and gender.

In order to gain a better understanding regarding the above mentioned aims, the methodology for doing the research will be discussed. This includes the research design, participants, measuring instruments, the procedures used for the data collection and analyses as well as the ethical aspects relating to the research.

4.2 Research design

In the present study, a cross-sectional time dimension was used to investigate the relationship between anxiety symptoms and behavioural inhibition. All the data were collected at one point in time. The questionnaires were presented to the parents and teachers only once to measure the anxiety symptoms and behavioural inhibition in the children as it existed at the time the questionnaires were presented (Bless & Higson- Smith, 2000; Graziano & Raulin, 2010).

The design for the research was both exploratory and correlational in nature. The exploratory nature of the research design was employed because research concerning anxiety in preschool children has been neglected both internationally (Cartwright-Hatton et al., 2006; Egger & Angold, 2006; Eley et al., 2003) and in South Africa (Loxton, 2009). At the time the present study was conducted there had been no research conducted regarding the relationship between anxiety symptoms and behavioural inhibition in preschool -aged South African children. The correlational aspect of the research design was used for the purpose of investigating the relationship between the two variables, anxiety symptoms and behavioural inhibition (Bless & Higson- Smith, 2000, Graziano & Raulin, 2010).

For the purposes of the present study, only two predictor variables, gender and age, were taken into account. Gender was presented at two levels, namely boys and girls, and age was measured on two levels, namely 2 to 3 years old and 4 to 6 years old. Variables such as race, home language and social economic status were not taken into account for the purpose of this study, as was negotiated with the pre-primary, preschool and day care facility.

4.3 Participants

The participants in the study were part of a convenience sample as they were the parents and teachers of a group of 107 young children attending an independent pre-primary, preschool and day care facility in Stellenbosch, Western Cape Province, South Africa[1].

The specific pre-primary, preschool and day care facility where the study was conducted was selected based on its multi-cultural approach. The participants were from a variety of different cultural backgrounds, languages, religions and income groups. The pre-primary, preschool and day care facility also follows a multi-lingual approach, with both English and Afrikaans

[1] The use of the term “teacher” also includes the “day carers” responsible for the toddlers (2 to 3 year old children).

used as the medium of instruction. The children included in the research sample represent a very wide variety of backgrounds. Although the identifying details for individual children cannot be divulged, for obvious ethical reasons, the parameters of the sample can be described to a certain degree.

The majority of the children are South African citizens. The vast majority of the children at the centre speak either English or Afrikaans as a home language, and the majority of children in the research sample are also represented in this way. However, there are also some children in this specific sample whose home language is Xhosa, French, Chinese, Zulu, Sotho, Tswana and Portuguese. A small number of children in the sample hail from foreign countries, and speak Arabic, Shona, Hausa (Nigerian language) and Tigrigna (Eritrean language) at home. The children in this last group usually stay in South Africa for a limited period of time (3-5 years) before their families return to their homelands.

The socio-economic backgrounds of the children vary greatly, from quite low to very high. Another indicator of the very broad socio-economic parameters is the fact that housing ranges from informal housing (such as a shack) to extensive property (privately owned).

The general level of education of the parents of the children in the research sample ranges from about 8 years of formal schooling up to post-graduate (even PhD or more), with the majority of the parents represented in the top half of the range, i.e. post-matric formal qualifications.

All the parents or guardians of children between the ages of 2 and 6 years who attended the pre-primary, preschool and day care facility, as well as the teachers, who worked with these

children on a daily basis, were invited to participate in the study. From the 157 participants who were invited, 107 (68%) parents or guardians responded to the invitation to participate in the study.

The same group of children reported on by both consenting parents and teachers, consisted of 107 South African children. The group consisted of 52 (48.6 %) boys and 55 (51.4 %) girls. The children's chronological ages ranged from 27 months (2 years and 3 months) to 80 months (6 years and 8 months), with the mean age M = 55.58 (approximately 4 years and 8 months) and SD = 14.2. This group of children was further divided into two age groups, namely a group of 2- to 3-year-olds (toddlers) and a group of 4- to 6-year-olds (preschoolers). The first age group consisted of 41 (38.3 %) toddlers, between the ages of 27 months (2 years and 3 months) and 47 months (3 years and 11 months), with M = 40.50 (approximately 3 years and 5 months) and SD = 5.62. The second group consisted of 66 (61.7 %) preschoolers, between the ages of 49 months (4 years and 1 month) and 80 months (6 years and 8 months) with M = 64. 94 (approximately 5 years and 5 months) and SD = 8.76. The demographic characteristics of the children are presented in Table 1.

The parent reports consisted mostly of mother reports (n = 83, 77.6 %), followed by 18 father reports (16.8 %), 4 both parents reports (3.7 %) and in one case a guardian reported on a child (0.9 %). There were 9 teachers who reported on the group of 107 children. The teachers were invited to report on this group of children based on their knowledge of and regular interaction with the children.

Table 1

Demographic Characteristics of the Group of Children Reported on by Parents and Teachers

Total Sample	*N* = 107	*n*	Percentage
Gender:	Boys:	52	48.6
	Girls:	55	51.4
Age Groups:	2-3 years	42	38.3
	4-6 years	66	61.7
Ages:	2 years	9	8.4
	3 years	32	29.9
	4 years	21	19.6
	5 years	28	26.1
	6 years	17	16.0

4.4 Measures

4.4.1 Demographic questionnaire

The participating teachers were asked to complete a brief demographic questionnaire regarding information on the children's age, gender, language of instruction and mother tongue of the child.

4.4.2 Revised Preschool Anxiety Scale (PAS-R; Edwards et al., 2010)

The Preschool Anxiety Scale (PAS; Spence et al., 2001) is a parent report scale that was specifically developed to measure symptoms of anxiety in preschool-aged children (Edwards et al., 2010). The PAS is the only known scale that measures a range of DSM-IV-defined anxiety symptoms in young children between the ages of 2 and 6 years (Edwards et al., 2010; Spence et al., 2001). The anxiety items included in the scale were carefully selected based on existing literature so that it would be consistent with the categories of anxiety listed in the

Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000).

There were some modifications made to the original PAS since there seemed to be an overlap between some of the factors. In the revised version of the Preschool Anxiety Scale (PAS-R; Edwards et al., 2010) there are more specific boundaries between these factors so that the anxiety symptoms commonly found in children of this age group are better reflected (Edwards et al., 2010).

The Preschool Anxiety Scale-Revised (PAS- R) is also referred to as *The Childhood Concerns Survey*. This was confirmed by correspondence with Prof. R. Rapee. Additional two items relating to Obsessive Compulsive Disorder (OCD) were removed from the PAS-R scale in order to obtain better psychometric properties (Edwards et al., 2010; R. Rapee, personal communication, May, 16, 2011).

The final scale consists of 28 items that range from 0 (*not at all true*) to 4 (*very often true*) and measures the same five anxiety factors as the original PAS (Edwards et al., 2010) which are: social anxiety, separation anxiety, generalized anxiety, specific fears and obsessive compulsive disorder (Spence et al., 2001).

By means of confirmatory factor analysis, the model was proved to be a good fit for the data. Also, it showed that all items loaded onto a single anxiety factor indicating that, in young children of this age group, anxiety symptoms can be somewhat interrelated (Edwards et al., 2010). Internal consistency reliability was performed for the total scale, as well as the four subscales of the PAS-R and alphas were found to range between .72 and .92, which proved the reliability of this measure to be sufficient as well as it has strong internal consistency (Edwards et al., 2010). Together with the DSM-IV-based categories of anxiety symptoms in this scale, the validity of the PAS-R could be adequately demonstrated which provided further

evidence of the strong psychometric properties of the PAS-R. Test-retest reliability of the PAS-R was also proved to be sufficient with high stability concerning the anxiety symptoms reported by both fathers and mothers over a 12-month period. It can therefore be concluded that the PAS-R has strong psychometric properties, good reliability and validity and is considered to be a good measure for utilization in both research as well as clinical settings (Edwards et al., 2010). The PAS-R is regarded as the only existing scale to measure anxiety symptoms in children of the age group who participated in the current study (Edwards et al., 2010).

The present study relied on parent and teacher reports to obtain results regarding anxiety symptoms in young children. Some of the items in the PAS-R were not relevant with regard to teachers as it is a parent report questionnaire. The teachers were nevertheless requested to complete the questionnaire to the best of their ability as they were the adults in whose presence the children spent a substantial amount of time and could therefore provide valuable information.

Permission to use the PAS-R was obtained from Prof. Ronald Rapee (R. Rapee, personal communication, March, 30, 2011).

4.4.3 Behavioral Inhibition Questionnaire (BIQ; Bishop et al., 2003)

The Behavioral Inhibition Questionnaire (BIQ; Bishop et al., 2003) is a parent- and teacher-rating scale, which measures behavioural inhibition in children between the ages of 2 and 6 years in social and non-social situations (Broeren & Muris, 2010). The BIQ is designed to measure behavioural inhibition across three domains: Social novelty, Situational novelty and Physical challenges. Social novelty consists of 14 items that measure three aspects of behavioural inhibition, namely: Adults, Peers and Performance situations. Situational novelty consists of 12 items and measures two aspects of behavioural inhibition, namely Separation

and Unfamiliar situations. The third domain, Physical challenges, consists of four items and measures aspects concerning physical challenges. The BIQ is divided into six subscales: Adults, Peers, Performance situations, Separation, Unfamiliar situations and Physical challenges. Children's behaviour is thus measured across all six of these fields (Bishop et al., 2003). The total scale consists of 30 items that are rated on a 6-point scale, which ranges from 1 (*hardly ever*) to 6 (*almost always*). There are 16 items which are reversed scored.

