

Investigating the Psychometric properties of the Vanderbilt-Attention-Deficit- Hyperactivity-Disorder diagnostic rating scale (VADRS) within the South African context

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Declaration

I declare that this dissertation represents my own work, except for where due acknowledgement is made, and that it has not been included in a thesis, dissertation or report submitted to this university or any other institution for a degree, diploma, or other qualifications.

Signed ...  Date ... 25/10/2021

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Kershia Sunjeevan

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Acronyms and Definitions

ADHD - Attention-Deficit/Hyperactivity Disorder

VADRS – Vanderbilt Attention-Deficit/Hyperactivity Disorder Rating Scale

NICHQ - National Institute for Children's Healthcare

AAP - American Academy of Paediatrics

CHADD – Children and Adults with Attention-Deficit/Hyperactivity Disorder

HSRC - Health Sciences Research Council

ODD – Oppositional Defiant Disorder

NASP - National Association of School Psychologist

Abstract

Assessment of Attention-Deficit/hyperactivity Disorder (ADHD) typically involves gathering information through a screening process using rating scales consisting of both teacher and parent forms. Such scales have become a prominent device for detecting ADHD symptoms used within diagnostic clinical interviews. Among these scales is the Vanderbilt Attention-Deficit/Hyperactivity Disorder diagnostic rating scales (VADRS) for use in screening for ADHD. In this study, the psychometric properties of the VADRS within the South African context was investigated. The cross-sectional study sample consisted of 100 alongside teachers of children between the ages of 6 and 12 from two Pietermaritzburg-based primary schools (one in an urban setting and the other in a rural setting). The parents and teachers both screened the children on the VADRS. The parents were also provided with a demographic questionnaire to assist in gathering important background information.

Results based on data in the study show acceptable reliability of the VADRS with all subscale alphas above 0.7. These results confirmed that each of the subscales within the VADRS measures ADHD constructs as highlighted in the DSM-5. The study also found that contextual impacts significantly impact how the child scores when screened for attention deficit hyperactivity disorder (ADHD) using the Vanderbilt ADHD Rating Scale (VADRS) within this KZN, South African Sample. Overall, this study's data supports the use of the VADRS to screen for ADHD within this KZN South African Sample; however, contextual factors must be considered when interpreting the findings.

Keywords

Attention-Deficit/Hyperactivity Disorder (ADHD), Vanderbilt ADHD Diagnostic Rating Scale (VADRS), South Africa, Psychometric properties, Reliability, Factorial Validity

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Chapter 1: Introduction

1.1 Background to the Study and Statement of the Problem

Children with Attention-Deficit/hyperactivity Disorder are noted to experience significant impairment at home and school, leading to a strain in how they relate with their parents, teachers, and peers (Mautone, Lefler, & Power, 2011). The global education system is the most aware of the impact that ADHD has on schools and the complications caused by the placement of children diagnosed with this disorder (Koonce, 2007). Literature notes that Attention-Deficit/Hyperactivity Disorder (ADHD) is a psychiatric disorder (Bied, Biederman, & Faraone, 2017; Mark L Wolraich et al., 2014).

ADHD is a disorder characterized by persistent inattention, hyperactivity, and impulsivity impairing functioning or development (Association, 2013). According to a literature review by Bakare (2012), investigating studies of ADHD in Africa, only nine studies met the inclusion criteria. The study found that researchers must conduct more studies to ensure that the burden and magnitude of ADHD are clearly defined within Africa (Bakare, 2012). Studies focusing on ADHD as a phenomenon exists in South Africa; however, there is still a gap in literature focusing on the assessment of ADHD.

Assessment of ADHD typically involves the comprehensive evaluation of information gathered from several sources, including parents/carers, family members, teachers, partners, and colleagues, depending on the patient's age. The data is gathered through a screening process using rating scales consisting of both teacher and parent forms. Screening scales have become a prominent device for detecting ADHD symptoms, mostly used within diagnostic clinical interviews. Among these assessments is the Vanderbilt ADHD Rating Scale (VADRS) for screening six to twelve-year-old's and noted by some studies as suitable for screening pre-school children (My School Psychology, 2018).

The Vanderbilt ADHD Rating Scales (VADRS) are a part of behavioural screening tools developed by Mark Wolraich to screen ADHD (My School Psychology, 2018). The American Academy of Paediatrics published the VADRS (AAP) and the National Institute for Children's Healthcare (NICHQ) in 2002. The VADRS is placed in the public domain to be freely copied

which makes it easily accessible. Due to this discovery about the VADRS, the researcher found it to be a convenient screening tool to work with. Paediatricians often use these tools alongside other health service providers and ADHD support organizations for parents and CHADD (the American national resource on ADHD). The VADRS consists of a parent rating form referred to as the VADPRS (see appendix 1), which contains 55 items. The VADRS also provides a teacher rating form, referred to as the VADTRS (see appendix 2), consisting of 43 items. Information based on the criteria to meet diagnosis will be discussed further in the literature review section. There are also shorter versions of the VADRS rating scales, consisting of 26 questions available and most helpful for follow-up screening. However, this shorter version is not included for viewing as they are not a part of the study.

Little research has been conducted on the VADRS. Still, the few available research studies have confirmed that when making a score comparison of the VADRS against other psychological measures across multiple samples, the scores have good reliability and validity. However, the evidence is limited for now (My School Psychology, 2018). This limitation might be due to the relatively recent development of the test; hence, a few studies have been conducted, and the measure has not been applied much clinically (Wolraich et al., 2013). There is a need for more research on the VADRS within the field (My School Psychology, 2018). Most available studies are based on comparisons of other ADHD screening tools conducted in contexts outside of South Africa.

This study assesses the psychometric properties of the VADRS for use in the South African context while addressing the literature gap of VADRS studies within the South African context, as mentioned above. Additionally, given the diversity in South Africa, this study examined whether demographic variables, such as educational exposure, socioeconomic status, or even contextual background, affect how the VADRS performs. The study brought a South African perspective to the current literature in the field while introducing the South African voice to the contextual debate about psychological assessments. Instruments in use for this kind of evaluation in our context are both time-consuming and costly. This study reveals that the VADRS has good psychometric properties, practitioners may therefore consider substituting this tool for those currently used to lower assessment costs.

The study was conducted in the Pietermaritzburg region in South Africa, where schools were selected randomly. Children from these schools formed the study sample. The VADRS screening tools were completed in a set time frame during the study's data collection stage. The selected schools were from differing background contexts. One school is in an urban area with good socioeconomic status, and the second school in a rural area with low socioeconomic status.

1.2 Research Hypotheses

Hypotheses concerned the reliability of VADRS in measuring ADHD according to the DSM-5, considering contextual cues' impact on the measure's consistency.

1. Null Hypothesis – The VADRS does show construct validity with the DSM-5 in the measurement of ADHD.

Alternate Hypothesis - The VADRS does not show construct validity with the DSM-5 in the measurement of ADHD.

2. Null Hypothesis - The VADRS consistently measures ADHD symptoms across contexts.

Alternate Hypothesis - The VADRS consistently measures ADHD symptoms across contexts.

1.3 Study Objectives

The research objectives for this study were:

- To investigate the extent to which the VADRS measures ADHD constructs it is developed to measure.
- To conduct an exploratory factor analysis to assess the factor structure of the VADRS. The factor structure should ideally measure the symptoms identified in the DSM-5.

- To investigate the reliability of the VADRS by establishing the Cronbach's alpha coefficient (α) for the instrument.
- To establish whether there are demographic (gender, socioeconomic, or contextual) factors that influence the screening results by comparing how the instrument performs in two school contexts.

1.4 Research Questions

The study sought to investigate whether the VADRS is valid and reliable for screening ADHD within the South African context.

- Does the screening tool measure the theoretical constructs it is supposed to measure?
- Does the VADRS consistently measure ADHD in SA as it does globally?
- Are there demographic (socioeconomic or cultural) factors contributing to how the VADRS performs in two different school contexts?

1.5 Study aims

The aims of this study were:

- To establish the factorial validity of the VADRS by checking if the screening tool accurately measures the theoretical constructs of ADHD as specified by the DSM-5.
- To determine the reliability of the VADRS by establishing the degree to which the VADRS consistently measures ADHD symptoms.

A thorough review and exploration of Attention Deficit Hyperactivity Disorder and the Vanderbilt ADHD Rating Scales studies were conducted. The key findings and implications are outlined in the next chapter.

Chapter 2: Literature Review

2.1 Introduction

According to Vogel (2014a), education is becoming an increased priority in developing countries such as South Africa. Therefore, it is becoming crucial to managing any challenging factors that might interfere with optimal academic achievement. This chapter presents theoretical and methodological knowledge considering the Vanderbilt ADHD screening process from an international and national perspective.

2.2 Defining Attention Deficit Hyperactivity Disorder

Attention Deficit Hyperactivity Disorder (ADHD) is "a persistent pattern of inattention and hyperactivity-impulsivity that interferes with functioning or development, as characterized by inattention or hyperactivity and impulsivity" (Association, 2013, p. 59). ADHD is divided into three subtypes of inattentive, hyperactive-impulsive, and combined inattentive/hyperactive-impulsive (Association, 2013). Furthermore, ADHD is associated with psychiatric and developmental disorders such as Oppositional Defiant Disorder (ODD), Conduct Disorder, Anxiety Disorders, Depressive Disorders, and Speech and Learning Disorders. The DSM-5 is one of the most used guidance and reference for practitioners when diagnosing. However, analysts criticize it for conceptualizing disorders as existing within the individual, not considering the contextual factors that come into play within psychopathology development (Drabick & Kendall, 2010).

Vogel's (2014) South African review found an overall estimation that at least one child in every education classroom has Attention-Deficit Hyperactivity Disorder (ADHD). Moreover, among childhood psychiatric disorders, ADHD is one of the most challenging behavioral problems for practitioners and teachers (Vogel, 2014). The condition represents one of the most common mental health referrals in school and community agencies (Vrba, Vogel, & de Vries, 2016). However, Vogel (2014, p. 01) stated that within South Africa, "ADHD prevalence rates are about 5% for children and adolescents and about 2.5% for the adult population", with varying presentations of symptoms between girls and boys. Hence the male to female ratio is 4:1,

confirming alongside several other studies that ADHD is more prevalent within males than in females.

2.3 Differences of ADHD across cultural contexts

The functioning of children with ADHD is limited across different settings, therefore, displaying a behavioral problems pattern depending on the type of ADHD and the comorbidities. Thus, parents of children with ADHD face varying degrees of stress and disharmony in their day-to-day lives (Prosenjit, Hasina Anjuman, & Robin, 2018). ADHD is a phenomenon that emerged in the USA, and therefore to fully understand it, the historical context in which it emerged must be uncovered (Smith, 2017). However, Foxcroft & Roodt (2018) highlight the importance of a merged understanding of the phenomenon to advance African-centered psychological assessment while globally shaping psychological assessment discipline. This combined approach came about due to the shortfalls noted using either the etic or emit approach in theory development and the process of psychological assessment (Foxcroft & Roodt, 2018). Smith (2017) noted that, when it comes to ADHD, "imperfect children are not born; they are constructed" (Smith, 2017, p. 770). Therefore, the proper understanding and evaluation of ADHD in other countries must be viewed with those countries' social and cultural factors in mind. As a result, the more one examines the settings in which ADHD flourishes, the more it becomes culture-based rather than a universally fixed neurological functioning disorder (Smith, 2017).

Proponents of ADHD have made a conscious effort to downplay the role of cultural, social, and environmental factors in the prevalence or diagnosis of ADHD. These proponents claimed that the marked variations in ADHD rates within different countries were due to the various methods used in these studies, rather than differences in the disorder's actual distribution internationally (Smith, 2017). Narrowing down to a South African perspective, Bakare (2012) confirmed that the 5% South African prevalence rate is in accord with the worldwide ADHD prevalence rate, which is also 5%. Although the etiology of ADHD is still unknown (Vogel, 2014a, 2014b), the most commonly accepted criteria for establishing a diagnosis for ADHD are those of the DSM-5 (Alqahtani, 2010). The DSM-5 criteria for diagnosing ADHD are made up of 18 core symptoms that should occur over a prolonged period (Association, 2013).

Gender is a risk factor that is widely noted in psychological problems. Boys have more of a likelihood to present with behaviour regulation and attention difficulties. Simultaneously, girls are more vulnerable to emotion regulation difficulties such as irritability, depression, anxiety, and mood swings. These warrant more likelihood for males to exhibit behaviour regulation deficits than females (Offord, Alder, & Boyle, 1986)(Erskine, 2013;Offord, 1986). According to (Barbarin, 1999;Barbarin, 2001), these gender-based findings are generalizable and apply to most populations, including South Africa.

In a study by Lund, Sorsdahl, and Stein (2012), the improvement of services was one of South Africa's priorities at this particular point in time. With an emphasis on the impairment caused by mental disorders, this study highlighted the need to work on equality regarding distributing mental health care services. In considering how best to attain equality for mental wellbeing and scale-up administration would be most useful to investigate the enactment and frameworks in South Africa (Lund et al., 2012). This article elaborated on the importance of efficiently utilizing the existing human infrastructure to ensure that there is an accumulation of more resources over time.

Considering the efficacy and cost-effectiveness of mental health interventions in general, the Mental Health and Poverty Project (MHaPP) has placed an emphasis and urgency on the need for updated policies and services. Acknowledging equality for mental health administrations as a human right issue develops and expands, it would be the right time to investigate things such as the use of context-relevant psychometric screening tools or rating scales in South Africa. A more broad and rich sampling of behaviour and functioning can be achieved by gathering a wide array of data in the process of assessment. However, the individuals' needs, alongside the purpose of assessment, must guide selecting the most suitable assessment battery (Foxcroft & Roodt, 2018).

According to Atkins & Pelham (1991);Schultz, (2011), rating scales' endorsement was also noted as necessary compared to other assessment modalities. However, Meyer, Eilertsen, Sundet, Tshifularo, and Sagvolden (2004) found minimal information available regarding the validity of these widely used ADHD rating scales with children of different cultural

backgrounds and mother tongues. A study by Savgolden & Sergeant (1998);Tavakol et al., (2011) disputes the claim of cultural influence on the prevalence of ADHD, concluding that the same neurobiological processes cause ADHD-like behaviour, probably caused by genetic factors expressed independently of cultural difference. Additionally, Schellack and Meyer (2012) state that although there is no apparent cause of ADHD, several possible risk factors contribute to the disorder's development and exacerbation. However, amongst all those factors, there is much evidence that points to a strong genetic link. Meyer et al. (2004) further highlighted that these rating scales' reliability and validity can be affected by several issues when the scale is developed in another setting and translated for use in diagnostic procedures in a different setting.

2.4 The screening and assessment of ADHD

Rating scales play several vital roles in the assessment of children with ADHD, including (a) assisting in delineating the referral concern (Atkins & Pelham, 1991; Schultz, (2011), (b) establishing the presence of diagnostically relevant symptoms (Power & Eiraldi, 2000), and (c) providing useful information to physicians and child psychiatrists regarding school-based concerns (DuPaul et al., 1998; Pappas, 2006). The current study did not measure the relative importance that any of the instruments or assessment procedures had in the assessment process but taken together with observational methods, it is apparent that the respondents considered the collection of multiple sources of information using rating scales as a valuable component of the assessment battery (Atkins & Pelham, 1991; Schultz, (2011)). Meyer (1998) further highlights, as noted by (Smith, 2017) that ADHD is not a specific product of European cultures. It is a universal phenomenon. Therefore, ADHD exists in other countries, including South African cultures.

