

**THE IMPACT OF ATTENTION-DEFICIT/HYPERACTIVE
DISORDER ON INTERPERSONAL RELATIONSHIPS AND SELF-
ESTEEM**

by

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DEDICATION

This dissertation is dedicated to my father, Professor O.G. Oshodin who always stressed the importance of education as the best provision for old age and my mother Mrs O.A Oshodin for all the support she gave me during my studies.

DECLARATION

I, declare that "THE IMPACT OF ATTENTION-DEFICIT/HYPERACTIVE DISORDER ON INTERPERSONAL RELATIONSHIPS AND SELF-ESTEEM" is my own work and that all the sources that I have used or quoted have been indicated or acknowledged by means of complete references and that this work has not been submitted before for any other degree, at any other institution

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Glory and praise to God Almighty!

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ABSTRACT

Background: ADHD is a neurodevelopmental disorder affecting 3 – 7% of school age children. The core symptoms of ADHD, hyperactivity, impulsiveness and inattentiveness often cause problems in many aspects of life, including interpersonal relationships. The problems associated with the disorder may also lead to poor self-esteem.

Objective: To assess the impact of attention-deficit/hyperactivity disorder (ADHD) symptoms on interpersonal skills and self-esteem in a non-referred sample of primary school children meeting criteria for a diagnosis of ADHD.

Method: Eighty-two children with ADHD (6 – 13 years) were selected using a convenient sample screened from primary schools in the Limpopo Province and were compared to 82 children without significant ADHD symptoms, who match the ADHD children on age and gender. The children were screened and diagnosed using the Disruptive Behaviour Disorders rating scale (DBD). They were assessed on two instruments: The PHSF (Personal, Home, Self and Formal) relations questionnaire was used for the measurement of interpersonal relationship while self-esteem was measured using the self-concept inventory of the Beck-Self-Concept Inventory for youths [BSCI-Y]. The scores obtained on the two scales were compared for significant differences between the ADHD group and the non-ADHD comparisons as a possible function of gender.

Results: Children with ADHD scored significantly higher ($p < 0.001$) on the scale that measured problems with interpersonal relationships (PHSF) than the non-ADHD comparison group. There was no effect of gender. The measurement instrument for self-esteem (BSCI-Y) indicated that the children with ADHD had higher self-esteem than their non-ADHD comparisons ($p < 0.001$). Gender did not affect the difference between the groups.

Conclusion: The findings indicated that children, who are inattentive, impulsive and over-active, which are symptoms of ADHD, will have poorer interpersonal relationships than children without the disorder. Findings from the result of the measurement of self-esteem indicated that children with ADHD could have higher self-esteem than children without ADHD. The latter is in contrast with findings of most studies and may be ascribed to an unrealistic self-concept because of the young age of the participants or possible cultural factors.

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Chapter 1

INTRODUCTION

1.1 Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a clinically heterogeneous disorder characterised by inattention, impulsiveness and hyperactivity and has been estimated to affect 3.5% of school-aged children worldwide (Polanczyk, De Lima, Horta, Biederman & Rohde, 2007). ADHD is the most commonly studied and diagnosed psychiatric disorder in children, affecting about 3 to 5 percent of children globally (Nair, Ehimare, Beitman, Nair & Lavin, 2006), diagnosed in about 2 to 16 percent of school aged children (Rader, McCauley & Callen, 2009).

ADHD is a chronic disorder (Van Cleave & Leslie, 2008) with 30 to 50 percent of the individuals diagnosed in childhood continuing to have symptoms into adulthood (Elia, Ambrosini & Rapoport, 1999). Adolescents and adults with ADHD tend to develop coping mechanisms to compensate for some or all of their impairments (Gentile, Atiq & Gillig, 2006). It is estimated that 4.7 percent of American adults live with ADHD (Barkley, Murphy & Fischer, 2007).

ADHD is one of the most common psychiatric disorders of youth (American Psychiatric Association, 2000; American Psychiatric Association, 2013). The Diagnostic and Statistical Manual (DSM-IV) distinguishes the disorder into three subtypes based on the pattern of symptoms present. These subtypes include the Predominantly Inattentive (ADHD-PI), Predominantly Hyperactive/Impulsive (ADHD-HI) and the combined (ADHD-C) subtype (American Psychiatric Association, 2000). The terminology for ADHD, namely its three sub-categorisations, has changed slightly in the DSM-5. Previously, this disorder was

conceptualised in terms of three “subtypes” and presently three categorisations persist in DSM-5 and are now termed “Presentations.” According to the American Psychiatric Association (2013), the four subtypes/presentation of ADHD, rather than the current three subtypes, were proposed.

The disorder is generally more prevalent in males, but more severe in females (Swanson et al., 1998). Male to female ratios vary from 9:1 to 6:1 in clinic referred samples, but it is only approximately 3:1 in population based ones (Biederman et al., 1994).

ADHD is associated with proneness for repeated accidents, depressive and anxiety disorders and learning disabilities. It has a pervasive and severe impact on development if left untreated (Barkley, 2006) and it is also found among the most prevalent chronic health conditions affecting school-age children (American Academy of Pediatrics, 2000; Taylor et al., 2004).

ADHD often reveals itself in the infancy stage of development. Children with the disorder are often very active, have difficult temperaments or show irregular feeding and sleeping patterns (Tannock, 1998). At preschool stage, they are in perpetual motion, quickly moving from one activity to another (Sigelman & Rider, 2003). It is a persistent disorder and the children with it continue to show problems with impulsiveness, family conflicts and attention during adolescence (Gaub & Carlson, 1997). The evolving terminology and definitions assigned to ADHD in the Diagnostic and Statistical Manual of Mental Disorders have influenced how the characteristics of this disorder are conceptualised (Spencer, Biederman, Wilens & Faraone, 2002).

1.2 ADHD in Africa and South Africa

Childhood ADHD has been extensively researched in Europe and North America but very few studies are available from the African continent. A number of studies however, have emerged from Africa on the epidemiology of ADHD, Attention Deficit Hyperactivity symptoms and associated comorbidities among African children (Adewuya & Famuyiwa, 2007; Kashala, Tylleskar, Elgen, Kayembe & Sommerfelt, 2005; Meyer, Eilertsen, Sundet, Tshifularo & Sagvolden, 2004; Ofofwe, Ofofwe & Meyer, 2006; Wait, Stanton & Schoeman, 2002; Zeegers et al., 2010; Bakare, Ubochi, Ebigbo & Orovwigho, 2010).

The prevalence of ADHD among school children, according to studies conducted in Africa, ranges between 5.4% and 8.7% (Adewuya & Famuyiwa, 2007; Kashala et al., 2005; Meyer, 1998; Meyer et al., 2004; Ofofwe et al., 2006). The studies coming from South Africa (Meyer, 1998; Meyer et al., 2004) documented an incidence of about five percent, which concurred with the finding of a prevalence of about five percent in the meta-analysis study of world-wide prevalence of ADHD by Polanczyk, De Lima, Horta, Biederman and Rohde (2007).

1.3 Background of the study

The impairments which are associated with childhood ADHD include academic and social dysfunction and skills deficits. The children with ADHD face a high risk for academic failure, low self-esteem, poor peer relationship, parental conflict, delinquency, smoking and substance abuse (Barkley, Fischer, Smallish & Fletcher, 2004; Biederman & Faraone, 2004).

The stressful, demanding and intrusive natures of a child's ADHD characteristics are likely to evoke negative reactions from other family members and to exert a disruptive influence on family relationships and on the psychological functioning of parents (Johnston

& Mash, 2001). Difficulties in families of children with ADHD are originally driven by the characteristics of the disorder. Conflicted interactions have been observed for both boys and girls with ADHD (Barkley, 1989; Befera & Barkley, 1985) in interactions with both mothers and fathers (Tallmadge & Barkley, 1983).

Childhood and adolescent ADHD outcome studies suggest a link between deficits in social skills and self-esteem and the future development of academic, behavioural, emotional and interpersonal difficulties (Faigel, 1995; Slomkowski, Gittelman Klein & Mannuzza, 1995).

Studies have indicated that deficits in social skills and self-esteem associated with ADHD in childhood appear to continue into adolescence and adulthood (Mannuzza & Klein, 2000). Murphy and Barkley (1996) found that participants reported more interpersonal difficulties and problems with making friends when compared to controls. A recent study by Canu and Carlson (2003) found that male college students with ADHD symptoms experienced fewer dating relationships and more negative ratings by female confederates than controls did.

Studies have also shown that relationships between social functioning, self-esteem and ADHD may be related to later adjustment and self-esteem in adolescence and was positively correlated with psychosocial adjustment and negatively correlated with ADHD symptoms for both hyperactive and control participants (Slomkowski et al., 1995).

1.4 Objective of the study

The first objective of this study is to establish how children with ADHD are affected in their personal relationships by the disorder. The second objective is to establish whether children with ADHD have lower self-esteem than non ADHD comparisons.

The result of past research has shown that children with ADHD have problems with interacting with people as a result of their inability to pay attention for long which makes the individual they are communicating with to lose interest or to see them as rude, self-centred, and irresponsible. They also can easily be distracted and become forgetful of the conversation they were having because of the distraction, which can therefore cause problems in their interaction with others (Anderson, 1968; Barkley, Fischer, Smallish & Fletcher, 2006). The children with ADHD also have symptoms of impulsive and overactive actions which can result in conflict in their relationships. Children with the symptoms are likely to irritate adults and are locked in coercive power struggles with their parents, interactions that only aggravate their problems (Barkley, Fischer, Edelbrock & Smallish, 1990; Buhrmester, Whalen, Henker, MacDonald & Hinshaw, 1992). These children's behaviour is so disruptive that they are rejected by their peers which has its own damaging effects on their adjustment and later development (Deater-Deckard, 2001). These problems in their relationships would then lead to a negative impact on their self-esteem because they would feel lonely, socially rejected and finally lose confidence in themselves (Barkley et al., 2006; Johnston & Mash, 2001).

1.5 Purpose and significance of the study

The aim of this study is to examine the impact of ADHD symptomatology on interpersonal relationships and self-esteem of children with the disorder. The age group of the children that will be used in this study will be between 6 and 13 years of age. This study, hopefully, may be of importance so that relatives, teachers and peers of those children can be educated about the symptoms and the problems the symptoms could lead to. This will be helpful for the relatives, teachers, family members and peers to be more tolerant of the child with the disorder.

The study is also significant because problems of interpersonal relationships and self-esteem continue into adolescence and adulthood and hinder the social adjustments of adults with ADHD (Weiss & Hechtman, 1986). ADHD is considered a lifelong disorder, whereby 30% to 70% of children with the disorder experience impairing symptoms in adulthood (Barkley, 2002; Mannuzza & Klein, 2000).

The ability to have successful interactions has been considered one of the most important aspects of social development for all ages (Wheeler & Carlson, 1994). Researchers have noted that a deficit in peer relationships affects children's success and happiness (Gresham & Elliott, 1987).

Theorists like Freud, Rogers and Maslow, have stressed the critical role of self-esteem in the development of healthy functioning, whereas others such as Marshall, have suggested a link between social functioning and the development of self-esteem (Marshall, Anderson & Champagne, 1997).

The increased enrolment of ADHD college students has provided researchers with an enhanced opportunity to directly evaluate the impact of social functioning on the relationship between ADHD and different aspects of adjustments within an arena where issues of achievement, adjustment and social success all play a vital role (Shaw-Zirt, Popali-Lehane, Chaplin & Bergman, 2005).

This research project will also help in gaining more knowledge about the disorder and inform teachers and parents who may be unaware of the serious consequences. This is done through their participation in identifying the children with the disorder. The study will help the teachers who are involved in identifying the children to be able to have an idea of what the child with the disorder is going through and to be more patient while trying to

educate the child. The study will also provide academic knowledge and may contribute to further research in this field. The beneficiaries of this study include parents, counselling psychologists, educational psychologists, clinical psychologists, psychiatrists, paediatricians, teachers and the affected children themselves. The research will help in the development of new strategies in dealing with the disorder.

The study will also help students who are interested in getting more information about ADHD in order to do further research and gain more knowledge about the disorder. Clinical psychologists will be able to develop better treatment for the disorder and also more strategies to deal with children with the disorder. The theoretical significance of this study is that it shows how ADHD affects the relationships and self-esteem of children with the disorder. The methodology used in this study will help in showing the difference between children with and without the disorder. It also shows how the disorder affects their interpersonal relationships and self-esteem.

1.6 Delineation of the study

A brief introduction of ADHD is provided in Chapter 1. The impact of the disorder on self-esteem and interpersonal relationships is also given, the objective of the study, its purpose and significance. In Chapter 2, the focus is on the historical and general background of the disorder, diagnostic criteria and primary symptoms, prevalence, assessment tools, comorbid disorders, aetiology, genetic factors, gender differences, environmental factors, as well as treatment options and outcomes.

Chapter 3 focuses on the interpersonal relationships and self-esteem development and characteristics. Chapter 4 focuses on the relationship between ADHD, interpersonal relationships and self-esteem.

In Chapter 5, the focus will be on the problem statement and hypotheses formulation. Chapter 6 outlines the research methodology, while Chapter 7 represents the results and analysis of the obtained data. Chapter 8 gives a critical discussion.

Chapter 2

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

2.1 Historical background

The few papers about this disorder that appeared before 1900 were clearly medical in nature and were often described as the residual, cognitive and behavioural effects of various central nervous system (CNS) injuries to children such as trauma and infections. Credit is typically awarded to George Still (Still, 1902) and Alfred Tredgold (Tredgold, 1928) as being the first to focus serious medical attention on the behavioural condition in children that most closely approximates what is today known as ADHD (Barkley, 2006).

ADHD became widely recognised with the publication of successive revisions of the Diagnostic and Statistical Manual of Mental Disorders (DSM), particularly DSM-III, DSM-III R, DSM-IV, DSM-IV-TR and DSM-5 (American Psychiatric Association, 1972; 1987; 1994; 2000; 2013) and the International Classification of Diseases: ICD-10 (World Health Organization, 1993).

The view that emerged at the beginning of the 1900's was one of ADHD as a biologically based disorder of the control of behaviour by morals and volitional inhibition; it was seen as little affected by social circumstances. This would evolve over 90 years to a view of ADHD as a biological, often hereditary, predisposition to defects in the regulation of behaviour by rules and consequences that could be significantly modulated by social circumstances (Barkley, 2006).

Throughout this evolution, the role of behavioural disinhibition or self-regulation has proven a central theme to which theorists of different eras have returned again and again.

Labels have changed from “brain damage syndrome” and “organic driveness” to “hyperkinetic impulse disorder” and then on to Attention-Deficit Disorder (ADD), culminating into ADHD (Barkley, 1997b).

ADHD and its diagnosis and treatment have been considered controversial since the 1970’s (Parrillo, 2008). The controversies have involved clinicians, teachers, policymakers, parents and the media. Topics include the actuality of the disorder, its causes and the use of stimulant medications in its treatment (Mayes, Bagwell & Erkulwater, 2008).

Most healthcare providers accept that ADHD is a genuine disorder with debate in the scientific community focusing mainly on how it is diagnosed and treated (Schonwald & Lechner, 2006; Sim, Hulse & Khong, 2004). The *American Medical Association* concluded in 1998 that the diagnostic criteria for ADHD are based on extensive research and, if applied appropriately, lead to the diagnosis with high reliability (Goldman, Genel, Bezman & Slanetz, 1998).

2.2 General background of the disorder

Attention-Deficit/Hyperactivity Disorder is a developmental disorder of self-control that consists of problems with attention span, impulse control, and activity level. These problems are reflected in an impairment of a child’s will or capacity to control his or her own behaviour (Barkley, 2006).

Estimates of ADHD prevalence range from 3 to 7 percent of school age children with boys much more likely to receive this diagnosis than girls, especially the hyperactive-impulsive subtype (American Psychiatric Association, 2000). ADHD is found to be as prevalent on the African continent as in Western countries (Kashala et al., 2005; Meyer, 1998; Meyer et al., 2004; Ofofwe et al., 2006). While childhood ADHD has been extensively

researched in Europe and North America very few studies are available in the African sub-region since the publication on worldwide prevalence in 2007 (Polanczyk et al., 2007).

ADHD is associated with many behavioural and academic problems. Children with this disorder are more likely to need to attend special classes or to drop out of school and to misbehave, become delinquent or have problems with the law (Greene et al., 1996; Lambert, 1988; Mariani & Barkley, 1997).

Boys with ADHD have more difficulty in less structured situations or in activities demanding sustained attention. Based on parents' reports, boys with ADHD show more sadness, anger and guilt than those without ADHD (Braaten & Rosén, 2000). Children with ADHD seem to have particular difficulty controlling their activity in situations that call for sitting still such as in the classroom or at meal times. When told to be quiet they appear to stop moving or talking. Their activities and movements seem haphazard. They may quickly wear out their shoes and clothing, smash their toys and exhaust their families and teachers (Kring, Johnson, Davison & Neale, 2010).

2.3 Diagnostic criteria and primary symptoms

2.3.1 Diagnostic criteria

The principal signs of ADHD are based on a detailed history of a child's early developmental patterns along with direct observation of the child. The diagnosis of ADHD requires persistent, impairing symptoms of either hyperactivity/impulsiveness or inattention that cause impairments in at least two different settings (Sadock & Sadock, 2007). The ADHD diagnosis does not properly apply to children who are rambunctious, active or slightly distractible in early school years, children are often so (Whalen, 1983). The diagnosis of ADHD should be reserved for truly severe and persistent cases. School history and teachers' reports are important in evaluating whether a child's inability to sustain attention or

compromised understanding of the academic material. The type of relationship the child has with siblings, peers, adults and free and structured activities gives valuable diagnostic clues to the presence of ADHD and helps identify complications of the disorder (Sadock & Sadock, 2007).

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, (DSM-5), published by the American Psychiatric Association is the guide that lays out the criteria to be used by doctors, mental health professionals and other qualified clinicians when making a diagnosis of ADHD. The DSM-5 which was published in 2013 made changes to the definition of ADHD that will affect how the disorder is diagnosed in children and in adults (American Psychiatric Association, 2013).

The diagnostic criteria for ADHD have stated for many years that only children were diagnosed with the disorder. That meant that teens and adults with symptoms of the disorder and who may have been struggling for many years without knowledge of what they were experiencing could not officially be diagnosed with ADHD. The DSM-5 has changed this and shows that the disorder is also present in adults and teens (American Psychiatric Association, 2013). The changes made in the diagnostic criteria include:

- Clinicians look back to middle childhood (age 12) and the teen years when making a diagnosis for the beginning of symptoms, not all the way back to childhood.
- Subtypes are now referred to as presentations. A person can change “presentations” during its lifetime. This change better describes how the disorder affects an individual at different points in life.