Internal consistency for the BIQ proved to be sufficient with Cronbach's alphas all ranging above .70 for the total scale as well as the BIQ-subscales. Across informant reliability for the BIQ were also confirmed to be sufficient with correlations for cross-informant reliability ranging from .70 to .80 between mother and father reports. Correlations between parent and teacher reports ranged from .43 to .62 which was also sufficiently reliable across participants (Broeren & Muris, 2010). Finally, the test-retest reliability of the BIQ was proved to be fair across a time period of 12 months with Pearson Product Moment correlations ranging between .49 and .79 (Broeren & Muris, 2010). Overall, the BIQ proved to be a trustworthy measure with good psychometric properties as it was confirmed to be a valid as well as reliable instrument for measuring behavioural inhibition (Edward, 2007).

According to Bishop et al. (2003), parents and teachers should be able to provide valid and reliable reports of behavioural inhibition. These researchers were confident that parent and teacher reports could be used as a screening method to identify young children who are at risk of developing an anxiety disorder as a result of high levels of behavioural inhibition during early childhood.

Permission to use the BIQ was obtained from Prof. Peter Muris (P. Muris, personal communication, March, 30, 2011).

4.5 Procedure

The research process consisted of three stages. During the first stage permission to conduct the study was obtained from the Research Ethics Committee: Human Research (Non-Health) at Stellenbosch University (Protocol #: HS713/2011). Upon approval, permission to conduct the research was sought from the coordinator and the principal of the pre-primary, preschool and day care facility where the study was conducted. Once permission was granted to conduct the research study at the preschool, further arrangements were made with the coordinator concerning the logistics of the study. All parents of children between the ages of 2 and 6 years old were invited to participate in the study by means of an information letter that was sent to them via the preschool (see Appendix A).

The teachers of the selected group of 2- to 6-year-old children were also invited to participate in the study (see Appendix B). They were invited based on their knowledge of the children and the time they spent with them on a daily basis, in order to ensure valid reports of the children's anxiety symptoms and behavioural inhibition. All the consenting parents and teachers were asked to complete the respective informed consent forms—Appendix C and Appendix D—and then to return these to the researcher together with the completed questionnaires.

In the second stage data were collected from parents and teachers. The study was cross-sectional in nature and the data were collected quantitatively by means of the PAS-R and the BIQ questionnaires that were sent to them via the preschool. All questionnaires were presented in Afrikaans and English, the languages of tuition at the preschool. Parents were asked to complete two questionnaires, namely the Revised Preschool Anxiety Scale (PAS-R) and the Behavioral Inhibition Questionnaire (BIQ) in the comfort of their own homes. The participating teachers were also requested to complete the PAS-R and BIQ as well as an

additional short demographic questionnaire to obtain demographic information of the children. Without changing the content, the questionnaires were slightly adjusted in collaboration with the supervisor and the coordinator of the preschool. This was done to ensure the format was parent-friendly and as convenient as possible to complete. The average duration of the completion of the questionnaires was approximately 30 minutes for parents and 40 minutes for teachers. The data were collected during May and June 2012 and all participants were requested to return the completed questionnaires as well as the consent forms to the preschool in an enclosed envelope provided to them. If there were any concerns or difficulties regarding the completion of the questionnaires, the researcher was available to answer any queries, as was indicated to the participants in the information letter.

During stage three the collected data were analysed and used to determine if there was a relationship between anxiety symptoms and behavioural inhibition in a group of young South African children.

4.6 Data analyses

The data for the present study were collected quantitatively by means of parent and teacher reports using the PAS-R and BIQ. Questionnaires were completed by parents and teachers who reported on the same group of 107 children. The collected data were used to investigate whether there was a relationship between anxiety symptoms and behavioural inhibition in young South African children.

All the statistical analyses for the study were done by using the Statistical Package for the Social Sciences (SPSS Version 10).

Before the analyses were done the missing values were imputed on some of the PAS-R questionnaires (P. Muris, personal communication, February, 19, 2013). In the case of five or

less missing items on the PAS-R the missing values were replaced with predicted values which increased the power and also prevented information from being lost by excluding the incomplete cases (Yuan, 2010). This was only done for the PAS-R as the parents and teachers completed the BIQ satisfactorily. This technique involved substituting the missing values on a particular PAS-R subscale with the mean score of that specific PAS-R subscale. In the case of five or more missing values on either the PAS-R or the BIQ, the questionnaire was excluded from the analyses.

Reliability analyses were also performed to determine if the items measured the same construct (Graziano & Raulin, 2010). Cronbach's alphas were computed to determine the internal consistency for parent- and teacher-reported versions of the PAS-R and the BIQ.

The overall relationship between the PAS-R and the BIQ was tested for both parent and teacher reports. Pearson product-moment correlation was calculated between the PAS-R and BIQ total and subscale scores to determine if there was a relationship between the constructs, anxiety symptoms and behavioural inhibition (Graziano & Raulin, 2010). Pearson product-moment correlation was also calculated to test if there was a relationship between parent- and teacher-derived scores on both scales, the PAS-R and BIQ, respectively. The relationship between parent and teacher PAS-R scores (anxiety symptoms) was tested, followed by the relationship between parent- and teacher BIQ scores (behavioural inhibition).

Lastly, gender and age group effects for the parent and teacher reports on both the PAS-R and the BIQ were examined by means of an independent sample *t*-test (Graziano & Raulin, 2010). This was performed to compare means between the variables, age and gender, each with two levels, namely age groups (2- to 3-year-olds and 4- to 6-year-olds) and gender groups (boys and girls).

4.7 Ethical considerations

Permission to conduct the present study was granted by the Research Ethics Committee: Human Research (Non-Health) at Stellenbosch University (Protocol #: HS713/2011). The participants' ethical rights were adhered to throughout the course of the study and were based on the ethical guidelines and principles that guide research with human subjects stipulated by The American Psychological Association (APA, 2010).

All consenting participants were requested to give their informed consent for participating in this study by signing an informed consent form in which they were informed about the exact nature of the research project as well as what their rights as participants were. The informed consent form also provided the participants with contact details of the researcher in case they had any questions or concerns regarding the research.

Participation in this study was completely voluntary and any participant had the right to withdraw from the study at any time without any consequences. There were no physical risks, stress or discomfort involved in this research study and no harmful procedures were used.

Participants' information was obtained anonymously. Names were replaced with numbers to ensure their anonymity, and no identifiable information was used in the final reports of the study. Participants' personal information was kept confidential throughout the study and no personal information was disclosed to the public. The gathered information was only used for the purposes of this research study and the researcher alone had access to the data. In addition, the name of the pre-primary, preschool and day care facility from which the data were gathered has been withheld to further ensure anonymity.

4.8 Chapter Summary

In this chapter the methodology relating to the data collection and analyses was outlined and discussed. The discussion started with an introduction to state the aims of the research, followed by the research design of the present study. A description of the demographic information of the participants was provided and presented in Table 1. This was followed by a discussion of the measuring instruments used in the data collection phase—the demographic questionnaire, the PAS-R and the BIQ. The procedure and data analyses for the study were also discussed in detail. The chapter concluded with the ethical considerations that were taken into account to conduct the study.

CHAPTER 5

RESULTS

In this chapter the main findings of the study relating to the relationship between anxiety symptoms and behavioural inhibition in a group of young South African children, as reported by their parents and teachers, are presented. The chapter starts with a presentation of the demographic information of the group of children. This is followed by the descriptive statistics, the mean scores, standard deviations and reliability analyses for the parent- and teacher-reported versions of the PAS-R and the BIQ respectively. To address the main aims it was investigated whether there was a relationship between the PAS-R and BIQ total scores and subscale scores, according to the reports obtained from parents and teachers respectively. The possibility of correlations between parent- and teacher-derived scores on both the PAS-R and BIQ was investigated. Finally, the relationship between anxiety symptoms and behavioural inhibition was investigated with respect to the two predictor variables, gender and age, on both the PAS-R and BIQ, according to parent and teacher reports respectively.

5.1 Demographic data

The demographic data of the final group of children that were reported are provided for purposes of clarity. Of the 107 children who were reported on by parents and teachers 52 were boys (48.6%) and 55 were girls (51.4 %). The children's ages ranged from 27 months (2 years and 3 months) to 80 months (6 years and 8 months), with the mean age M = 55.58 and SD = 14.2. This group of children was further divided into two age groups, namely a group of 2- to 3-year-olds (toddlers) and a group of 4- to 6-year-olds (preschoolers). The first age group consisted of 41 toddlers, between the ages of 27 months (2 years and 3 months) and 47 months (3 years and 11 months), with M = 40.50 and SD = 5.62. The second group consisted

of 66 preschoolers, between the ages of 49 months (4 years and 1 month) and 80 months (6 years and 8 months) with *M* = 64. 94 and *SD* = 8.76.