ADHD is assessed through scales consisting of both teacher and parent forms. Such scales have become prominent for detecting ADHD symptoms and form a part of the diagnostic clinical interviews. Foxcroft & Roodt (2018) highlight the assessment process's multidimensionality as it involves acquiring and putting together information to describe and understand human functioning. Therefore, information gathering must also be multidimensional (make use of multiple sources) as this broadens the array of data, enhancing the assessment process (Foxcroft

& Roodt, 2018). According to the literature, both parents and teachers are equally accurate when it comes to their children's evaluation and progress. In support of the previous claim, (Bied et al., 2017) reviewed the literature evaluating parent and teacher informants' psychometric properties based on a gold standard ADHD diagnosis. They found that both parents and teachers yielded similar diagnostic accuracy. According to the data analysts, the parent and teacher reports were identical. Among these rating scales is the Vanderbilt ADHD Rating Scale (VADRS) for six to twelve-year-olds. Some authors have suggested that it may be applied to pre-schoolers (My School Psychology, 2018).

2.5 Defining the Vanderbilt ADHD Rating Scale

The Vanderbilt ADHD Rating Scales (VADRS) are a part of behavioural screening tools developed by Mark Wolraich to screen ADHD (My School Psychology, 2018). This screening tool is in the public domain to be freely copied; therefore, the founder has already given copyright permission. Paediatricians often use these tools alongside other health service providers and ADHD support organizations for parents and CHADD (the American national resource on ADHD). The VADRS consists of a parent rating form, which contains 55 questions, and a teacher rating form made of 43 questions. There are also shorter versions of these rating scales, composed of 26 items with additional side effect measures for following up purposes.

In both the parent and teacher assessment scales, there are two components, the assessment of ADHD symptoms and the assessment of performance impairment. The evaluation of symptoms component looks at symptoms relevant to inattentive and hyperactive ADHD subtypes. The performance impairment assessment looks at the child's' school performance and their interactions with others. Six positive responses for either the core inattentive or hyperactive symptoms point to the presence of ADHD (My School Psychology, 2002). The VADRS, alongside several other ADHD symptom checklists like the German ADHD Rating Scale, were developed in English speaking countries (Erhart, Döpfner, Ravens-Sieberer, & Group, 2008).

2.6 The psychometric properties of the VADRS in other contexts

Wolraich et al., (2003) conducted a study intending to determine the psychometric properties of the Vanderbilt ADHD Parent Rating Scale (VADPRS) within a referred population in Oklahoma where the VADRS was developed. Wolraich et al. (2003) found the tool's internal consistency and factor structure to be acceptable and consistent with the overall Cronbach's alpha more significant or equal to .90 in all the cases. This then drew to the conclusion that despite the tool is freely accessible online and hence cost-effective, the VADRS is reliable for assessing ADHD for both clinical and research purposes (Mark L. Wolraich et al., 2003). Furthermore, a review of two separate but related studies conducted in Oklahoma was conducted to look at the psychometric properties of the Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS) based on a sample of teachers in 5 different school settings (Mark L Wolraich, David E Bard, Barbara Neas, Melissa Doffing, & Laoma Beck, 2013). The coefficient estimates of Cronbachs' Alpha , which is the reliability assessment used in this study, ranged between .85 and .94, confirming acceptable reliability for the teacher rating scale (Wolraich et al., 2013).

A study with participants sampled from different Oklahoma district elementary schools exploring the VADPRS psychometric properties found acceptable construct validity was observed (Bard, Wolraich, Neas, Doffing, & Beck, 2013). Moreover, another study exploring the VADTRS psychometric properties confirmed construct and convergent validity. The reliability coefficients in the current study further support the VADTRS being used as a diagnostic rating scale for ADHD (M. L. Wolraich, D. E. Bard, B. Neas, M. Doffing, & L. Beck, 2013). As a result, one can conclude that the VADPRS measures the ADHD constructs that it's set to measure. My School Psychology (2018) confirms that preliminary studies have documented adequate reliability, stating that there is only a 2% chance that a false negative would result from the VADRS (Wolraich et al. 2013).

However, the validity and reliability studies qualify the assessment tool according to the context that the instrument was developed, Oklahoma, a state in the USA's South-Central region. Therefore, research should still be conducted to verify the VADRS tools' appropriateness based on the background and culture of the context before being used. The ITC guideline published in 2001 stipulates that to promote ethical testing and assessment, the assessment practitioner needs to pay due regards for the needs and rights of those they are assessing (C. D. Foxcroft, 2011). Foxcroft (2011) states the importance of acquiring knowledge about the test takers' background and heritage, thus encouraging an emic approach where

human behaviour is assessed based on a specific culture norm instead of an etic approach which is more of a universal behavioural standard.

Limited research has been conducted on the VADRS; however, the few available studies such as the one mentioned above have confirmed that when making a score comparison of the VADRS against other psychological measures across multiple samples, the results have shown good reliability and validity although the evidence is currently limited (My School Psychology, 2018). This limitation might be due to the relatively recent development of the test and the measure not being used much clinically; therefore, there has not been much research conducted on this screening tool (Wolraich et al., 2013). There is a call for more research on Vanderbilt within the field (My School Psychology, 2018). Most research in this field is based on comparisons of other screening tools for ADHD, and these studies were conducted outside of South Africa.

The VADRS may be a 43-question rating scale, but adaptation incorporates screening for mood and anxiety indications, learning incapacity, and rating the child's performance in class. The outline of psychometric properties and clinical utility of both the parent and teacher rating scales has been done in several studies since these rating scales started being accessible. Presentation of the teacher rating scale took place in 1998 and the parent rating scale in 2003. These were encouraged through later clinical consideration in 2013. Studies have reported that the VADPRS, the parent rating scale, may also be accommodating in surveying children who meet or do not meet symptomatic criteria for those comorbidities like conduct, oppositional defiance, and anxiety and depression symptoms.

2.7 ADHD in the South African Context

Narrowing the focus down to the South African context, although there have been studies conducted about ADHD as a phenomenon, there is still a literature gap focusing on the tools used to screen for ADHD. In a literature review by Bakare (2012), investigating studies of ADHD in Africa, only nine studies met the inclusion criteria, highlighting a deficit of literature within this area. Their conclusion thus, noted that to enhance the effectiveness of the healthcare policy within African countries, more studies need to be conducted to ensure that the burden and magnitude of ADHD are clearly defined (Bakare, 2012). As much as there is a notable gap

in the literature regarding ADHD, the study's rigour should be the primary focus because the study value would be lost if researchers invest their time addressing this gap but not ensuring the quality. The Health Sciences Research Council HSRC also noted that South Africa is faced with a challenge of inadequacy in assessing assessment practitioners (C. Foxcroft, Paterson, Le Roux, & Herbst, 2004). Therefore, as studies get conducted to ensure sufficient data on assessments within the context, the assessment practitioners also need to be thoroughly trained. The training will ensure ethical and well-informed testing processes.

In an ADHD update study conducted at Red Cross War Memorial Children's hospital in Cape Town, findings confirmed that ADHD is a complex disorder that often presents with comorbid conditions (Vogel, 2014). [Vrba, Vogel & de Vries \(2016\)](#) state that ADHD is familiar, yet not recognized and not adequately treated, especially in low socioeconomic status settings. In a clinical audit study conducted in Red Cross War Memorial Hospital in Cape town, compliance to ADHD treatment was found to be low compared to the National Institute for Clinical Excellence (Vrba et al., 2016). As stipulated by Bradley and Corwin in Schulz (2005), it is important to note as one of the factors zoomed into within this specific study that Socioeconomic status is highlighted as an essential source of explanation in several disciplines such as educational research, child development, and health. Research studies also found that there is a correlation between socioeconomic status and health, cognitive as well as socioeconomic outcomes (Schulz, 2005). There is thus more of a complex role that the family background plays in educational outcomes, e.g., "from the outset, parents with higher socioeconomic status can provide their children with the (often necessary) financial support and home resources for individual learning" (Schulz, 2005, p. 2). They also have the means to make the environment more stimulating, thus promoting cognitive development (Schulz, 2005).

2.8 ADHD assessment and Contextual factors in South Africa

Studies conducted focused on predicting the correlation of symptom scales and the diagnostic criteria by looking at the relationship between screening instruments and structured diagnostic interviews (Biederman et al., 1993). Several of these studies used the Child Behavior Checklist (CBCL) within clinics; thus, the investigators were able to identify preliminary support for the use of this screening tool in that specific population. However, the findings' generalizability

was limited to clinic-based samples and how they related to that core battery. However, Koonce (2007) stipulates that the professional organizations that govern psychologists, such as the National Association of School Psychologists [NASP] or the American Psychological Association, have not endorsed any single assessment model for ADHD presently. Schellack and Meyer (2012) also emphasize the importance of an accurate diagnosis in the effective management of ADHD and further highlight that at this point, there is no proven diagnostic test for the disorder.

As a result, no instrument has been approved as providing the best efficacy and performance in assisting with identifying children that may be ADHD at risk; therefore, the assessment takes place in a process that involves several steps. There is, hence, much significance in the validity and reliability of rating scales as they are within the first line of the assessment, which is the screening stage after concerns are identified in different areas of an individual's life. Due to the prevalence of ADHD and its demographic differences such as gender and age, these variables should also be considered when selecting an assessment battery (Barkley, 1998; Koonce, 2007).

According to a study assessing ADHD symptoms between South African and Western samples where a comparison between Limpopo, USA and Europe was made, the prevalence of ADHD-like behavior was similar (Meyer et al., 2004). Therefore, this needs to be further assessed with the VADRS to evaluate whether the rating scale measures the same construct in South Africa as it does in the United States. Should an assessment/screening tool be used within any context other than the one that it is normed on, there have to be validation studies to ensure the tool's suitability within that context (C. Foxcroft & Roodt, 2006). Therefore, due to the prevalence of ADHD known to be influenced by demographic variables such as gender and age, it is of significance that these variables should also be accounted for when selecting an assessment battery (Barkley, 1998; Koonce, 2007). This study will examine the contextual dynamics and the role that these play in the assessment process with relation to the VADRS.

According to Schoeman and Liebenberg (2017), South Africans have limited access to specialized mental health care. They either get poorly diagnosed and poor treatment from primary health care centers or nothing if they cannot afford specialized services. Therefore, the introduction of freely accessible screening tools should make slight improvements in the

accurate diagnosis of disorders within South Africa. The education system is currently a priority due to South Africa still being in development (Schoeman & Liebenberg, 2017). Due to there being much attention drawn to the education system, there is now a "rise in demand for efficient and valid instruments for identifying children at risk for disorders that interfere with optimal scholastic achievement" (Meyer et al., 2004, p.123).

There are, however, more factors to be aware of and consider within a context as diverse as South Africa. In a recent mental health service research conducted by Lund and Petersen (2012) within the South African context, more research focusing on intervention and economic evaluations adapted for this context must be performed. However, due to South Africa's rich cultural diversity, as mentioned above, challenges ought to be maximized when adapting Western diagnostic conventions and research tools and psychosocial interventions for use in this context (Lund et al., 2012).

In a case vignette examining school psychologists' assessment practices of children presenting with ADHD symptomology, Koonce noted rating scales' endorsement as necessary compared to other assessment modalities (Koonce, 2007). This vignette reported that several functions that rating scales play in the assessment of children with ADHD. These functions include the definition of the referral concern (Atkins & Pelham, 1991;Schultz, 2011), diagnostically relevant symptom establishment (Eiraldi, Power, Karustis, & Goldstein, 2000), and provision of helpful information on concerns raised by the school (DuPaul et al., 1998;Pappas, 2006). However, it is essential to note that although the vignette above did not measure the importance of any specific instrument or assessment procedure in the assessment process, respondents value collecting multiple sources of information and saw this as a critical component of the assessment battery. It is thus essential to use context-relevant screening tools in the screening process as this enhances the validity of findings, which then accurately informs diagnosis and treatment.

2.9 Theoretical Frameworks for understanding ADHD

This study was conceptualized using three theoretical frameworks: The Contextual Model, the Bio-ecological Model, and the Developmental Psychopathology Framework. The main

similarity that all these frameworks have is that element of individual and environment interaction and focus on an understanding of the developmental process and the challenges that might come up within this process thereof. The focus is on how the predisposition and ongoing factors within the developmental process may contribute to the development of ADHD and other psychopathologies.

These frameworks claim that each environment has unique ways of viewing and understanding phenomenon such as psychological disorders. As a result, this determines the effectiveness of any recommendations and interventions guided by these approaches. This study focuses on how conditions such as ADHD can be evaluated and understood based on the context in which they manifest. Guidance from these frameworks can thus bring better understanding into South African assessment practice showing how this contextual perspective can promote fairness when tools such as the VADRS that have different norms are being utilized.

2.9.1 The Contextual Model

The Contextual Model is a worldview that entails looking at the world through a broader set of philosophical assumptions. According to Shaffer and Kipp (2007), the contextual model emerged as a preferable perspective to developmentalism. This model views development as the product of a dynamic interplay between the person and the environment (Shaffer & Kipp, 2007). Due to the active role that a person's environment has in the developmental interplay, there may be universal aspects and aspects unique to specific times, cultures, and individuals. As ADHD is a disorder that manifests through behavior, it is likely to be a more contextually based phenomenon. This claim stems from the reasoning that it depends on the context in terms of which action is viewed as expected or not. However, literature shows that ADHD is of USA origin, and hence all that we have come to know and understand about it is rooted in norms of the USA population. This also brings the origin of the VADRS, which were also developed within an Oklahoma state in the USA.

The study looks at how the VADRS performs in two South African School samples seeing as it was normed on a USA sample, which is contextually different from South Africa. This study seeks to find out if these contextual cues affect how the SA samples score on the USA normed

screening tool and if there are contextual influences when comparing both samples against each other.

2.9.2 Bioecological Model

As much as ADHD is now a universal phenomenon, the environment where the behaviour is witnessed considering the person in their wholeness as well as their interactions with others and this is where the understanding and effective management of this phenomenon is rooted (Steinberg & Drabick, 2015). The Department of Basic Education noted that within the South African context, Bronfenbrenner's bio-ecological theory of child development has been applied and adapted to the school setting as it assists in better understanding barriers to learning (Nel, Tlale, Engelbrecht, & Nel, 2016). This theory has also proven to be a helpful lens in understanding systemic effects on children's development within this context (Downer & Myers, 2010). This model is thus a valuable model to use to evaluate the dynamic growth and outcome of ADHD both at home and at school. Therefore, it should offer helpful insight into the topic of investigation within this study.

Bronfenbrenner's work has been used to develop a way of thinking that combines his ecological concepts with systems theory, often referred to as an exosystemic model (Lazarus & Lolwana, 2006) as cited in (Steinberg & Drabick, 2015). Bronfenbrenner's bio-ecological theory is based on the constructivist perspective that knowledge is constructed by individuals, groups, and societies (Donald, Lazarus, & Lolwana, 2006). This further highlights the critical role of the contextual interplay between a person and their environment, which is also crucial in the first contextual model. Thus, people's response is based on how people perceive their environment because people are not passive but rather active participants in their development.

The whole system is impacted upon by a change in one of its parts. Therefore, a child's development is shaped by the interactions between their social context and their biological attributes, which Bronfenbrenner termed person characteristics. Associations build up repetitively over time through close contact, which Bronfenbrenner names; 'proximal processes' (Christenson & Reschly, 2010). The term "nested" was used in theory to show how social contexts are linked and enrooted in each other, confirming that a change in one context

will impact another context. Bronfenbrenner named these nested systems as Micro, Macro, Meso, Exo, and later, as his theory evolved, the Chrono system, which considers the developmental impact of these nested systems over time (Bronfenbrenner, 1986). At the heart of these nested systems which is right at the centre, is the child.

According to (Donald et al., 2006), these systems were briefly contextualized and explained as follows:

Microsystem: This includes all the proximal contexts vital for child development, such as parents, siblings, peers, teachers, family members, and the school, all of which tend to be affected by ADHD behavior. "The microsystem is made up of the roles, relationships and patterns of everyday life that both shape and are shaped by the child in terms of cognitive, emotional, social, moral and spiritual development" (Donald, Lazarus & Lolwana, 2006:41).