- A person with ADHD can now have mild, moderate or severe ADHD. This is based on how many symptoms a person has and how difficult those symptoms make daily life.
- A person can now be diagnosed with ADHD and Autism Spectrum Disorder American (American Psychiatric Association, 2013).
- In making a diagnosis, children still should have six or more symptoms of the disorder. In older teens and adults the DSM-5 states they should have at least five symptoms.

According to DSM-5 American (American Psychiatric Association, 2013), the criteria of symptoms for diagnosis of ADHD include:

Inattentive presentation:

- Fails to give close attention to details or makes careless mistakes.
- Has difficulty sustaining attention.
- Does not appear to listen.
- Struggles to follow through on instructions.
- Has difficulty with organisation.
- Avoids or dislikes tasks requiring a lot of thinking.
- Loses things.
- Is easily distracted.
- Is forgetful in daily activities.

Hyperactive-impulsive presentation:

- Fidgets with hands or feet or squirms in chair.
- Has difficulty remaining seated.
- Runs about or climbs excessively in children; extreme restlessness in adults.

- Difficulty engaging in activities quietly.
- Acts as if driven by a motor; adults will often feel inside like they were driven by a motor.
- Talks excessively.
- Blurts out answers before questions have been completed.
- Difficulty waiting or taking turns.
- Interrupts or intrudes upon others.

Combined inattentive and hyperactive-impulsive presentation:

- Has symptoms from both of the above presentations (American Psychiatric Association, 2013).

2.4 Symptoms

2.4.1 Inattention

Children with ADHD display marked inattention, relative to normal children of the same age and sex. Inattention is a multi-dimensional construct that can refer to problems with alertness, arousal, selectively sustained attention and distractibility (Douglas & Peters, 1979). These difficulties are seen in free play settings as evidenced by shorter duration of play with each toy (Barkley & Ullman, 1975).

2.4.2 Behavioural Disinhibition (Impulsiveness)

Deficiency in inhibiting behaviour in response to situational demands is also a primary symptom of ADHD and is also multidimensional in nature (Milich, Balentine & Lynam, 2001). Behavioural disinhibition or impulsiveness is currently seen as the most reliable indicator of ADHD out of the three primary symptoms (inattention, hyperactivity and impulsiveness) (Johansen, Aase, Meyer & Sagvolden, 2002; Johansen, Sagvolden, Aase & Russell, 2005).

2.4.3 Hyperactivity

This is a symptom or characteristic where children show excessive or developmentally inappropriate levels of activity which include restlessness, fidgeting and generally unnecessary gross bodily movements (Stewart, Pitts, Craig & Dieruf, 1966).

2.5 Prevalence

The mean worldwide prevalence of ADHD is between 5.29 % and 7.1 % in children and adolescents under 18 years (Polanczyk et al., 2007; Willcutt et al., 2012). The prevalence of ADHD in Europe was estimated at just under 5%. However, there are still global or European data on rates of incidence, prevalence or epidemiology of ADHD. Estimation of the prevalence of ADHD may be complicated by a range of factors such as methodological and cultural differences and variability in identification and medical classification systems used for diagnosis (Polanczyk et al., 2007).

ADHD is more prevalent in boys than girls, with the ratio ranging from 2 to 1 to as much 9 to 1. Siblings of children with ADHD are at higher risk than the general population to have learning disorders and academic difficulties. Reports on the incidence of ADHD have varied from 2 to 20 percent of primary school children. In Great Britain a lower incidence is reported than in the United States, less than 1 percent (Sadock & Sadock, 2007).

The prevalence of ADHD among school children according to studies conducted in Africa ranges between 5.4% and 8.7% (Adewuya & Famuyiwa, 2007; Kashala et al., 2005; Meyer et al., 2004; Ofovwe et al., 2006) with the prevalence being much lower among a

population of children from the general community where a prevalence of 1.5% was documented (Ashenafi, Kebede, Desta & Alem, 2001). The studies from South Africa documented a prevalence of about 5%, which concurred with the finding of a prevalence of about 5% in the meta-analysis study of worldwide prevalence of ADHD (Polanczyk et al., 2007).

2.6 Gender differences

Studies have shown that ADHD is more frequent in males than in females, with male to female ratios ranging from 2:1 to 9:1 depending on the type and setting (American Psychiatric Association, 2000; 2013). According to Greene and colleagues, the ratio ranges from 3:1 to 5:1 (Greene et al., 2001; Swanson et al., 1998; Skogli, Teicher, Andersen, Hovik & Oie, 2013). Girls with ADHD are unlikely to reach the attention of mental health services because they are less likely to exhibit the more externalising, aggressive behaviours seen in boys. Girls are less likely to act out in class (Johansen et al., 2002).

2.7 Comorbid disorders

Children with ADHD may have a variety of other difficulties besides the primary problems of inattention, impulsiveness and hyperactivity (Barkley, 2006). A temperamental constellation consisting of a high activity level short attention span in the normal range of expectation for a child's age is usually similar to ADHD symptoms and should be considered. It is difficult differentiating this because of the overlapping features of a normally immature nervous system and the emerging signs of visual-motor-perceptual impairments frequently seen in ADHD (Sadock & Sadock, 2007). Primary Disorder of Vigilance is characterised by poor attention and concentration as well as difficulties staying awake similar to symptoms of ADHD. These children tend to fidget, yawn and stretch and appear to be hyperactive in

order to remain alert and active (Krull, George & Strother, 2007). ADHD coexists with disorders which include:

2.7.1 Conduct and Oppositional Defiant disorder (Externalising disorders)

Conduct Disorder (CD) and Oppositional Defiant Disorders (ODD) frequently co-exist with ADHD which makes a differential diagnosis difficult (American Psychiatric Association, 2013; Hazell, 2010). ODD (35%) and CD (26%) which both are characterised by antisocial behaviours such as stubbornness, aggression, frequent temper tantrums, deceitfulness, lying, or stealing inevitably linking these comorbid disorders with Antisocial Personality Disorder (ASPD). About half of those with hyperactivity and ODD or CD develop ASPD in adulthood (Krull et al., 2007).

2.7.2 Borderline Personality disorder

Borderline Personality Disorder, which was according to a study on 120 female psychiatric patients, diagnosed and treated for BPD associated with ADHD in 70 percent of those cases (Philipsen, 2006). Borderline disorder is characterised by extraordinarily unstable affect, mood, behaviour, object relations and self-image (Sadock & Sadock, 2007).

2.7.3 Mood disorders.

Boys diagnosed with the combined subtype of ADHD have been shown likely to suffer from a mood disorder (Bauermeister et al., 2007a). Mood disorders are a group of clinical conditions characterised by a loss of sense of control and subjective experience of great distress. Patients with elevated mood demonstrate expansiveness, flight of ideas, decreased sleep and grandiose ideas. Patients with depressed mood experience a loss of energy and interest, feelings of guilt, difficulty in concentrating, loss of appetite and

thoughts of death or suicide. These disorders, like ADHD, result in impaired interpersonal, social and occupational functioning (Sadock & Sadock, 2007).

2.7.4 Bipolar disorder

Previous research has found that as many as 25 percent of children with ADHD have bipolar disorder. Children with this combination may demonstrate more aggression and behavioural problems than those with ADHD alone (Krull et al., 2007). Patients with both manic and depressive episodes or patients with manic episodes alone are said to have bipolar disorder (Sadock & Sadock, 2007). Children with bipolar disorder experience more intense hyperactivity and impulsiveness than those with ADHD (Faraone, Biederman, Weber & Russell, 1998). It has been found that symptoms of bipolar disorder are hard to differentiate from those of ADHD because evidence shows that there is a high rate of ADHD symptoms in adolescents with bipolar disorder (Conners & Jett, 1999).

2.7.5 Anxiety disorder

Anxiety disorder, which has been found to be common in girls diagnosed with the inattentive subtype of ADHD (Bauermeister et al., 2007b), has been found to have similar symptoms to ADHD like restlessness, irritability, impatience and sleep disturbances. These symptoms in anxiety disorder have a shorter duration accompanied by signs of autonomic nervous system arousal and include rumination about the future or potential misfortune (Conners & Jett, 1999).

2.7.6 Obsessive-Compulsive disorder

Obsessive-compulsive disorder (OCD) is believed to share a genetic component with ADHD and shares many of its characteristics (Krull et al., 2007). This disorder is represented

by diverse groups of symptoms that include intrusive thoughts, rituals, preoccupations and compulsions which cause distress to a person. It also affects the patients occupational functioning, usual social activities or relationships (Sadock & Sadock, 2007).

2.7.7 Reading disorders

Reading Disorder is characterised by an impaired ability to recognise words, slow and inaccurate reading and poor comprehension. Children with ADHD are at a high risk for Reading Disorder. Data suggest that up to 25 percent of children with Reading Disorder also have ADHD. Although these disorders frequently occur concurrently, they are distinct conditions and require separate interventions. Family studies indicate that in some cases ADHD and Reading Disorder may be transmitted together. Children with Reading Disorder also tend to be at an increased risk for problematic peer relationships and less skill in responding to social cues (Sadock & Sadock, 2007). Individuals with Reading Disorders are impaired in some abilities in which ADHD children are also weak, such as processing speed (Rucklidge & Tannock, 2002; Smith, Taylor, Rogers, Newman & Rubia, 2002). Executive functions domains such as verbal working memory (Rucklidge & Tannock, 2002), cognitive flexibility (Aase & Sagvolden, 2005; Aase, Meyer & Sagvolden, 2006) and response inhibition (Purvis & Tannock, 2000) are involved in both disorders.

2.7.8 Learning disorder

Learning Disorders are characterised by academic underachievement in reading, written expression or mathematics in comparison with the overall intellectual ability of the child. Learning Disorders can also lead to eventual low self-esteem, chronic frustrations and poor peer relationship. Learning disorders are associated with higher than average risk of ADHD. It is estimated that between 15 and 30 percent of children diagnosed with ADHD

have a learning disorder (Sadock & Sadock, 2007). There has been no definitive data describing the differences among groups of children with different learning skills as coexisting ADHD in the areas of socio-demographic characteristics, behavioural and emotional functioning and response to various interventions (American Academy of Pediatrics, 2000).

2.7.9 Tourette Syndrome

This disorder is characterised by multiple motor tics and one or more vocal tics which occur many times a day for more than a year. Tourette's Disorder causes distress or significant impairment in important areas of functioning. Tics are abnormal movements or vocalisation that mostly affects the muscles of the face and neck, such as eye-blinking, head-jerking, mouth-grimacing or head-shaking (Sadock & Sadock, 2007). Strong association has been found between ADHD and Tourette Disorder (Sergeant, Geurts & Oosterlaan, 2002). It has also been suggested that ADHD and Tourette Disorder have a common genetic aetiology, proposing that Tourette's gene can express itself as ADHD alone (Pliszka, Carlson & Swanson, 1999).

2.8 Aetiology

Substantial evidence indicates that a genetic predisposition towards ADHD plays a role (Thapar, Langley, Owen & O'Donovan, 2007). Adoption studies (Sprich, Biederman, Crawford, Mundy & Faraone, 2000) and numerous large scale twin studies (Levy, Hay, McStephen, Wood & Waldman, 1997; Sherman, Iacono & McGue, 1997) indicate a genetic component to ADHD with heritability estimates as high as 70 to 80 percent (Tannock, 1998).

Some researchers believe that certain foods or food additives produce physiological changes in the brain or other parts of the body resulting in hyperactive behaviours

(Feingold, 1974). Sugar has also been suspected to be a causal factor of ADHD (Wolraich, Wilson & White, 1995). Approximately 45 percent of physicians have recommended low-sugar diets for children with ADHD. Many parents have tried the recommended diets for their children and claim their children's behaviour improved (Bennett & Sherman, 1983). Some studies show that eliminating food additives or certain chemicals from the diets of hyperactive children had little effect on their behaviour (Milich & Pelham, 1986; Wolraich, Wilson & White, 1995).

2.8.1 Neurobiological factors

Studies suggest that brain structure and function differ in children with and without ADHD, particularly in areas of the brain linked to the neurotransmitter, dopamine. Studies have shown that dopaminergic areas of the brain, such as the caudate nucleus, globus pallidus and frontal lobes are smaller in children with ADHD than children without ADHD (Castellanos et al., 2002; Swanson et al., 2007).

Studies of brain function have found that children with ADHD exhibit less activation in frontal areas of the brain while performing different cognitive tasks (Casey & Durston, 2006; Nigg & Casey, 2005; Rubia et al., 1999). Children with ADHD perform poorly on neuropsychological tests that rely on the frontal lobes, providing support for the theory that a basic deficit in this part of the brain may be related to the disorder (Barkley, 1997a; Nigg, 2001; Nigg & Casey, 2005; Tannock, 1998).

2.8.2 Perinatal and Prenatal factors

Other neurobiological risks for ADHD include a number of prenatal, perinatal and postnatal complications. Low birth weight is a quite specific predictor of the development of ADHD (Bhutta, Cleves, Casey, Cradock & Anand, 2002; Breslau, Chilcoat, Johnson, Andreski & Lucia, 2000; Strang-Karlsson et al., 2008).

Other complications associated with child-birth, as well as the mother's use of substances like tobacco and alcohol are also predictive of ADHD symptoms (Knopik et al., 2006; Neuman et al., 2007).

2.8.3 Environmental toxins

Early theories of ADHD that were popular in the 1970's involved the role of environmental toxins in the development of hyperactivity. One theory of hyperactivity enjoyed much attention for many years. Feingold (1975) proposed that additives and artificial colours in foods upset the central nervous systems of children who were hyperactive and he prescribed a diet free of these. Studies of the Feingold diet have found that very few children with ADHD respond positively to it (Conners, Goyette & Newman, 1980). A more recent study found a similarly small effect of food additives and artificial food colouring on hyperactive behaviour among children in the community (McCann et al., 2007).

Maternal smoking of nicotine is an environmental toxin that may play a role in the development of ADHD. One study found that 22 percent of mothers of children with ADHD reported smoking a pack of cigarettes per day during pregnancy, compared to 8 percent of mothers whose children did not develop ADHD (Lindblad & Hjem, 2010; Milberger, Biederman, Faraone & Jones, 1998). A review of 24 studies examining the association between maternal smoking and ADHD found that exposure to tobacco in utero was associated with ADHD symptoms (Linnet et al., 2003).

2.8.4 Psychological factors

The parent-child relationship interacts with neurobiological factors in a complex way to contribute to ADHD symptom expression (Hinshaw, Zupan, Simmel, Nigg & Melnick, 1997). Some psychosocial correlates of ADHD are social disadvantage (Scahill, Barloon & Farkas, 1999), marital disruption (Carlson, Jacobvitz & Sroufe, 1995), and psychiatric disorder (Rutter & Maughan, 1997). Significantly, when stimulant medication is used, either alone or in combination with behavioural treatment, the parent's commands, negative behaviour and ineffective parenting also decrease, suggesting that the child's behaviour has at least some negative effect from the parent's behaviour (Barkley, 2006; Wells et al., 2000).

In a study that examined couples' parenting practices with their children, fathers who had a diagnosis of ADHD were less effective, suggesting that parental psychopathology may make parenting all the more difficult (Arnold, O'Leary & Edwards, 1997). Family characteristics thus may well contribute to maintaining or exacerbating the symptoms and consequences of ADHD. There is little evidence that families actually cause ADHD (Johnston & Leung, 2001).

2.8.5 Environmental factors

Environmental factors combined with all non-genetic sources of neurological impairments, account for about 10-15 percent of the variance in hyperactive symptoms (Goodman & Stevenson, 1989; Goodman, Simonoff & Stevenson, 1995).

Although there is no evidence that environmental factors cause ADHD, they may influence how the disorder is expressed. For example, although ADHD is not caused by "bad parenting," certain parenting methods can improve or aggravate some symptoms of the disorder (Cherkasova, Sulla, Dalena, Ponde & Hechtman, 2013).

Environmental factors that may influence how ADHD is expressed include:

- Exposure to lead (Nicolescu et al., 2010).
- Exposure of a foetus to smoking or alcohol during pregnancy (Han et al., 2015).

2.9 Treatment of ADHD

There are several effective and evidence-based options to treat persons with ADHD. This literature on the treatment will help in understanding and solving the problems of interpersonal relationships and self-esteem that children with the disorder may experience.

2.9.1 Pharmacological treatment

The American Academy of Pediatrics recommends different treatment paradigms depending on the age of the person being treated. For those aged 4–5, the Academy recommends evidence-based parent and/or teacher-administered behaviour therapy, with the addition of methylphenidate (Ritalin®) only if there are continuing moderate-to-severe functional disturbances. For those aged 6–11, the use of medication in combination with behaviour therapy is recommended, with the evidence for stimulant medications being stronger than that for other classes. For those aged 12–18, medication should be prescribed with the consent of the treated adolescent, preferably in combination with behavioural therapy (Wolraich et al., 2011).

The pharmacological management of ADHD relies on agents that affect dopaminergic and noradrenergic neurotransmission, namely, stimulants, antidepressants and antihypertensives (Biederman & Faraone, 2005). A new agent, a noradrenergic reuptake inhibitor, atomoxetine (Strattera®) has also become available (Buitelaar et al., 2004; Newcorn, Spencer, Biederman, Milton & Michelson, 2005). The most commonly used stimulants are methylphenidate (Ritalin®, Ritalin LA®, Ritalin SR®, Concerta®, Focalin®, Methylin®, Methylin ER®, Metadate ER® and Metadate CD®) and amphetamine compounds

(Adderall®, Adderall XR®, Dexedrine®, Dexedrine Spansule® and DextroStat®) The latter are illegal in South Africa, even for medical use. Stimulants have been shown to be effective for 70% of adolescents and seem to operate in a dose-dependent manner in improving cognition and behaviour (Biederman, Spencer & Wilens, 2004; Evans et al., 2001). The beneficial effects of stimulants are of similar quality and magnitude for adolescents of both genders and for younger and older children (Buitelaar, Montgomery & Van Zwieten-Boot, 2003).

Immediate-release preparations of methylphenidate and amphetamine are available in generic form. The extended-release formulations provide longer durations of action, resulting in the need for fewer daily administrations, elimination of school administrations, and thus fewer adherence issues and less potential for diversion and abuse. The extended-release preparations of the stimulants have durations of action that start \pm 30 minutes after dosing and last 8 hours (Ritalin LA® and Metadate CD®) to 12 hours (Concerta® and Adderall XR®). Dosing starts at the lowest dose available. Doses exceeding those approved by the Food and Drug Administration have been used clinically. A recent multisite study of OROS methylphenidate with adolescents demonstrated that one third of the participants experienced the best efficacy with 72 mg daily, with good tolerability (Wilens & Dodson, 2004).