5.2 Descriptive statistics for parent –and teacher reports

The descriptive statistics are presented in Tables 2 to 5. The mean scores, with standard deviations between brackets, and the reliability indices for the parent- and teacher-reported versions of the PAS-R and the BIQ are provided. Cronbach's alphas were computed in order to determine the internal consistency of the total scales and subscales of the PAS-R and BIQ, for parent and teacher reports respectively.

Table 2 shows the descriptive statistics for the PAS-R as reported by the parents.

Table 2

Descriptive Statistics for the PAS-R as Reported by the Parents: Mean Scores, Standard Deviations and Cronbach's Alphas

	Total group (*n* = 101)	α
PAS-R		
Total anxiety score	39.5 (15.9)	.86
Generalized anxiety	9.9 (4.7)	.71
Social anxiety	8.7 (5.1)	.75
Separation anxiety	7.0 (4.3)	.69
Specific phobia	13.9 (6.6)	.70

Note: PAS-R = Preschool Anxiety Scale- Revised.

According to Table 2, the reliability of the PAS-R total scale scores, as reported by the parents, were good with a Cronbach's alpha of .86 and acceptable for various subscales with

Cronbach's alphas of .71 for Generalized anxiety, .75 for Social anxiety, .69 for Separation anxiety and .70 for Specific phobia.

The children obtained the highest anxiety scores on the PAS-R subscale, with Specific phobia (*M* = 13.9, *SD* = 6.6) being the most prominent, according to the parent reports. This was followed by Generalized anxiety (*M* = 9.9, *SD* = 4.7), Social anxiety (*M* = 8.7, *SD* = 5.1) and lastly, Separation anxiety *M* = 7.0, *SD* = 4.3). No significant difference was found between any of the PAS-R subscale scores.

In Table 3 the descriptive statistics for the PAS-R, as reported by teachers, are presented.

Table 3

Descriptive Statistics for the PAS-R as Reported by the Teachers: Mean Scores, Standard Deviations and Cronbach's Alphas

	Total group (n = 60)	α
PAS-R		
Total anxiety score	24.1 (19.9)	.96
Generalized anxiety	6.6 (6.1)	.90
Social anxiety	7.7 (6.4)	.91
Separation anxiety	3.5 (3.8)	.82
Specific phobia	6.2 (6.5)	.91

Note: PAS-R = Preschool Anxiety Scale-Revised.

According to Table 3 the reliability of the total scale scores of the PAS-R, as completed by the teachers, was excellent, with a Cronbach's alpha of .96. The subscales of the PAS-R also showed good reliability with Cronbach's alphas of .90 for Generalized anxiety, .91 for Social anxiety, .82 for Separation anxiety, and .91 for Specific phobia.

According to the statistics of the teacher reports in Table 3 children obtained higher anxiety scores on the PAS-R subscale Social anxiety (*M* = 7.7, *SD* = 6.4) which was followed by Generalized anxiety (*M* = 6.6, *SD* = 6.1), Specific phobia (*M* = 6.2, *SD* = 6.5) and Separation anxiety (*M* = 3.5, *SD* = 3.8).

In Table 4 the descriptive statistics for the parent reports of the BIQ are presented.

Table 4

Descriptive Statistics for the Parent Reports of the BIQ: Mean Scores, Standard Deviations and Cronbach's Alphas

	Total group (*n* = 106)	α
BIQ		
Total BI score	95.8 (25.0)	.90
Peers	19.0 (6.5)	.74
Physical challenge	9.7 (4.3)	.55
Separation	13.6 (5.2)	.70
Performance situations	13.3 (4.8)	.63
Adults	14.3 (5.9)	.82
Unfamiliar situations	25.9 (8.0)	.81

Note: BIQ = Behavioural Inhibition Questionnaire, BI = Behavioural inhibition.

According to Table 4, the reliability of the total scale scores, of the BIQ, as reported by the parents, was excellent, with a Cronbach's alpha of .90. The reliability of the subscales of the BIQ was good for most subscales. For the subscales Peers, Separation, Adults, and Unfamiliar

situations Cronbach's alphas were .74, .70, .82, and .81, respectively. Reliability for the subscale Performance situations was acceptable, with a Cronbach's alpha of .63 and poor for Physical challenge, which produced an alpha of .55.

Table 4 shows that children obtained higher behavioural inhibition scores on the BIQ subscale Unfamiliar situations (*M* =25.9, *SD* = 8.0), when considering the parent reports. This was followed by Peers (*M* = 19.0, *SD* = 6.5), Adults (*M* = 14.3, *SD* = 5.9), Separation (*M* = 13.6, *SD* = 5.2), Performance situations (*M* = 13.3, *SD* = 4.8) and Physical challenge (*M* = 9.7, *SD* = 4.3). Table 5 shows the descriptive statistics for the teacher reports of the BIQ.

Table 5

Descriptive Statistics for the Teacher Reports of the BIQ: Mean Scores, Standard Deviations and Cronbach's Alphas

	Total group (*n* = 104)	α
BIQ		
Total BI score	88.9 (36.0)	.97
Peers	18.8 (8.2)	.88
Physical challenge	10.4 (5.2)	.86
Separation	11.3 (5.1)	.85
Performance situations	12.9 (5.6)	.83
Adults	13.8 (6.8)	.93
Unfamiliar situations	21.8 (9.3)	.90

Note: BIQ = Behavioural Inhibition Questionnaire, BI = Behavioural inhibition.

According to Table 5, the reliability of the total scale and subscale scores of the BIQ as reported by the teachers were good. Alphas were .97 for the total BIQ scale, .88 for Peers, .86 for Physical challenge, and .85 for Separation, .83 for Performance situations, .93 for Adults, and .90 for Unfamiliar situations. As in the case of parent reports, children again obtained higher scores on the BIQ subscale Unfamiliar situations (*M* = 21.8, *SD* = 9.3). This was followed by Peers (*M* = 18.8, *SD* = 8.2), Adults (*M* = 13.8, *SD* = 6.8), Performance situations (*M* = 12.9, *SD* = 5.6), Separation (*M* = 11.3, *SD* = 5.1) and Physical challenge (*M* = 10.4, *SD* = 5.2).

5.3 Relationship between PAS-R and BIQ scores, according to parent and teacher reports

Pearson product-moment correlation coefficients were calculated to determine the relationship between anxiety symptoms (PAS-R scores) and behavioural inhibition (BIQ scores), as reported by the parents and teachers. Table 6 shows the correlation between PAS-R and BIQ total scale scores, according to parent and teacher reports. In Table 7 the correlations between the PAS-R and the BIQ subscale scores, as reported by the parents, are presented. Table 8 shows the relationship between the PAS-R and the BIQ subscale scores, according to the teacher reports.

5.3.1 Relationship between PAS-R and BIQ total scales, according to parent and teacher reports

Table 6 shows the relationship between the total scale scores of the PAS-R and the BIQ, according to parent and teacher reports.

Table 6

Correlations between PAS-R and BIQ Total Scale Scores, as Reported by the Parents and Teachers

	Total Anxiety (PAS-R)	
Total BI (BIQ)	Parent reports	Teacher reports
Parent reports	.47**	.09
Teacher reports	.26*	.80**

Note: BIQ = Behavioural Inhibition Questionnaire, BI = Behavioural Inhibition. PAS-R = Preschool Anxiety Scale- Revised. ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Table 6 indicates significantly positive correlations between the total scale scores of the PAS-R and the BIQ. As can be seen in Table 6, both parent and teacher reports showed a significant positive correlation between PAS-R and BIQ total scales, with parent reports (r = .47, p < .01) and teacher reports (r = .80, p < .01).

5.3.2 Relationship between PAS-R and BIQ subscales, according to parent and teacher reports

Table 7 shows the relationship between the PAS-R and BIQ subscale scores according to parent reports.

Table 7

Correlations between PAS-R and BIQ Subscale Scores According to Parent Reports

	PAS-R (Parent report)				
	Total Anxiety	Generalized anxiety	Social anxiety	Separation Anxiety	Specific phobia
BIQ (Parent report)					
Total BI	.47**	.38**	.68**	.27**	.15
Peers	.34**	.29**	.56**	.22*	.11
Physical challenge	.34**	.24*	.42**	.21*	.19
Separation	.28**	.19	.21*	.38*	.13
Performance situations	.27**	.26**	.49**	.13	-.01
Adults	.26**	.21*	.54**	.06	.02
Unfamiliar situations	.45**	.40**	.64**	.20*	.18

Note: BIQ = Behavioral Inhibition Questionnaire, BI = Behavioural Inhibition.
PAS-R = Preschool Anxiety Scale- Revised. ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Significant positive correlations were found between various subscale scores of the PAS-R and the BIQ as reported by the parents. There were significant correlations between the PAS-R subscales Generalized anxiety and almost all of the BIQ subscales with *rs* between .40 and .21. The only exception was that no correlation was found between the PAS-R subscale Generalized anxiety and the BIQ subscale Separation. The PAS-R subscale Separation

anxiety correlated with all the BIQ subscales, except for Performance situations and Adults with *rs* of between .38 and .20. No correlations were found between the PAS-R subscale Specific phobia and the subscales of the BIQ. There were significant and positive correlations found between the PAS-R subscale Social anxiety and all the BIQ subscales. All correlations were in the moderate to low range with *rs* between .68 and .21. A stronger relationship was revealed between behavioural inhibition and Social anxiety than between behavioural inhibition and Generalized anxiety, Separation anxiety, and Specific phobia.