Mesosystem: These are the connections and relationships between the individual microsystems in the child's world. For example, a child who is impaired by ADHD will impact at home and school; what happens at home will impact what happens at school. There is considerable literature around how the home context or the school context affects child development. It is generally known that less work has been done understanding how growth is impacted by the intersection of home and school contexts, i.e., the realm of parent-school partnerships (Lohman & Matjasko, 2010 as cited in Donald et al., 2006)) despite an increasing awareness that this partnership can be critical to a child's success at school (Downer & Myers, 2010). An okay-functioning school attempts to develop reciprocal mesosystemic relationships between as many of the microsystems as possible (Swart & Pettipher, 2011).

Exosystem. These systems have an indirect effect on the child, such as parents' decisions concerning intervention, e.g., therapy, support groups, parenting training, or deciding whether or not to medicate their child (Donald et al., 2006). Therefore, about the study, the exosystem forms a part of all the recommendations that are compiled in a report back to the parent after a child has been screened using the VADRS. These recommendations are like a map with sufficient supporting information, which gives the parents an option in terms of what they feel would be beneficial for further help-seeking/ management of the child's ADHD symptoms.

Macrosystem: This system reflects social, cultural, and economic factors, values, beliefs, and practices that can affect the child's development, such as the policy of Inclusive Education (Lomofsky & Lazarus, 2001). These are the factors that are accounted for by the demographic questionnaire in this study, and they form part of the two study hypotheses. According to theoretical understanding, these contextual cues should impact how the child's ADHD symptoms context sensitive. This would thus agree with the alternate premise claiming that the VADRS is context-sensitive, as discovered in the study findings.

Chronosystem: Systems continuously evolve and interact with the child's stages of development. There is a reciprocal relationship between a child's development and the social context. Literature about the VADRS and other tools talks about the importance of using up to date, relevant, and culturally fair assessments. Therefore, this is also applicable to ADHD as the symptoms change over time, depending on the persons' developmental stage; therefore, follow-up screening tools need to be in conjunction with this to still be relevant and ethical for South Africa.

2.9.3 Developmental Psychopathology Framework

The developmental psychopathology framework provides several possible research routes involving contextual factors. As an illustration, contextual factors have been considered predictors of risk, resilience, symptom severity, course, prognosis, and treatment outcomes, and thus in the roles of correlates, mediators, and products (Bubier, Drabick, & Breiner, 2009). Another way to understand environment related factors in the occurrence and preservation of psychological symptoms is to consider individual-environment interactions seeing individuals are noted to engage in reciprocal and transactional relations with their contexts. For example, youth who exhibit a problematic temperament may be more likely to elicit negative or coercive responses from parents and peers. Over time, these difficulties in interpersonal reactions may increase the likelihood that youth with difficult temperaments will develop Conduct Disorder or Depression (Patterson, 1993). Thus, it is the combination of individual and contextual factors that may lead to a particular outcome instead of factors operating in isolation.

Co-occurring conditions are when one disorder causes risk for the other. This explanation fits within a developmental psychopathology perspective that attends to developmental pathways, risk and resilience factors from multiple domains, and the transactional relations among individuals and their contexts. For example, youth who exhibit ADHD, anxiety, or CD may be at risk for developing depression. One model for these associations is that the primary psychological condition (e.g., ADHD, generalized anxiety disorder, or CD) may lead to difficulties in interpersonal and academic functioning. Gradually, the challenges of being in spaces where youth are expected to thrive, and succeed could prompt the formation of depression. In the same way, those with ADHD may experience trouble in meeting the demands in school and at home; with these continuous difficulties, they could consequently start rebelling and developing ODD symptoms.

The interchange between all the developmental factors within a developmental framework may seem like a burden. Still, the use of this perspective is vital for assessing the development and maintenance of disorders and symptoms that may be happening at the same time (Drabik & Kendall, 2010). The Vanderbilt ADHD Diagnostic Rating Scales were introduced to ADHD clinic practice due to their high concurrent validity in ADHD diagnoses to bring accuracy and efficiency in the time-consuming diagnosing process. Literature also notes that the VADRS falls short in the diagnosis of both "ADHD and ODD." However, the findings from the VADRS conduct subscales still hold valuable information, which may be of assistance in identifying more ODD cases within ADHD clinical practice and research studies (Yuki, Bhagia, Mrazek, & Jensen, 2016).

Several studies conducted in India showed a wide range of prevalence rates between 2 and 17 percent. Using the VADRS, Prosenjit et al. (2018) found that the prevalence of ADHD in this country was 12.66%, which corresponds with the previous studies. The boy to girl ratios in this study was also following previous worldwide studies, highlighting a higher ADHD prevalence in boys than in girls. This result of sexual orientation distinction within research further highlights the importance of using a screening tool that considers gender when assessing and screening (Prosenjit et al., 2018).

The screening tool and a demographic questionnaire were used to gather information about the children's behavior and family socioeconomic background. The demographic questionnaire contains items regarding demographic information. These factors will add contextual value and fairness to the interpretation of the Vanderbilt ADHD diagnostic rating scale (VADRS) findings. This will follow the theoretical assumptions of the study and enhance ethical practice within the multicultural South African context. The screening tool is a relatively simple instrument that directly follows the DSM-5 criteria making it clear that this study's aim entails screening for the presence of ADHD symptoms looking at the role that South African contextual factors may or may not have in this process. The study's aim is to the VADRS to screen, not to diagnose ADHD.

Chapter 3: Methodology

3.1 Research Design

This is a cross-sectional study that seeks to investigate the psychometric properties of a psychological assessment tool. The study aims to provide a comparative view of two South African samples on the VADRS screening tool.

This study was not approached using one specific theory but a worldview that entails looking at the world through a broader philosophical assumption set. According to Shaffer and Kipp (2007), the contextual model emerged recently as a preferable perspective to developmentalism. This model views development as the product of a dynamic interplay between the person and the environment (Shaffer & Kipp, 2007). Due to the active role that a person's environment has in the developmental interplay, there may be universal aspects and aspects unique to specific times, cultures, and individuals. As ADHD is a disorder that manifests through behavior, it is likely to be a more contextually based phenomenon.

In most cases, it depends on the context in terms of which behavior is viewed as a norm or not. This phenomenon can also be found in adults but not as often as in the younger population, children, and teenagers. This study focuses on a screening tool for ADHD and its performance in two South African School samples. The screening tool was normed on a USA sample, which is contextually different from South Africa. This study seeks to find out if these contextual cues

affect how the SA samples score on the USA normed screening tool and if there are contextual influences when comparing both groups against each other.

The sample consisted of 100 primary school-going children between six and twelve years of age selected from two different schools in KwaZulu Natal, Pietermaritzburg District, South Africa.

Inclusion criteria

1. Students from both genders were included.
2. Scholars between 6 and 12 years of age
3. The study was open for all scholars to partake in the study, whether ADHD diagnosed or not.

Exclusion criteria

1. Students below the age of six years and above 12 years.
2. Those students whose parents did not give consent to participate in the study

The VADRS consists of a parents' version, namely the Vanderbilt ADHD Parents' Rating Scales (VADPRS), as well as the teacher version, namely Vanderbilt ADHD Teacher Rating Scales (VADTRS) (Mark L Wolraich et al., 2013). This tool is inclusive of all 18 criteria for ADHD as per the DSM-5. Additionally, the criteria for oppositional defiant disorder, conduct disorder, and the paediatric behaviour scale seven criteria that screen for anxiety and depression are all included in the VADRS. The terms and words used in the test are of third-grade equivalence to ensure ease of administration. The VADRS severity of each behaviour is rated on 4 points (never, sometimes, often, very often) with a score of 2 or 3 on a 0-3 scale pointing to the diagnosis being considered to present after checking against the DSM-5 requirements (Becker, Langberg, Vaughn, & Epstein, 2012).

The VADRS also includes screening questions for comorbidities such as conduct disorder, ODD, anxiety, and depression. The VADRS adapts the DSM-5 criteria into parent and teacher appropriate questions with 55 items on the VADPRS and 43 items on the VADTRS. Both screening tools include the Behavioural ratings using a response scale that ranges from 0

("never") to 3 ("very often"). Performance ratings using a response scale that ranges from 1("excellent") to 5 ("problematic"). However, please note that due to the statistical package for social sciences (SPSS) system used to analyse the data for this research, the Behavioural ratings have been adjusted to range from 1 ("never") to 4 ("very often").

3.2 Sampling

Stratified sampling is a probability technique in which each unit in a population has a specifiable chance of being selected (Terre Blanche, Durrheim, & Painter, 2006). This sampling method was used in this study because the tests to be administered already have subscales, and the prospective participants already differ demographically. Stratification was achieved by capturing and analysing the data according to the subscales of the VADRS as well as grouping the participants according to their gender. Furthermore, this sampling method promotes the generalizability of the results. The sample size aimed for in this study is a maximum of 100 children between the ages of 6 and 12, in two Pietermaritzburg-based primary schools (one in an urban setting and the other in a rural setting). Therefore, to enhance what can be reasonably obtained within this study area internationally, maximization of student variables about socioeconomic family background was a beneficial approach to use (Schulz, 2005).

The teachers selected fifty children from the rural school and fifty children from the study's urban school. The sample size was minimal due to time constraints regarding the time that the research can run. The schools were from different contexts to enable the demographic comparison to take place in the evaluation of the screening results. The researcher randomly selected a school within a rural area (disadvantaged school) and a school within an urban area (former model c school). Randomization was achieved by listing 5 nearest schools in rural as well as 5 schools in urban areas within Pietermaritzburg and then assigning numbers to them. The numbers were then placed in a hat for each of the group of schools, shaken about and one was then picked from each group. The different school contexts will compare the children's background environment and how it might reflect on how they perform on the test. The participants in this study will be the teachers and parents of these children. They will rate the children based on the VADRS questions, and after that, the information gathered will be synthesized and evaluated. According to Foxcroft & Roodt (2018), this is a crucial stage of the assessment process because it is the proper and well-informed synthesis of data that informs

the conclusion and planning of interventions. The synthesis of the data with sufficient understanding and cultural sensitivity of the individual or group under assessment also contributes to predictions and descriptions that can be useful for future reference (Foxcroft & Roodt, 2018).

With an emphasis on the impact of varying socioeconomic backgrounds, the research found a differential dysfunction pattern in African American vs. South African children. These findings from Schulz (2005) suggest that African American children tend to internalize more, which means overregulation, while South African children tend to be more vulnerable to socially disruptive behaviour, which suggests suboptimal regulation. Therefore, these differences point to the varying levels of disruption in the child's life based on their social environment. Furthermore, factors such as the way of discipline used within specific households and schools and the turmoil and the presence or absence of violent criminal activities in the child's community also contribute to these different patterns of dysfunction (Barbarin, 1999; Barbarin, 2001). For example, "physical punishment at home and school, ethnic conflict, and a steadily increasing wave of criminal violence may create in children the unmistakable impression that violence and coercion are socially acceptable and sanctioned strategies for resolving interpersonal difficulties" (Swarts, 1997 as cited in Schulz (2005) p.5)

3.3 Data Collection

This cross-sectional study involved children between the ages of 6 and 12 from 2 primary schools. Schools were approached before the delivery of the data collection instruments, and an agreement was reached after the schools showed interest in taking part in the study. After that, a department of education permission (see Appendix 8) was requested and granted.

Data collection approval from the University Ethics Committee was applied for and obtained a few months down the line (see Appendix 6). Each school opted to allocate a staff member to work closely with the researcher to ensure that the process unfolds efficiently. The researcher discussed the full data collection process plan alongside the expected professional conduct and confidentiality expected during the data collection process with the assisting staff. This discussion took place to ensure that the staff members approach the whole process ethically. The data collection process then commenced.

With the assistance of the allocated staff members from each of the schools, the participation invitation letters were typed in both IsiZulu and English and then sent out to the parents (see Appendix 5 and 5.1). The assisting staff members then sent out informed consent forms following the time when the slips were returned (see Appendix 4.1 and 4.2.) and then sent to the parents through to the children. The assisting staff member also provided the Teachers with consent forms to sign and attach to their completed VADRS (see Appendix 4). After that, copies of the VADRS were hand-delivered to the researcher's allocated staff member in each school. The assigned staff members were tasked with giving them to the parents and teachers who have consented to participate in the study and receive them back when completed and returned. The researcher was available through email and telephonically for any research questions and assistance needed by the parents and teachers from the time the data collection commenced until the research is concluded and final feedback provided.

The timeline plan was for the parents and teachers to be granted five working days to complete the rating scale, a reminder would then be sent, and another five-day allowance given before collection time. As the data collection process unfolded, it is essential to note that not everything went according to plan, especially regarding the timeline. The screening tool returns were delayed, and other complications came up regarding data collection. The research ended up running over an extended period due to challenges encountered in the data collection process. However, these challenges were able to be resolved without having to change the methodology or design of the study, and ethical measures were put in place to ensure that the quality of the research is not compromised.

3.4 Data Analysis

The data were analyzed using Statistical Package for the Social Sciences version 27 software to answer the research questions. Functions such as Cronbach's alpha were used to test the test's internal consistency to determine how reliable the test items are in rating for the disorder in question. Lee Cronbach developed alpha in 1951 to measure the internal consistency of a test or scale; it is expressed as a number between 0 and 1 (Cronbach, 1951; Tavakol & Dennick, 2011). Internal consistency describes the extent to which all the items in a test measure the

same concept or construct. Hence, it is connected to the items' inter-relatedness within the test (Cronbach, 1951; Durrheim & Tredoux, 2004).

“Alpha is grounded in the 'tau equivalent model,' which assumes that each test item measures the same latent trait on the same scale”. When test items meet the tau-equivalent model's assumptions, alpha approaches a better estimate of reliability (Tavakol & Dennick, 2011). “If multiple factors/traits underlie the items on a scale, as revealed by Factor Analysis, and if the number of test items on a scale is too small, this will violate the assumption of tau-equivalence and underestimate reliability”. In practice, Cronbach's alpha is a lower-bound estimate of reliability because heterogeneous (diverse) test items would violate the tau-equivalent model's assumptions.

To test for the variance across the samples, a Factorial ANOVA was conducted by the researcher. Levene's test for homogeneity of variance was included as a part of the factorial ANOVA to confirm whether the samples are equal or not (O'Neill & Mathews, 2000). The Kruskal Wallis test was run to determine whether there are statistically significant differences between the groups in question (VADTRS and VADPRS in each school context). There will also be variability measures such as the range, variance, and standard deviation used to describe the amount of variability in the data set (Durrheim & Tredoux, 2004). The researcher did an item analysis to determine the relationship between the items in the VADRS.

3.5 Reliability and Validity

Validity is the extent to which a concept is measured accurately; reliability refers to an instrument's accuracy. Accuracy refers to the extent to which a tool yields the same result when used within similar situations on repeated occasions (Terre Blanche, Durrheim, & Painter, 2006). In quantitative research, through the measurement of validity and reliability, rigour is achieved. Rigour refers to the soundness or precision of a study in planning data collection efforts that the researcher puts into ensuring that the investigation is of a good standard (Heale & Twycross, 2015). Therefore, the timeline delay in terms of the data collection was to ensure that the data is of quality to protect the study's rigor. An HSRC practitioner survey conducted pointed out that for tests to add any value in South Africa, they must be reliable, valid, and

applied in an unbiased and fair way across cultures (C. Foxcroft et al., 2004a). Practitioners further noted that the value of psychological tests increases when used in conjunction with other methods (C. Foxcroft et al., 2004a; C. Foxcroft & Roodt, 2018).