There seems to be a dose-response relationship for both behavioural and cognitive effects of the stimulants among youths with ADHD (Evans et al., 2001; Rapport et al., 1987), as well as for the most commonly reported short-term adverse effects, such as appetite suppression, sleep disturbances, and abdominal pain (Evans et al., 2001; Greenhill et al., 2002; Pelham, Waschbusch, Hoza, Pillow & Gnagy, 2001).

Long-term adverse effects remain controversial, with mixed literature findings indicating only a weak association with motor tic development and variable results regarding height/weight decrement among prepubertal youths with ADHD (Greenhill et al., 2002; MTA Cooperative Group, 2004; Spencer, Biederman & Wilens, 1998).

Atomoxetine (Strattera®) is a recently approved, nonstimulant agent that has been approved for adolescents with ADHD. Atomoxetine is a highly specific, noradrenergic reuptake inhibitor with efficacy for ADHD (Buitelaar et al., 2004; Michelson et al., 2001; Newcorn et al., 2005). Moreover, atomoxetine seems to have efficacy for ADHD plus co-occurring disorders such as anxiety, tics and depression. Atomoxetine has been shown to have similar efficacy and tolerability (side-effect profile) among adolescents, relative to more prototypic school-aged children with ADHD. In addition, long-term data indicate continued effectiveness with normal growth in height and weight and no unexpected adverse events occurring over 2 years (Michelson et al., 2002).

Atomoxetine demonstrates no abuse liability and is unscheduled by the Drug Enforcement Administration. It can be dosed once or twice daily. The effects of atomoxetine are more gradual than those experienced primarily with stimulant medications. (Michelson et al., 2001; Michelson et al., 2002).

Atomoxetine and stimulants have both been demonstrated effective as single agents for treatment of ADHD in children, adolescents and adults. However, ADHD symptoms in some patients do not respond adequately to single-agent treatments with these medications, each of which is presumed to impact dopaminergic and noradrenergic networks by alternative mechanisms in different ratios. This combined pharmacotherapy appears effective for some patients who do not respond adequately to monotherapy, but

because there is virtually no research to establish safety or efficacy of such strategies, careful monitoring is needed (Kratochvil et al., 2002).

The drugs used to treat ADHD reduce disruptive behaviour and improve ability to concentrate. Numerous controlled studies comparing stimulants with placebos in double-blind designs have shown short-term improvements in concentration, goal directed activity, classroom behaviour and social interactions with parents, teachers and peers, as well as reductions in aggressiveness and impulsiveness in about 75 percent of children with ADHD (Spencer et al., 1996; Swanson et al., 1995).

The best designed randomised controlled trial of treatments for ADHD was the multimodal treatment of children with ADHD. It was conducted at six different sites for fourteen months with nearly 600 children with ADHD; the study compared standard community-based care and other treatments: Medication alone, medication plus intensive behavioural treatment, involving both parents and teachers and the third treatment is intensive behavioural treatment alone (MTA-Cooperative Group, 1999).

Across the 14 month period, children receiving medication alone had fewer symptoms than children receiving intensive behavioural treatment alone. The combined treatment was slightly superior to the medication alone and had the advantage of not requiring as high a dosage of methylphenidate to reduce ADHD symptoms. In addition, the combined treatment yielded improved functioning in areas such as social skills more than did the medication alone (MTA-Cooperative Group, 1999).

Analyses that examined treatment effects by ethnicity indicated that Caucasian, African-American and Latino children benefited equally from treatment, particularly from the combined treatment (Arnold et al., 2003).

Although children in the MTA study who received stimulant medication (either alone or in the combined treatment group) still had a reduction in ADHD symptoms, the effect was substantially smaller than it was during the original study (MTA Cooperative Group, 2004).

2.9.2 Psychological Treatment

Promising treatments for ADHD involve parent training and changes in classroom management (Chronis, Jones & Raggi, 2006). These programmes have demonstrated at least short-term success in improving both social and academic behaviour. In these treatments, children's behaviour is monitored at home and in school and they are reinforced for behaving appropriately. Improving the surrounding home and school environment can improve the behaviour of children with ADHD (American Academy of Pediatrics, 2000). Parents of children with ADHD often show similar deficits themselves, and thus may not be able to sufficiently help the child with his or her difficulties (Kazdin, 2005).

Improving the parents' understanding of the child's behaviour and teaching them strategies to improve functioning and communication and discourage unwanted behaviour has measurable effects on the children with ADHD (American Academy of Pediatrics, 2000). The different educational interventions for the parents are jointly called *Parent Management Training*. Techniques include operant conditioning; a consistent application of rewards for meeting goals and good behaviour (positive reinforcement) and punishments such as time-outs or revocation of privileges for failing to meet goals or poor behaviour (American Academy of Pediatrics, 2000). Classroom management is similar to parent management training; educators learn about ADHD and techniques to improve behaviour applied to a classroom setting. Strategies utilised include increased structuring of classroom activities, daily feedback and token economy (American Academy of Pediatrics, 2000).

Findings from the above mentioned MTA study indicate that intensive behavioural therapies can be very helpful to children with ADHD. The findings of this study also suggests that intensive behavioural therapy may be as effective as methylphenidate combined with a less intensive behavioural therapy (Arnold et al., 2003; Pelham et al., 2000).

A meta-analysis conducted in 2013 concluded that working memory training provides short term improvements in working memory skills, but that there was limited evidence that these improvements were sustained or that they were generalised to improved verbal ability, mathematical skills, attention, or word decoding (Melby-Lervag & Hulme, 2013). On the other hand, reviews of the evidence up to 2014 indicate that there is insufficient evidence to recommend computer based cognitive training (Sonuga-Barke, Brandeis, Holtmann & Cortese, 2014).

2.10 Prognosis

Children diagnosed with ADHD have significant difficulties in adolescence, regardless of treatment (MTA Cooperative Group, 2009). In the United States, 37 percent of those with ADHD do not get a high school diploma even though many of them will receive special education services (Barkley et al., 2006). The combined outcomes of the expulsion and dropout rates indicate that almost half of all ADHD students never finish high school (Trampush, Miller, Newcorn & Halperin, 2009). Also in the US, less than 5 percent of individuals with ADHD get a college degree compared to 28 percent of the general population (DuPaul, Weyandt, O'Dell & Varejao, 2009).

Those with ADHD as children are at increased risk of a number of adverse life outcomes once they become teenagers. These include a greater risk of auto crashes, injury

and higher medical expenses, earlier sexual activity and teen pregnancy. Russell Barkley states that adult ADHD impairments affect education, occupation, social relationships, sexual activities, dating and marriage, parenting and offspring psychological morbidity, crime and drug abuse, health and related lifestyles, financial management or driving of cars (Barkley et al., 2006). ADHD can be found to produce diverse and serious impairments (Jensen et al., 2007). The proportion of children meeting the diagnostic criteria for ADHD drops by about 50 percent over three years after the diagnosis. This occurs regardless of the treatments used and also occurs in untreated children with ADHD. ADHD persists into adulthood in about 30 to 50 percent of cases (Balint et al., 2009). Those affected are likely to develop coping mechanisms as they mature, thus compensating for their previous ADHD (Gentile, Marie & Marie, 2004).

In conclusion, ADHD is a disorder well recognised around the world with publication of successive revisions of the diagnostic and statistical manuals of mental disorders (American Psychiatric Association, 1972; 1987; 1994; 2000; 2013). Treatment of this disorder is done with the use of medications with social, behavioural and psychological therapies (American Academy of Pediatrics, 2000).

THE DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS AND SELF-ESTEEM IN CHILDREN

3.1. Introduction

The development of children's social skills is important for early school success and later adjustment. Social skills include both self-esteem and interpersonal relationships. Research has documented that children without adequate social skills are at risk for difficulties including peer rejection, behaviour problems and poor academic achievement. Moreover, recent research shows disturbing rates of expulsion in preschool and kindergarten, which has fuelled efforts to promote these skills (Gilliam & Shahar, 2006).

Social skills describe how children navigate social and learning contexts and can be conceptualised as including interpersonal skills and learning-related skills. Interpersonal skills refer to the ability to perform competently in social situations, including interacting positively with others, cooperating, sharing and respecting peers. Research has found that interpersonal skills are important for peer acceptance and social adjustment throughout childhood and adolescence (Masten et al., 2005). Children with deficits in self-esteem and interpersonal relationships most often have difficulties with one or more of the following areas: cooperation, communication, emotional understanding and regulation, aggression and problem-solving (Erath & Bierman, 2006).

Children learn social skills from the adults and children in their environment who model and explain how to behave in particular circumstances (Ladd, 2005). The social skills that children learn when they are young form the basis for subsequent relationships that they develop in later childhood and adulthood (Ladd & Burgess, 2001; Ladd, Kochenderfer &

Coleman, 1996). This chapter will focus on the development of both interpersonal relationships and self-esteem.

3.2 Interpersonal relationships

These are dynamic systems that change continuously during their existence. They tend to grow and improve gradually as people get to know each other and become closer emotionally or they gradually deteriorate as people drift apart, move on with their lives and form new relationships with others (Devito, 2004).

Positive psychologists use the various terms "flourishing, budding, blooming, blossoming relationships" to describe interpersonal relationships that are not merely happy, but also characterised by intimacy, growth and resilience. Flourishing relationships likewise allow a dynamic balance between focus on the intimate relationships and focus on other social relationships (Fincham & Beach, 2010).

Interpersonal relationships are relationships that exist between people who are interdependent, where one person's behaviour has a significant impact on another. It can be distinguished from impersonal relationships based on three main factors: Psychological data, explanatory knowledge and personally established rules. Psychological data: People respond to each other chiefly as members of the group or class which belongs in impersonal relationships. Explanatory Knowledge: In impersonal relations, a person's behaviour cannot be predicted or explained but this can be done in interpersonal relationships. Personal Established Rules: In impersonal relationships, the rules of interaction are set down by social norms (Devito, 2004).

3.2.1 Development of interpersonal relationships in children

The first intimate relationship formed by a human being is the mother-child relationship. The first intimate encounter of a human being is with his or her mother during the act of breast-feeding, according to Freud (1949). "The act of sucking is the most primitive manner of knowing the innermost self of another and to suck the other into one's innermost" (McAdams, 1989:139). Breast feeding during infancy helps the baby to obtain nourishment and pleasure which reduces tension caused by the hunger drive. This tension relieving activity (breast feeding) during the infancy stage serves as a framework for relationships that develop later in life. Life-stage-related changes in stress, tension and needs are based on the outcome of such coping attempts formed during infancy. Infants develop the need for security and comfort that play an important role in shaping the interactions with caregivers (McAdams, 1989).

According to Ainsworth and Bowlby (1991), an attachment bond is developed during the first year of life as a result of the love shared by mother and the infant. The interactions between a mother and child form behavioural patterns that are reflected in future relationships. An example of the development of personality as a result of this bond can be seen in the securely attached infant. The caregiver shows sensitivity and responsiveness toward the infant which may lead to the infant developing a secure attachment style (Rothbard & Shaver, 1994). Infants who develop "secure" personality types feel confident and at ease when relating to others. They learn how to take turns, how to lead and follow and how to express and receive. The attachment bond serves as a prototype and provides the earliest pattern for warm and close relationships (McAdams, 1989).

From early childhood through adolescence, social skills development occurs through a reciprocal and bidirectional relationship between a child's individual characteristics (e.g.

temperament) and the environment (e.g. parent warmth and sensitivity, family factors and peers). Children begin developing social skills within the context of the parent-child attachment relationship (Rubin, Bukowski & Parker, 2006). Children learn to read emotional cues from this relationship, regulate their own emotions and behaviour and incorporate the responses of their parents into their own experiences with people and situations, a process known as social referencing (Thompson & Lagattuta, 2006). Children learn appropriate social rules and behaviours from observing family members which they apply to interactions outside the family.

In early childhood, children are usually exposed to other children in childcare settings. As toddlers, children engage primarily in solitary play, but interactions with other children increase with age. Positive interactions with peers help children develop interpersonal skills, communication skills, emotional understanding/regulation, the ability to control aggressive behaviours and early learning-related skills. A number of developmental changes occur in early childhood that also facilitate the development of social skills, including a significant increase in vocabulary (Thompson & Lagattuta, 2006) and brain maturation in the prefrontal cortex (Blair, 2002). These developmental changes lead to an improved ability to communicate and regulate feelings and behaviours. Children also begin to develop empathy and gain an understanding of the feelings, desires and beliefs of their peers; skills which continue to impact social development throughout childhood and adolescence (Blair, 2002).

Over the course of social development, the role of friends and parents changes significantly. During early adolescence, the amount of time that North American children spend with their family decreasing by 50% (Weston, 1996). As an adolescent experiences

physical and emotional changes, he or she seeks out relationships that improve efforts to adapt to new needs and stresses. Adolescents seek to share their thoughts and feelings with those who are experiencing similar changes. Opportunities for self-clarification are provided as a result of the increase in intimate interactions between friends at this stage of life. Adolescents can participate together in exploring and constructing selves through the formation of constructive dialogues between friends (Weston, 1996).

In middle childhood and adolescence, friendships become increasingly important especially for the development of social skills. Children improve their ability to understand the emotions of others leading to the building of mature friendships and strengthening of interpersonal and learning-related skills. Children and adolescents who have difficulty empathising or self-regulating have few positive social interactions and are likely to be rejected or neglected by peers, which can significantly impact on their social well-being and academic outcomes (Rubin et al., 2006).

The ability to conform to the activities of a peer group and the skills to develop a sense of belonging to that group are of central importance to a sense of well-being. School is very much a social place which plays a role in the development. Studies have shown that for most students, interacting with and gaining the acceptance of peers are more important than classroom learning and achievement (Brown, 1993; Dowson & McInerney, 2001; Doyle, 1986).

Peer relationships, especially friendships, play several important roles in children's and adolescents' personal and social development. They provide a place for learning and practising a variety of social skills including negotiation, persuasion, cooperation,

compromise, emotional control and conflict resolution (Asher & Parker, 1989; Erwin, 1993; Gauvain, 2001).

Peers often provide much-needed social and emotional support for one another. In the preschool years children see their age-mates primarily as sources of recreation, but as they grow older, they find that friends can provide comfort and safety—a group with which to eat lunch, a safe haven from playground bullies and so on (Berndt, 2002; Pellegrini & Bartini, 2000). Children rely increasingly on peers rather than adults for emotional support, especially in times of trouble or confusion when they reach puberty (Rubin et al., 2006; Wentzel, Barry & Caldwell, 2004). This support may be especially important for young people from unaffectionate or excessively punitive home environments (Berdan & Keane, 2005).

Peers also play a third important role in personal and social development, they serve as socialisation agents that help to mould children's behaviours and beliefs. Young people socialise with one another in a different way (Erwin, 1993; Ryan, 2000).

During late adolescence, the youth confronts the problem of multiple selves. The adolescent realises that his or her personality changes from one situation to the next for the first time. This is the stage of life during which an adolescent looks to craft a narrative of the self that provides a sense of sameness and continuity. The adolescent's desire to discover how one is the same from one situation to the next dominates the desire to discover how one is the same as other people. The importance of an intimate friendship and romance formed during early adulthood develops from the valuable and adaptive contribution dialogues made with friends during adolescence. Personality differences can be identified

by capacities to form intimate relationships characterised by commitment, depth and partner individuation based on interactions of early life (Prager, 1995).

3.2.2 Adult attachment and attachment theory

Traditional psychologists that specialise in close relationships have focused on relationship dysfunction while positive psychology argues that relationship health is not merely the absence of relationship dysfunction. Healthy relationships are built on a foundation of secure attachment and are maintained with love and purposeful positive relationship behaviours (Snyder & Lopez, 2007).

Additionally, healthy relationships can be made to succeed. Positive psychologists are exploring what makes existing relationships succeed and the skills that can be taught to enhance existing and future personal relationships. A social skills approach postulates that individuals differ in their level of communication skill, which has implications for their relationships. Relationships in which partners possess and depict relevant communication skills are more satisfying and stable than relationships in which partners lack appropriate communication skills (Burleson & Samter, 1996).

Healthy relationships are built on a foundation of secure attachments. Adult attachment models represent an internal set of expectations and preferences regarding relationship intimacy that guide behaviour (Snyder & Lopez, 2007). Secure adult attachment which has numerous benefits is characterised by low attachment-related avoidance and anxiety. People can pursue optimal human functioning and flourishing within the context of safe and secure attachments (Snyder & Lopez, 2007). This is because social acts that increase feelings of attachment also encourage the release of neurotransmitters such as

oxytocin and endorphin, which reduce stress and create feelings of contentment. The Attachment theory can also be used as a means of explaining adult relationships (Hazan & Shaver, 1994).

3.2.3 The importance of interpersonal relationships

Human beings are innately social and are shaped by their experiences with others. There are multiple perspectives to understand this basic motivation to interact with others (Hinkley & Andersen, 1996).

Need to belong: According to Maslow's hierarchy of needs, humans develop the need to feel love (sexual/nonsexual) and acceptance from social groups (family, peer groups). The need to belong is so innately deep-rooted that it may be strong enough to overcome physiological and safety needs, such as children's attachment to abusive parents or staying in abusive romantic relationships. This illustrates the extent to which the psychobiological drive to belong is established (Andersen & Chen, 2002).

Social exchange is another way to appreciate the importance of relationships in terms of a reward framework. This perspective suggests that individuals engage in relations that are beneficial in both tangible and intangible ways. The concept fits into a larger theory of social exchange. This theory is based on the idea that relationships develop as a result of cost-benefit analyses. Individuals search for rewards in interactions with others and are willing to pay a cost for said rewards. In the best-case scenario rewards will exceed costs producing a net gain. This can lead to constantly comparing alternatives to maximise the benefits (rewards) while minimising costs (Hinkley & Andersen, 1996).

Relational self-relationships are also important for their ability to help individuals develop a sense of self. The relational self is the part of an individual's self-concept that consists of the feelings and beliefs that one has regarding oneself that develops based on interactions with others (Andersen & Chen, 2002).

In other words, one's emotions and behaviours are shaped by past relationships. Thus, relational self-theory postulates that previous and existing relationships influence one's emotions and behaviours in interactions with new individuals, particularly those individuals that remind him or her of others in his or her life. Studies have shown that exposure to someone who resembles a significant other influences specific self-beliefs, changing how one thinks about oneself in the moment more so than exposure to someone who does not resemble a significant other (Hinkley & Andersen, 1996).

3.2.4 Advantages of interpersonal relationships

Interpersonal relationships help with the alleviation of loneliness. The development of these relationships reduces loneliness through the interaction with others and sharing of thoughts and feelings with them (Rokach, 1999; Rokach & Brock, 1995). Interpersonal relationships help in securing physical, intellectual and emotional stimulation. It also helps to gain more knowledge about self, view self from different angles and increase self-esteem and self-worth (Rokach, 1999; Rokach & Brock, 1995).