The correlations between PAS-R and BIQ, subscale scores, as reported by teachers, are presented in Table 8.

Table 8

Correlations between PAS-R and BIQ Subscale Scores, as Reported by the Teachers

	PAS-R (Teacher report)				
	Total anxiety	Generalized anxiety	Social anxiety	Separation anxiety	Specific phobia
BIQ (Teacher reports)					
Total BI	.80**	.78**	.91**	.40**	.60**
Peers	.72**	.73**	.84**	.30*	.51**
Physical challenge	.83**	.79**	.92**	.35*	.68**
Separation	.69**	.67**	.67**	.53**	.52**
Performance situations	.69**	.62**	.80**	.37**	.52**
Adults	.66**	.66**	.84**	.24	.44**
Unfamiliar situations	.84**	.84**	.90**	.46**	.63**

Note: BIQ = Behavioral Inhibition Questionnaire, BI = Behavioural Inhibition. PAS-R = Preschool Anxiety Scale- Revised. ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

The results in Table 8 show that there were positive and significant correlations between the subscale scores of the PAS-R and BIQ, as reported by the teachers. There were moderate to high correlations found between the PAS-R subscale Generalized anxiety and all BIQ subscales with *rs* between .84 and .62 and $p < .01$. The PAS-R subscale Separation anxiety significantly correlated with almost all the BIQ subscales, with the exception of the BIQ subscale Adults. These correlations were, however, not as strong as other correlations in this study with *rs* between .53 and .30. Furthermore, the results showed that in contrast to parent reports, there were moderate correlations found between the PAS-R subscale Specific phobia and all the BIQ subscales. Strong positive correlations were also found between the PAS-R subscale Social anxiety and the BIQ subscales with *rs* between .92 and .67 and $p < .01$. These results confirmed those found with the parent reports which indicated behavioural inhibition was more strongly linked to the Social anxiety subscale than with the all the other PAS-R subscales.

5.4 Parent-teacher correlations on the PAS-R and the BIQ

The correlations between parent- and teacher-derived scores on the PAS-R and the BIQ, respectively, were calculated by means of Pearson product-moment correlation coefficients and are presented in Tables 9 and 10.

5.4.1 Parent- and teacher reports of anxiety symptoms (PAS-R)

The correlations between PAS-R scores derived from parent reports and PAS-R scores derived from teacher reports are presented in Table 9.

Table 9

Correlations Between Parent- and Teacher-derived Scores on the PAS-R

	Parent reports				
	Total anxiety	Generalized anxiety	Social anxiety	Separation Anxiety	Specific phobia
Teacher report					
Total anxiety	.26*	.12	.31*	.24	.20
Generalized anxiety	.24	.16	.26*	.17	.17
Social anxiety	.17	.09	.23	.22	.04
Separation anxiety	.31*	.14	.24	.38*	.26*
Specific phobia	.24	.04	.32*	.13	.25

Note: PAS-R = Preschool Anxiety Scale-Revised. * Correlation is significant at the .05 level (2-tailed).

Table 9 indicated a significant positive correlation between parent and teacher reports, with r = .26 and p < .05, for the total PAS-R scores. The total PAS-R scores of the parent report version correlated positively with the teacher report of PAS-R subscale, Separation anxiety with r = .31 and p < .05. The parent-reported PAS-R subscale Social anxiety was positively correlated with the teacher reports of the PAS-R total scale, as well as the PAS-R subscales Generalized anxiety and Specific phobia with *rs* between .26 and .32. There was also a significant correlation between the PAS-R subscale Separation anxiety, with r = .38 and p < .05, and Specific phobia, with r = .26 and p < .05, according to the parent and teacher reports.

5.4.2 Parent and teacher reports of behavioural inhibition (BIQ)

The correlations between BIQ scores derived from parent reports and BIQ scores derived from teacher reports are shown in Table 10.

Table 10

Correlations Between Parent- and Teacher-derived Scores on the BIQ

	Parent reports						
	Total BI	Peers	Physical challenge	Separation	Performance situations	Adults	Unfamiliar situations
Teacher reports							
Total BI	.09	.07	.14	.18	-.00	.00	.03
Peers	.07	.07	.12	.16	.01	-.05	.01
Physical challenge	.12	.07	.18	.17	-.00	.01	.09
Separation	.11	.08	.12	.25*	-.03	.05	.02
Performance situations	.17	.19	.12	.21*	.03	.06	.11
Adults	.03	.02	.09	.07	.04	-.04	-.02
Unfamiliar situations	.05	.01	.13	.13	-.04	.01	-.01

Note: BIQ = Behavioral Inhibition Questionnaire, BI = Behavioural Inhibition.
*Correlation is significant at the .05 level (2-tailed).

In Table 10 the results indicated a significant positive correlation between parents' scores and teachers' scores for the BIQ subscale Separation, with $r = .25$ and $p < .05$. There was also a significant correlation found between the BIQ subscales. Parent-reported Separation correlated significantly with teacher-reported Performance situations, with $r = .21$ and $p < .05$. No significant correlation for the total BIQ total score was observed.

5.5 Gender and age effects

The gender and age group differences were calculated by means of independent *t*-tests for parent- and teacher-reported versions of both the PAS-R and the BIQ.

In Table 11 the mean scores, with standard deviations between brackets, for gender and age effects on the parent-reported PAS-R are presented.

Table 11

Mean Scores and Standard Deviations on the PAS-R for Gender and Age, According to Parent Reports

	Boys (n = 48)	Girls (n = 53)	Age (2-3yr) (n = 37)	Age (4-6yr) (n = 64)
PAS-R				
Total anxiety score	39.2 (16.4)	39.8 (15.5)	38.4 (16.4)	40.2 (15.6)
Generalized anxiety	10.5 (4.5)	9.4 (4.8)	9.2 (4.6)	10.3 (4.7)
Social anxiety	8.8 (4.9)	8.7 (5.3)	8.2 (5.5)	9.0 (4.9)
Separation anxiety	6.8 (4.3)	7.2 (4.3)	7.0 (4.3)	7.0 (4.4)
Specific phobia	13.1 (7.3)	14.5 (5.8)	14.0 (6.8)	13.8 (6.5)

Note: PAS-R = Preschool Anxiety Scale- Revised.

According to Table 11 there were neither significant gender differences nor age group differences for the PAS-R as reported by the parents. Table 12 shows the mean scores with the standard deviations between brackets for gender and age effects on the PAS-R, as reported by the teachers.

Table 12

Mean Scores and Standard Deviations on the PAS-R for Gender and Age, According to Teacher Reports

	Boys (n = 28)	Girls (n = 32)	Age (2-3yr) (n = 28)	Age (4-6yr) (n = 32)
PAS-R				
Total anxiety score	25.7 (21.3)	22.6 (18.8)	20.1 (22.6)	27.5 (16.8)
Generalized anxiety	7.6 (6.5)	5.8 (5.6)	4.6 (6.8)	8.4 (4.9)*
Social anxiety	8.1 (6.5)	7.3 (6.5)	5.5 (7.3)	9.6 (5.0)
Separation anxiety	3.2 (3.6)	3.8 (4.0)	3.2 (3.1)	3.8 (4.4)
Specific phobia	6.8 (7.3)	5.7 (5.8)	6.7 (7.1)	5.7 (6.0)

Note: PAS-R = Preschool Anxiety Scale- Revised. *Significant difference for age group at $p < 0.05$.

Table 12 indicated the same results were obtained with the teacher reports as with the parent reports on the PAS-R. However, a significant effect was found for age groups on the subscale Generalized anxiety. As can be seen in Table 12, the 4- to 6-year-olds displayed higher levels of generalized anxiety symptoms (M = 8.4, SD = 4.9), $t(58) = 8.4$, $p < .05$, $d = 0.62$ as compared to 2- to 3-year-olds (M = 4.6, SD = 6.8).

Table 13 presents the mean scores with standard deviations between brackets for gender and age effects on the BIQ, as reported by the parents.

Table 13

Mean Scores and Standard Deviations on the BIQ for Gender and Age, According to Parent Reports

	Boys (n = 52)	Girls (n = 54)	Age (2-3yr) (n = 41)	Age (4-6yr) (n = 65)
BIQ				
Total BI score	96.5 (24.8)	95.1 (25.3)	99.1 (26.9)	93.7 (23.6)
Peers	19.5 (6.4)	18.5 (6.6)	19.5 (7.0)	18.7 (6.2)
Physical challenge	8.9 (4.2)	10.5 (4.3)	10.2 (4.7)	9.5 (4.0)
Separation	13.3 (5.6)	13.8 (4.8)	14.3 (5.3)	13.1 (5.1)
Performance situations	14.2 (4.7)	12.4 (4.7)	13.5 (5.1)	13.1 (4.6)
Adults	14.1 (6.1)	14.6 (5.7)	15.3 (6.3)	13.7 (5.6)
Unfamiliar situations	26.5 (7.7)	25.3 (8.2)	26.3 (8.1)	25.6 (7.9)

Note: BIQ = Behavioral Inhibition Questionnaire, BI = Behavioural inhibition.