Within this study, the VADRS was tested on validity and reliability to ensure that the study's findings are of a good standard and can be used to generalize within the sample population's context, in this case being Pietermaritzburg, South Africa. According to Bard, Wolraich, Neas, Doffing, & Beck (2013), the internal consistency, which is a measure of reliability, was high with coefficients between .88 and .91. These findings were reported from a study using a community-based sample from 45 elementary schools in 5 Oklahoma school districts inclusive of urban, suburban, and rural students (Bard et al., 2013). Based on a study with participants sampled from different Oklahoma district elementary schools exploring the VADPRS psychometric properties found acceptable construct validity was observed (Bard et al., 2013). Moreover, another study investigating the VADTRS psychometric properties confirmed construct and convergent validity. As found in this study, the acceptable scale reliability further supports that the VADTRS can be used as a diagnostic rating scale for ADHD (Wolraich et al., 2013). My School Psychology (2018) further confirms that preliminary studies have documented adequate reliability, which also states that there is only a 2% chance that a false negative would result from the VADRS.

Although several studies confirm the reliability of the VADRS, it is still vital to ensure that the test is evaluated before being used within other contexts. Foxcroft and Roodt (2018) note that a definitive conclusion cannot be drawn from just a pattern of scores alone. To correctly interpret the screening scores, it is important to consider information gathered from different sources and information from other measures used (Foxcroft & Roodt, 2018). This can only be done if the instrument or two used in the assessment process has been evaluated for its reliability and validity if used in that specific context. Within an assessment tool, both reliability and validity are equally as important. However, literature has highlighted the possibility of a measure to have good reliability without supporting evidence for its validity therefore, it is important to confirm both these qualities (Oluwatayo, 2012). This study hopes to achieve this with the Vanderbilt ADHD rating scales within the South African context.

3.5 Ethical Considerations

3.5.1 Social Value

This study's purpose was motivated by an experience that the researcher had while working within a Pietermaritzburg mental health facility in 2017. Due to the observed need for more readily available assessment tools within the field, this gap became a research study interest. Within a need analysis study based on the test use pattern and needs of psychological assessment practitioners in South Africa, most practitioners pointed out that the tests provided by the HSRC are out-dated (C. Foxcroft, Paterson, Le Roux, & Herbst, 2004b). Therefore, there is a need for newly developed and updated assessment tools within South Africa. The target community will be benefiting from the study through the experience and psychoeducation that will take place during the data collection and feedback session of the investigation after the assessments have been scored. There will be a joint feedback session at the schools to ensure that the study participants all get feedback and information for further assessment assistance.

The research design, methodology, data collection, and analysis are all feasible, meaning that the study should be valid and rigorous (C. Foxcroft & Roodt, 2006). The participants are carefully selected using the stratified sampling method, and hence they are not based on convenience. The sampling method matches the research's purpose; the study's classification and comparative nature will be easy to accomplish due to the sampling method being categorical. The participants bear more benefit than the risk in this study as there was no exposure to dangerous/ traumatic events; instead, they will benefit from the information, and experience. To protect their identity, the screening tools and demographic questionnaires were to be analyzed and reported anonymously. Due to the nature of the research, the demographic screening tools had to be marked with the child's' name and age. This was an essential aspect of the study because it ensured that the data was analyzed correctly. Demographic questionnaires had to be paired correctly with the VADRS information for the analysis findings to be sound.

3.5.2 Risk-benefit ratio

There are few risks concerning the study, and that's the possible anxiety and concern that might arise due to the screening outcomes. There will be psychoeducational benefits, which will be enhancing scientific knowledge and value within the Pietermaritzburg community. These

benefits outweigh the risks in that there will be further assistance should distress arise due to the research; however, the participants will have that experience and knowledge for good. Permission to refer for further screening and assessment was requested by the Child and Family Centre, situated at the University of KwaZulu-Natal (see Appendix 7). Should the child be suspected to have ADHD due to the screening results, they will be further screened at the Child and family center.

3.5.3 Informed consent

The participants (both parents and teachers) were provided with study and consent information on a cover letter, which they received before the study commenced (see appendix 4 and 4.1). The consent letters were also provided in IsiZulu to accommodate the full sample's language needs and enhance understanding (see appendix 4.2). This was done to ensure that they inquire and understand the whole study process so the researcher can address any ethical issues before the study commenced. There were concerns about parents who might not have given consent due to their age or intellectual capacity; therefore, there were means put in place. This means were that the information sheets and support forms were provided both in English and IsiZulu (see appendix 5 and 5.1).

Additionally, a thumbprint method to ensure that they understand and give proper informed consent was made available. Those parents who could not read/ understand the questions in the consent forms or the screening tool were assisted by the researcher at the school meeting point as they came through to collect the screening tools. The school provided a vacant classroom where the researcher could help the parents without the teachers or children.

3.5.4 Ongoing respect

Participants will be allowed to withdraw from the study at any time should they feel they need to. Any new information obtained during the research process will be made known to the participants as soon as possible. There will be continuous open communication between the participants and the researcher to ensure the participants' wellbeing during and after the study. The confidentiality and anonymity of the participants are applicable and respected throughout

the research. The study findings will be presented to both the parents and the teachers; however, screening results will be reported privately to the child's parent through an appointment set on the school premises. The next section is the results chapter presents the study's key findings, providing figures and tables to enhance understanding and applicability.

Chapter 4: Results

4.1 Introduction

After the lengthy data collection and analysis process, the research questions and hypotheses were finally tested. This chapter provides a thorough presentation of the key findings including SPSS outputs and tables to enhance the overall understanding and applicability of the outcomes. Screening tools, also known as Rating scales, have become a prominent device for detecting ADHD symptoms and are mostly used within diagnostic clinical interviews. Among these rating scales are the Vanderbilt ADHD Rating Scale (VADRS) for six to twelve-year-old children. As stated in chapter, these rating scales consist of both parent and teacher rating scales. In both the parent and teacher assessment scales, there are two components, the assessment of ADHD related symptoms that impair behaviour and those that impair school performance. The evaluation of behavioural symptoms focuses on inattentive and hyperactive ADHD subtypes. The performance impairment evaluation looks at the child's school performance and their interactions with others (My School Psychology, 2002).

4.2 Analyses performed

Functions such as Cronbach's alpha were used to test the test's internal consistency to determine how reliable the test items are in rating for the phenomenon in question. Cronbach's alpha measures internal consistency, which refers to how closely related a set of items are as a group (Durrheim & Tredoux, 2004). To test for the variance across the samples, the researcher ran a Factorial ANOVA; in line with ANOVA protocol, testing of assumptions was carried out to ensure that the results are accurate. A Levene's test for homogeneity of variance was also run to confirm whether the samples are equal or not (O'Neill & Mathews, 2000). The researcher then ran the Kruskal Wallis test to determine whether there are statistically significant differences between the groups in question (VADTRS and VADPRS in each school context). Levene's statistic was referred to for item analysis to determine the relationship between the

items in the VADRS. Measures of variability such as the range, variance, and standard deviation used to describe the amount of variability in the data set were also referred to.

The output table 1 below shows the descriptive variables and highlights their mean and standard deviation. There were 100 cases being analyzed and amongst these, there were two missing responses in the performance rating from both the teacher and parent rating scales. The number of cases needs to be kept in mind when interpreting the scores as the missing responses may impact the reliability coefficient for the performance subscale. The minimum score was 60 and the maximum 162 for the parent rating. The minimum score was 44 and 157 for the teacher rating scale. To meet the ADHD diagnosis criteria, the child being screened must have six positive responses to either core inattentive or hyperactive symptoms (My School Psychology, 2002). Highlighting central tendency measurement, the mean shows the average value for the teacher rating scale as 97.01 and 84.15 for the parent rating scale. The standard deviation shows how far the observations are from the sample average and the overall parent rating scale observations is 19.92, and the comprehensive teacher rating scale observations is 22.67.

Table 1 Descriptive statistics

<i>Descriptive Statistics</i>					
	N	Minimum	Maximum	Mean	Std. Deviation
School	100	1	2	1.50	.503
What is the child's gender?	100	1	2	1.65	.479
Childs Age	100	1	3	1.78	.733
What is your race?	100	1	4	1.24	.793
What type of area do you live in?	100	1	4	1.86	.943
What is your Financial Standing?	100	1	3	2.39	.584
What is your mental health awareness level?	100	1	4	1.78	.836
Inattentive Subtype VADPRS	100	1	4	2.26	.579

Inattentive Subtype VADTRS	100	1	4	2.37	.800
Hyperactive Impulsive Subtype VADPRS	100	1	4	2.20	.586
Hyperactive Impulsive Subtype VADTRS	100	1	4	2.11	.751
Conduct Oppositional Symptoms VADPRS	100	3	5	3.41	.514
Conduct Oppositional Symptoms VADTRS	100	1	4	1.83	.667
Anxiety Depression Symptoms VADPRS	100	1	2	1.30	.461
Anxiety Depression Symptoms VADTRS	100	1	3	1.50	.577
Performance Rating VADPRS	99	1	4	2.53	.612
Performance Rating VADTRS	99	1	4	2.74	.803
Overall Score VADPRS	100	60	162	97.01	19.923
Overall Score VADTRS	100	44	157	84.15	22.672
Valid N (listwise)	98				

4.3 Psychometric properties of the VADRS in the South African context

Reliability analysis was done by the researcher to determine whether the items on the VADRS all reliably measure the ADHD symptoms that they are set to measure.

Both the parents and the teacher screening tools consist of the same subscales that measure Inattention, Hyperactive/Impulsivity, Conduct/Opposition and Anxiety/Depression, and Performance/Relationships. A Cronbach's' alpha analysis was run for each subscale across the parent (VADPRS) and teacher (VADTRS) screening tools. The reliability statistic and the number of items per subscale on the VADRS Parents rater (VADPRS) and Teacher rater (VADTRS) are displayed in table 2 below.

Table 2 Subscale Reliability Table

Subscale	Type of Scale	Cronbach's Alpha	Number of Items
Inattention	VADPRS	.872	9
	VADTRS	.938	9
Hyperactive/Impulsivity	VADPRS	.857	9
	VADTRS	.828	9
Conduct/Opposition	VADPRS	.916	22
	VADTRS	.930	10
Anxiety/Depression	VADPRS	.713	7
	VADTRS	.902	7
Performance/Relationships	VADPRS	.875	8
	VADTRS	.868	8

Overall VADRS Reliability Statistics

For a scale to be deemed reliable, a good alpha value is more significant than 0.7. The SPSS survival manual notes that if you have less than ten items on a scale, it is difficult to get a high alpha, so an alpha above point 0.5 is acceptable (Pallant, 2020). However, anything less than 0.5 would be a cause for concern as those items might compromise the scale's reliability, and hence deleting them might be a better option.

Vanderbilt ADHD Parent Rating Scale (VADPRS)

As displayed in table 2 above, an analysis was carried out on the Vanderbilt Parent Rating Scale. The Cronbachs' alpha for the Inattention Subscale comprising nine items showed the questionnaire to reach acceptable reliability $\alpha = .87$; Hyperactive/Impulsive subscale containing nine items showed the questionnaire to earn acceptable reliability $\alpha = .85$;

Conduct/Opposition subscale comprising 22 items showed the questionnaire to reach acceptable reliability $\alpha = .92$; Anxiety/Depression subscale containing seven items showed the questionnaire to reach acceptable reliability $\alpha = .71$; Performance and Relationships subscale comprising eight items showed the questionnaire to reach acceptable reliability $\alpha = .87$. All items on VADPRS appeared to be worthy of retention, resulting in a decrease in the alpha if deleted.

Vanderbilt ADHD Teacher Rating Scale (VADTRS)

As displayed in table 2 above, the analysis was also carried out on the Vanderbilt Teacher Rating Scale, and the Cronbachs' alpha for the Inattention Subscale comprising of 9 items showed the questionnaire to reach acceptable reliability $\alpha = .93$. The only exception to this subscale was item 9 (inattentive subscale "Is forgetful in daily activities"), which would increase the alpha to $\alpha = .91$. Cronbachs' alpha for the Hyperactive/Impulsive subscale comprising nine items showed the questionnaire to reach acceptable reliability $\alpha = .83$. Cronbachs' alpha for the Conduct/Opposition subscale containing ten items showed the questionnaire to reach acceptable reliability $\alpha = .93$. Cronbachs' alpha for the Anxiety/Depression subscale comprising seven items showed the questionnaire to reach acceptable reliability $\alpha = .90$. Cronbachs' alpha for the Performance and Relationships subscale containing eight items showed the questionnaire to reach acceptable reliability $\alpha = .87$.

Therefore, 97.7% (1 of 43 items) on the VADTRS appeared to be worthy of retention, resulting in a decrease in the alpha if deleted. The exception to the VADTRS was item 9 (inattentive subscale "Is forgetful in daily activities"), which would increase the alpha to $\alpha = .91$ as well as items 5 ("Following Directions") and 6 ("Disrupting Class") in the Performance and Relationships subscale which would both increase the alpha to $\alpha = .87$ if removed. However, the change in alphas was not significant to warrant removing the items from the subscale; therefore, retention would be beneficial as it would lead to a higher chance of a false positive. Removal of the question would also compromise the test/ subscale; therefore, it is crucial to consider such complications before removing an item. Moreover, table 1 (descriptive statistics) displays the two missing responses in the performance rating scales that may have impacted the alpha coefficient. To take a closer look at these subscales, an inter Item correlation of the

VADTRS Inattentive Subscale and one for the Performance and Relationship subscales are presented in table 3 below.

Table 3 Inter-item Correlation Matrix (Inattentive Subscale)

Inter-Item Correlation Matrix

	Fails to give attention to details or makes careless mistakes in schoolwork	Has difficulty sustaining attention to tasks or activities	Does not seem to listen when spoken to directly	Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behaviour or failure to understand)	Difficulty organising tasks and activities	Avoids, dislikes, is reluctant to engage in tasks that require sustained mental effort	Loses things necessary for tasks or activities (school assignments, pencils, or books)	I easily distracted by extraneous stimuli	is forgetful in daily activities
Fails to give attention to details or makes careless mistakes in schoolwork	1.000	.779	.683	.656	.653	.472	.398	.407	.450
Has difficulty sustaining attention to tasks or activities	.779	1.000	.779	.805	.728	.649	.449	.574	.532
Does not seem to listen when spoken to directly	.683	.779	1.000	.793	.770	.685	.537	.554	.532
Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behaviour or failure to understand)	.656	.805	.793	1.000	.756	.704	.557	.622	.628
Difficulty organising tasks and activities	.653	.728	.770	.756	1.000	.792	.594	.533	.668
Avoids, dislikes, is reluctant to engage in tasks that require sustained mental effort	.472	.649	.685	.704	.792	1.000	.549	.594	.659
Loses things necessary for tasks or activities (school assignments, pencils, or books)	.398	.449	.537	.557	.594	.549	1.000	.616	.687
I easily distracted by extraneous stimuli	.407	.574	.554	.622	.533	.594	.616	1.000	.652
is forgetful in daily activities	.450	.532	.532	.628	.668	.659	.687	.652	1.000

Table 3.1 below shows us the correlation of every item on the performance and relationships subscale as per the teacher rating scale (VADTRS). Looking at the second row, for example, coefficient .57 tells us there is a positive correlation between item two (mathematics) and item one (reading). The expectation is that the correlation coefficient is positive because all the questions in each scale are worded similarly. If all the things are going in the same direction,

these correlations should be positive, and the larger the value of closer to 1, the stronger the relationship between responses. One coefficient along the diagonal is the correlation of an item with itself, so thing one correlated with item one will be a perfect correlation. Therefore, there is a correlation between all the items on the subscale; however, some are strong, and some are weak.