Interpersonal relationships have also been found to help in increasing pleasure and reducing pain when going through any life situation. For example, good friends help people to feel better when confronted with hardship (Devito, 2004).

Studies have frequently shown that interpersonal relationships contribute significantly to physical and emotional health (Beebe, Beebe, Redmond, Geerinck & Salem-

Wiseman, 2011; Palmer, Donaldson & Stough, 2002) and to personal happiness (Berscheid & Reis, 1998). Research has shown that absence of interpersonal relationships or living in isolation contributes to high blood pressure, depression, high cholesterol and obesity (Goleman, 1995).

3.2.5 Disadvantages of interpersonal relationships

Close relationships have been found to put pressure on a person to reveal self and expose vulnerabilities. It also imposes significant financial, emotional and temporal obligations like the obligation to help a friend in need. Studies have also found that close relationships can result in the abandonment of other relationships. For instance, a person might abandon a past relationship as a result of the closeness of a new relationship. Some studies also show that the closer a relationship is, the more emotionally difficult it is to dissolve, a feeling that may be uncomfortable for some and may lead to depression (Devito, 2004).

3.3. Self esteem

Self-esteem is a term used in psychology to reflect a person's overall emotional evaluation of his or her own worth. It is a judgment of oneself as well as an attitude toward the self. Self-esteem involves beliefs and emotions such as triumph, despair, pride and shame (Hewitt, 2009). Smith and Mackie defined it as the positive or negative evaluations of the self, as in how we feel about or see the self (Smith, Seger & Mackie, 2007). Self-esteem is also known as the evaluative dimension of the self that includes feelings of worthiness, prides and discouragement (Newman & Newman, 1997). One's self-esteem is also closely associated with self-consciousness (Schacter, Gilbert & Wegner, 2009). Self-esteem is a

disposition a person has which represents their judgments of their own worthiness (Olsen, Breckler & Wiggins, 2008).

Other definitions of self-esteem include that of Morris Rosenberg and Social theorists in the mid-1960's. They defined self-esteem in terms of a steady sense of personal worth (Baumeister, Smart & Boden, 1996). Nathaniel Braden in 1969 defined self-esteem as the experience of being capable to cope with the basic challenges of life and being worthy of happiness. Braden also explains self-esteem as the combination of self-confidence (a feeling of personal capacity) and self-respect (a feeling of personal worth). This approach provides a balanced definition that seems to be capable of dealing with limits of defining self-esteem primarily in terms of competence or worth alone (Braden, 1969; Mruk, 2006).

According to Taylor and Brown (1988), people normally overestimate their good points, overestimate their control over events and are unrealistically optimistic. People who fail to exhibit these biases tend to experience depression and some other forms of mental illness. Self-esteem is closely associated with social identity in that, by identifying with a group, that group's prestige and status in society tend to attach to one's self-concept (Crandall, 1994). Self-esteem is a reflection of successful social connectedness. In Western countries self-esteem is directly addressed by overt self-esteem (Leary, Tambor, Terdal & Downs, 1995).

People also pursue self-esteem to overcome the fear of death. They argue that knowledge of the inevitability of death is the most fundamental threat that people face and therefore it is the most powerful motivating factor in human existence. Self-esteem is part of a defence against the threat. Greenberg and colleagues believed that people with high

self-esteem can escape from the anxiety that could arise from continual contemplation of one's death (Greenberg, Williams & O'Brien, 1986).

Another reason why people may pursue self-esteem is that it can be a good index or monitor of social acceptance and belonging (Leary & Kowalski, 1995). Leary and colleagues also explained that self-esteem does not mean one has conquered fear of death but rather that one has conquered the threat of loneliness and social rejection (Leary et al., 1995).

Primary properties of self-esteem according to Branden (1987) include:

- Self-esteem as a basic human need.
- Self-esteem as an automatic and inevitable consequence of the sum of the individual's choices using their consequences.
- Something experienced as part of or background to all of the individual's thoughts, feelings and actions.

Branden's concept of self-esteem involves three main levels (Branden, 1987):

- To have a high self-esteem is to feel confidently capable for life or worthy or feel right as a person
- To have a low self-esteem corresponds to not feeling ready for life or to feeling wrong as a person
- To have a middle ground self-esteem is to waver between the two states above, that is to feel able and useless, right and wrong as a person and to show these incongruities in behaviour, acting at times wisely and rashly at other times (Branden, 1987).

3.3.1 Theories of self esteem

Many early theorists suggest that self-esteem is a basic human need or motivation. American psychologist, Abraham Maslow included self-esteem in his hierarchy of needs. He described two different forms of esteem: the need for respect from others and the need for self-respect or inner self esteem (Maslow, 1987). Respect from others involves recognition, acceptance, status and appreciation and was believed to be more fragile and easily lost than inner self esteem. According to Maslow, without the fulfilment of the self-esteem need, individuals will be driven to it and will be unable to grow and obtain self-actualisation (Maslow, 1987).

Modern theories explore the reasons why humans are motivated to maintain a high regard for themselves. Sociometer theory maintains that self-esteem evolved to check one's level of status and acceptance in one's social group. According to the terror management theory, self-esteem serves as a protective function and reduces anxiety about life and death (Greenberg, 2008).

3.3.2 Development of self esteem

Experiences in a person's life are a major source of self-esteem development. Positive or negative life experiences create attitudes toward the self which can be favourable and develop positive feelings of self-worth or can be unfavourable and develop negative feelings of self-worth. In the early years of a child's life, parents are the most significant influence on self-esteem and the main source of positive and/or negative experiences a child will have. The importance of a child developing a stable sense of being cared for and respected is represented in the emphasis of unconditional love in how-to parenting books. These feelings translate into later effects of self-esteem as the child grows older (Olsen et al., 2008).

During the school years, academic achievement is a significant contributor to self-esteem development. A student's consistently achieving success or consistently failing, strongly affects his or her individual self-esteem. The student might have a low self-esteem as a result of consistent failure or high self-esteem from consistent success (Crocker, Sommers & Luthanen, 2002). Social experiences are another important contributor. As children go through school they begin to understand and recognise differences between themselves and their classmates. Using social comparisons, children assess whether they did better or worse than classmates in different activities. These comparisons play an important role in shaping the child's self-esteem and influence the positive or negative feelings they have about themselves (Butler, 1998).

Peer influence in the adolescent stage becomes much more important as adolescents make appraisals of themselves based on their relationships with close friends (Thorne & Michaelieu, 1996). Successful relationships among friends are very important to the development of high self-esteem for children. Social acceptance brings about confidence and produces high self-esteem, whereas rejection from peers and loneliness brings about self-doubts and produces low self-esteem (Leary & Baumeister, 2000).

Parenting styles can also play a crucial role in development of self-esteem. Students in elementary school who have high self-esteem tend to have parents who are caring, supportive adults who set clear standards for their child and allow them to contribute their opinions in decision making. Studies thus far have reported only a correlation between warm, supportive parenting styles and children with high self-esteem. It could easily be thought of as having some causal effect in self-esteem development (Lamborn, Mounts, Steinberg & Dornbusch, 1991).

3.3.3 Characteristics of high and low self esteem

One of the characteristics of high self-esteem is that people with it are persistent and resilient in the face of failure. They continue to try and are not discouraged by failure. Another characteristic is that they are usually emotionally and affectively stable. They are less flexible and malleable; they are also less easily persuaded and influenced. There is no conflict between wanting and obtaining success and approval. People with high self-esteem usually react positively to a happy and successful life; they are thorough, consistent and have a stable self-concept. They usually have self-enhancing motivational orientation in which they capitalise on and pursue success (Baumeister, 1998).

Characteristics of people with low self-esteem include susceptibility to impact of everyday events: they are affected by any kind of disappointing or successful event, they have mood swings, they are more flexible and malleable, they are easily persuaded and influenced, they want success and approval but are doubtful of it, they react negatively to a happy and successful life sketch, they are inconsistent and have unstable self-concept, they have a self-protective orientation in which they remedy their shortcomings and avoid failures and setbacks (Baumeister, 1998).

Chapter 4

THE RELATIONSHIP BETWEEN ADHD, INTERPERSONAL RELATIONS AND SELF-ESTEEM

4.1 Introduction

According to most studies, children who display ADHD symptoms are at greater risk for interpersonal conflicts and low self-esteem in homes, schools and with peers than are normally developing children (Johnston & Mash, 2001). Teachers reported experiencing a significant amount of stress in interacting with students with ADHD, mostly with children who exhibit aggression along with ADHD symptoms (Greene, Beszterczey, Katzenstein, Park & Goring, 2002). Children with ADHD have been found to encounter problems with interacting with parents, teachers and peers. Failure to act and communicate like their peers results in their having a low self-esteem and poor interpersonal relationships. This chapter will show some of the studies done that show poor interpersonal relationships and problems with self-esteem of children with ADHD.

4.2. Interpersonal relationships

An interpersonal relationship is a relatively long-term association between two or more people. This association may be based on emotions like loving and liking, regular business interaction or some other type of social commitment. It takes place in a great variety of contexts such as family, friends, marriage, acquaintances, work clubs, neighbourhoods and churches. All relationships involve some level of interdependence. People in a relationship tend to influence each other, share their thoughts and feelings and engage in activities together. As a result of this interdependence, anything that changes or

impacts one member of the relationship will have some level of impact in the other member (Berscheid & Peplau, 2002).

Children with ADHD often are able to articulate the proper social behaviours to be exhibited in specific situations, although there may be a tendency for them to solve their interpersonal problems through aggression. Stormont (2001) found that approximately 25% or more of these children with ADHD will develop chronic patterns of antisocial behaviour that persist into adulthood and that are associated with adjustment problems like substance abuse, interpersonal difficulties and occupational instability (Barkley, Fischer, Edelbrock & Smallish, 1990). It has also been found that a child being rejected in childhood is predictive of continued interpersonal adjustment problems and problems of self-esteem in the future (Barkley, 2006; Parker & Asher, 1987).

ADHD affects interactions of children with their parents and the manner in which parents may respond to these children (Johnston & Mash, 2001). Children with ADHD are more talkative, negative and defiant, less compliant and cooperative, more demanding of assistance from others and less able to play and work independently of their mothers (Johnston & Mash, 2001).

It has also been found that mothers of children with ADHD are less responsive to the questions of their children, more negative and directive and less rewarding of their children's behaviour (Johnston & Mash, 2001). Mothers of these children are more emotional and acrimonious in their interactions with them than mothers of children without this problem (Taylor, Sandberg, Thorley & Giles, 1991).

Studies have also indicated that children and teens with ADHD seem to be as problematic for their fathers as for their mothers (Tallmadge & Barkley, 1983). There are

usually an increase in conflicts between child with ADHD and parents, mostly in hyperactive boys. Increased maternal negativity and acrimony towards children with ADHD in their interactions has been shown to result in greater non-compliance in classrooms and play settings (Tallmadge & Barkley, 1983).

The negative parent-child interaction patterns have also been found to occur in the preschool age group (DuPaul, McGoey, Eckert & VanBrakle, 2001) and may be even more negative and stressful to parents in this age range than in a later age group (Mash & Johnston, 1982; Mash & Johnston, 1990). The degree of conflict in these interactions reduces as the child gets older but remains deviant from normal into late childhood and adolescence (Barkley, Karlsson & Pollard, 1985; Mash & Johnston, 1982). Negative parent-ADHD child interactions in childhood have been observed to be significantly predictive of continuing parent-teen conflicts in families with ADHD children (Barkley, Fischer, Edelbrock & Smallish, 1991).

It has also been established that the presence of comorbid ODD is associated with the highest levels of interaction conflicts between parents and their children and adolescents with ADHD (Barkley, Anastopoulos, Guevremont & Fletcher, 1992; Barkley et al., 1990; Johnston & Fine, 1996).

In a sequential analysis of parent-teen interaction sequences, investigators have noted that the behaviour of each member is determined mainly by the immediately preceding behaviour of the other member and not by earlier behaviour of either member in the chain of interactions (Fletcher, Fischer, Barkley & Smallish, 1996).

Interaction conflicts have also been found between children with ADHD and their non-affected siblings (Johnston & Mash, 2001; Taylor et al., 1991). It has been demonstrated

that the primary direction of effects within these interactions is from child to parent (Danforth, 1999; Johnston & Mash, 2001) rather than the reverse. Much of the disturbance in the interaction seems to stem from the effects of the child's excessive, impulsive, unruly, non-compliant and emotional behaviour on the parents rather than from the effects of the parents behaviour on the child.

The pattern of disruptive, intrusive, excessive, negative and emotional social interactions of children with ADHD noted in parent-child relations has been found also to occur in their interactions with teachers and peers (Clark, Cheyne, Cunningham & Siegel, 1988; DuPaul et al., 2001). These children receive more correction, punishment, censure and criticism than other children from their teachers.

Studies have also found that children with the disorder are often not obedient to parental instructions. Various methods have been used to reduce problem behaviours in these children. An objection raised by parents is that these management strategies require them to impose external control on the children which not only results in the children not learning self-control strategies, but also does not enhance positive interactions between them and their parents (Singh et al., 2009).

According to Barkley (2006), difficulties in interpersonal relationships, academic difficulties, sleep problems and comorbid learning disorders in children with ADHD commonly manifest into poor social skills and low self-esteem. Current studies suggest that the symptoms of ADHD persist across the life span: 30 to 50 percent of children with ADHD will be symptomatic through adolescence and adulthood (Barkley, 2006). They tend to have difficulty creating and maintaining stable relationships. Children with ADHD frequently experience negative interactions from others, particularly adults, as a result of their

impulsive and sometimes non-compliant behaviour. The parents might lose patience with these children and then react negatively towards them (Barkley, 2006).

Children with ADHD are more often rejected, criticised, evaluated negatively and seen as failures. They often feel deprived of emotional acceptance and social needs which results in their having a negative self-concept and low self-esteem. Their problems are reflected in school, family, personal relationships and conflicts with society (Oltmans, Neale & Davison, 1995).

According to Stormont (2001), disturbed relationships mostly with peers of children with ADHD are as a result of their inattentive and impulsive behaviour disrupting their social performance. The most common performance deficits associated with this disorder include inappropriate attempts to join on-going peer group activities, poor conversational behaviours, employing aggressive solutions to interpersonal problems and losing temper control when conflict or frustrations are encountered in social situations (Stormont, 2001).

At first these problems or difficulties of children with ADHD were conceptualised as a deficit in appropriate social skills, such that the children had not acquired the appropriate social behaviours. In more recent times, ADHD has been re-conceptualised as an impairment of the executive functions or controlling functions of the brain (Barkley, 2006). It follows from this conceptualisation that the social deficits of the individual with ADHD may not be primarily the result of social skills, but a lack of efficiency in reliably using social skills that have already been acquired. In the adolescent years, a majority of children show continuation of symptoms and a significant number develop antisocial behaviour (Barkley, 2006).

Interpersonal functioning is one of the most serious domains of impairment for many adolescents with ADHD. It is now clear that for most, ADHD persists into adolescence (Wilens, Biederman & Spencer, 2002).

The interpersonal problems that continue to afflict the population with ADHD are especially concerning. Parent and teacher ratings of adolescents with ADHD suggest that these youths still lack social competence, possess fewer friends and experience high levels of peer rejection (Bagwell, Molina, Pelham & Hoza, 2001).

Compounding these issues is the fact that many youths who cannot gain admission to peer groups often find acceptance with deviant peers. Adolescents with ADHD frequently follow this course, reporting deviant peer affiliation at higher rates than demographically matched controls (Marshall, Molina & Pelham, 2003).

For adolescents with ADHD, the struggle to form friendships and gain acceptance by normative peer groups is troubling as shortcomings in this era have graver consequences than during childhood. It is well established that the majority of elementary school aged children with this disorder suffer substantial rejection from peers (Hoza et al., 2005b), mainly due to bothersome, socially awkward, disruptive and noisy behaviours that these children consistently display.

These interactions are concerning as they can lead to substance abuse, delinquent behaviour and academic failure (Marshall et al., 2003; Moffitt & Caspi, 2001). Adolescents who do not find acceptance during these years report high levels of internalising problems and emotional distress (Prinstein & La Greca, 2002; Rubin, Chen, McDougall, Bowker & McKinnon, 1995). These effects are usually larger than those found in childhood (Rose, 2002). These negative peer interactions may relate to the high comorbidity between ADHD

and depressive symptoms that emerges around adolescence and remains stable in adulthood (Wolraich et al., 2005).

Difficulties peers experience represent a significant area of impairment for children and adolescents with ADHD (Hoza, 2007). Specifically children with ADHD tend to have fewer friends and lower quality friendships and experience greater peer victimisation than typically developing children (Hoza, 2007). Peer relationship difficulties in childhood and adolescence are predictive of future negative outcomes including substance abuse, academic difficulties, psychopathology and continued social difficulties (Bagwell, Newcomb, & Bukowski 1998; Hoza, 2007).

According to the literature, between 50% and 70% of children with ADHD experience peer relationship difficulties, which highlights the significance of social impairments for the population (Antshel, Macias & Barkley, 2009). Peer difficulties in children are often deep rooted by age seven and are almost immediately evident in new social situations (Hoza, 2007).

Peer relationship difficulties (children being unable to relate with peers) and negative peer relationships often continue into adolescence and remain a significant source of impairment identified by parents and teachers (Bagwell, Molina, Pelham & Hoza, 2001; Mrug et al., 2012; Sibley, Evans & Serpell, 2010).

Children and adolescents with ADHD are more likely to engage in inappropriate and impulsive behaviours than their typically developing peers (Mrug, Hoza & Gerdes, 2001). These negative behaviours are more likely to occur in unsupervised situations such as during play and typically lead to impaired peer relationships (Cordier, Bundy, Hocking & Einfeld, 2010).

Heiman (2005) found that children with ADHD tend to define friendship differently than typically developing children. Children with ADHD saw a best friend is someone who is fun to be around with and is mutually entertaining whereas typically developing children described a best friend as someone who provides emotional support and makes them feel a sense of security (Heiman, 2005). Children tend to value certain characteristics in friendships which may conflict with those valued by their peer group and may lead to a decreased likelihood of developing mutually satisfying friendships (Heiman, 2005).

Research suggests that between 56% and 76% of children with ADHD have no mutual friendships, compared with 10% to 32% of typically developing children (Hoza, 2007). The peer relationships and friendships of children with ADHD tend to be characterised by fewer positive features, more negative features and less stability than those of typically peers (Blachman & Hinshaw, 2002; Hoza et al., 2005b; Normand et al., 2011). Specifically Blachman and Hinshaw (2002) found that girls with ADHD were more likely to report lower quality friendships and more conflict and relational aggression in existing friendships. It has also been found that children hold more negative attributions and fewer positive attributions for peers with ADHD than for peers with asthma or depression (Walker, Coleman, Lee, Squire & Friesen, 2008).