Table 13 indicated neither significant gender differences nor age group differences on the BIQ reported by the parents, as was the case with the PAS-R.

Table 14 shows the mean scores with standard deviations between brackets for gender and age effects on the PAS-R, according to teacher reports.

Table 14

Mean Scores and Standard Deviations on the BIQ for Gender and Age, According to Teacher Reports

	Boys (n = 50)	Girls (n = 54)	Age (2-3yr) (n = 41)	Age (4-6yr) (n = 63)
BIQ				
Total BI score	90.6 (36.0)	87.3 (36.3)	88.0 (41.6)	89.5 (32.2)
Peers	19.5 (8.4)	18.2 (8.0)	18.2 (9.5)	19.1 (7.2)
Physical challenge	10.5 (5.5)	10.3 (4.9)	10.5 (5.8)	10.2 (4.7)
Separation	11.1 (4.5)	11.5 (5.7)	12.1 (5.5)	10.8 (4.9)
Performance situations	13.3 (5.0)	12.5 (6.1)	12.0 (5.2)	13.4 (5.8)
Adults	14.4 (6.9)	13.2 (6.7)	13.0 (7.8)	14.3 (6.0)
Unfamiliar situations	21.9 (9.4)	21.6 (9.2)	22.1 (10.6)	21.5 (8.4)

Note: BIQ = Behavioral Inhibition Questionnaire, BI = Behavioural inhibition.

Table 14 indicated neither significant gender differences nor age differences on the BIQ reported by the teachers, as was the case with the parent reports.

5.6 Chapter Summary

This chapter presented the main findings of the research study. The chapter started with the demographic characteristics of the children reported on by parents and teachers. The descriptive statistics, the mean scores and reliability analyses according to the parent and

teacher reports on the PAS-R and the BIQ, respectively, were presented. The researcher investigated whether there was indeed a relationship between PAS-R and BIQ scores, according parent and teacher reports on young South African children. Also, it was investigated whether there were correlations between parent- and teacher-derived scores on the PAS-R and BIQ, respectively. Lastly, the relationship between anxiety symptoms and behavioural inhibition was investigated in terms of the predictor variables, gender and age, for the PAS-R and BIQ respectively.

CHAPTER 6

DISCUSSION

In this chapter the results of the present study are discussed and the researcher attempts to provide explanations for the findings by comparing them with findings from previous studies. The chapter starts with a brief summary of the main findings relating to anxiety symptoms and behavioural inhibition. This is followed by a discussion on the relationship between anxiety symptoms and behavioural inhibition in young South African children, according to parent and teacher reports. The chapter further includes a comparison between parent and teacher reports regarding anxiety symptoms and behavioural inhibition. Lastly, anxiety symptoms and behavioural inhibition are discussed in terms of the predictor variables gender and age as well as how reports of parents and teachers differed in terms of these variables.

6.1 Overall findings regarding anxiety symptoms and behavioural inhibition in young South African children, according to parent and teacher reports

The findings of the present study showed a significant relationship between anxiety symptoms and behavioural inhibition, as reported by parents and teachers. This was found between the total scale scores on both the PAS-R and the BIQ (see Table 6). Significant relationships were found between several PAS-R and BIQ subscale scores (see Tables 7 and 8). The findings showed a stronger relationship between behavioural inhibition and the PAS- R subscale Social anxiety than between behavioural inhibition and any of the other PAS-R subscales. This was found according to both the parent reports and the teacher reports.

There was not complete agreement between parent and teacher –derived scores on the PAS-R (see Table 9) and the BIQ (see Table 10), respectively.

There were no significant gender differences found with regards to either anxiety symptoms or behavioural inhibition (see Tables 11–14). According to the parents' reports there were no significant age differences with respect to anxiety symptoms (see Table 11). The teachers, however, reported higher levels of generalized anxiety symptoms in the preschool-age children (see Table 12). No significant age differences with regard to behavioural inhibition were found according to either the parent reports or the teacher reports (see Tables 13 and 14).

6.2 Relationship between anxiety symptoms and behavioural inhibition, according to parent and teacher reports

Significant relationships were found between overall anxiety and behavioural inhibition according to both the parent reports and the teacher reports (see Table 6). However, according to teacher reports there were a higher significant relationship between anxiety and behavioural inhibition, than in the case of parent reports. According to DiBartolo and Grills (2006) certain situations, like meeting new children, might not occur often enough at home for adults to know exactly how their children would react in such situations. In the preschool environment shy or inhibited children tend to refrain from joining other children in their play (Coplan et al., 2004; Coplan et al., 2009; Coplan, Schneider, Matheson, & Graham, 2010; Kagan, 1997). Shy children also tend to spend more time with teachers than non-shy children (Coplan & Prakash, 2003). It is therefore possible that parents may not be aware that their children might be shy or inhibited around other children, or in the preschool environment. Teachers usually see more of this since children are often exposed to meeting other children in the preschool environment.

According to the parent reports in the present study, moderately strong correlations were found between the PAS-R subscale Social anxiety and most of the BIQ subscales (see Table 6). There was thus a stronger relationship between behavioural inhibition and Social anxiety

than between behavioural inhibition and Generalized anxiety, Separation anxiety, and Specific phobia. This finding confirmed findings of other studies that supported the notion that behavioural inhibition in childhood is a risk factor for the development of social anxiety disorder (e.g., Biederman et al., 2001, Gladstone et al., 2005, Hirshfeld-Becker et al., 2007, Muris et al., 2011).

Since behaviourally inhibited children are at risk of developing social anxiety disorder later during their development, this finding further emphasizes the value of early detection for intervention purposes (Edwards et al., 2010).

6.3 Parent-teacher agreement on the PAS-R and BIQ

The following section entails a discussion on the comparison between parent and teacher-derived scores for both scales, the PAS-R and the BIQ, respectively.

6.3.1 Parent and teacher reports on anxiety symptoms

A correlation between parent and teacher reports was found on the total anxiety scale of the PAS-R and on the two PAS-R subscales, Separation anxiety and Specific phobia (see Table 9). Parents scored their children higher on the PAS-R subscale Specific phobia (see Table 2) in comparison with teachers who gave children higher scores on the PAS-R subscale Social anxiety (see Table 3).

A possible explanation for the lack of total agreement between parents and teachers on these subscales may be that the parents and teachers had not observed the children in the same contexts (Edwards et al., 2010) and therefore they had different ratings of anxiety symptoms seen in these children. Another reason for the difference between parent and teacher reports of anxiety symptoms may be attributed to the internalizing nature of the symptoms which makes it difficult to observe (De Los Reyes & Kazadin, 2005), especially since young children are

not able to communicate their own symptoms (Warren et al., 2006). Furthermore, De Los Reyes and Kazadin (2005) explained that mothers usually report on their children. This was confirmed in the present study with 77.6 % of mother reporters. Since mothers observe children in a variety of different settings and over longer periods of time, they are able to provide information which may differ from that of teachers.

In the present study, this was evident in the different items on the PAS-R which were left out by the parents and the teachers. It seemed parents and teachers both had some difficulty to complete the questionnaire as there were specific items left unanswered. Parents mostly left out items 10 *(Is afraid of talking in front of the class)* and 13 *(Worries that he/she will do something embarrassing)* on the PAS-R. Both these items belong to the subscale Social anxiety. Teachers had difficulty with item 11 *(Worries that something bad might happen to him/her)* on the Separation anxiety subscale and with item 18 *(Has nightmares)* on the Generalized anxiety subscale. The teachers also left out a number of items from the PAS-R subscale Specific phobia. These were items 3 *(Is afraid of doctors/dentists)*, 9 *(Is scared of thunderstorms)*, 12 *(Is nervous of going swimming)*, 17 *(Is frightened of dogs)*, 18 *(Has nightmares)*, 20 *(Is afraid of the dark)* and 22 *(Wary of large animals)*. The teachers were unable to complete these items because they did not necessarily have the opportunity to observe the children in these specific settings (De Los Reyes & Kazadin, 2005).

6.3.2 Parent and teacher reports on behavioural inhibition

In the present study low parent-teacher agreement was found on the BIQ subscale Behavioural inhibition (see Table 10). No correlation was found between parent and teacher reports on the total BIQ scale. This finding differed from that of Kim et al. (2011) who found a moderate correlation between parent and teacher reports on the total scale of the BIQ. The reason for differences between informants' information, may be because they perceived the

children's behaviour differently and therefore made different judgements of specific behaviours in specific contexts (Kagan et al., 1992).

In the present study there was only agreement between parent and teacher reports on the BIQ subscale Separation. According to both parents (see Table 4) and teachers (see Table 5) the children scored the highest on this BIQ subscale.

It was interesting that on both the PAS-R and BIQ there was agreement between parent and teacher reports on the Separation subscale. Edwards et al. (2010) found low agreement between parent reports on this subscale of the PAS-R. They reported that mothers rated children to have higher levels of separation anxiety because mothers, probably more often than fathers, witness their children experience these symptoms. This may happen for example when they take children to school. Thus, the fact that there was agreement between parents and teachers in the present study might be because both parents and teachers witness children's symptoms of separation anxiety when they are left at school.