Table 3.1 Inter-item Correlation Matrix (Performance/Relationships Subscale)

Inter-Item Correlation Matrix

	Reading	Mathe matics	Written expressi on	Relation ship with peers	Foolowin g directions	Disrupting class	Assignmen t completion	Organisation al skills
Reading	1.000	.576	.694	.288	.207	.179	.390	.388
Mathematics	.576	1.000	.625	.542	.367	.326	.696	.651
Written expression	.694	.625	1.000	.420	.281	.222	.519	.507
Relationship with peers	.288	.542	.420	1.000	.283	.432	.569	.498
Foolowing directions	.207	.367	.281	.283	1.000	.284	.608	.571
Disrupting class	.179	.326	.222	.432	.284	1.000	.397	.407
Assignment completion	.390	.696	.519	.569	.608	.397	1.000	.894
Organisational skills	.388	.651	.507	.498	.571	.407	.894	1.000

Based on the reliability statistics discussed above, we accept the 1st null hypothesis and conclude that the VADPRS proves to measure the constructs of ADHD as structured in the DSM-5 criteria. However, the reliability of the VADTRS may be compromised by three items, one in the Inattentive subscale and 2 in the performance and relationship subscale. Based on the literature, the coefficient estimates of Cronbachs' Alpha, which is the reliability assessment used in this study, ranged between .85 and .94, confirming acceptable reliability for the teacher rating scale (Mark L. Wolraich et al., 2013).

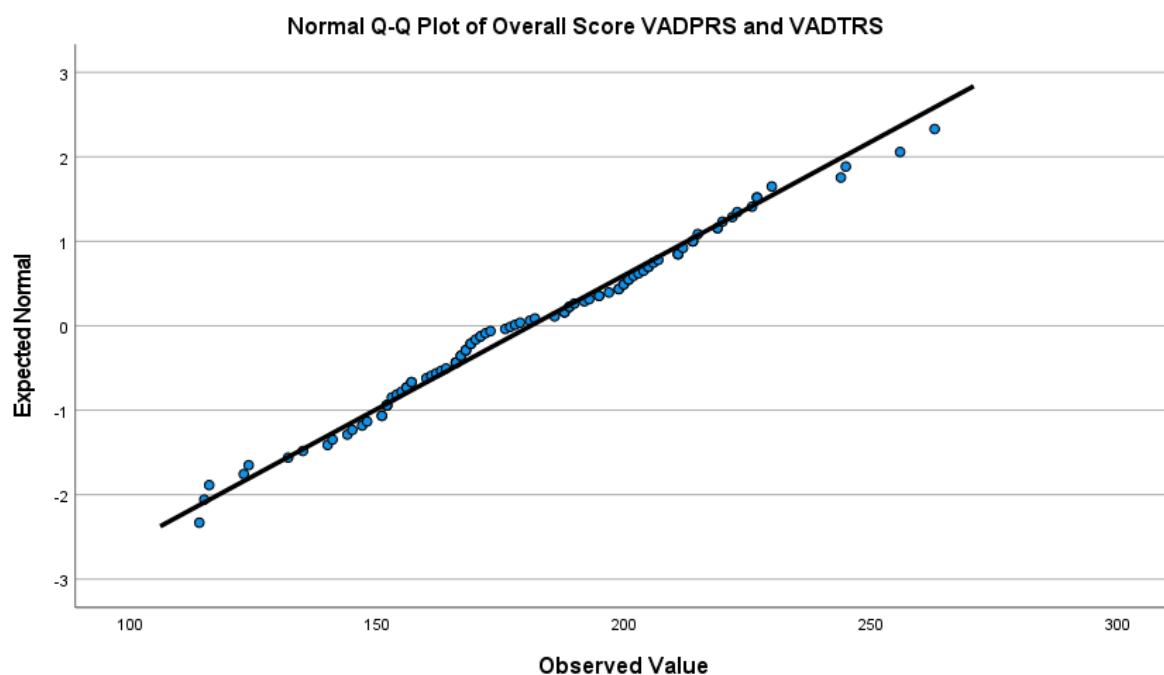
4.4 Test Assumption Evaluation

The factorial ANOVA has several assumptions that need to be met, the first being Interval data of the dependent variable (ratio or interval), and the independent variables can be nominal or

better. This assumption was met as the dependant variable (VADRS Score) is the interval, and the independent variable is nominal after being grouped.

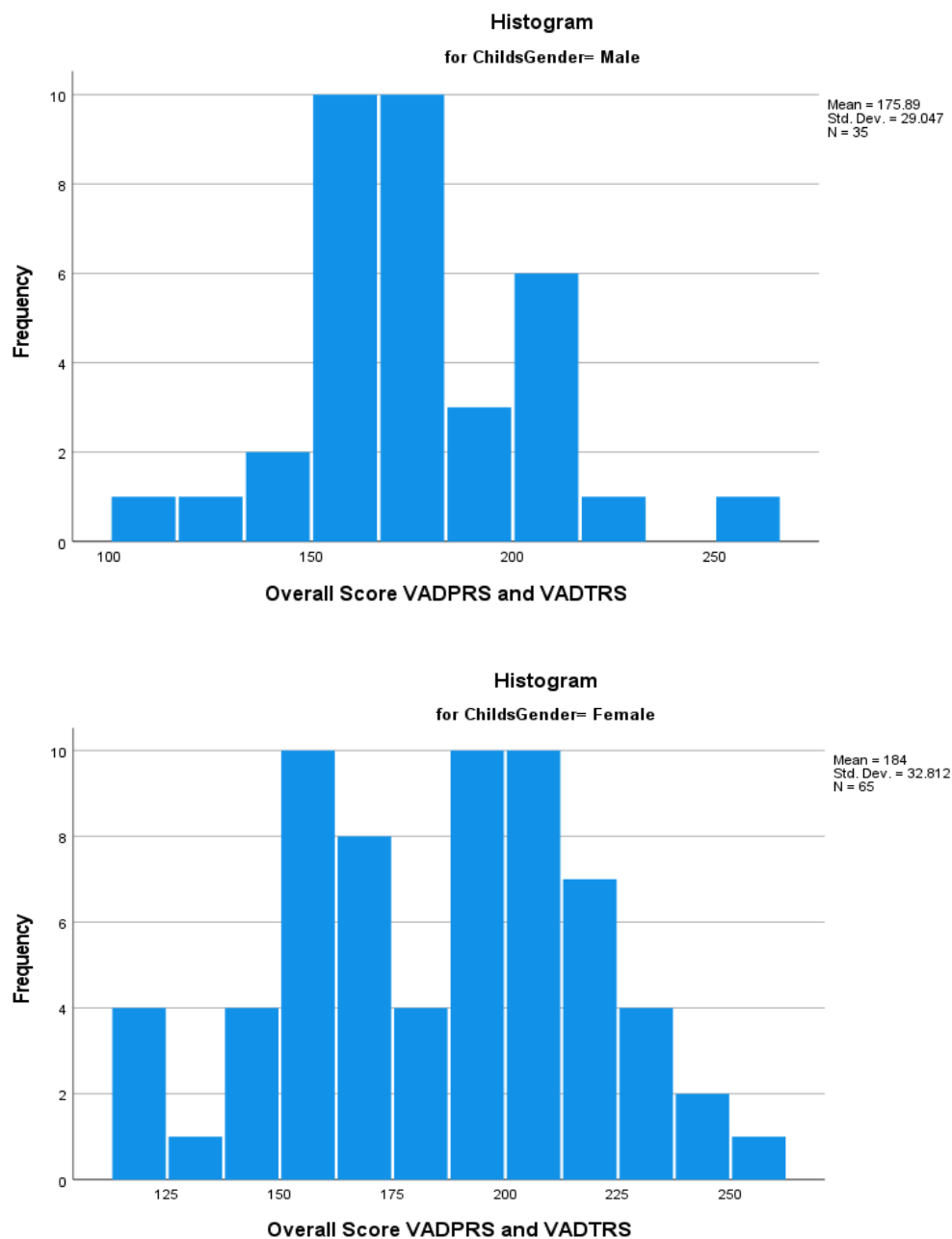
The second assumption to be met is normality, meaning that the factorial ANOVA assumes that the dependent variable approximates a multivariate normal distribution. Based on the skewness and kurtosis for the three independent variables, gender, financial status, and school, the data are a little skewed and kurtotic for both males and females. Still, it does not differ significantly from normality. Therefore, we can assume that the data is appropriately normally distributed in terms of skewness and kurtosis. However, the Q-Q plot and the histogram below show the normal distribution of the data.

Output 1 Q-Q Plot (Normality)



According to the Shapiro-Wilk Normality test, the dependent variable (Overall VADRS score) $p = .450$ is greater than .05; therefore, we assume that the dependent variable is normally distributed. In the Q-Q plot, if the dots are along the line, it indicates normally distributed data. However, the Histogram clearly shows the normal distribution is a bell-shaped curve, as shown below.

Output 1.1 Histogram (Normality)



Thirdly, the factorial ANOVA assumes homoscedasticity of error variances, which means that all data points of the dependent variable are equal or homogenous throughout the sample. As per the study data, this assumption was met with Levenes statistic $P = 0.624$.

Lastly, no multicollinearity assumption was met, meaning that the factorial ANOVA observations were mutually independent of each other (e.g., no repeated measurements). The

independent variables are independent of each other, with the VIF for all independent variables lower than 3. The Coefficients are displayed in the outputs below.

4.5 Cronbach's Alpha Outputs

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Overall Score VADPRS and VADTRS	.911	1.098
	What is the childs gender?	.823	1.214
	What is your Financial Standing?	.762	1.313

a. Dependent Variable: School

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Overall Score VADPRS and VADTRS	.897	1.115
	What is the childs gender?	.676	1.479
	School	.619	1.616

a. Dependent Variable: What is your Financial
Standing?

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Overall Score VADPRS and VADTRS	.896	1.117
	School	.340	2.938
	What is your Financial Standing?	.344	2.906

a. Dependent Variable: What is the childs gender?

The Kruskal-Wallis test assumptions are met as both the samples are random; secondly, the groups are mutually independent, and lastly, the measurement scale is ordinal, and the variable is continuous.

4.6 Factorial ANOVA Outputs

Output 1 below shows the dynamic of the sample used in the study according to the factors (Gender, Financial Standing, and School) and the number of categories each variable has as depicted under value labels. Lastly, this output shows us the number of cases and which category they fall in, as described in the last column N.

Output 1 Between Subject Factors

<i>Between-Subjects Factors</i>			
		Value Label	N
What is the child's gender?	1	Male	35
	2	Female	65
What is your Financial Standing?	1	Good (We have what we need and more)	5
	2	Fair (We have just enough to get through month by month)	51
	3	Poor (We hardly have enough)	44
School	1	Urban	50
	2	Rural	50

The variables gender and school have two categories, and Financial standing has three. According to the participant responses, of the 100 participants, in the gender factor, 35 are male, and 65 are female, meaning that female is the dominant gender in this sample; this is thus an essential factor to consider when discussing the findings. In the Financial standing factor, a

minority of 5 participants fell in the “good” category, which means they have what they need. The majority of 51 fell in the “fair” category, which means that they have just enough to get them through month by month. The rest of the participants fell in the “poor” category, which means they hardly have enough.

Output 2 below is also very informative as it provides the mean and standard deviation for each combination of groups of the factors (independent variables). Besides, the table offers “total” rows, which allows means and standard deviations for groups only split by one independent variable, or none, to be known. According to this output, the total number of male observations/ cases in the study was 35, and 65% was female. Therefore, there were more females than males in this study sample. Out of 35 in the number of males in the study, 29 fell within the fair category of financial standing; four fell in the poor class of financial standing, and two fell in the good financial standing category. The female number of observations/ cases from the sample is 65. Out of the 65 in the number of females in the study, 22 fell in the fair category of financial standing, and three fell in the good financial standing. Therefore, most of the sample fell within the appropriate category of financial standing, meaning that they “have just enough to get through month by month.” There were 46 females and four males from the Rural school setting in the school category, and there were 19 females and 31 males from the urban school setting. Therefore, the dominant gender (females) in this study sample attended school in the rural school setting. Below is a histogram presenting the same information in graph form.

Output 2 Descriptive Statistics

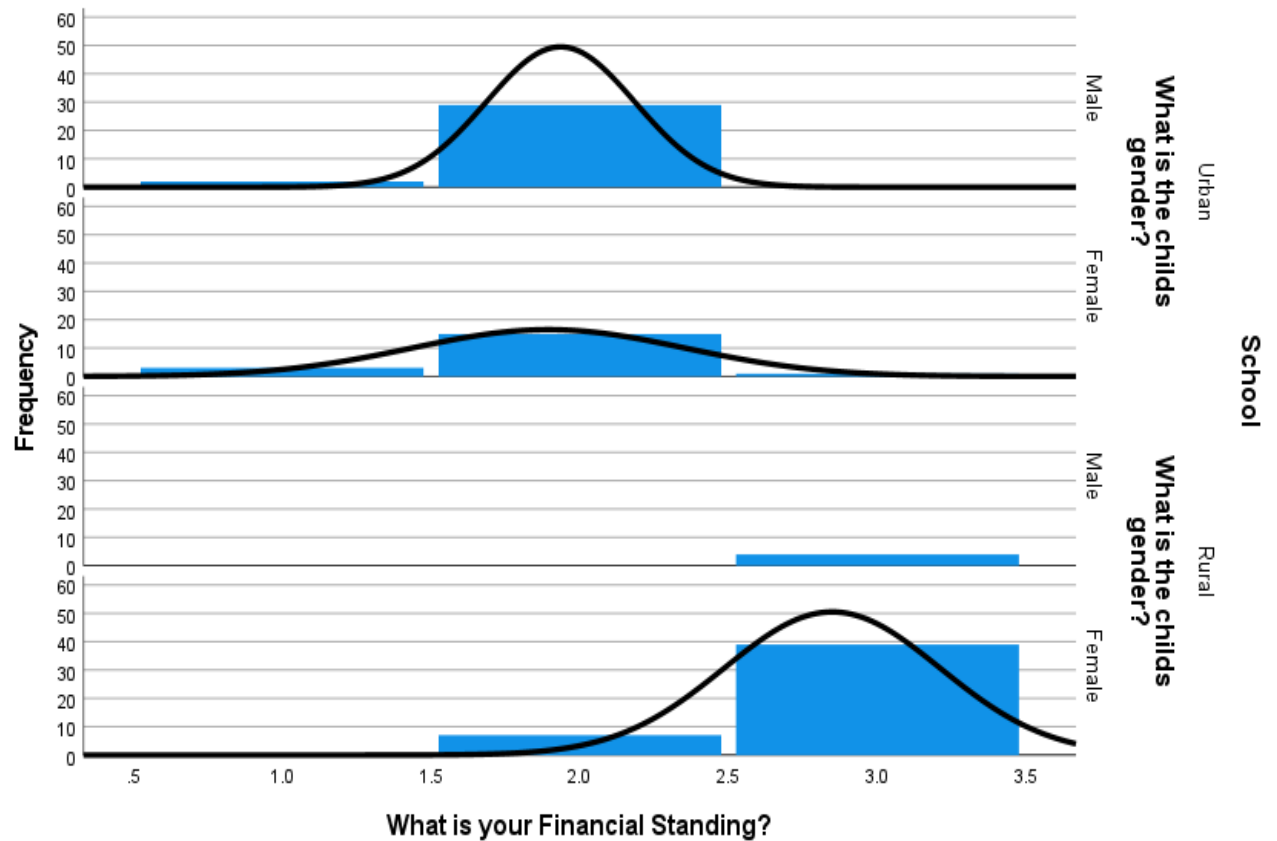
Descriptive Statistics

Dependent Variable: Overall Score VADPRS and VADTRS

What is the child's gender?	What is your Financial Standing?	School	Mean	Std. Deviation	N
Male	Good (We have what we need and more)	Urban	179.50	37.477	2
		Total	179.50	37.477	2
	Fair (We have just enough to get through month by month)	Urban	173.24	28.835	29
		Total	173.24	28.835	29
		Rural	193.25	29.250	4

	Poor (We hardly have enough)	Total	193.25	29.250	4
	Total	Urban	173.65	28.728	31
		Rural	193.25	29.250	4
		Total	175.89	29.047	35
Female	Good (We have what we need and more)	Urban	137.00	29.715	3
		Total	137.00	29.715	3
	Fair (We have just enough to get through month by month)	Urban	176.40	35.966	15
		Rural	185.00	31.911	7
		Total	179.14	34.207	22
	Poor (We hardly have enough)	Urban	123.00	.	1
		Rural	191.92	27.744	39
		Total	190.20	29.475	40
	Total	Urban	167.37	37.885	19
		Rural	190.87	28.145	46
		Total	184.00	32.812	65
Total	Good (We have what we need and more)	Urban	154.00	36.531	5
		Total	154.00	36.531	5
	Fair (We have just enough to get through month by month)	Urban	174.32	31.062	44
		Rural	185.00	31.911	7
		Total	175.78	31.077	51
	Poor (We hardly have enough)	Urban	123.00	.	1
		Rural	192.05	27.527	43
		Total	190.48	29.128	44
	Total	Urban	171.26	32.280	50
		Rural	191.06	27.933	50
		Total	181.16	31.637	100

Output 2.1 Histogram



4.6.1 Levene's Test of Equality of Error Variances

Levene's Test for homogeneity of variance was included as a part of the factorial ANOVA to confirm whether the samples are equal or not (O'Neill & Mathews, 2000). Levene's test findings are presented in output three below, then a discussion of the results follows.