Children with ADHD tend to experience greater neglect and rejection than their typically developing peers (Hoza et al., 2005b; Hoza, 2007). Researchers have distinguished between neglect or being socially isolated and active rejection in peer relationships (Hoza et al., 2005b).

ADHD subtypes have been shown to influence children's social impairments; specifically children with the ADHD combined subtype (ADHD-C) are more likely to be

actively rejected whereas children with ADHD inattentive subtype (ADHD-I) are more likely to be neglected and socially isolated (Hodgens, Cole & Boldizar, 2000).

Results of the Multimodal Treatment of children with ADHD (MTA) study (1999) demonstrated that 52% of children with ADHD fall into the rejected category.

Studies have found that childhood ADHD is a predictor of impaired peer functioning and peer rejection in adolescence and that adolescents with ADHD were more likely to experience peer rejection than typically developing adolescents (Bagwell et al., 2001). Peer rejection in adolescence may also contribute to further negative outcomes such as increased internalising symptoms which may impact in future peer relationships (Mrug et al., 2012).

Peer rejection of children with ADHD is likely to occur within several hours or even minutes of interacting with unfamiliar peers (Hodgens et al., 2000). Studies show that it may be difficult to change peer group perceptions and the negative outcomes associated with them due to the swiftness with which children and adolescents with ADHD develop enduring, negative social reputations (Sibley et al., 2010).

According to previous research, rejected children tend to experience negative outcomes such as school outcomes, school avoidance and drop out and continued peer exclusion and maltreatment (Buhs, Ladd & Herald, 2006). Rejected children are also at a greater risk of future adjustment difficulties like aggression and anxiety (Mayeux, Bellmore & Cillessen, 2007).

Children and adolescents with ADHD are frequently involved in school bullying as either bullies or victims (Bacchini, Affuso & Trotta, 2008). Each of these roles in bullying

incidents increases the likelihood of peer rejection and may develop when children react to peer victimisation passively (victims) or aggressively (bullies) (Bacchini et al., 2008).

Peer relationship difficulties such as absence of mutual friendship, peer rejection and bullying represent a significant domain of impairment in youths with ADHD. Chronic peer relationship difficulties may contribute to future negative outcomes including school dropout, substance abuse and psychopathology. According to several studies, youths with ADHD are likely to exhibit specific social skills deficit that contribute to peer relationship difficulties (Gardner & Gerdes, 2013).

Children and adolescents with ADHD tend to demonstrate inappropriate social behaviours with peers such as impulsivity, intrusiveness and hostility and also tend to lack appropriate social skills like cooperation, sharing and turn taking (Wehmeier, Schacht & Barkley, 2010).

Although peer problems in children with ADHD have been well established (Hoza, 2007), there is limited research regarding the social ramifications of ADHD among adults. Studies suggest self-perceived (Friedman et al., 2003; Kessler et al., 2006) and observed (Canu & Carlson, 2003) social difficulties in adults with ADHD. Notably, adult inattentive symptoms as opposed to hyperactive/impulsive symptoms may be most associated with social problems (Knouse et al., 2008), a pattern in contrast to findings regarding children with ADHD, whereby hyperactivity/impulsiveness is more damaging to peer relationships than inattention (Mikami, Huang-Pollock, Pfiffner, McBurnett & Hangai, 2007; Milich et al., 2001).

Also largely unknown is how parental ADHD may affect children's social functioning. Children are likely to inherit ADHD symptomatology from parents with ADHD and

presumably ADHD-related social problems. However, parental ADHD may predict poorer child social functioning beyond the prediction resulting from shared genetics. Among studies with typically-developing children, it is suggested that parents foster the social competence of their children by: (1) providing guidance during their child's peer interactions; (2) modelling competent behaviour themselves; and (3) arranging playdates where the child is likely to develop relationships with peers (Ladd & Hart, 1992; Parke, Burks, Carson, Neville & Boyum, 1994).

Parents with ADHD may struggle to model or provide proper instruction in socially competent behaviour to their children, if the findings regarding interpersonal difficulties among adults with ADHD are correct. For example, parents with ADHD who have difficulty in socially networking with other parents may also be less likely to arrange playdates for their children. In a recent investigation, parents' behaviours toward their children, including facilitation of their child's peer interactions, corrective feedback, criticism, warmth and praise exhibited during lab-based playgroups, predicted children's peer relationships (Mikami, Jack, Emeh & Stephens, 2010). This effect was particularly salient for children with ADHD, underscoring the important role parents can play in the social success of these children.

ADHD in children has been associated with strained parent-child relationships (Johnston & Mash, 2001), yet research also suggests a negative impact of adult ADHD on parenting. Mothers with ADHD, compared to mothers without ADHD, self-report greater difficulties with involvement (Chronis-Tuscano et al., 2008), as well as with consistent discipline and monitoring (Murray & Johnston, 2006). Compared to mothers with less severe symptoms, mothers with more severe ADHD symptoms self-report less confidence in their

parenting ability, decreased parenting satisfaction and more lax and overactive disciplinary styles (Banks, Ninowski, Mash & Semple, 2008). Some studies indicate a negative relationship between maternal ADHD and positive parenting practices such as praising and rewarding (Chronis-Tuscano et al., 2008), whereas others suggest no relationship (Murray & Johnston, 2006).

Parents who have ADHD may also be more empathetic towards the social struggles of their children with ADHD and this supportiveness may buffer the peer problems typically experienced by these children. Another possibility is that the negative impact of parental ADHD will be greater for typically-developing children than for children with ADHD. This is because parents with ADHD symptoms are hypothesised to have reduced abilities to coach their children socially, but children with ADHD (and not comparison children) may already be maximally impaired so that parental behaviours have little effect. For instance, findings by Biederman, Faraone and Monuteaux (2002) suggested that parental ADHD positively impacted children with ADHD yet negatively impinged on the scholastic functioning of children without ADHD.

4.3 Self-esteem

Self-esteem is an individual's sense of his or her value or worth or the extent to which a person values, approves or appreciates or likes him or herself (Blascorich & Tomaka, 1991). It is generally considered as the evaluative component of the self-concept, a broader representation of the self that includes cognitive and behavioural aspects as well as evaluative or affective ones (Blascorich & Tomaka, 1991).

Some studies with adolescents with ADHD symptoms and controls, showed that the former consider their psychosocial well-being worse, when referring to their lives and their

appearance satisfaction and to the condition of having close friends, which shows a possible impact on their self-esteem (Taanila, Hurtig, Miettunen, Ebeling & Moilonen, 2009).

According to past studies, a primary school child with ADHD frequently begins to be seen as being different as classmates start to develop the skills and maturity that enable them to learn successfully in school. Although a sensitive teacher may be able to adapt the classroom to allow an able child with ADHD to succeed, more frequently the child experiences academic failure, rejection by peers and as a result, low self-esteem (Landgraf, Abetz & Ware, 1999).

Research on the relationship of ADHD and the development of self-esteem is inconclusive as some studies indicate that these individuals often have low self-esteem and others report that children and adolescents with ADHD often overestimate their abilities, perceptions of self and self-concepts. Thus, as a protection mechanism, they enhance the appreciation of happiness that they feel with their lives which makes it difficult to see the impact of ADHD on the self-esteem of children (Glass, Flory, Martin & Hankin, 2011; Miranda-Casas, Presentacion-Herrero, Colomer-Diago & Rosello, 2011).

According to Stormont (2001), it is very difficult for many children with ADHD to initiate and maintain friendships with their classmates. Studies employing sociometric measures have found uniformly high rates of peer rejection for children displaying ADHD-related behaviours (Hinshaw, Zupan, Simmel, Nigg & Melnick, 1997; Hodgens et al., 2000). This peer rejection of the children with ADHD leads to the children being isolated which then results in low self-esteem of these children.

The rate of peer rejection is particularly high for children displaying both aggression and ADHD. Peer rejection status is stable over time, reflecting the chronic nature of these

children's interactional difficulties (Parker & Asher, 1987). Children with this disorder perceive peers and classmates at school to provide less frequent social support than do their non-ADHD counterparts (Demaray & Elliot, 2001).

Sisto and Martinelli (2004) describe that experiencing failure in performance on academic tasks can generate feelings of insecurity and lack of confidence in children, as studies are the main activity during childhood and adolescence. As it is characteristic of most children and adolescents with ADHD, there is an impact on school performance. It is likely to impact on the formation of school self-concept, which is related to the representations of one's accomplishments, school abilities and assessments that the person perceives about themselves (Sisto & Martinelli, 2004).

Children's self-esteem has been found to be sensitive to the perception of parents, teachers and peers (Wheeler & Carlsson, 1994). Findings regarding the nature of self-esteem in children with ADHD are contradictory. Hoza et al. (2004) reported that children with ADHD tend to overestimate their own competence, reporting an inflated estimation of self-worth called positive illusory bias. They overestimate their perceptions of themselves most strongly in areas where they have the greatest skill deficit (Hoza et al., 2004).

Hoza and colleagues commented that because children with ADHD chronically encounter setbacks and failures in a variety of areas, they might be especially inclined towards a thinking style known as positive illusions. This could mean a self-protection to compensate for a dampened self-esteem (Hoza et al., 2004).

Barber, Grubbs, and Cottrell (2005) reported lower self-esteem in children with ADHD when compared to controls. The children who participated in their research had lower mean scores on five out of six of the subscales of an instrument measuring self-

perception. The results were lower on the subscales for behaviour, scholastic skills, physical capacity and global self-worth. The athletic competence subscale showed no difference between the groups and no significant gender differences were reported either (Barber et al., 2005).

Barber and colleagues (2005) also explained the influence of peers and stated that children of school going age are extremely sensitive to peer approval, evaluating themselves and their competence. In terms of academic or athletic abilities, the authors recommended school-based support groups to improve self-esteem in children with ADHD (Barber et al., 2005).

Edbom, Lichtenstein, Granlund and Larsson (2006) reported from a prospective longitudinal twin study, a long-term relationship between ADHD symptoms and low self-esteem. High scores of ADHD symptoms at age eight were related to low self-esteem, according to the "I think I am" self-esteem scale (Ovinen-Birgerstaum, 1999).

Klimkeit et al. (2006) discussed the extent to which children with ADHD are aware of their own problems and the extent to which they are able to reliably report them. They studied self-esteem in a group of children aged 6 - 14 years and concluded that children with ADHD are more self-aware than previously thought.

Research addressing the relationship between ADHD and self-esteem has yielded conflicting results. Some studies report lower self-esteem levels among adolescents with ADHD diagnosed in childhood compared with matched controls (Slomkowski, Gittelman Klein & Mannuzza, 1995), while others note no differences (Hoza et al., 2004). Previous studies have explored potential predictors of self-esteem among children with ADHD including child age, psychostimulant use and treatment duration.

Barber et al. (2005) noted that the cumulative effect of years of low self-esteem might have major consequences. Pisecco, Wristers, Swank, Silva and Baker (2001) found that children's early history of behavioural problems and low self-esteem were associated with the development of more serious social problems. They also found that social rejection causes emotional pain in the lives of ADHD children, which may result in low self-esteem (Pisecco et al., 2001).

According to a study by Bussing, Zima and Perwien (2000), ADHD alone does not appear to be associated with lower levels of self-esteem in school age children, but rather the presence of co-occurring internalising problems, either alone or in combination with externalising disorders like disruptive behaviour disorders, could result in a lower self-esteem.

Negative responses by parents, teachers and peers to the affected child's impulsivity and hyperactivity may contribute to his or her feelings of low self-esteem (Barkley, 2006). The teachers constantly reminding the students to behave, sit quietly and pay attention may create a negative self-image in these children, which can have a negative impact on the ability to make friends. The possible biological influences on impulsivity, hyperactivity and inattention combined with attempts to control these children may lead to rejection and poor self-esteem (Barkley, 2006).

PROBLEM DELINATION

5.1 Introduction

Children with ADHD are likely to be present in nearly every class room in the United States (Hoza, 2007; McQuade & Hoza, 2008). Although the prevalence rate in South Africa has not yet been determined officially, the ADHD support group in this country estimates that 10% of South African children experience symptoms associated with ADHD (Lloyd, Stead & Cohen, 2006). Flisher and Hawkridge (2013) state that the prevalence of ADHD in South Africa corresponds with that of the United States and Europe. This was also established by Meyer et al. (2004).

As a result or consequence of pervasiveness, ADHD can negatively interfere with the general wellbeing as well as with social life, academic performance and development of social skills (Cantwell, 1996b; Escobar et al., 2009; Klassen, Miller & Fine, 2004; Matza et al., 2004).

5.2 Statement of the problem

Children must be attentive, responsible and able to control impulsive behaviours to interact with others. Children with ADHD are often inattentive and forgetful and lack impulse control. ADHD is unrecognised by those who may be unfamiliar with the disorder which leads to socially inappropriate behaviours that are the result of ADHD symptoms being attributed to other causes. These children are then given negative labels like rude, self-centred, lazy, irresponsible and so on by those who do not have knowledge about the disorder. These negative labels lead to social rejection of the children with ADHD or

interpersonal relationship problems and this social rejection leads to lower self-esteem throughout the lifespan (Anderson, 1968; Barkley, 2006).

Past studies have found that children who display ADHD difficulties are at a greater risk for interpersonal conflicts and low self-esteem (Johnston & Mash, 2001). Other studies like the one done by Barkley (2006) and Parker and Asher (1987) found that a child who is rejected as a result of ADHD is predictive of continued interpersonal adjustment problems and problems of self-esteem. Landau and Milich (1988) also found that ADHD had an effect on children's self-esteem and interpersonal relationships.

5.3 Aim of study

The aim of this study was to examine the impact of ADHD symptomatology on interpersonal relationships and self-esteem of the children who exhibit the disorder. It is aimed to establish if there is a difference in performance on the Personal, Home, Self and Formal Relations (PHSF) questionnaire which measures interpersonal relationships and the Beck Self-Concept Inventory for Youths [BSCI-Y] which measures self-esteem between children with ADHD and a non-ADHD control group. These children will be matched for ethnicity, gender and age.

5.4 Hypotheses

5.4.1 Research hypothesis 1

Children, who are consistently inattentive, easily distracted, impulsive and over-active will have more problems with interpersonal relationships than those who are not.

5.4.1.1. Specific null hypothesis derived from research hypothesis 1:

There will be no significant difference in the score on the Personal, Home, Self and Formal Relations Questionnaire [PHSF] between children with ADHD and a non-ADHD control group.

5.4.2 Research hypothesis 2

ADHD symptoms will negatively impact on the self-esteem of children. Children with the disorder will have lower self-esteem when compared to a non-ADHD control group.

5.4.2.1 Specific Null Hypothesis derived from research hypothesis 2:

There will be no difference in performance on a test that measures self-esteem (Beck Self-Concept Inventory for Youths [BSCI-Y]) between children with ADHD and a non-ADHD control group.

A description of the statistical tests employed to accept or reject the hypothesis formulated will be supplied in the next chapter.

RESEARCH METHODOLOGY

6.1 Introduction

The study of the impact of ADHD on interpersonal relationships and self-esteem is significant and important because according to long-term outcome studies, problems of interpersonal relationship and self-esteem continue into adolescence and adulthood and hinder the social adjustments of adults with ADHD (Weiss & Hechtman, 1986; Weiss & Hechtman, 1993). The research project will be aimed to show the difference in interpersonal relations and self-esteem between a group of children with ADHD and a non-ADHD comparison group. The purpose of the study is to be able to gain knowledge about the disorder and inform teachers and parents who are unaware of the social impact of the disorder. The study will also provide academic knowledge and may contribute to further research in this field. The beneficiaries of this study include parents, clinical psychologists, psychiatrists, paediatricians, teachers and the affected children. The research will help in the development of new treatment strategies for the disorder.

6.2 Research design

This study used a quasi-experimental design as the subjects cannot be randomly assigned to the conditions of the independent variable because they already exhibit the variable under investigation. Children with ADHD were compared with a non-ADHD control group on measurements of interpersonal relationships and self-esteem. The children with ADHD symptomatology were matched for age and sex with children who did not comply with the criteria for ADHD.

6.3 Sampling

The population of this study consists of children aged 7 - 13 of different ethnic/culture groups in the Polokwane area. The reason for selecting this area is that it made the study manageable relative to the financial and time constraints of the researcher. The researcher is familiar with this area, which made it easier to conduct the research. A convenient sample was used and each student was screened for symptoms of ADHD using the Disruptive Behaviour Disorder Rating Scale [DBD]. The participants were recruited at primary schools, where they were screened for ADHD. The final sample consisted of a group which could be classified as having ADHD (N=82) and a non-ADHD comparison group, matched for gender and age (N = 82).

Permission was obtained from the Department of Education, Limpopo Province, Ethics Committee of the University of Limpopo (Appendix), as well as the principals of the selected schools. The Disruptive Behaviour Disorders rating scale (DBD) (Pelham, Gnagy, Greenslade & Milich, 1992; Pillow, Pelham, Hoza, Molina & Stultz, 1998) was standardised for the populations of the Limpopo Province. The instrument was also translated into the indigenous languages of the Limpopo Province (Meyer et al., 2004) and used as the screening instrument.

Participation was voluntary. Informed consent was obtained from the children's parents and/or guardians.

Both teachers and parents were given the rating scale to complete. Teacher ratings are usually regarded as an accurate measure of assessment (American Academy of Pediatrics, 2000; Meyer et al., 2004; Wolraich et al., 2003). The children meeting the criteria for inclusion into the ADHD groups were matched for gender and age with children who did

not meet the inclusion criteria, obtained from the screening process. Children were divided into an ADHD group and a non-ADHD group based on teachers and parents ratings on the DBD rating scale. The final sample consisted of 164 children, 82 with ADHD (clinical group) and 82 without ADHD (comparison group) (Table 6.1).

Table 6.1 Distribution of the sample

	Gender	N
ADHD	Male	45
	Female	37
	Total	82
Non-ADHD	Male	45
	Female	37
	Total	82

Fig. 6.1 shows how the genders were distributed

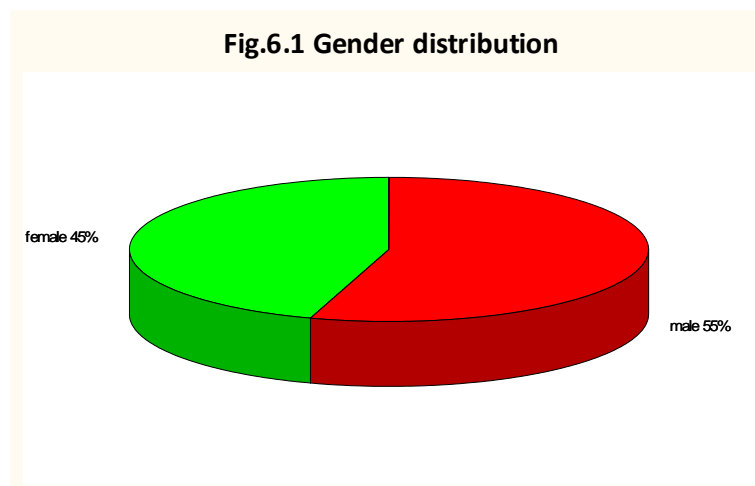


Figure 6.1 shows the gender distribution of the sample. The pie chart shows that there are 55% males (N=90) and 45% (N=74) females in the sample.