6.4 Gender and age

In the following section the gender and age group scores on anxiety symptoms and behavioural inhibition, as reported by parents and teachers, will be discussed.

6.4.1 Gender and anxiety symptoms according to parent and teacher reports

In the present study no significant gender differences were found regarding anxiety symptoms (see Tables 11 and 12). This finding confirmed the findings of other studies which also found no significant differences in anxiety symptoms between gender groups in preschool-aged children (Egger & Angold, 2006; Spence et al., 2001). Edwards et al. (2010) found a difference between young boys and girls regarding specific phobia. According to mother reports used in that particular study, girls had higher rates of specific phobia than boys.

Research with older children indicated that girls had significantly higher levels of anxiety symptoms than boys (Costello et al., 2003; Muris et al., 2004; Muris et al., 2006; Prior et al., 2000; Rapee et al., 2009). A possible reason for the significant gender differences in anxiety symptoms only found among older children might be that these differences only start to become noticeable at the age of around 4 to 5 years (Edwards et al., 2010; Roza, Hofstra, Van Ende, & Verlust, 2003).

6.4.2 Age and anxiety symptoms according to parent and teacher reports

In the present study no differences between the two age groups were found (see Table 11), which is consistent with a study by Edwards et al (2010) who, based on parent reports, also found no significant age differences in young children. This is supported by other studies related to the age of onset of anxiety disorders which revealed small differences in the occurrence of anxiety disorders across children's development (Edwards et al., 2010; Rapee et al., 2009).

The teacher reports in the current study indicated children in the age group 4 to 6 years had higher levels of generalized anxiety than the 2- to 3-year-olds (see Table 12). This finding differed from that of Spence et al. (2001) who found higher levels of anxiety symptoms in the 3-year-old group of children than in the 4- and 5-year-old groups of children.

6.4.3 Gender and behavioural inhibition according to parent and teacher reports

Based on the parent and teacher reports there were no significant gender differences found in behavioural inhibition (see Tables 13 & 14). This finding was consistent with Rubin et al. (2009) who did not find any significant gender differences in inhibition and shyness.

In the present study no differences pertaining to gender were found on the total scale of the BIQ either, according to both parent and teacher reports (see Tables 13 & 14). This finding

confirmed the results of other studies where no significant gender differences were found on the total scale of the BIQ as reported by parents and teachers (Kim et al., 2011; Vreeke et al., 2012). Other researchers found gender differences on some of the BIQ subscales (Broeren & Muris, 2010; Kim et al., 2011; Vreeke et al., 2012). This was not the case in the current study where no differences with regard to gender were found on any of the BIQ subscales.

Boys were consistently reported to be more inhibited in the BIQ subscale Performance situations (Broeren & Muris, 2010; Edwards, 2007; Kim et al., 2011; Vreeke et al., 2012). This finding was based on parent and teacher reports. Parents also reported higher scores for boys on the Separation subscale of the BIQ (Edwards, 2007; Kim et al., 2011). Parent reports on girls seemed to differ across studies. Kim et al. (2011) found girls to be more inhibited on the subscale Physical activities, whereas Vreeke et al. (2012) found girls to be more inhibited than boys on the Unfamiliar adults subscale. A possible explanation for the gender differences found in behavioural inhibition may be because gender differences depend on the situation or context in which behavioural inhibition is assessed (Broeren & Muris, 2010; Vreeke, 2012).

6.4.4 Age and behavioural inhibition according to parent and teacher reports

In the present study no significant differences were found in behavioural inhibition with regard to age (see Tables 13 & 14). Broeren and Muris (2010) did not find any significant differences in behavioural inhibition between the younger groups of children—the 4- to 7-year-olds and 8- to 11-year-olds. They did, however, find that the older group of children, the 12- to 15-year-olds, scored significantly higher than the younger children on the BIQ subscales Physical challenge and Performance situations. Broeren and Muris (2010) further explained that the finding relating to older children being more inhibited on the subscale Performance situation is consistent with age of development for social anxiety.

Although the present study did not include older children, the study by Broeren and Muris (2010) highlighted the importance of recognizing behavioural inhibition as an early identifier for the development of anxiety symptoms and social anxiety in particular.

6.5 Chapter Summary

With data obtained by means of parent and teacher reports, a significant relationship was found between anxiety symptoms and behavioural inhibition in a group of young South African children. The present study confirmed previous research findings where a stronger relationship was found between behavioural inhibition and social anxiety than between behavioural inhibition and any of the other PAS-R subscales. This finding suggested behavioural inhibition in early childhood might increase the risk of the development of social anxiety (Biederman et al., 2001; Chronis-Tuscano et al., 2009; Essex et al., 2010; Hirshfeld-Becker et al., 2007). According to Vreeke et al. (2012) early identification of children who are vulnerable to the development of anxiety disorders is important for the implementation of prevention programmes.

This finding of the present study can make an important contribution towards the future development of prevention programmes for young children at risk within the South African context. Furthermore, teacher reports revealed a stronger relationship between anxiety symptoms and behavioural inhibition than parent reports. This indicated the value of teacher reports. There was not complete agreement between parent and teacher reports on both scales of the PAS-R and the BIQ which further indicated the importance of both parent and teacher reports in research of this kind. This is especially true since parents as well as teachers have a significant influence on the development of children, according to the ecological theory (Bronfenbrenner, 1979) and can contribute towards reducing anxiety symptoms in young children (Hirschfeld-Becker et al., 2008; Tomb & Hunter, 2004). The only significant

difference found with regard to age, was the higher scores on generalized anxiety which the teachers reported for the 4- to to 6-year-old group. This finding was valuable because anxiety symptoms in a younger group of children, like 2- to 3-year-olds, may go undetected as the symptoms are often not visible to parents and teachers (Donovan & Spence, 2000; Tomb & Hunter, 2004).

CHAPTER 7

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

The motivation for the present study was based on the need to acquire a better understanding of the relationship between anxiety symptoms and behavioural inhibition in young South African children. This was done by addressing the aims of the research study:

- to investigate whether there was a relationship between anxiety symptoms and behavioural inhibition in a group of young South African children aged 2 to 6 years by means of parent and teacher reports
- to investigate the relationship between anxiety symptoms and behavioural inhibition in terms of gender and age in young South African children.

7.1 Main findings of the research study

7.1.1 Main findings relating to the first aim

- According to both parent and teacher reports a significant relationship was found between anxiety symptoms and behavioural inhibition in this sample of young South African children. Teacher reports, however, indicated a stronger relationship between anxiety symptoms and behavioural inhibition than parent reports. This was not an unusual finding (DiBartolo & Grills, 2006). In certain situations parents are unaware of the inhibited or shy behaviour exhibited by their children. Moderate to strong correlations were found between the PAS-R subscale Social anxiety and most of the BIQ subscales, suggesting that the relationship between behavioural inhibition and social anxiety proved to be stronger than the relationship between behavioural inhibition and the other anxiety subscales. This finding supported previous studies (Biederman et al., 2001; Gladstone et al., 2005; Hirshfeld-Becker et al., 2007; Muris et

al., 2011) which maintained that behavioural inhibition in childhood was associated with the risk of developing anxiety symptoms in later childhood or adolescence.

- In the present study there was not total agreement between parent and teacher reports on the PAS-R and BIQ. It is however not unusual for informants to provide different information (De los Reyes & Kazadin, 2005). Mothers usually report on children's behaviour more often than fathers. Mothers usually also spend more time with their children and are able to observe them across a variety of settings. Therefore they can provide information that might differ from the information teachers can provide (De Los Reyes & Kazadin, 2005). Parents and teachers do not observe children in the same settings and might be unaware of a child's behaviour in a specific situation (Edwards et al., 2010; Kagan et al., 1992). Parents and teachers may also perceive children's behaviour in specific situations differently (Kagan et al., 1992). The parent and teacher reports on children's anxiety symptoms and behavioural inhibition were therefore both considered to be valuable for the present study since both teachers and parents observed the children across different developmental stages, in different settings, over a long period of time (Fonseca & Perrin, 2011) and in different situations (Edwards et al., 2010).

7.1.2 Main findings relating to the second aim

- In the present study no significant differences were found between boys and girls with regard anxiety symptoms as reported by parents and teachers. This finding was consistent with previous studies which did not find any significant gender differences with regard to anxiety symptoms in children of this age group (Egger & Angold, 2006; Spence, 2001). Although their finding was only based on mother reports, Edwards et al. (2010) found that girls had higher rates of specific phobia than boys. Research with

older children indicated that girls had significantly higher levels of anxiety symptoms than boys (Costello et al., 2003; Muris et al., 2004; Muris et al., 2006; Prior et al., 2000; Rapee et al., 2009). A possible reason for the significant gender differences found among older children but not among young children might be that gender differences in anxiety symptoms first start to become noticeable at the age of around 4 to 5 years (Edwards et al., 2010; Roza et al., 2003).

- According to parent reports no significant differences were found with regard age groups and anxiety symptoms. The teachers, however, reported that the preschool children of 4 to 6 years old had higher levels of generalized anxiety than the toddlers of 2 to 3 years old. This finding differed from that of Spence et al. (2001) who found children of 3 years old had higher levels of anxiety symptoms than the 4- and 5-year-olds. Although there were differences with regard to age and anxiety symptoms, these differences were small and could be due to the age of onset of anxiety disorders showing minor differences across development (Rapee et al., 2009).