Output 3 Levenes test

Levene's Test of Equality of Error Variances^{a, b}

		Levene Statistic	df1	df2	Sig.
Overall Score VADPRS and VADTRS	Based on Mean	.702	6	92	.648
	Based on Median	.590	6	92	.738

Based on Median and with adjusted df	.590	6	85.358	.738
Based on trimmed mean	.733	6	92	.624

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Overall Score VADPRS and VADTRS

b. Design: Intercept + ChildsGender + FinancialStatus + School + ChildsGender * FinancialStatus + ChildsGender * School + FinancialStatus * School + ChildsGender * FinancialStatus * School

As seen in output three above, Levene's test results showed that the variances of groups were equal ($F(6, 92) = 0.733, P = 0.624$). Therefore, School, Gender, and Financial status effects on the overall score were statistically insignificant at $P = .624$ is more prominent than .05. Hence, the obtained differences in sample variances are therefore likely to have occurred based on random sampling. Thus, the null hypothesis of equal variances is accepted, and it is concluded that there is no difference between the conflicts in the population. This also confirms that the assumption of homogeneity of variance has been met within this sample.

4.6.2 Socioeconomic factors influencing ADHD symptoms in South Africa

A factorial ANOVA was conducted to compare the main effects of School, Gender, and Financial Status (Independent Variables) and their interaction effects on the Overall VADRS scores (Dependent Variable). Test of between-subject effects in output four below shows whether any independent variables have influenced the overall score. A discussion of the table findings follows directly below the table.

Output 4 Test of between-subject effects

Tests of Between-Subjects Effects

Dependent Variable: Overall Score VADPRS and VADTRS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	16602.510 ^a	7	2371.787	2.645	.015	.168	18.517	.877

Intercept	708778.73 8	1	708778.73 8	790.50 2	.000	.896	790.502	1.000
ChildsGender	1186.430	1	1186.430	1.323	.253	.014	1.323	.207
FinancialStatus	1046.875	2	523.437	.584	.560	.013	1.168	.144
School	4865.608	1	4865.608	5.427	.022	.056	5.427	.635
ChildsGender *	2230.870	1	2230.870	2.488	.118	.026	2.488	.345
FinancialStatus								
ChildsGender *	.000	0	.	.	.	.000	.000	.
School								
FinancialStatus *	2946.063	1	2946.063	3.286	.073	.034	3.286	.434
School								
ChildsGender *	.000	0	.	.	.	.000	.000	.
FinancialStatus *								
School								
Error	82488.930	92	896.619					
Total	3380986.0 00	100						
Corrected Total	99091.440	99						

a. R Squared = ,168 (Adjusted R Squared = ,104)

b. Computed using alpha = ,05

The factorial analysis conducted found that the interaction effects as displayed in output four above yielded an insignificant finding, indicating no statistically significant combined impact for schools, gender, and financial status on the Overall VADRS scores.

The analysis showed that sig (.253) for Childs's gender and sig (.560) for financial status are both greater than .05. Therefore, we fail to reject the null hypothesis and conclude that there is no statistically significant difference in the Overall VADRS gender and financial status scores. However, sig (.022) for schools is less than .05; therefore, we reject the 2nd null hypothesis and conclude a statistically significant difference in the Overall VADRS score by School.

School's main effect yielded an effect size of .560, indicating that 56% of the variance in the overall VADRS scores was explained by schools ($F(1, 92) = 5.427, P = .022$). Moreover, the main effect of Gender yielded an effect size of .253, indicating that 25.3% of the variance in

the Overall VADRS scores was explained by gender ($F(1, 92) = 1.323, p = 0.253$). Financial status's main effect yielded an effect size of .560, indicating that 56% of the variance in the overall VADRS scores was explained by Financial status ($F(2, 92) = 0.584, p = 0.560$). Based on these findings, we reject hypothesis 2 and state that the VADRS does not consistently measure ADHD symptoms across contexts.

The school category was noted to have the highest effect on the variance of the overall scores, as displayed in output 3 in the Levene's test of equality of variance section. The Kruskal Wallis test to investigate and bring better insight into this unexpected finding yielded by the Levenes' test was then run.

Table 3 Kruskal Wallis H test

Null Hypothesis	Sig	Mean Rank	Conclusion
There is no significant relationship between the Overall VADTRS and the School categories.	.004	Urban – 42.07 Rural - 58.93	Reject Null Hypothesis
There is no significant relationship between the Overall VADRS and the Financial standing categories.	.023	Good – 30.30 Fair – 45.37 Poor – 58.74	Reject Null Hypothesis
There is no significant relationship between the Overall VADRS and the Living area categories.	.028	Suburb – 41.58 Township – 57.89 Semi-Rural – 59.78 Rural – 59.67	Reject Null Hypothesis

The school's category was noted to have the highest effect on the variance of overall scores according to Levenes' test findings in output 3. This was further explained by the Kruskal Wallis Hypothesis test, which found that the distribution of overall scores on the VADPRS is the same across categories $p = .066$. Still, the distribution of the overall score according to teachers was not the same across categories $p = .004$. Therefore, we conclude that the teachers

from the Urban school setting rated the children differently from how the Rural school setting's teachers did. Furthermore, the distribution of overall score for the VADRS is not the same across Financial standing categories $p = .023$. This was most likely influenced by the Conduct/Oppositional $p = 0.003$, and Anxiety/Depression $p = .004$. Moreover, the distribution of overall scores for the VADRS is different across categories of living area type $p = .028$.

The two hypotheses tested in the analysis were that the VADRS proves to measure the constructs of ADHD as structured in the DSM-5 criteria, and the VADRS consistently measures ADHD symptoms across contexts. Based on the reliability analysis, we accept the 1st null hypothesis and conclude that the VADRS proves to measure the constructs of ADHD as structured in the DSM-5 criteria. However, based on the study findings, we reject the 2nd null hypothesis and conclude that the VADRS does not consistently measure ADHD symptoms across the contexts according to this specific study. However, which school the child attends has a significant effect on how the children rated on the VADRS. Moreover, gender, previously noted as a significant influence on how the children rate on the screening tool in other studies, proved not to be a factor in the South African sample. Further unpacking of the results and the contextual applicability considerations are included in the discussion chapter to follow.

Chapter 5: Discussion

The previous chapter's main findings were informed by 100 cases of South African school children between the ages of 6 and 12. Fifty children were selected from the rural school, and fifty children from the urban school. The sample size was minimal due to time constraints regarding the time that the study can run. The participating schools were from different contexts to enable the demographic comparison to take place in the evaluation of the screening results. After analyzing and evaluating the screening results based on the South African context, this discussion chapter is organized according to the main research questions, which were answered through the two tested hypotheses.

Hypothesis one claims that “the VADRS does show construct validity with the DSM-5 criteria in the measurement of ADHD” (this is a question of internal consistency, which tells us the reliability of the scale). Hypothesis 2 claims that “the VADRS consistently measures ADHD symptoms across contexts” (this is a question to determine the extent to which shared variance

exists between variables or items on a scale). Within the discussion, the findings are then compared to the available reviewed literature to seek consensus with the current results or differences encountered in this sample.

However, Foxcroft & Roodt (2018) highlight the importance of a merged understanding of the phenomenon to advance African-centered psychological assessment while improving and shaping psychological assessment discipline on a global level. This combined approach came about due to the shortfalls noted using either the etic or emic method in theory development and the process of psychological assessment (Foxcroft & Roodt, 2018). Smith (2017) noted that, when it comes to ADHD, “imperfect children are not born; they are constructed” (Smith, 2017, p. 770). Therefore, the proper understanding and evaluation of ADHD in other countries must be viewed with those countries' social and cultural factors in mind. As a result, the more one examines the settings in which ADHD flourishes, the more it becomes culture-based rather than a universally fixed neurological functioning disorder (Smith, 2017).

Atkins and Pelham (1991) and Schultz, (2011) noted the significance of endorsing rating scales as part of the assessment process, and Meyer et al. (2004) reiterated the limitedness of information available regarding the validity of the tools available for use in the South Africa. There were no significant noted differences within the data set attributed to the children's' home language or background. As a form of acknowledgment of the equality for mental health administrations as a human right issue develops and expands, this study took a close look at the effect that contextual factors have on how children rate on the VADRS. The VADRS is the evaluation tool due to the noted need for more reliable yet cost-effective assessment tools for use within the South African context (Stein, 2014). Foxcroft and Roodt (2018) stated that the adaptation of psychological assessment to match contextual needs helps to promote fairness, reduce costs while saving time, and enhance the facilitation of comparative studies both at a national and international level (Foxcroft & Roodt, 2018).

A reliability analysis was carried out to determine whether the items on the VADRS reliably measure the ADHD symptoms that they are set to measure.

Both the parents and the teacher screening tools consist of the same subscales that measure Inattention, Hyperactive/Impulsivity, Conduct/Opposition and Anxiety/Depression, and Performance/Relationships. A Cronbach's' alpha analysis was run for each subscale across the

parent (VADPRS) and teacher (VADTRS) screening tools. The Vanderbilt ADHD Parent Rating Scale coefficient estimated acceptable reliability with the alpha of the subscales ranging between .71 and .92. The Vanderbilt ADHD Teacher Rating Scale coefficient also estimated sufficient reliability with the alpha of the subscales ranging between .83 and .94. However, 2.3% of the items on different subscales of the Vanderbilt ADHD Teacher Rating Scale were to increase the alpha if removed from the scale possibly; however, the increase in alpha was noted as insignificant, and as a result, retention of the items was more beneficial. Removal of these items would increase the chance of a false positive and compromise the reliability because if the number of test items on a scale is too small, this will violate the assumption of tau-equivalence and underestimate the reliability of the subscales.

Therefore, based on the study findings discussed above, hypothesis one was accepted, thus confirming that the VADRS does show construct validity with the DSM-5 criteria in measuring ADHD. Based on the tau equivalent model as stated by Tavakol & Dennick (2011), the VADRS items meet all the assumptions. Therefore, the alpha coefficients stand on a reasonable estimate of reliability. To perhaps strengthen the reliability of the anxiety/depression subscale in the parent rating, which is the scale that had the lowest alpha coefficient overall, the addition of more items would be beneficial.

Wolraich et al. (2003) conducted a study intending to determine the psychometric properties of the Vanderbilt ADHD Parent Rating Scale (VADPRS) within a referred population in Oklahoma. The VADRS internal consistency was acceptable and consistent with the overall Cronbach's alpha more significant or equivalent to .90 in all the VADPRS subscales (Mark L. Wolraich et al., 2003). This then draws to the same conclusion that despite the tool is freely accessible online and hence cost-effective, the VADRS is reliable for assessing ADHD in the South African Context for both clinical as well as research purposes, as noted in the referred population study reviewed by Wolraich (2003) in Oklahoma. Furthermore, a review of two separate but related studies conducted in Oklahoma was conducted to examine the Vanderbilt ADHD Diagnostic Teacher Rating Scale's psychometric properties based on a sample of teachers in 5 different school settings (Mark L Wolraich et al., 2013). The coefficient estimates of Cronbachs' alpha, which is the reliability assessment used in this study, ranged between .85 and .94, confirming acceptable reliability for the Vanderbilt ADHD Teacher Rating Scale (Mark L. Wolraich et al., 2013).

5.1 The extent to which the study aims, and objectives were met

The study aimed to establish the factorial validity of the VADRS by checking if the screening tool accurately measures the theoretical constructs of ADHD as specified by the DSM-5. Secondly, the study aimed to determine the reliability of the VADRS by establishing the degree to which the VADRS consistently measures ADHD symptoms.

The study's findings on the critical ADHD constructs that the DSM-5 highlights, namely inattention, hyperactivity, and impulsivity, are all measured in the VADRS. The factor structure of the VADRS measures the symptoms identified in the DSM-5. However, according to the South African context, some factors contribute to how the children rate on the screening tool. The school that the child attends was found to be a contributing factor in terms of the presentation of ADHD symptoms. The main differences were present mainly between how the teachers in the urban and rural school settings rate the children; however, there were no differences in terms of how the parents rate the children, and therefore, we could claim that there is a difference in the presentation of the symptoms depending on the child's environment. This, thus, confirms the claim that there are contextual differences in terms of how the VADRS performs. Thus, according to these findings, when the VADRS is being used within a context as dynamic as South Africa, the practitioner assessing needs to ensure that they consider these highlighted factors to ensure that they interpret the results accordingly.

As a response to the 2nd hypothesis, the study findings noted that there were contextual factors that proved to impact how the children rated on the VADRS significantly. As a result, we reject the null hypothesis and accept the 2nd alternate hypothesis being accepted and proven right. The three main factors that were assessed against the overall VADRS score "which school the child attends" had a significant effect on how they rated on the VADRS. Expectations based on previous literature that gender and financial status would have an impact on the overall VADRS score was not the case in this study. Gender and economic status did not yield a significant outcome and therefore do not have an impact on how the children in this sample rated on the VADRS. Thus, it is significant to note that the small sample size might have limited the influence that the factors may have had on the participants' overall VADRS rating.

Although proponents of ADHD have made a conscious effort to downplay the role of cultural, social, and environmental factors in the prevalence or diagnosis of ADHD, this study has highlighted the importance of considering these factors to ensure the most accurate findings and recommendations in the assessment process. In the claim, “people are not passive but rather active participants in their development,” Bronfenbrenner states that people respond based on how they perceive their environment due. He further says that the “system” is impacted upon by a change in one of its parts. Therefore a child’s development is shaped by the interactions between their social context and their biological attributes, which he termed “personal characteristics” (Downer & Myers, 2010). This thus brings upon us the understanding that perhaps how the child perceives the school environment triggers a particular behavioral response to cope within this environment.

Concerning individual context interactions, the developmental psychopathology framework states that individuals engage in reciprocal and transactional relations with their contexts. Therefore, it is a back-and-forth dance between the context and the individual, which means that a person responds with similar energies to those they receive from their environment and vice versa. The developmental psychopathology framework notes that these transactional relations are further used to explain co-occurring conditions noting that having one disorder confers risk. E.g., people who exhibit ADHD may be at risk for developing depression. ADHD being that primary psychological condition, may lead to poor academic performance and interpersonal difficulties. These difficulties are likely to limit the persons' productivity or opportunity to experience success and may lead to depressive symptoms/ the development of depression.