The age of the sample ranged from 7 – 13 years. However most of the children who were classified as having ADHD came from the 11-12 age group (61%) See Fig. 6.2.

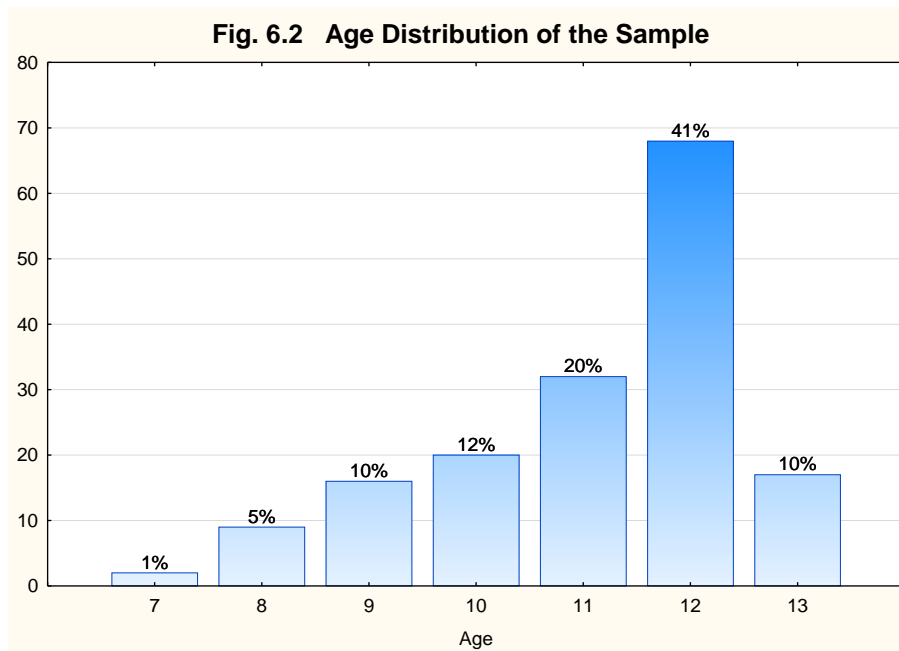


Fig. 6.2 shows the age distribution of the sample. There was no statistical significant difference between age of the ADHD group and the non-ADHD comparison group ($p > .05$)

Most of the children screened positive for ADHD came from the Pedi language group (60%) with about 40% coming from the Tsonga, Venda and Tswana groups (Fig. 6.3).

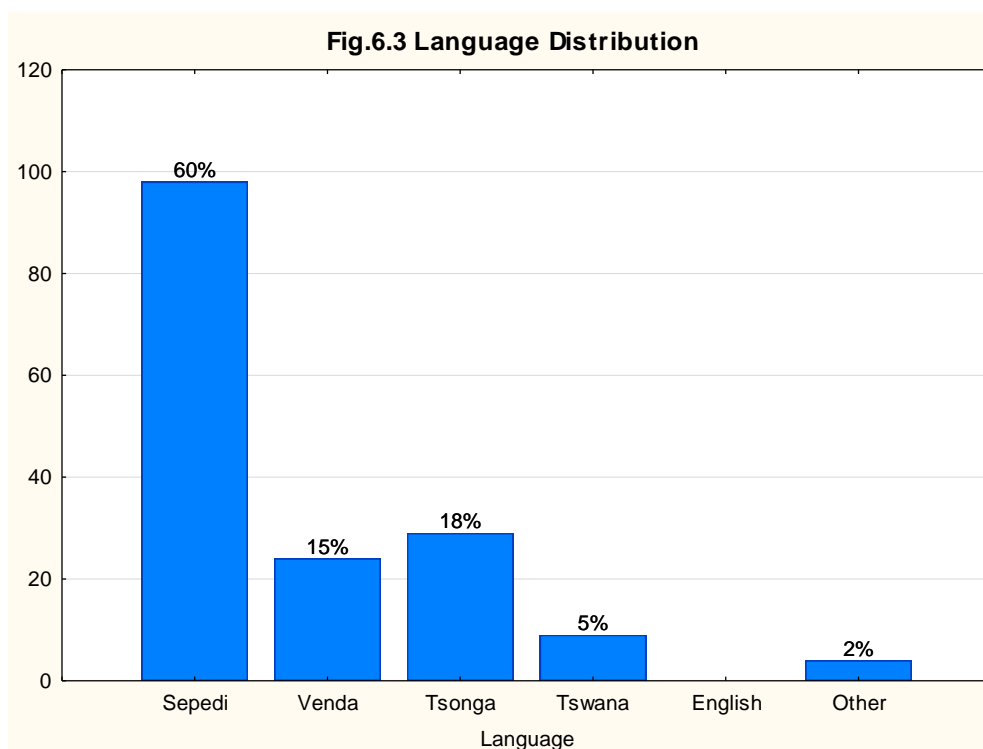


Figure 6.3 shows the language distribution of sample. The majority (60 percent) of the children are Sepedi speaking.

6.4 Data collection

6.4.1 Screening instrument

DBD rating Scale: The Disruptive Behaviour Disorders Rating Scale [DBD] (Pelham, Gnay, Greenslade & Milich, 1992; Pillow et al., 1998) was used to screen the children for ADHD symptoms resulting in the ADHD group. The instrument has been translated, standardised and norms had been established for all language groups in the Limpopo Province and adjacent areas (Meyer et al., 2004) and is based on the DSM-IV (American Psychiatric Association, 1994). There was a statistical significant difference for both the Inattention and Hyperactivity/Impulsiveness scales when the scores of the two groups were compared ($p < 0.001$).

Psychometric properties:

Reliability:

Cronbach's alpha was calculated in order to estimate the reliability of the measures for the populations in the Limpopo Province. The alpha value was .92 for the Inattention and .90 for the Hyperactivity/Impulsiveness scales. Inter-scale correlations, as well as item-scale correlations, were also computed. Factor loadings on both scales indicated the two dimensions of the scale were highly correlated. Item scale correlations varied somewhat among the language groups but were generally quite high for all language groups (Meyer et al., 2004).

Validity:

To determine whether the DBD measures the same constructs across heterogeneous South African cultures, the data from the 18 ADHD items of the DBD rating scale were subjected to principle component analyses for the entire sample as well as for each language group. Each solution was rotated to fit a theoretically defined two component-solution based on the Western notion of factors corresponding to inattention and

hyperactivity/impulsiveness. The same two component solutions could be reconstructed for all six language groups. The congruencies between target-rotated and theoretical components were very high - ranging from .88 to .95 for all language groups. Explained variance by the two components was 52% for the total sample, ranging from 48% to 65% across language groups (Meyer et al., 2004).

6.4.2 Measurement instruments

Biographical questionnaire: This questionnaire was used to measure or gather information about the children and their families who would be participating in this research. The information gathered covered the time from birth till present. It also gathered information about the medical and developmental history and situations of home or home environment of the children (Appendix C).

Personal, Home, Self and Formal Relations Questionnaire [PHSF]: The sociability scale of the PHSF relations questionnaire was used in measuring the interpersonal relationships of the children (Appendix E). It was developed by the Human Sciences Research Council [HRSC]. This scale contains points ranging from one to three. The scale was allocated three points from 1 (the lowest) to 3 (the highest) and 2 (average). A high score indicates good quality of interpersonal relationships.

Minnaar and Van Staden (1982) reported on values for South African populations. The coefficients of internal consistency of this scale have been established at .84 Kuder-Richardson (K-R8). The Cronbach α computed was found to be .94, which can be considered as very good. The alpha value for the present population has been established at 0.80.

Beck Self-Concept Inventory for Youths [BSCI-Y]: The items in this inventory explore self-perceptions such as competency, potency and positive self-worth (Appendix F). It was used in this research to measure the self-esteem of ADHD children between the ages of 7 and 13 years. This inventory was completed in a quiet, comfortable place free from distractions. It may be administered to individuals or to groups. Each inventory takes 5 to 10 minutes to complete. Time was adjusted to meet the individual needs of the children completing the inventory. Items are scaled from 0 [never] to 3 [always]. In scoring, a total raw score is calculated by adding item scores. (Beck, Beck, Steer & Jolly, 2005).

Normative data are based on a sample of 800 children ages 7-14 stratified to match the U.S census by race/ethnicity and by parent education within four age groups by gender. A special education sample of 89 children was also included (Beck et al., 2005).

Chronbach's alpha coefficients ranging from .86 to .96 indicate high consistency for all age groups on all scales of the Beck Inventory. The standard error of measurement ranged from 2.00 to 3.39 for all age groups indicating good reliability. Test-retest reliability ranged from .74 to .93 for all age groups on all scales. Validity was established through significant correlations among scales within normative groups and by correlations with other instruments measuring similar characteristics (Beck et al., 2005). In this study, although the whole questionnaire was administered, only the Self Concept inventory was used for statistical analysis. The alpha value for this scale for the present population was .84.

6.5 Procedure

The provincial Department of Education granted written permission to conduct the research among the primary school children. A letter was obtained from the Ethics

committee of the University of Limpopo outlining the aim and the purpose of the study which was presented to the respective school principals who in turn presented the research project to the teachers and parents. Informed consent was given by parents/care takers.

The testing procedure was as follows:

Participants were selected conveniently from amongst a group of primary school children (7-13 years) of the Limpopo Province. The children were screened using the Disruptive Behaviour Disorders rating scale (DBD). The ADHD group and control groups were selected by this procedure and were matched according to age and gender. To determine if a child meets the symptom criteria for diagnoses of Attention-Deficit/Hyperactivity Disorder measured by the DBD Parent/Teacher Rating Scale, the number of symptoms that are endorsed "pretty much" or "very much" by either parent or teacher are counted (Pelham et al., 1992; Pillow et al., 1998).

To determine how a child's scores compare to normative data, the average rating for the items from each factor is computed using the following scoring: Not at all = 0, Just a little = 1, Pretty Much= 2, Very much = 3. Then, using the information from the established norms for children in the Limpopo Province, it is determined where the child falls in relation to other children for ADHD symptoms. The cut-off points are 20 on the Inattentive Scale and 16 on the Hyperactive/Impulsive Scale (Meyer et al. 2004).

A biographical questionnaire and Home Situations questionnaire was also completed by the parents. The PHSF (Personal, Home, Self and Formal) relations questionnaire was used for the measurement of the interpersonal relationship of the children, while self-esteem was measured using only self-concept inventory of the Beck-self-concept inventory for youth (BSCI-Y). The children selected, using the DBD rating scale and found to have

symptoms of ADHD, were compared with the non-ADHD comparison group on the scores of the PHSF and BSCI-Y. The children were tested during school hours by the researcher who made sure that the children understood the meaning of the questions.

6.6 Data analysis

Analysis of Variance (ANOVA) and *post-hoc* (Bonferroni) analysis were employed to establish between and within group differences in interpersonal relations and self-esteem between the ADHD group and the non-ADHD comparison group using STATISTICA 10. (StatSoft, 2010). ANOVA is a statistical method used to test for significant differences between means by comparing or analysing variances. *Post-hoc* analysis: In the context of design and analysis of experiments, this refers to looking at the data after the experiment has been concluded for patterns that were not specified, for example age and gender differences (Whitley & Ball, 2002).

Chapter 7

RESULTS

7.1 Introduction

The aim of the study was to establish whether children with ADHD have problems with interpersonal relationships and self-esteem. This chapter will present the responses on psychometric scales of children with ADHD when compared with a comparison group without ADHD.

The tests that were used in the assessment were: the Personal, Home, Self and Formal Relations Questionnaire [PHSF] (Minnaar & Van Staden, 1982), which measures interpersonal relationships and the Beck Self-Concept Inventory for Youths [BSCI-Y] (Beck et al., 2005). The items in this inventory explore self-perceptions such as competency, potency and positive self-worth. It was used in this research to measure self-esteem. The scores obtained from the administration of these scales were compared for significant differences of responses between the ADHD group and a non-ADHD group as a possible function of gender.

The results for each individual test are presented first in a table form then a graphic representation followed by Analysis of Variance (ANOVA) results investigating possible between-group differences.

7.2. Results of the study

7.2.1 Selecting the clinical (ADHD) and comparison (non-ADHD) groups

Table 7.1 gives the DBD scores for the ADHD and Non-ADHD groups, the criteria on which the groups were selected:

Table 7.1 DBD scores of the ADHD group and non-ADHD comparison group.

		N	H/I		Inattention	
			Mean	SD	Mean	SD
ADHD	Male	45	25.511	5.987	22.467	5.383
	Female	37	24.054	6.920	22.135	5.912
	Total	82	24.854	6.425	22.317	5.595
Non-ADHD	Male	45	7.267	4.835	7.200	4.071
	Female	37	6.946	4.726	8.460	5.393
	Total	82	7.122	4.759	7.768	4.725

There was a significant difference in the scores on both hyperactivity/impulsiveness ($p = 0.00$) and inattention ($p = 0.00$) scales of the DBD questionnaire. On both scales the scores of the ADHD group were significantly higher.

7.2.2. The Personal, Home, Self and Formal Relations Questionnaire [PHSF]

7.2.2.1 Descriptive statistics

Table 7.2 illustrates the Personal, Home, Self and Formal Relations Questionnaire [PHSF] scores for the ADHD and Non-ADHD comparison group.

Table 7.2 Scores on the PHSF questionnaires for the ADHD- and non-ADHD groups

Group	Gender	N	Mean	SD
ADHD	Male	45	78.244	29.621
	Female	37	80.243	27.696
	Total	82	79.146	28.610
Non-ADHD	Male	45	35.089	11.259
	Female	38	31.632	11.115
	Total	82	33.506	11.259

Figure 7.1 illustrates the results on the Personal, Home, Self and Formal Relations Questionnaire [PHSF]

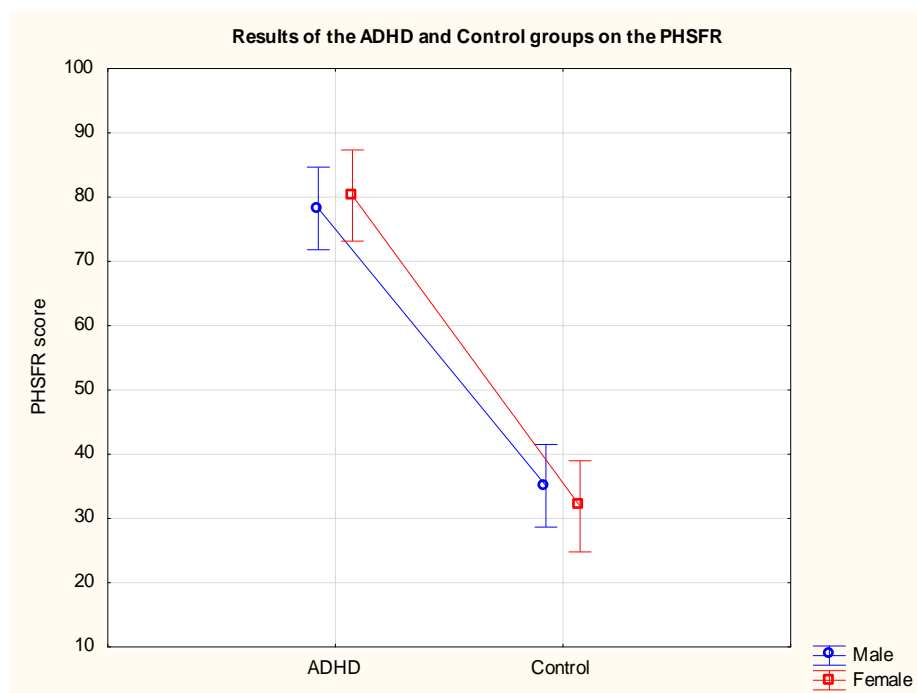


Fig. 7.1 shows the scores on the PHSF for ADHD boys (78.24 ± 29.62), ADHD girls (80.24 ± 27.70) and the non-ADHD comparison boys (25.09 ± 11.26) and girls (31.63 ± 11.12).

7.2.2.2 Analysis of variance (ANOVA)

Table 7.3 depicts the results of the ANOVA for the PHSF

Table 7.3 Analysis of variance on the results of the PHSF

	DF	F	p
ADHD GROUP	1, 160	178.328	0.00*
Gender	1, 160	0.031	0.86
ADHD GROUP x Gender	1, 160	0.575	0.44

*p < 0.001,

The differences in scores between the ADHD and non-ADHD comparison groups on the PHSF were statistically significant ($p < 0.001$). There were no effects of gender, neither main, nor interacting, therefore the gender groups were not analysed separately.

7.2.3 Beck self-concept inventory

7.2.3.1 Descriptive statistics

Table 7.4 illustrates the Beck Self-Concept Inventory for Youths [BSCI-Y] scores for the ADHD and Non-ADHD group.

Table 7.4 Descriptive statistics of the BSCI-Y according to gender

Group	Gender	N	Mean	SD
ADHD	Male	45	49.778	14.919
	Female	37	48.135	15.183
	Total	82	49.037	14.968
Non-ADHD	Male	45	33.911	11.587
	Female	38	25.974	10.906
	Total	82	30.277	11.897

Figure 7.2 illustrates the results of the scores obtained on the BSCI-Y

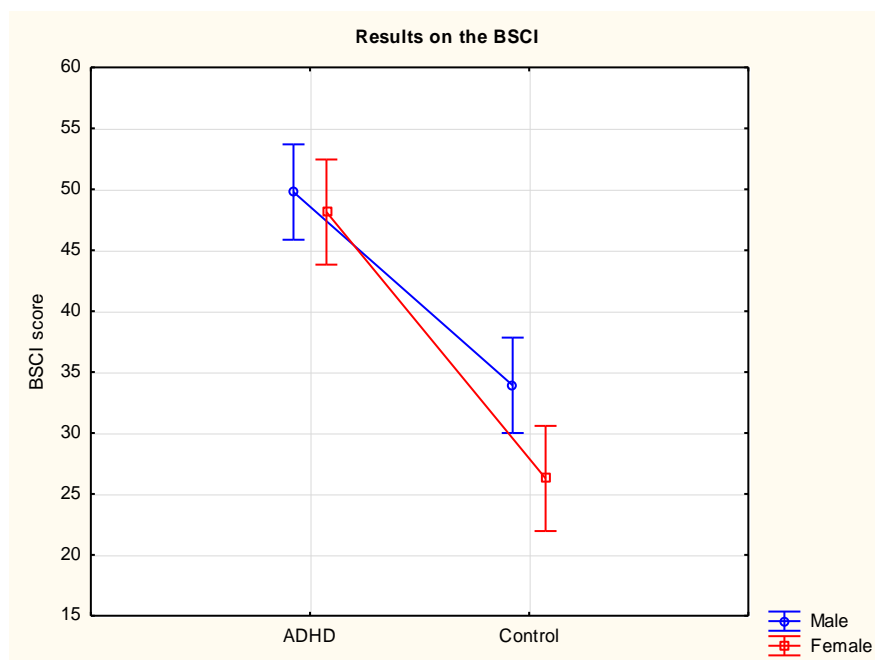


Fig. 7.2 shows the scores on the BSCI-Y for ADHD boys (49.78 ± 14.92), ADHD girls (48.14 ± 15.18) and the non-ADHD comparison boys (33.91 ± 11.59) and girls (25.97 ± 10.91).