- According to both parent and teacher reports no significant differences with regard to gender and behavioural inhibition were found in the present study. This finding confirmed that of Rubin et al. (2009) who did not find any significant gender differences regarding behavioural inhibition. Gender differences were, however, found on the subscales of the BIQ (Broeren & Muris, 2010; Kim et al., 2011; Vreeke et al., 2012). Boys scored higher than girls on the BIQ subscales Performance situations (Broeren & Muris, 2010; Kim et al., 2011; Vreeke et al., 2012) and Separation (Kim et al., 2011). Girls were found to score higher than boys on the Physical activities subscale (Kim et al., 2011) and the Unfamiliar adults subscale (Vreeke et al., 2012). The gender differences found regarding behavioural inhibition could be due to the

different situations or contexts in which behavioural inhibition was assessed (Broeren & Muris, 2010; Vreeke, 2012).

- No significant differences were found pertaining to age groups and behavioural inhibition as reported by both parents and teachers. Broeren and Muris (2010) found differences between the different age groups. However, it should be noted that in this particular study the children's ages ranged from 4 to 15 years of age. Although they did not find any significant differences regarding age and behavioural inhibition in the younger children, they did find that older children were more inhibited on some of the BIQ subscales. The children who were 12 to 15 years old had higher scores than younger children on the BIQ subscale Physical challenge. They also found the older children scored higher than the younger children on the Performance situations subscale. This finding of older children being more inhibited with regard to Performance situations is believed to be consistent with the age of development of social anxiety (Broeren & Muris, 2010).

7.2 Critical review of the study

7.2.1 Aspects that posed challenges

There were aspects that posed challenges to the present study and resulted in a few limitations.

- The study consisted of a relatively small sample size. The participants in the study were part of a convenience sample as they were the parents and teachers of children attending a pre-primary, preschool and day care facility. The final sample consisted of a group of 107 children that were reported on by parents and teachers.

- The data were obtained in a quantitative manner by means of parent and teacher reports. Although this method of data collection is mostly objective, the information is mainly statistical (Louw & Kail, 2007). This form of data collection could limit the knowledge on a subject as it does not provide depth to the information obtained.
- A challenge was that some of the data in the questionnaires, the PAS-R in particular, were missing since certain items were not completed. This resulted in some PAS-R questionnaires being excluded from the data analyses as there were too many missing items. Of the 107 possible PAS-R reports, 101 from the parents (see Table 11) and only 60 from the teachers could be used (see Table 12). This caused a small teacher sample.
- The study relied solely on third-party reports—from the parents and teachers—of children's anxiety symptoms and behavioural inhibition. The data could therefore have been compromised due to the parents' and teachers' individual and subjective views.
- A limitation is that regression analysis was not used to examine the association between behavioural inhibition and anxiety in more detail, and with the effects of age and gender simultaneously.

7.2.2 Aspects that added value

Besides the fact that there were a few limitations to the study there were also aspects that added value and may hold important implications.

- Although the sample in the present study was not very large, the participants were from a multicultural environment, including participants from a variety of different cultural backgrounds, languages, religions and income groups.
- With input from experts in the preschool environment the questionnaires were slightly adapted to a parent-friendly format. This was done to make the completion of the

questionnaires as effortless as possible in an effort to increase the response rate. It was considered an advantage that 68% parents responded to the invitation to participate in the study.

- The present study could make an important contribution to the scientific knowledge base as it was the first of its kind to be conducted within the South African context. The study is the beginning of a longitudinal study which will add value to the body of knowledge regarding anxiety in young children which is an under-researched topic in an under-researched population group (Loxton, 2009). Behavioural inhibition is also an under-researched construct in young children especially within the multicultural South African context (Vreeke et al., 2012). The present study therefore may have implications for future research in this regard.
- The present study contributed by providing feedback about the findings of the study to the research participants. The aim was to create awareness among these adults of possible anxiety symptoms in children.
- A follow-up study has already been negotiated with the parents and teachers of the same group of children.

7.3 Recommendations for future research

Taking into account the limitations of the present study, the following recommendations may be applicable to future research:

- Future studies could employ a larger sample size to increase the generalizability of the results.
- Future research could consider adding a qualitative aspect to the study, for example open-ended questions, as this approach could add depth to the information obtained.

- It might be an advantage to incorporate child-friendly interviews and listen to the children themselves, to allow for a more comprehensive understanding of young South African children's experience of anxiety symptoms and behavioural inhibition. According to Loxton (2009) there is much value in listening to children expressing their own emotions as it allows for a better understanding of what they experience.
- It could be helpful to add a moderating variable to the study, especially as there seemed to be an interaction between child temperament and environmental risk factors, such as the family environment, in the development of childhood anxiety (Degnan, Almas, & Fox, 2010). The family environment and the parent-child relationship have an important impact on children's lives (Degan & Fox, 2007). Therefore there may be value in further exploring parenting practices, and behavioural inhibition within the family environment, as risk factors for the development of anxiety. This may contribute towards gaining a better understanding of the development of anxiety in children (Degnan et al., 2010).

- A regression model can be used to clarify the association between behavioural inhibition and anxiety and the effects of age and gender in a single analysis, in the follow- up study.

7.4 Concluding remarks

Despite the challenges and limitations of the present study, the findings were regarded as very valuable for the contribution it made to the current literature and for future studies that would be conducted in this regard. There also lies much value in the partial contribution it can make to the future prevention of anxiety in young children. The importance of detecting symptoms of anxiety early during the development was emphasized by researchers such as Egger and

Angold (2006). Other researchers (Hirshfeld-Becker et al., 2008; Kennedy et al., 2009; Rapee et al., 2005) put great emphasis on the value of early intervention efforts (Edwards et al., 2010).

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APPENDICES

APPENDIX A: PARENTS INFORMATION LETTER

Dear Parent/ Guardian

Request for participation in research study on preschool children

Research is currently being conducted at the University of Stellenbosch with regard to the relationship between anxiety symptoms and behavioural inhibition in early childhood (ages 2- to 6 years). Research shows that behavioural inhibition or shyness in early childhood might put children at risk for the development of anxiety symptoms, which might persist into adolescence or adulthood, if not addressed timeously.

The information gathered in this research will make a contribution to the current literature base on anxiety symptoms and behavioural inhibition in young children within the South African context. The aim of this study is to make use of the information in order to generate awareness among members of society, especially parents and teachers, to enable them to detect early signs of anxiety in young children. The proposed study aims to work towards the future prevention of anxiety in young children, and thereby enhancing quality of life and psychological well-being for young South African children.

This letter in a friendly request to you as a parent or guardian of a child who falls between the age range of 2- to 6 years, to participate in this research study by completing two questionnaires: (1) *Childhood Concerns Survey*, a scale developed to measure anxiety symptoms in preschool aged children, and (2) *Behavioural Inhibition Questionnaire*, which measures the levels of shyness in young children. Participation will be completely confidential and anonymity is assured. All information that will be used for research purposes will not be traceable to you or your child. The personal information required will only be used for administration purposes. In the final results of this study the only aspects that will be reported on will be age, gender and race of the child.

If you have any concerns about your child's behaviour during the course of the project; arrangements can be made for consultation with the supervisor, Dr Loxton, a registered Counselling Psychologist (hsl@sun.ac.za).

If you agree to participate in this study, it will be appreciated if you would please complete the form entitled STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH, attached to this letter and return it in the enclosed envelope marked for the attention of Ms Andrea Wege, [redacted].

The three questionnaires to be completed will be sent to you after receipt of the signed consent form. You have a choice to complete the questionnaires in either Afrikaans or English. For any further information regarding the research, you are welcome to contact the researcher or her supervisor.

Yours sincerely

Ms. Andrea Wege
MA Psychology Student
University of Stellenbosch
15202860@sun.ac.za

Supervisor: Dr. H. Loxton
Department of Psychology
University of Stellenbosch
Private bag X1
Matieland
South Africa
7602

APPENDIX B: TEACHERS INFORMATION LETTER

Dear Teacher

Request for participation in research study on preschool children

Research is currently being conducted at the University of Stellenbosch with regard to the relationship between anxiety symptoms and behavioural inhibition in early childhood (ages 2 -to 6 years). Research shows that behavioural inhibition or shyness in early childhood might put children at risk for the development of anxiety symptoms, which might persist into adolescence or adulthood, if not addressed timeously.

The information gathered in this research study would make a contribution to the current literature base on anxiety symptoms and behavioural inhibition in young children within the South African context. The aim of this study is to make use of the information in order to generate awareness among members of society, especially parents and teachers, to enable them to detect early signs of anxiety in young children. The proposed study aims to work towards the future prevention of anxiety in young children, and thereby enhancing quality of life and psychological well-being for young South African children.

This letter is a friendly request to you as a teacher of children who falls within the age range of 2- to 6 years, to participate in this research study by completing two questionnaires namely: (1) *Childhood Concerns Survey*, a scale developed to measure anxiety symptoms in preschool aged children, and (2) *Behavioural Inhibition Questionnaire*, which measures the levels of shyness in young children. Participation will be completely confidential and anonymity is assured. All information that will be used for research purposes will not be traceable to you or any of the children. The personal information required will only be used for administration purposes. In the final results of this study the only aspects that will be reported on will be that of the children's age, gender and race.