This information noted above highlights the strengths of the Vanderbilt ADHD Diagnostic Rating Scales (VADRS). These tools do not only consider the symptoms of ADHD as the phenomenon in question. The VADRS also has subscales screening for the signs of possible co-occurring or comorbid conditions such as Conduct and oppositional signs and anxiety and depressive symptoms. Yuki et al. (2016) noted that due to their high concurrent validity in ADHD diagnoses, the “Vanderbilt ADHD Diagnostic Rating Scales” were introduced to ADHD clinic practices to bring accuracy and efficiency in the time-consuming diagnosing process. However, although these rating scales were noted as inefficient to assist ADHD

practices in diagnosing “ADHD and ODD,” the VADRS ODD scorings can still be of assistance to help identify more ODD cases within ADHD clinical practice (Yuki et al., 2016).

In the contextual model, Shaffer and Kipp (2007) state that development is the product of a dynamic interplay between the person and the environment. Due to the active role that a person’s environment has in the developmental interplay, there may be universal aspects and aspects unique to specific times, cultures, and individuals. In support of the theoretical claim, the findings of the current study have noted and highlighted differences in how children rate depending on their environment. These differences have come up in accordance with the South African context compared to other countries, but the study also found setting related differences within the context. The setting related findings are about the survey finding that the school setting has a significant effect on how the children rate as far as the presentation of ADHD symptoms is concerned. While this is a different and thus interesting finding, it brings forth an interest regarding the change in children’s behavior based on their environment. This highlights the perception-based behavioural response triggered in the “child environment interaction” with a particular focus on the school and home setting.

Therefore, the differences in the ratings between how the parents rate the children and how teachers screen the children, it is evident that the behavior observed at home is different from behaviour observed in school. This might be due to the claim, “similar settings have similar expectations and demands,” therefore, similar definitions of behavior. Literature highlights that the closer one examines the environment in which ADHD flourishes, the less it appears to be a universal fixed glitch in neurological functioning. It is present in 5.29% of the human population and therefore becomes more culture-based (Smith, 2017). For example, if a child is displaying ADHD symptoms at home instead of school, there are certain factors present in the school setting and thus absent in the home environment. These factors promote a better person-environment interaction within the school setting, thus yielding desirable behavior. Therefore, based on Bioecological and contextual, theoretical approaches, to rectify this issue behaviorally, the factors in place at school (whether it's the structure or discipline) need to be noted and practiced/ applied within the home environment as well. This would modify the behavior and assist in the process of treatment/ management of the ADHD symptoms. The provision of such useful information within the report to physicians and child psychiatrists

regarding school/home-based concerns will be fulfilling one of the vital roles that rating scales play in the assessment of children with ADHD (DuPaul et al., 1998;Pappas, 2006).

Meyer et al. (2004) discovered that ADHD-like behavior was found similar in a study comparing South African and Western samples. Bied et al. (2017) concluded that both parents and teachers yielded identical diagnostic accuracy. According to the data analysts in their study, the parent and teacher reports were so similar that they could not statistically be distinguished from one another. It is, therefore, quite fascinating that samples from two different contexts were found to have a similar way of understanding. In contrast, in this current study, within one context, there were notable differences in how children were rated for the same phenomenon. Thus, it is crucial to consider contextual cues when assessing within different contextual backgrounds because as much as ADHD like-behavior may be similar, there might be a difference in the contextual factors that determine the severity of symptoms when screening or assessing a child. Studies such as that of Hart & Marmorstein (2009) further state that contextual influences are essential to consider in any research involving psychopathology (Hart & Marmorstein, 2009).

5.2 Objective 3: Investigating the reliability of the VADRS (by establishing the Cronbach's alpha coefficient (α) for the instrument)

Rating scales such as the VADRS play several vital roles in the assessment of children with ADHD, including assisting in delineating the referral concern, establishing the presence of diagnostically relevant symptoms, and providing useful information to physicians and child psychiatrists regarding school-based concerns (DuPaul et al., 1998;Pappas, 2006). Validation studies for tools being used for assessment purposes are essential, especially for those tools being used outside of their development context. These studies can inform a better understanding of outcomes and generalize to the population as well as for the treatment and management of the symptoms (C. Foxcroft & Roodt, 2006). In the South African clinical audit study conducted in Red Cross War Memorial Hospital in Cape town, compliance to ADHD treatment Was found to be low compared to the National Institute for Clinical Excellence (Vrba et al., 2016). As stipulated by Bradley and Corwin in Schulz (2005), it is important to note as one of the factors zoomed into within this specific study that Socioeconomic status is an

essential source of explanation in several disciplines such as educational research, child development, and health. However, in this study, socioeconomic position measured as financial status did not significantly impact the overall VADRS scores for any of the subscales measured.

The sample's evaluation highlighted that the total number of male observations/ cases in the study was 35%, and 65% was female. Therefore, there were more females than males in this study sample. Out of 35 in the number of males in the study, 29 fell within the fair category of financial standing; four fell in the poor variety of financial standing, and two fell in the good financial standing category. The female number of observations/ cases from the sample was 65. Out of the 65 females in the study, 22 fell in the fair category of financial standing, and three fell in the good financial standing. Therefore, 51% of the sample fell within the fair category of financial standing, meaning that they “have just enough to get through month by month.” This makes sense as the economic category with most of the sample based on gender were females. Therefore, within the other 49% of the study participants, 40% who fell in the poor category were female, and within that 40%, 39 % attended school in the rural setting. There were 46 females and four males from the Rural school setting in the school category, and there were 19 females and 31 males from the urban school setting. Therefore, most of the sample was female and attended in the rural school setting. Based on prevalence studies, this is an accurate fit as there were no severe symptoms of ADHD noted, which is thus explained by the gender imbalance in the sample.

5.3 Answering the Research Questions

The study sought to investigate whether the VADRS is valid and reliable for screening ADHD within the South African context by answering several questions as listed in chapter one. According to the findings, the VADRS measures the theoretical constructs it is supposed to measure, however there are contextual factors that may need to be considered when this screening tool is being used in the South African context. Findings showed that there were differences in how the children rate on the VADRS based on certain demographic factors. Therefore, this screening tool does not consistently measure ADHD in South Africa as it does Globally. These research-based questions assisted in ensuring that the study objectives were met and that the research hypotheses also listed in chapter one were tested appropriately.

Based on the current study's findings, the 1st null hypothesis was accepted as the VADRS proved to measure the constructs of ADHD as structured in the DSM-5 criteria. It is, however, essential to note that the DSM-5 should be used with caution as a couple of studies have criticized it for its tendency to conceptualize disorders as existing within the individual (Beauchaine, 2003). To improve on this DSM-5 limitation, the developmental psychopathology framework would be a helpful way to conceptualize psychopathology in support of the DSM-5 shortfall as it provides a couple of possible routes that also involve contextual factors. Policies further highlight that Theoretical studies based on an etic/emic understanding of ADHD would help advance African-centered psychological assessment. Therefore, it would be beneficial to start from home and grow confidence in a South African perspective that will feed into theory development and understanding phenomena such as ADHD. This would then feed into the African perspective's growth, putting the context in good standing and hold ground when merging with other contexts to form an etic/emic view.

Chapter 6: Conclusion and Recommendations

6.1 Contextual implications based on the findings

Based on the findings and conclusions drawn in this study, the following implications are highlighted for theory and practice concerning the use of the VADRS within the South African context. The study highlighted that the VADRS does measure the theoretical constructs of Attention Deficit, Hyperactivity Disorder (ADHD) as highlighted in the Diagnostic and statistical manual 5th edition (DSM-5). This confirms that the VADRS is valid and measures the ADHD constructs despite the sample or context. Therefore, using the tool for screening within South Africa would be beneficial, especially in the cost-effective assessment challenge highlighted in the literature. However, continuous evaluation of the reliability and validity would help strengthen the reliability coefficients of the tool.

This would ensure the suitability for use within the context within these evolving times, and it would also be fulfilling the requirements as stated by the HSRC assessment policy. It also goes

much further and helps measure the symptoms of common comorbid conditions such as depression, anxiety, and oppositional conduct. Although not sufficient for diagnosis, the comorbid condition screening provides a guideline for the conclusions and recommendations on the VADRS findings. Table 2 displays the Cronbach alpha coefficients for each of the VADRS subscales, confirming the acceptable reliability findings of the VADRS as conducted for screening the South African sample in the study. However, it would be recommendable to investigate the test's balancing item ratio by lengthening the shorter subscales. Adding items to the shorter subscales would enhance the overall validity of the VADRS and improve how well the VADRS measures ADHD constructs.

Literature highlights several theoretical and policy challenges and practice guidelines that need to be followed and addressed about psychological assessment in South Africa. The HSRC assessment policy emphasizes that psychometric properties of estimates in use must be monitored and improved consistently to enhance reliability, validity, and fairness (C. Foxcroft et al., 2004a). As mentioned earlier in the chapter, it would be beneficial to follow the policy's guidelines to promote ethical and fair usage of the VADRS in multicultural South Africa. In Chapter 2, the literature further highlights that South Africa is faced with a challenge of inadequacy about assessment practitioners' training. To resolve this matter, the formation of research forums that will focus on the usage and quality of tests such as the VADRS would be of great assistance. It would address the issue of inadequacy and keep practitioners up to date with reliable yet cost-effective assessments available for use.

Another significant finding of the study is that demographic factors significantly impact the VADRS screening results. Therefore, it is essential that when using the VADRS for screening in the South African context, interpretation of findings with caution. As noted in the literature, the screening VADRS is valid; however, contextual dynamics must be considered for ethical and culturally fair usage. Therefore, each qualified practitioner assessing/ screening a child in South Africa needs to gather additional information and the VADRS Parent rating scale and the Teacher rating scales. Doing short one-on-one interviews with parents and teachers or sending out short demographic questionnaires based on the additional information you may need as these would be beneficial for practice. See appendix three as an example of a demographic questionnaire to assist in the data gathering process as used in this study. As noted in the literature, information gathering must be multidimensional as this broadens the array of

data, adding value to the assessment process (Foxcroft & Roodt, 2018). This gathering of information will inform and help every practitioner to make better sense of the findings, resulting in conclusions and recommendations that are ethically and contextually sound. Literature further highlights that not all assessment instruments may be reliable for testing in the multicultural South African context without undergoing the necessary adjustments, testing, and evaluation procedure (C. Foxcroft & Roodt, 2018). Therefore, studies focusing on the VADRS adjustment for further use in South Africa would be beneficial. These studies would address the literature gap and improve the effectiveness of the VADRS in screening for ADHD in this context.

6.2 Strengths and limitations

The research's main strength is that the study was looking into Attention Deficit Hyperactivity Disorder (ADHD), a well-known phenomenon. ADHD is a disorder that most parents and teachers seem interested in as it has to do with their children's behavior and productivity, whom they are parenting and teaching. Parents and teachers are the prominent people who deal with the grooming of children on a day-to-day basis, and no matter their background, most of them have one aim, and it is to see the children grow personally and intellectually. If not properly diagnosed and treated, ADHD could generally hinder the child's progress, and this study offered the parents affordability-aligned follow-up assessment at the Child and Family Centre. The affordability-aligned follow-up was arranged because not all parents who might be participating in the study can afford to pay the full assessment fees as charged by Private Practitioners. The review was also of interest to those who were not much informed about ADHD or mental health in general, as one of the main aims of the study was to create awareness and psychoeducation for parents and teachers.

The most significant limitation as far as this study is concerned was the time constraint, which affected the whole process of the research, from the data collection to the generalizability and applicability of the findings. This study was to run over 10/12 months; however, due to challenges, an additional year was added. The main challenges within the Data analysis stage included the recruitment of schools and their commitment thereof. There was time pressure, which impacted the participants' commitment to the research. Most Principals of the schools

that were approached to be one of the two schools in each setting showed interest in participating and felt that it would be a beneficial study for them. However, the teachers struggled to commit to the data collection protocol, which led to poor cooperation and thus withdrawal from the study.

Therefore, more research still needs to be done within the South African context, within a more extended space of time and an extensive and hence more inclusive sample. More time and a larger number of participants would assist in the generalizability, enhancing and enabling the study's findings to be better applicable to the population.

6.3 Recommendations for future research

The main recommendations based on the study findings are more about the time limitation and inadequate depth of the study, and the unexpected results. It would hence be good to have a follow-up study in more South African schools within different provinces as well to allow a comparison with these KZN based findings. Further research looking into the unexpected discovery of the inconsistencies in how the teachers' rate children whereas parents were relatively consistent in how they rate the children would be interesting. It would also be of great value to narrow things down a bit for the next studies with a time limitation to look at each screening tool and evaluate more in-depth the reliability and validity of each screening tool (VADTRS and VADPRS). Despite the arguments presented above, it is possible to view the results with some degree of credibility. The researcher/ practitioner using the VADRS for screening should outline the practical implications and applicability of the findings. Therefore, the VADRS can be used within the context, and the results can inform useful recommendations to manage and deal with the symptoms.

Notable contributions have emerged from South African Psychiatry and Clinical psychology to improve mental health and its policies; however, there are still challenges (Stein, 2014). Based on the mental health policy for South Africa, growing interest has been noted in evidence-based policymaking. However, for the successful development of such policies, more attention ought to be given to individual and social factors to promote the effective implementation of such policies. Stein (2014) noted that the individual and their environment are essential to ensure effective development and implementation of such policies. The same

applies to the development of assessment tools, a part where South Africa is still quite behind. Therefore, to further enhance the proper use of the VADRS and other screening tools within the South African context, norm drive, and a pragmatic, driven adaptation of the assessments needs to be done.

Theoretical studies based on a merged understanding of ADHD, as noted in Chapter 2, would help advance African-centered psychological assessment. Therefore, South African test developing bodies such as the HSRC to invest in the development of their tools as this will allow accurate norms that will ensure that the relevant contextual factors be considered. This would help create a robust African-centered understanding when it comes to assessments, which would help develop a better standing even when it comes to the recently proposed merged perspective. According to these findings, studies to further explore symptoms that differ based on context would be potentially valuable for the in-depth understanding of the factors contributing to a shift in behavior and functioning.

6.4 Summary

The study found that the school that the child attends has a significant impact on how a child scores when screened for Attention Deficit Hyperactivity Disorder (ADHD) using the Vanderbilt ADHD Rating Scale (VADRS) within this KZN, South African Sample. This confirmed that the child's context has an impact on the development of ADHD symptoms. The unexpected finding of the differences in how the teachers within the different school contexts rated the children might also highlight an exciting area of study for future research. Moreover, the study found acceptable reliability of the VADRS with all subscale alphas above 0.7, which confirms that each of the subscales within the VADRS measures the construct it is set to measure. These constructs are the symptoms of ADHD as highlighted by the DSM-5 and the comorbid condition symptoms and how these symptoms may or may not have affected the child's performance and relationships. On balance, our results point to the potential value in further exploring the different ratings of children based on the school they attend. Therefore, it would be interesting to investigate the factors that might be contributing to the difference between how teachers at Urban schools' rate children in comparison to teachers within rural

schools nearby. This would enhance South African contextual depth in terms of understanding ADHD as a phenomenon.

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Appendix 1 – VADPRS Screening tool

NICHQ Vanderbilt Assessment Scale—PARENT Informant

Today's Date: _____ Child's Name: _____ Date of Birth: _____

Parent's Name: _____ Parent's Phone Number: _____

Directions: Each rating should be considered in the context of what is appropriate for the age of your child.

When completing this form, please think about your child's behaviors in the past 6 months.