7.2.3.2 Analysis of variance (ANOVA)

Table 7.5 depicts the results of the ANOVA for the BSCI-Y

Table 7.5 ANOVA results (BSCI-Y)

	DF	F	p
Gender	1, 160	4.951	0.02*
ADHD GROUP	1, 160	81.783	0.00**
Gender x ADHD GROUP	1, 160	2.067	0.15

*p < 0.05, **p < 0.001

The differences in scores between the ADHD and non-ADHD comparison groups on the BSCI were statistically significant ($p < 0.001$). There was a main effect of gender but no interacting effect. *Post hoc* analysis (Bonferroni) showed that the significant differences were between the males and females of the non-ADHD comparison group.

7.4 Hypotheses testing

Research hypothesis 1

Based on the research results, the following conclusions can be drawn:

The first null hypothesis must be rejected because there were differences in the scores on the Personal, Home, Self and Formal Relations Questionnaire [PHSF] between children with ADHD and a non-ADHD control group with the ADHD group having a significant higher score than the non-ADHD comparisons.

Hypothesis 1 is therefore accepted as there is a significant statistical difference between the ADHD group and the non-ADHD comparison group in the results of the ANOVA for the scores on the PHSF. This shows that children, who are inconsistently inattentive, easily distracted, impulsive and over-active, which are symptoms of ADHD, will have poorer interpersonal relationships.

Research hypothesis 2

Based on the research results, the following conclusions can be drawn:

The null hypothesis must be rejected as there is a statistical difference in scores on the scale that measures self-esteem (Beck Self-Concept Inventory for Youths [BSCI-Y]) between children with ADHD and a non-ADHD control group with the ADHD group obtaining the higher scores.

Hypothesis 2 must be rejected as the ADHD group had a higher score in the scale that measures self-esteem than the non-ADHD group which was a contradiction of the postulated hypothesis. This was an unexpected result, as most of the theories and literature pointed in the opposite direction: Children with ADHD have a poorer self-concept than their normally developing peers.

DISCUSSION OF RESULTS

8.1 Introduction

The aim of the study was:

1. To examine the impact of ADHD symptomatology on interpersonal relationships and
2. To investigate the self-esteem of the children with ADHD.

Past research findings have shown that the symptoms of ADHD have an impact on the interpersonal relationships and self-esteem of children with the disorder (Antshel et al., 2009; Barkley et al., 2006; Mrug et al., 2012). ADHD can negatively interfere with the general wellbeing as well as with social life and development of social skills, which in turn can lead to poor interpersonal relationships and low self-esteem (Cantwell, 1996a; Escobar et al., 2009; Klassen et al., 2004; Matza et al., 2004).

8.2 Summary of Results

1. The results of the Personal, Home, Self and Formal Relations Questionnaire (PHSF) indicated that children with ADHD scored significantly higher in the test than the non-ADHD comparison group. According to this result the children with ADHD will have problems with their interpersonal relationships. There was no effect of gender on the results of the group with ADHD.
2. The results of the Beck Self-Concept Inventory for Youths [BSCI-Y] showed that children with ADHD scored significantly higher in the test than the non-ADHD group. This means that the self-esteem of children with ADHD was not lower than that of

the non-ADHD comparison group as expected; on the contrary, it indicated that the children with ADHD had higher self-esteem than the non-ADHD comparison group. There was no interacting effect of gender, therefore it can be concluded that both males and females of the ADHD group had higher self-esteem than their non-ADHD comparisons

8.3 Discussion of results

The present study found significant differences between ADHD children on Interpersonal relationship and self-esteem when compared to non-ADHD children.

8.3.1 Interpersonal relationships

The results showed evidence that ADHD symptoms have an impact on primary school children in their interpersonal relations.

Children with ADHD often interact in ways that can provoke negative reactions from peers. Some may try to dominate play or engage in ways that are too aggressive, demanding and intrusive. They may have trouble joining in with peers in the activities their peers like to do. Instead, they may want to make their own set of rules or engage in bossy, "unfair" or non-compliant ways and generally may have a difficult time knowing how to cooperate with other children of the same age (Hoza, 2007).

Because of difficulties with self-control, many children with ADHD tend to react without thinking through the consequences of their behaviour or of the impact their behaviour can have on others around them. In addition, they usually do not learn from past experiences especially the hyperactive/impulsive and combined subtypes (Aase et al., 2006). This disruptive or "insensitive" behaviour is often viewed as purposeful and deliberate, as a result, the child with ADHD may be labelled as a "troublemaker" and be further avoided and

quickly rejected by the wider group. Once stuck with such a label, it can become even more difficult for the child to overcome this negative reputation and connect positively with peers even as he or she begins to make positive changes in social skills (Hoza, 2007).

Some children with ADHD isolate themselves because of repeated failures in friendships, feelings of wariness and reticence with others and plummeting feelings of self-confidence. Problems are then compounded because when children avoid or disengage from others, they no longer have opportunities to learn adaptive skills and as a result, they develop even lower peer competencies. These deficits in social skills can certainly take a toll and have a negative effect on a child as he or she grows and moves into adolescence and adulthood (Brown, 2005; Brown et al., 2005).

The results obtained in the present study are consistent with the findings of Greene et al. (2002) where teachers reported having problems interacting with children with ADHD. According to the reports, these children do not listen as well as they should for their age, cannot concentrate, are easily distracted, fail to finish what they are assigned to do and change activities more often than others (DuPaul, Power, Anastopoulos & Reid, 1998) which makes it difficult for their peers to interact with them.

Studies demonstrate that ADHD children tend to be rejected by peers and tend to engage in higher rates of disruptive and aggressive behaviour. Children suffering from ADHD commonly experience peer rejection since disruptive and aggressive behaviours are viewed by peers as aversive. For example, in a study in which non-behavioural factors were taken into account, Erhardt and Hinshaw (1994) observed that ADHD boys were rejected within short periods of first time interactions with normal populations. Aggressive and disruptive behaviours were equally predictive of increased negative nominations by peers.

This is confirmed by the present study where the children with ADHD performed poorer on a measurement of interpersonal skills than the typically-developing comparison group.

Parental ADHD may predict poorer child social functioning beyond the prediction resulting from shared genetics. Studies with typically-developing children suggested that parents encourage the social competence of their children by: (1) providing guidance during their child's peer interactions; (2) acting as models to their children's behaviour; and (3) organising playdates where the child meets peers and is likely to develop relationships with them (Ladd & Hart, 1992; Parke et al., 1994). Parents with ADHD may struggle to model or provide proper instruction in socially competent behaviour to their children, if the findings regarding interpersonal difficulties among adults with ADHD are correct. For example, parents with ADHD who have difficulty socially networking with other parents may also be less likely to arrange playdates for their children. This could further lead to the children's poor interaction with peers.

In an investigation on parents' behaviour toward their children with ADHD, the parents' assistance in their child's peer interactions, corrective feedback, criticism, warmth and praise exhibited during lab-based playgroups predicted the children's successful peer relationships (Mikami, Jack, Emeh & Stephens, 2010). This effect was particularly important for children with ADHD, underscoring the important role parents can play in the social success of these children.

Another reason why children with ADHD lack interpersonal skills in the tests may be because of the troublesome, rude, disruptive and noisy behaviour that these children often exhibit towards their peers which leads to rejection as it becomes too much to tolerate

(Hoza et al., 2005a; Hoza et al., 2005b). Their peers find it difficult to communicate with them and see them as different or abnormal.

Social skills difficulties for children with ADHD could cause their poor performance in many aspects of life because they miss the subtle nuances of communication. Children as well as adolescents and adults with ADHD will often have difficulty reading what is implied or understanding subtext thereby leading to miscommunication. It is difficult enough for most to attend to the text of conversations without the additional strain of understanding the subtext and getting exactly what the person really means (Novotni, 2000).

Impulsiveness, which is a symptom of the disorder, affects social relationships negatively because others may interpret impulsive words or actions as lack of caring or regard for others. Failure to stop and think first often has devastating social consequences like the child making decisions that can hurt self or others. Impulsiveness in speech, without self-editing what is about to be said, may appear as unfiltered thoughts. Opinions and thoughts are shared in their raw form, without processing them like most people do before sharing them with others in a socially appropriate form and they interrupt regularly when others are talking (Bell, 2002)

Impulsive actions can also create difficulties as individuals with ADHD may act before thinking through their behaviour. Making decisions based on an "in the moment" mentality often leads to poor decision-making. Persons with ADHD symptomatology often find themselves lured off tasks by something more inviting. Impulsive actions can include taking reckless chances, failure to study or prepare for school- or work-related projects, affairs, quitting jobs, making decisions to relocate, financial overspending, and even aggressive actions, such as hitting others or throwing items (Novotni, 2000).

Rapid and excessive speech can also be a sign of impulsiveness. The rapid-fire speech of an individual with ADHD leaves little room for others who might want to participate in the conversation as the child continues talking without considering that the other person may have an opinion. Monologues rather than dialogues leave many with ADHD without satisfying relationships or needed information (Novotni, 2000).

Physical hyperactivity often limits the ability to engage in leisure activities. Failure to sit still and concentrate for concerts, religious ceremonies, educational events or even leisure vacations and the like may be interpreted by others as a lack of caring or concern on the part of the person with ADHD which leads to the child being rejected by peers. In addition, difficulties in being attentive leave others feeling unattended (Antshel & Remer, 2003).

Social skills are generally acquired through incidental learning: watching people, copying the behaviour of others, practicing and getting feedback. Most people start this process during early childhood. Social skills are practiced by watching adults, acting like them and through other childhood activities. The finer points of social interactions are sharpened by observation and peer feedback. Children with ADHD often miss these details. They may pick up bits and pieces of what is appropriate but lack an overall view of social expectations thereby leading to failure in developing skills (Antshel & Remer, 2003).

Social acceptance can be viewed as a spiral going up or down. Individuals who exhibit appropriate social skills are rewarded with more acceptance from those with whom they interact and are encouraged to develop even better social skills. For those with ADHD, the spiral often goes downward. Their lack of social skills leads to peer rejection, which then

limits opportunities to learn social skills, which leads to more rejection, and so on (Novotni, 2000).

At first, these difficulties of children with ADHD were conceptualised as a deficit in appropriate social skills, such that the children had not acquired the appropriate social behaviours. ADHD has been re-conceptualised in more recent times as an impairment of the brain's executive or controlling functions. The social cognition impairments are consistent with fronto-striatal dysfunction in ADHD, but other functional networks of brain areas also appear to be implicated (Uekermann et al., 2010). It follows from this conceptualisation that the social deficits of the individual with ADHD may not be primarily the result of a lack of social skills, but rather a lack of efficiency in reliably using social skills that have already been acquired (Barkley, 1997a).

8.3.2 The effect of ADHD on self-esteem

The results, surprisingly, showed that the ADHD group scored higher in the test that measures self-esteem (Beck Self-Concept Inventory for Youths [BSCI-Y]) than the non-ADHD comparison group. It was surprising because the result is different from most of the past studies and was not the expected result. Therefore, there was no negative impact on the self-esteem of children with ADHD, on the contrary, the ADHD group had higher self-esteem than the non-ADHD comparison group. This was a very unexpected finding especially after looking at similar studies. The result is inconsistent with findings of past research that show that ADHD has a negative impact on the self-esteem of children and also does not support the hypothesis of the present investigation. Some of the studies that support the hypothesis of this study includes Barber et al. (2005) which reported lower self-esteem in children with ADHD when compared to controls, Barkley et al., (2006), Edbom et al.(2006), Klimkeit et al.

(2006), Pisecco et al. (2001), Slomkowski et al., (1995) and Taanila, Hurtig, Miettunen, Ebeling and Moilonen (2009), also show that ADHD has a negative impact on the self-esteem of children.

There are also studies that do not support the hypothesis of the present investigation, namely, that children with ADHD have a lower self-esteem than typically developing children, like the study by Hoza et al. (2004) which reported that children with ADHD tend to overestimate their own competence, reporting an inflated estimation of self-worth called positive illusory bias. They overestimate their perceptions of themselves most strongly in areas where they have the greatest skill deficit. The outcome of the present study seems to be in agreement with this conclusion.

The positive illusory bias as reported by Hoza (2004) could be one of the reasons the children performed higher in the test. The children might have experienced setbacks and failures in a variety of areas like most children with ADHD, but these children still have a high self-esteem by using the thinking style of positive illusions to compensate for a dampened self-esteem. The young age of the participants in the present study may have contributed to this result. The role that culture plays in this respect needs to be investigated as the majority of studies who found a lower self-esteem in children with ADHD were done in Western countries.

Most studies show that both children and adolescents suffering from ADHD have low levels of social skills and self-esteem as compared to the general population (Shaw-Zirt, Popali-Lehane, Chaplin & Bergman, 2005; Bussing et al., 2000) and these findings are consistent with other studies indicating that also adults with ADHD continue to have problems in many areas of functioning (Barkley, Murphy & Kwasnik, 1996; Murphy &

Barkley, 1996) thus suggesting that social functioning and self-esteem may play a role on future outcomes in ADHD (Slomkowski et al., 1995).

A study that came up with a similar result like the present, suggested that ADHD subjects showed significantly higher rates of self-esteem in the pathological range when compared to non-afflicted controls, however analysis of self-esteem with respect to treatment strategies revealed no significant differences between drug-free or drug-treated ADHD groups. However, ADHD patients treated with methylphenidate showed significantly higher self-esteem scores as compared to ADHD group treated with atomoxetine, which was in line with previous studies showing that stimulants were associated with significantly higher self-esteem (Alston & Romney, 1992; Frankel, Cantwell, Myatt & Feinberg, 1999). None of the children with ADHD in the present study was on stimulant medication.

However, in another study by Frankel et al. (1999), this relationship was not so positive in that only ADHD children with a comorbid diagnosis of Oppositional Defiant Disorder (ODD) reported a higher self-esteem compared to pure ADHD upon treatment with stimulants. Furthermore, drug treatment had a positive influence on how the teachers interacted with children affected by ADHD and this could contribute to improve self-esteem indirectly in these children (Whalen, Henker & Dotemoto, 1981).

Impulsiveness, which is a symptom of the disorder, could affect the self-esteem both positively and negatively. When children have trouble inhibiting their behaviour, comments or responses, they may act before thinking or react without considering consequences. This could lead to their parents or teachers reacting harshly to them and could sometimes make them feel bad about what they have done, thereby leading to a low self-esteem which shows a negative impact of the disorder (Santrock, 2002). Impulsiveness can affect children

positively in situations whereby the impulsive behaviour leads to a positive outcome or when the child thinks that it does. When such impulsive actions have positive outcomes, they tend to see their actions as signs and indicators of boldness, quickness, spontaneity, courageousness or unconventionality (Daruna & Barnes, 1993) leading to the increase in self-esteem.

One of the major problems in the area of self-esteem research is the lack of a clear consensus definition. Self-esteem has been given a number of different definitions, each emphasising different aspects (Robson, 1988). Hence, measurement instruments based on different definitions sometimes show a poor relationship with each other. An appropriate approach to better evaluate self-esteem may therefore be to use more than one measure of self-esteem. Children with ADHD appear to display inadequate social behaviour (Nijmeijer et al., 2008) and to have impaired social cognition (Uekermann et al., 2010) which could also have had an effect on the result of this study. Social cognition can be briefly defined as the ability to understand other people's minds and more specifically to perceive emotion, empathy, attribute false belief and understand intended meaning, among others. This impairment could have had an effect on the children's response to the test as a result of their failure to understand the questions and/or purpose of the study.

Bussing et al. (2000) conducted a more careful examination of this relationship. Specifically, they recognised that children with ADHD often have other key difficulties, but this varies widely from one child to the next. For example, some children have ADHD alone, others have externalising problems such as oppositional defiant disorder (ODD) or conduct disorder (CD) in addition to ADHD, while others have mood or anxiety problems (internalising disorders). In addition, there is an unfortunate subset of children with ADHD

who have both co-occurring internalising and externalising problems. Clearly, self-esteem in children with these different combinations of difficulties would be expected to vary, although this has not been carefully examined in prior research. The most important message from this study is that ADHD alone does not appear to be associated with lower levels of self-esteem in school-age children. Instead, it is the presence of a co-occurring internalising problem, either alone or in combination with an externalising disorder, which is predictive of dramatically lower self-esteem (Bussing et al., 2000). These data clearly highlight the need for children suspected of having ADHD to be thoroughly evaluated for the presence of co-occurring internalising and externalising problems.

8.3.3 Gender differences

The study found no differences between the genders for interpersonal relationships. Both boys and girls with ADHD had poorer interpersonal skills than boys and girls without ADHD symptoms. For self-esteem there was a statistically significant result between the genders for the non-ADHD group where the boys had higher self-esteem than the girls. However, this result was not relevant to the present study. Gender differences have only been infrequently assessed in studies on self-esteem and interpersonal relationships in ADHD. However, Ek, Westerlund, Holmberg and Fernell (2008) found significant gender differences with girls reporting lower self-esteem and poorer relationships with parents and peers, which was also found by Quinn and Wigal (2004) who noted that girls with ADHD reported more problems with parents and friends than boys with ADHD.

8.4 Limitations of the study

The ADHD group and the non-ADHD group were matched for age and gender only. As far as possible, home language was also taken into account, but a match according to

ethnic/language group was not always possible. Socio-economic status was not assessed and may have played a role in the differences in results. Although each item on the PSHF and BSCI-Y scales was explained to the children, it was not always clear if children as young as 7 years old did completely understand the questions. The presence of the researcher may have been intimidating and resulting in false positives. Administration of the scales at the particular school the child attended and environmental conditions differed between schools. This could have played a role because the classroom was small and uncomfortable leading to the student's wanting to get done with the test so as to leave the uncomfortable environment as quickly as possible. These differences may have influenced test performance. Cultural factors are important determinants of childrearing practice and may therefore affect response on questionnaires which have been developed for Western populations. Comorbid conditions such as anxiety, depression, learning disorders, pervasive development disorders, ODD and CD were not diagnosed before testing and could have affected the outcome.