If you have any concerns about any child's behaviour during the course of the project; arrangements can be made for consultation with the supervisor, Dr Loxton, a registered Counselling Psychologist (hsl@sun.ac.za).

If you agree to participate in this study, it will be appreciated if you would please complete the form entitled STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH, attached to this letter and return it in the enclosed envelope marked for the attention of Ms Andrea Wege, [redacted].

The two questionnaires to be completed will be sent to you after receipt of the signed consent form. You have a choice to complete the questionnaires in either Afrikaans or English. For any further information regarding the research, you are welcome to contact the researcher or her supervisor.

Yours sincerely

Yours sincerely

Ms. Andrea Wege
MA Psychology Student
University of Stellenbosch
15202860@sun.ac.za

Supervisor: Dr. H. Loxton
Department of Psychology
University of Stellenbosch
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APPENDIX C: PARENTS INFORMED CONSENT

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

PARENTS / GUARDIAN

The relation between anxiety symptoms and shyness in young South African children

You are asked to participate in a research study conducted by **Andrea Wege,** currently enrolled as a MA psychology student, from the Department of Psychology at Stellenbosch University. The present study will help me complete the Psychology Research MA Thesis. You were selected as a participant in this study given that (1) your child are between the ages of 2- to 6 years, and (2) attend [redacted] in Stellenbosch, where the research study will be conducted.

1. PURPOSE OF THE STUDY

The purpose of the research study is to explore the relationship between anxiety symptoms and shyness (also called behavioural inhibition) in a sample of young South African children (ages 2-to 6 years) by means of parent-and educator reports. The proposed study seeks to expand the current literature base on anxiety symptoms and behavioural inhibition in young children within the South African context. The social relevance of the research is based on the future contribution this research can make in prevention of anxiety in young children and also to foster young children's psychological wellbeing, especially as behavioural inhibition is reported to be a vulnerability factor relating to anxiety problems in children.

2. PROCEDURES

Should you consent to participate in this research study, you will be asked to complete the following questionnaires, listed below, and **please return it to** [redacted] **before or on 18 May 2012:**

(1) Behavioural Inhibition Questionnaire (BIQ)
(2) Childhood Concerns Survey

3. POTENTIAL RISKS AND DISCOMFORTS

No physical risks or discomfort are likely to occur in the study.

4. POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Firstly, the proposed study aims to fill a gap in South African literature with regard to the relationship between anxiety symptoms and shyness (behavioural inhibition) in a sample of young South African children, seeing that very few studies, if any, in this regard have been undertaken in the South African context.

Secondly, this study proposes to make a future contribution to members of society in order to generate awareness among members of society, especially parents and educators, to enable them to detect early signs of anxiety in young children. The proposed study aims to work towards the future prevention of anxiety in young children, and thereby also enhancing quality of life and psychological well-being for young South African children. Results of the study will be presented to educators and parents/guardians at a specific occasion.

Thirdly, if any parent or educator expresses concern about any child's behaviour during the course of the project, arrangements can be made with Dr Loxton, a registered Counseling Psychologist, to address these issues through consultation.

5. PAYMENT FOR PARTICIPATION

Participants will not receive payment for participation in the study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you or your child will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of the following: soft copies of the data will be stored on a password secured computer; hard-copies of the data will be locked away into filing cabinets and only the researcher and the supervisor will have access to the data. The child will remain anonymous and his/her information will remain confidential. There will only be reported on variables such as age and gender, in the final reporting of the results.

Upon request, teachers and parents/ guardians will be provided with specific feedback.

Should the research be published, participants' information will stay fully confidential and anonymous.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to participate in this study or not. If you volunteer to participate in this study, you may withdraw at any time without consequences of any kind. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF RESEARCHER

If you have any questions or concerns about the research, please feel free to contact:

Andrea Wege **(Researcher)**

E-mail: 15202860@sun.ac.za

Dr H. Loxton (**Supervisor)**

Department of Psychology

University of Stellenbosch

Private bag X1

Matieland

South Africa

7602

E-mail: hsl@sun.ac.za

9. RIGHTS OF PARTICIPANTS

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 participant, you are welcome to contact **Ms Maléne Fouché (mfouche@sun.ac.za; 021 808 4622)** at the Division for Research Development, US

PLEASE TEAR OFF THIS PAGE AND RETURN IN THE ENVELOPE WITH THE COMPLETED QUESTIONNAIRES

Name of child: _____

Who completed the questionnaire: Mother/ Father/ Guardian?

Gender of guardian: Male / Female?

SIGNATURE OF PARTICIPANT

The information above was supplied to me by **Andrea Wege** in English and I am in command of this language.

I, the participant, understand that if I need to ask questions, I need to contact the researcher, and my questions will be answered to my satisfaction.

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

_____

Name and Surname
Participant (Parent / Guardian)

_____ _____

Signature of Participant **Date**

SIGNATURE OF RESEARCHER

I declare that I supplied the information given in this document to _____ [*name of the participant*].

_____ _____

Signature of Investigator **Date**

APPENDIX D: TEACHERS INFORMED CONSENT

STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

EDUCATOR

The relation between anxiety symptoms and shyness in young South African children

You are asked to participate in a research study conducted by **Andrea Wege**, currently enrolled as a MA psychology student, from the Department of Psychology at Stellenbosch University. The present study will help me complete the Psychology Research MA Thesis. You were selected as a participant in this study given that (1) you are currently employed at [redacted] in Stellenbosch, where the research study will be conducted and (2) you are an educator of the sample of children (2-to 6 years), and work with this group of children on a regular basis.

1. PURPOSE OF THE STUDY

The purpose of the research study is to explore the relationship between anxiety symptoms and shyness (also called behavioural inhibition) in a sample of young South African children (ages 2-to 6 years) by means of parent-and educator reports. The proposed study seeks to expand the current literature base on anxiety symptoms and behavioural inhibition in young children within the South African context. The social relevance of the research is based on the future contribution this research can make in prevention of anxiety in young children and also to foster young children's psychological wellbeing, especially as behavioural inhibition is reported to be a vulnerability factor relating to anxiety problems in children.

2. PROCEDURES

Should you consent to participate in this research study, you will be asked to complete the following questionnaires, listed below, and **please return it to** [redacted] **before or on 18 May 2012:**

(1) Behavioural Inhibition Questionnaire (BIQ)
(2) Childhood Concerns Survey
(3) Short Demographic Questionnaire

3. POTENTIAL RISKS AND DISCOMFORTS

No physical risks or discomfort are likely to occur in the study.

4. POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Firstly, the proposed study aims to fill a gap in South African literature with regard to the relationship between anxiety symptoms and shyness (behavioural inhibition) in a sample of young South African children, seeing that very few studies, if any, in this regard have been undertaken in the South African context.

Secondly, this study proposes to make a future contribution to members of society in order to generate awareness among members of society, especially parents and educators, to enable them to detect early signs of anxiety in young children. The proposed study aims to work towards the future prevention of anxiety in young children, and thereby also enhancing quality of life and psychological well-being for young South African children. Results of the study will be presented to educators and parents/guardians at a specific occasion.

Thirdly, if any parent or educator expresses concern about any child's behaviour during the course of the project, arrangements can be made with Dr Loxton, a registered Counseling Psychologist, to address these issues through consultation.

5. PAYMENT FOR PARTICIPATION

Participants will not receive payment for participation in the study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you or the school will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of the following: soft copies of the data will be stored on a password secured computer; hard-copies of the data will be locked away into filing cabinets and only the researcher and the supervisor will have access to the data. The child will remain anonymous and his/her information will remain confidential. There will only be reported on variables such as age and gender, in the final reporting of the results.

Upon request, educators and parents/ guardians will be provided with specific feedback.

Should the research be published, participants' information will stay fully confidential and anonymous.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to participate in this study or not. If you volunteer to participate in this study, you may withdraw at any time without consequences of any kind. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF RESEARCHER

If you have any questions or concerns about the research, please feel free to contact:

Andrea Wege **(Researcher)**
E-mail: 15202860@sun.ac.za

Dr H. Loxton (**Supervisor)**
Department of Psychology
University of Stellenbosch
Private bag X1
Matieland
South Africa
7602
E-mail: hsl@sun.ac.za

9. RIGHTS OF PARTICIPANTS

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 participant, you are welcome to contact **Ms Maléne Fouché (mfouche@sun.ac.za; 021 808 4622)** at the Division for Research Development, US.

PLEASE TEAR OFF THIS PAGE AND RETURN IN THE ENVELOPE WITH THE COMPLETED QUESTIONNAIRES

SIGNATURE OF PARTICIPANT

The information above was supplied to me by **Andrea Wege** in English and I am in command of this language.

I, the participant, understand that if I need to ask questions, I need to contact the researcher, and my questions will be answered to my satisfaction.

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

_____

Name and Surname
Participant (Educator)

_____

_____

Signature of Participant **Date**

SIGNATURE OF RESEARCHER

I declare that I supplied the information given in this document to _____ [*name of the participant*].

_____ _____

Signature of Researcher **Date**