Another possible limitation is the use of only the DBD as a diagnostic method not supported by a clinical interview with the teachers and parents. This might have caused elimination of some of the children whom teachers found hard to identify, mostly the girls.

The extent to which the results of this study can be generalised to the overall population, may also be a shortcoming since the participants were predominantly Pedi speaking and from a semi-urban area. The reliability of the results can be enhanced by making use of a larger and more heterogeneous sample, where the ADHD subtypes can be separately analysed.

8.5 Clinical implementations of the study

The results of the current study implies that the child with ADHD has problems communicating with parents, teachers and peers which could lead to academic problems, substance abuse, learning disabilities and be uncomfortable in their environment (Bailey, 2013; Dobie et al., 2012; Kooij et al., 2010).

Interpersonal relationship problems should be taken into account in the treatment of ADHD symptoms. Children with ADHD need help in improving their interpersonal relationships and social skills. Psycho-social and psycho-stimulant interventions are often used to address the interpersonal difficulties faced by ADHD patients. Parent training (PT) focuses on mitigating non-compliance, to reduce conflicts with the family and theoretically impact positively on functioning in the social domain at school, since non-compliance has been connected to greater levels of peer rejection (Erhardt & Hinshaw, 1994).

Parent training (PT) and social skills training (SST) are two methods of psycho-social intervention that have been studied in their application to ADHD symptoms and associated social deficits. These therapies often lead to reductions in general familial levels of distress and improvement in the child's interpersonal relationships, both of which are often seen as problem areas in families with ADHD children (Abikoff et al., 2004).

The test for self-esteem (Beck Self-Concept Inventory for Youths [BSCI-Y]) showed there was no negative impact on the self-esteem of children with ADHD and therefore this ADHD group has a high self-esteem. This was a surprising result as a result of its inconsistency with past studies and implies that the result is inconclusive as some studies indicate that these individuals often have low self-esteem, others report that children and

adolescents with ADHD often overestimate their abilities, perceptions of self and self-concepts leading to a high self-esteem. Cultural influences should be considered in further studies of this disorder. Children with high self-esteem tend to implement the thinking style of positive illusory bias as a means of self-protection (Hoza et al., 2004). They will act according to what they think is the best of their choice, trust their own judgment and not feel guilty when others don't like their choice. They would not lose time thinking of past impulsive actions and would live in the present intensively.

8.6 Possibilities for further research

The areas of limitations discussed in section 8.4 should be considered in follow-up investigations. In Investigating ADHD among the various cultures in South Africa, use should be made of instruments which have to be proven to be culture-fair. A more comprehensive interview with the parents or caretakers should form part of the assessment method.

It is also recommended that in future research a diagnostic interview should be conducted to complement the DBD. More research should be done on the impact of ADHD on both the self-esteem and interpersonal relationships to improve the findings of this research.

8.7 Concluding remarks

In conclusion, the results of the current study support the hypothesis that children, who are inconsistently inattentive, easily distracted, impulsive and over-active will have problems with interpersonal relationships

The result of this study did not support the second hypothesis namely, that there will be a negative impact on the self-esteem of children with ADHD. This aspect will require more study as there are also researches that supports and discredits this hypothesis. Research like that of Edbom et al. (2006) supports this hypothesis while the study by Hoza et al. (2004) discredits the hypothesis. This leads to the assumption that children with ADHD do not have a realistic idea of self and that ADHD could have a positive or negative effect on children depending on the circumstances. It may be influenced by age, culture or comorbidity.

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APPENDIX A - Letter to principals



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Turfloop Campus

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SOUTH AFRICA

Tel/Fax: 015 268 3020

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The Principal

..... Primary School

Dear Sir / Madam,

Research project: Attention-Deficit/Hyperactivity in the Limpopo Province

Attention-Deficit/Hyperactivity Disorder (ADHD) is a developmental disorder, which affects between 2% and 5% of primary school children. It consists of problems with impulse control, attention span, and activity level. However, it is much more than a matter of being inattentive and overactive. The disorder is an obstacle to benefit from normal education methods and to form acceptable social relations. It is not a temporary state that will be outgrown, for most of the children will still be suffering from the disorder as adolescents and adults.

The child usually is disorganized, has problems with planning his/her activities and may be very forgetful. There are severe problems with sustained attention, especially in the classroom situation. The child has also problems with sitting still, is overactive and fidgety. Problems with gross and fine motor coordination are frequent.

The cause of ADHD is not known yet, but research suggests a genetic origin. Pollutants and poor nutrition may also play a role. It is not caused by failure to discipline or control the child. ADHD children not diagnosed and treated at an early age are at risk for future delinquent behaviour, psychiatric problems, and substance abuse. The financial cost for the society will be considerable. The families of these children experience undue stress and it has severe impact on academic activities at schools.

Diagnosis of ADHD has always caused a problem. Up to now, all instruments, which are used for the diagnosis of ADHD, are rating scales completed by teachers and/or parents and are usually culturally biased and have to be translated into all the official languages. These rating scales are mostly inaccurate because of the subjectivity of the rater. Especially in South Africa, with its many culture and language groups, the rating methods is often invalid.

Postgraduate students from the University of the Limpopo are investigating various aspects of the disorder.

Method:

A researcher will visit the participating school and will screen the pupils for ADHD. This Disruptive Behaviour Disorder Rating Scale-DBD- (Pelham, Gnagy, Greenslade, and Milich, 1992) will be used. This scale, which is standardized for use with all the population groups of the Province (Meyer, Eilertsen, Sundet, Tshifularo, and Sagvolden; 2004) will be filled in by the child's class teacher. The screened children, who comply with the ADHD criteria, will then undergo further testing. The following will be administered:

- Biographical data questionnaire
- Personal, Home, Self and Formal Relations Questionnaire
- Beck Youth Inventory for Children

The data will be used for statistical analysis only and in no circumstances will the identity of the child and the school be revealed.

Your approval of this very important study will contribute to the establishment of a valid diagnostic method, which will enable professionals to identify children at risk for educational, social and emotional problems.

Yours Sincerely



Prof. Anneke Meyer
Project Leader

UA Oshodin
Researcher

APPENDIX B - Letter to parents



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Sovenga

0727

SOUTH AFRICA

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Cell: 083225 9743

Email: anneke.meyer@ul.ac.za

Dear Parents,

Research Project: Attention-Deficit/Hyperactivity Disorder in the Limpopo Province

Attention-Deficit/Hyperactivity Disorder (ADHD) is a developmental disorder which affects between 2 % and 5% of primary school children. The child has difficulty paying attention, controlling his or her activity and is impulsive. He or she often has problems in coping with his or her schoolwork and may not get along well with teachers and other children. They are also unable to complete assigned tasks without supervision and may cause disruptions in the classroom and in the family.

The problems may cause that the child is unable to adjust to the normal requirements of ordinary life and may not benefit from regular education methods.

The cause of ADHD is not known yet, but research suggests that it may be an inherited condition. It is not caused by failure to discipline or control the child. Often the children benefit from medication.

It is extremely important that these children are diagnosed and treated at an early age so that suffering at home and at school can be prevented and the child may not be at risk for future behaviour and learning problems.

The School of Social Sciences of the University of Limpopo is conducting a research project on ADHD in the Limpopo Province. A researcher will be visiting your child's school next term in order to investigate certain developmental aspect of the children. Tests will be used to form an objective picture of the child's intellectual, motor, perceptual and emotional development. The tests will be in the form of computer games and questionnaires and will not cause any distress to the child. The total assessment will take about 2 hours.

We would like your approval for your child's participation. Test results will be treated as strictly confidential. The evaluation will be done free of charge. Furthermore, once the assessment has been completed, the school will be provided with a detailed report of our findings regarding your child. In addition you will also be granted the opportunity to discuss the results of our assessment with us.

Please indicate whether you are in favour of your child's participation by completing the enclosed form and returning it to the school. Should you have any queries regarding this project, please contact me at the above contact numbers.

We hope that your child will be allowed to participate in this important project and we thank you in anticipation for your cooperation.

Sincerely,



Prof. Anneke Meyer
Project leader

UA Oshodin
Researcher

X.....
....

CONSENT FORM

I hereby ***grant/do not grant** permission for my child to participate in the research project on Attention-Deficit/Hyperactivity Disorder (ADHD).

Parent's signature

Date

.....

.....

Child's name:

Child's date of birth:

day month year

* Delete which is not applicable

APPENDIX C

CHILD AND FAMILY INFORMATION

Child's name _____ Birth date _____ Age _____

Address _____

Home phone no. _____ Work phone _____

Child's school _____ Teacher's name _____

School phone _____ Child's grade _____

Is the child in special school education? Yes No if so, what type? _____

Father's place of employment _____

Father's name _____ Age _____ Level of education _____

Type of employment _____ Annual salary _____

Mother's name _____ Age _____ Level of education _____

Mother's place of employment _____

Type of employment _____ Annual salary _____

Is child adopted? Yes No If yes, age when adopted _____

Are parents married? Yes No Separated? Yes No Divorced? Yes No

Child physician _____

Physician's telephone number _____

Please list all other children in the family

Name	Age	School grade

DEVELOPMENTAL AND MEDICAL HISTORY

PREGNANCY AND DELIVERY

A. Length of pregnancy (weeks) _____

B. Length of delivery (number of hours from initial labour pains to birth) _____

C. Mother's age when child was born _____

D. Child's birth weight _____

E. Did any of the following conditions occur during pregnancy/ delivery?

1. Bleeding	No	Yes
2. Excessive weight gain	No	Yes
3. Toxemia/ preeclampsia	No	Yes
4. Rh factor incompatibility	No	Yes
5. Frequent nausea or vomiting	No	Yes

6. Serious illness or injury	No	Yes
7. Took prescription medications a. If yes, name of medication_____	No	Yes
8. Took illegal drugs	No	Yes
9. Used alcoholic beverage a. If yes, approximate number of drinks per week_____	No	Yes
10. Smoked cigarettes a. If yes , approximate number of cigarettes per day (e.g., ½ pack) _____	No	Yes
11. Used snuff a. If yes, how many times per day?	No	Yes
12. Was given medication to ease labor pains. a. If yes, name of medication_____	No	Yes
13. Delivery was induced	No	Yes
14. Forceps were used during delivery	No	Yes
15. Had a breech delivery	No	Yes
16. Had a cesarean section delivery	No	Yes
17. Other problems- please describe	No	Yes

F. Did any of the following conditions affect your child, during delivery or within the first few days after birth?

1. Injured during delivery	No	Yes
2. Cardiopulmonary distress during delivery	No	Yes
3. Delivery with cord around neck	No	Yes
4. Had trouble breathing following delivery	No	Yes
5. Needed oxygen	No	Yes
6. Was cyanotic, turned blue	No	Yes
7. Was jaundiced, eyes turned yellow	No	Yes
8. Had an infection	No	Yes
9. Had seizures	No	Yes
10. Was given medications	No	Yes
11. Born with a congenital defect	No	Yes
12. Was in hospital more than 7 days	No	Yes

G BREAST FEEDING

1. Did you breastfeed your child? Yes /No
2. If you breastfed your baby, for how long? _____
3. At what age did you introduce solid food? _____
4. At what age was your child completely weaned from the breast? _____

HOME SITUATIONS QUESTIONNAIRE

Child's name _____ Date _____

Name of person completing this form _____

Relation to child: mother/father/ caregiver (underline)

Does your child present any problems with compliance to instructions commands, or rules for you in any of these situations? If so, please circle the word Yes and then circle a number beside that situation that describes how severe the problem is for you. If your child is not a problem in a situation, circle No and go on the next situation on the form.

Situations	Yes/No		Mild									Severe		
	Yes	No	1	2	3	4	5	6	7	8	9	10	11	12
While playing alone	Yes	No	1	2	3	4	5	6	7	8	9			
While playing with other children	Yes	No	1	2	3	4	5	6	7	8	9			
At meal time	Yes	No	1	2	3	4	5	6	7	8	9			
Getting dressed	Yes	No	1	2	3	4	5	6	7	8	9			
Washing and bathing	Yes	No	1	2	3	4	5	6	7	8	9			
While you are on the telephone	Yes	No	1	2	3	4	5	6	7	8	9			
While watching television	Yes	No	1	2	3	4	5	6	7	8	9			
When visitors are in your home	Yes	No	1	2	3	4	5	6	7	8	9			
When you are visiting someone's home	Yes	No	1	2	3	4	5	6	7	8	9			
In public places (restaurants, stores, church, etc.)	Yes	No	1	2	3	4	5	6	7	8	9			
When father is home	Yes	No	1	2	3	4	5	6	7	8	9			
When asked to do homework	Yes	No	1	2	3	4	5	6	7	8	9			
At bedtime	Yes	No	1	2	3	4	5	6	7	8	9			
While in the car	Yes	No	1	2	3	4	5	6	7	8	9			
When with a babysitter	Yes	No	1	2	3	4	5	6	7	8	9			

Total number of problem settings _____ Mean severity score _____

APPENDIX D

ID _____

Teacher / Parent DBD Rating Scale

Child's name: _____

Form completed by: _____

Sex: M/F Age: _____

School: _____

Grade: _____

Date Completed: _____

Home language: English /Afrikaans/ N-Sotho/ Xitsonga/ Tshivenda/ Setswana/Sesotho
iZulu/Other: _____

Check the column that best describes this child. Please put a question mark next to any item for which you do not know the answer.

	Not at All	Just a Little	Pretty Much	Very Much
1. often interrupts or intrudes on others (e.g, butts into conversations or games)				
2. has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)				
3. often argues with adults				
4. often lies to obtain goods or favours to avoid obligations (i.e. "cons others)				
5. often initiates physical fights with other members of his or her household				
6. has been physically cruel to people				
7. often talks excessively				
8. has stolen items of nontrivial value without confronting a victim (e.g. shoplifting, but without breaking and entering; forgery)				
9. is often easily distracted by extraneous stimuli				
10. often truant from school, beginning before age 13 years				
11. often fidgets with hands or feet or squirms in seat				
12. is often spiteful or vindictive				
13. often blames others for his or her mistakes or misbehaviour				
14. has deliberately destroyed others' property (other than by fire setting)				
15. often actively defies or refuses to comply with adults' request or rules				

	Not at all	Just a little	Pretty much	Very much
16. often does not seem to listen when spoken to directly				
17. often blurts out answers before questions have been completed				
18. often initiates physical fights with others who do not live in his or her household (e.g. peers at school or in the neighbourhood)				
19. often has difficulty playing or engaging in leisure activities quietly				
20. often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities)				
21. is often angry and resentful				
22. often leaves seat in classroom or in other situations in which remaining seated is expected				
23. is often touchy or easily annoyed by others				
24. often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)				
25. often loses temper				
26. often has difficulty sustaining attention in tasks or play activities				
27. often has difficulty awaiting turn				
28. has forced someone into sexual activity				
29. often bullies, threatens, or intimidates others				
30. is often "on the go" or often acts as "if driven by a motor"				
31. often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books, or tools)				
32. often runs about or climbs excessively in situations in which it is inappropriate				
33. has been physically cruel to animals				
34. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)				
35. often stays out at night despite parental prohibitions, beginning before age 13 years				
36. often deliberately annoys people				
37. has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)				

	Not at all	Just a little	Pretty much	Very much
38. has deliberately engaged in fire setting with the intention of causing serious damage				
39. often has difficulty organising tasks and activities				
40. has broken into someone else's house, building, or car				
41. is often forgetful in daily activities				
42. has used a weapon that can cause serious physical harm to others (e.g. a bat, brick, broken bottle, knife, gun.				

APPENDIX E

ID _____

Personal, Home, Self and Formal Relations Questionnaire

Child's name: _____ Form completed by: _____

Sex: M/F Age: _____ School: _____

Grade: _____ Date Completed: _____

Home language: English /Afrikaans/ N-Sotho/ Xitsonga/ Tshivenda/ Setswana/Sesotho
iZulu/Other: _____

Read the questions to the child and mark the appropriate box with X. Only one answer to each question. Questions referring to parents imply 'parents or guardians'. There is no time limit but work as quickly as possible because the initial reaction to each question is usually the most reliable

How often

	3	2	1
	Almost always always often	Sometimes	Rarely never
1. Do you disobey your parents?			
2. Do you talk with someone of the opposite sex?			
3. Do you enjoy talking to people?			
4. Do you try to avoid hurting someone else?			
5. Do you play with someone of the opposite sex?			
6. Do you feel uncomfortable when you enter a room full of people?			
7. Do you think it is good to cheat someone who has cheated you?			
8. Do you make friends with somebody of the opposite sex?			

9. Do you make new friends?			
10. Have you copied homework from your friend at school?			
11. Do you try hard to meet somebody of the opposite sex?			
12. Do you enjoy parties?			
13. Do you try not to swear?			
14. Are you usually alone?			
15. Are you shy in the company of others?			
16. Does it bother you when you have done wrong?			
17. Do you try to avoid contact with somebody of the opposite sex?			
18. Do you enjoy parties?			
19. Do you feel happy when you have done something wrong?			
20. Do you like being alone with somebody of the opposite sex?			
21. Would you like to play alone?			
22. Have you secretly helped your friend in a test or exam?			
23. Have you tried to talk to somebody of the opposite sex?			
24. Are you quiet in the company of others?			

Total score _____

Beck Youth Inventories for Children and Adolescents

Child's name: _____

Form completed by: _____

Sex: M/F Age: _____

School: _____

Grade: _____

Date Completed: _____

Home language: English /Afrikaans/ N-Sotho/ Xitsonga/ Tshivenda/ Setswana/Sesotho
iZulu/Other: _____

Here is a list of things that happen to people and that people think or feel. Read each sentence carefully and make a cross, X, in the box (Never, Sometimes, Often or Always) that tells about you best. THERE ARE NO RIGHT OR WRONG ANSWERS.

	0	1	2	3
	Never	Sometimes	Often	Always
1. I work hard				
2. I feel strong				
3. I like myself				
4. People want to be with me				
5. I am just as good as the other children				
6. I feel normal				
7. I am a good person				
8. I do things well				
9. I can do things without help				
10. I feel smart				
11. People think I am good at things				
12. I am kind to others				
13. I feel like a nice person				
14. I am good at telling jokes				
15. I am good at remembering things				
16. I tell the truth				
17. I feel proud of the things I do				
18. I am a good thinker				
19. I like my body				
20. I am happy to be me				
BSC-Y Total RS				