Is this evaluation based on a time when the child ☐ was on medication ☐ was not on medication ☐ not sure?

Symptoms	Never	Occasionally	Often	Very Often
1. Does not pay attention to details or makes careless mistakes with, for example, homework	0	1	2	3
2. Has difficulty keeping attention to what needs to be done	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
4. Does not follow through when given directions and fails to finish activities (not due to refusal or failure to understand)	0	1	2	3
5. Has difficulty organizing tasks and activities	0	1	2	3
6. Avoids, dislikes, or does not want to start tasks that require ongoing mental effort	0	1	2	3
7. Loses things necessary for tasks or activities (toys, assignments, pencils, or books)	0	1	2	3
8. Is easily distracted by noises or other stimuli	0	1	2	3
9. Is forgetful in daily activities	0	1	2	3
10. Fidgets with hands or feet or squirms in seat	0	1	2	3
11. Leaves seat when remaining seated is expected	0	1	2	3
12. Runs about or climbs too much when remaining seated is expected	0	1	2	3
13. Has difficulty playing or beginning quiet play activities	0	1	2	3
14. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
15. Talks too much	0	1	2	3
16. Blurts out answers before questions have been completed	0	1	2	3
17. Has difficulty waiting his or her turn	0	1	2	3
18. Interrupts or intrudes in on others' conversations and/or activities	0	1	2	3
19. Argues with adults	0	1	2	3
20. Loses temper	0	1	2	3
21. Actively defies or refuses to go along with adults' requests or rules	0	1	2	3
22. Deliberately annoys people	0	1	2	3
23. Blames others for his or her mistakes or misbehaviors	0	1	2	3
24. Is touchy or easily annoyed by others	0	1	2	3
25. Is angry or resentful	0	1	2	3
26. Is spiteful and wants to get even	0	1	2	3
27. Bullies, threatens, or intimidates others	0	1	2	3
28. Starts physical fights	0	1	2	3
29. Lies to get out of trouble or to avoid obligations (ie, "cons" others)	0	1	2	3
30. Is truant from school (skips school) without permission	0	1	2	3
31. Is physically cruel to people	0	1	2	3
32. Has stolen things that have value	0	1	2	3

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

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Adapted from the Vanderbilt Rating Scales developed by Mark L. Wolraich, MD.

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NICHQ

National Initiative for Children's Healthcare Quality

McNeil
Consumer & Specialty Pharmaceuticals

NICHQ Vanderbilt Assessment Scale—PARENT Informant

Today's Date: _____ Child's Name: _____ Date of Birth: _____

Parent's Name: _____ Parent's Phone Number: _____

Symptoms (continued)	Never	Occasionally	Often	Very Often
33. Deliberately destroys others' property	0	1	2	3
34. Has used a weapon that can cause serious harm (bat, knife, brick, gun)	0	1	2	3
35. Is physically cruel to animals	0	1	2	3
36. Has deliberately set fires to cause damage	0	1	2	3
37. Has broken into someone else's home, business, or car	0	1	2	3
38. Has stayed out at night without permission	0	1	2	3
39. Has run away from home overnight	0	1	2	3
40. Has forced someone into sexual activity	0	1	2	3
41. Is fearful, anxious, or worried	0	1	2	3
42. Is afraid to try new things for fear of making mistakes	0	1	2	3
43. Feels worthless or inferior	0	1	2	3
44. Blames self for problems, feels guilty	0	1	2	3
45. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	2	3
46. Is sad, unhappy, or depressed	0	1	2	3
47. Is self-conscious or easily embarrassed	0	1	2	3

Performance	Excellent	Above Average	Somewhat of a Problem		
			Average	Problematic	Problematic
48. Overall school performance	1	2	3	4	5
49. Reading	1	2	3	4	5
50. Writing	1	2	3	4	5
51. Mathematics	1	2	3	4	5
52. Relationship with parents	1	2	3	4	5
53. Relationship with siblings	1	2	3	4	5
54. Relationship with peers	1	2	3	4	5
55. Participation in organized activities (eg, teams)	1	2	3	4	5

Comments:

For Office Use Only

Total number of questions scored 2 or 3 in questions 1–9: _____

Total number of questions scored 2 or 3 in questions 10–18: _____

Total Symptom Score for questions 1–18: _____

Total number of questions scored 2 or 3 in questions 19–26: _____

Total number of questions scored 2 or 3 in questions 27–40: _____

Total number of questions scored 2 or 3 in questions 41–47: _____

Total number of questions scored 4 or 5 in questions 48–55: _____

Average Performance Score: _____

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Appendix 2 – VADTRS Screening tool

NICHQ Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: _____ Class Time: _____ Class Name/Period: _____

Today's Date: _____ Child's Name: _____ Grade Level: _____

Directions: Each rating should be considered in the context of what is appropriate for the age of the child you are rating and should reflect that child's behavior since the beginning of the school year. Please indicate the number of weeks or months you have been able to evaluate the behaviors: _____.

Is this evaluation based on a time when the child ☐ was on medication ☐ was not on medication ☐ not sure?

Symptoms	Never	Occasionally	Often	Very Often
1. Fails to give attention to details or makes careless mistakes in schoolwork	0	1	2	3
2. Has difficulty sustaining attention to tasks or activities	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
4. Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behavior or failure to understand)	0	1	2	3
5. Has difficulty organizing tasks and activities	0	1	2	3
6. Avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort	0	1	2	3
7. Loses things necessary for tasks or activities (school assignments, pencils, or books)	0	1	2	3
8. Is easily distracted by extraneous stimuli	0	1	2	3
9. Is forgetful in daily activities	0	1	2	3
10. Fidgets with hands or feet or squirms in seat	0	1	2	3
11. Leaves seat in classroom or in other situations in which remaining seated is expected	0	1	2	3
12. Runs about or climbs excessively in situations in which remaining seated is expected	0	1	2	3
13. Has difficulty playing or engaging in leisure activities quietly	0	1	2	3
14. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
15. Talks excessively	0	1	2	3
16. Blurts out answers before questions have been completed	0	1	2	3
17. Has difficulty waiting in line	0	1	2	3
18. Interrupts or intrudes on others (eg, butts into conversations/games)	0	1	2	3
19. Loses temper	0	1	2	3
20. Actively defies or refuses to comply with adult's requests or rules	0	1	2	3
21. Is angry or resentful	0	1	2	3
22. Is spiteful and vindictive	0	1	2	3
23. Bullies, threatens, or intimidates others	0	1	2	3
24. Initiates physical fights	0	1	2	3
25. Lies to obtain goods for favors or to avoid obligations (eg, "cons" others)	0	1	2	3
26. Is physically cruel to people	0	1	2	3
27. Has stolen items of nontrivial value	0	1	2	3
28. Deliberately destroys others' property	0	1	2	3
29. Is fearful, anxious, or worried	0	1	2	3
30. Is self-conscious or easily embarrassed	0	1	2	3
31. Is afraid to try new things for fear of making mistakes	0	1	2	3

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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Adapted from the Vanderbilt Rating Scales developed by Mark L. Wolraich, MD.

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NICHQ Vanderbilt Assessment Scale—TEACHER Informant

Teacher's Name: _____ Class Time: _____ Class Name/Period: _____

Today's Date: _____ Child's Name: _____ Grade Level: _____

Symptoms (continued)	Never	Occasionally	Often	Very Often
32. Feels worthless or inferior	0	1	2	3
33. Blames self for problems; feels guilty	0	1	2	3
34. Feels lonely, unwanted, or unloved; complains that "no one loves him or her"	0	1	2	3
35. Is sad, unhappy, or depressed	0	1	2	3

Performance	Excellent	Average	Above Average	Somewhat of a Problem	Problematic
Academic Performance					
36. Reading	1	2	3	4	5
37. Mathematics	1	2	3	4	5
38. Written expression	1	2	3	4	5

Classroom Behavioral Performance	Excellent	Above Average	Average	Somewhat of a Problem	Problematic
39. Relationship with peers	1	2	3	4	5
40. Following directions	1	2	3	4	5
41. Disrupting class	1	2	3	4	5
42. Assignment completion	1	2	3	4	5
43. Organizational skills	1	2	3	4	5

Comments:

Please return this form to: _____

Mailing address: _____

Fax number: _____

For Office Use Only

Total number of questions scored 2 or 3 in questions 1–9: _____

Total number of questions scored 2 or 3 in questions 10–18: _____

Total Symptom Score for questions 1–18: _____

Total number of questions scored 2 or 3 in questions 19–28: _____

Total number of questions scored 2 or 3 in questions 29–35: _____

Total number of questions scored 4 or 5 in questions 36–43: _____

Average Performance Score: _____

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Appendix 3 – Demographic questionnaire

Child's name:

Child's age:

What is the child's gender? ☐ Male ☐ Female

What is your gender? ☐ Male ☐ Female

What is your age? ☐ 18- 24 ☐ 25 to 34 ☐ 35- 34 ☐ 45- 34 ☐ 55 and over

What is your Race? ☐ Black ☐ White ☐ Indian ☐ Coloured ☐ Other

What is your relationship with the child? ☐ Parent ☐ Grandparent ☐ Aunt/Uncle ☐ Other

What is your Marital Status?

☐ Single ☐ Married, or in domestic partnership ☐ Widowed ☐ Divorced ☐ Separated

How many other children do you have?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ More

Do you live with the child? ☐ Yes ☐ No

How many other people do you live with in the same household?

☐ 2 to 5 ☐ 6 to 10 ☐ More

What type of area do you live in? ☐ Suburb ☐ Township ☐ Semi-Rural ☐ Rural

What is your level of education? ☐ Primary ☐ High school ☐ Tertiary

Are you employed? ☐ Yes ☐ No

What is your Financial Standing?

☐ Good (We have what we need and more)

☐ Fair (We have just enough to get us through month by month)

☐ Poor (We hardly have enough)

What is your mental health awareness level?

☐ I understand a lot about mental health

☐ I don't understand much about mental health

☐ I understand quite a bit about mental health

☐ I don't have any understanding about mental health

Appendix 4 – Informed consent form – Teacher participants

INFORMED CONSENT SHEET

Information Sheet and Consent to Participate in Research

Date:

Greeting: Potential Study Participant

My name is Nana Khambule a Masters Student from the University of KwaZulu- Natal department of Psychology. Department contact number and email magojo@ukzn.ac.za 033 260 5549 Email Address: 214567179@stu.ukzn.ac.za

You are being invited to consider participating in a study that involves research on an ADHD Screening tool. The aim and purpose of this research is to establish whether this screening tool which was standardized on a USA population would be suitable for use on a South African population. The study is expected to enroll 100 scholars from two schools in Pietermaritzburg, 50 participants from a school in an urban area and 50 from a rural area. It will involve the following procedures; screening of the sampled children on the tool, there is a parent rater and a teacher rater for this scale and hence each child will be screened by two people, their parent and teacher. Therefore, the participants needed in the study are teachers and parents to partake in the screening of their children. The duration of your participation if you choose to enroll and remain in the study is expected to be minimum 3 days and maximum 5 days. The study is funded independently.

The study may involve the following risks or discomforts; Worry/anxiety due to the screening results and what that could possibly mean for the child being screened and whether the results are of any clinical significance. There will however be thorough interpretation of scores delivered in the form of a written report. The study will provide no direct benefits to participants. It will however enhance knowledge and create awareness of the development related disorders for children, parents, and teachers. This will be basic psychoeducation and exposure in this regard. The study will also address the demand of efficient and valid assessment tools within the screening of disorders which interfere with the progress of children in the South African education system.

Should the Teacher note significance in the results and feels that the child needs further assessment, the Child and Family Centre can be contacted to make an appointment to see a psychologist who will then see the child for more assessments at an economical rate of R200 per session.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building

Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Participation in this research is voluntary (and participants may withdraw participation at any point), in the event of refusal/withdrawal of participation the participants will not incur penalty or loss. Should the participant feel the need to withdraw from the study, they will have to email as a cancellation of participation and they will be removed from the study.

The confidentiality of the children will be kept private by not mentioning them in the screening answer books, they will only be required to provide the age, gender, and race of the child. The participating group of parents and teachers will also be protected in confidentiality through allowing the participants to deposit the completed assessments and demographic questionnaires anonymously into a secured storage that will be placed at the school foyer for collection by the researcher.

CONSENT

I (Name) have been informed about the study entitled (provide details) by (provide name of researcher/fieldworker).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at (provide details).

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Appendix 4.1 – Informed consent form – Parent participants

INFORMED CONSENT SHEET

Information Sheet and Consent to Participate in Research

Date:

Greeting: Potential Study Participant

My name is Nana Khambule a Masters Student from the University of KwaZulu- Natal department of Psychology. Department contact number and email magojo@ukzn.ac.za 033 260 5549 Email Address: 214567179@stu.ukzn.ac.za

You are being invited to consider participating in a study that involves research on an ADHD Screening tool. The aim and purpose of this research is to establish whether this screening tool which was standardized on a USA population would be suitable for use on a South African population. The study is expected to enroll 100 scholars from two schools in Pietermaritzburg, 50 participants from a school in an urban area and 50 from a rural area. It will involve the following procedures; screening of the sampled children on the tool, there is a parent rater and a teacher rater for this scale and hence each child will be screened by two people, their parent and teacher. Parents taking part in the study will also be required to fill out a demographic questionnaire that will be used in the data analysis stage of the research. Therefore, the participants needed in the study are teachers and parents to partake in the screening of their children. The duration of your participation if you choose to enroll and remain in the study is expected to be minimum 3 days and maximum 5 days. The study is funded independently.

The study may involve the following risks or discomforts; Worry/anxiety due to the screening results and what that could possibly mean for the child being screened and whether the results are of any clinical significance. There will however be thorough interpretation of scores delivered in the form of a written report. Should the parents feel concern after the feedback at the end of their participation and would like to access further assessment for the child, the Child and Family Centre can be contacted to make an appointment to see a psychologist who will then see the child for more assessments at an economical rate of R200 per session.

The study will provide no direct benefits to participants. It will however enhance knowledge and create awareness of the development related disorders for children, parents, and teachers. This will be basic psychoeducation and exposure in this regard. The study will also address the demand of efficient and valid assessment tools within the screening of disorders which interfere with the progress of children in the South African education system.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building

Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Participation in this research is voluntary (and participants may withdraw participation at any point), in the event of refusal/withdrawal of participation the participants will not incur penalty or loss. Should the participant feel the need to withdraw from the study, they will have to email as a cancellation of participation, and they will be removed from the study.

The confidentiality of the children will be kept private by not mentioning them in the screening answer books, they will only be required to provide the age, gender, and race of the child. The participating group of parents and teachers will also be protected in confidentiality through allowing the participants to deposit the completed assessments and demographic questionnaires anonymously into a secured storage that will be placed at the school foyer for collection by the researcher.

--

CONSENT

I (Name) have been informed about the study entitled (provide details) by (provide name of researcher/fieldworker).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at (provide details).

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

Signature of Participant

Date

Appendix 4.2 – Informed consent form – IsiZulu version

IKOMIDI LEZENQUBONHLE KWEZOCWANINGO LEKOLISHI LEZESINTU ESIKOLENI SEZIFUNDO NGENHLALO YOMPHAKATHI (HSSREC)

**ISICELO SOKUGUNYAZWA NGOKWEZENQUBONHLE
Okocwaningo olusebenza ngabantu**

Umbhalo Wemininingwane Nokuvuma Ukubamba Iqhaza Ocwaningweni

Usuku: 15 Mfumu 2018

Ukubingelela: Ekuphathelele naye

Igama lami ngingu-Nana Khambule waseNyuvesi yakwaZulu Natal(UKZN) kumnyango wezokusebenza kwengqondo. Ucingo nemeyili yomnyango wezokusebenza kwengqondo 033 260 5549 magojo@ukzn.ac.za Ikheli lami le-imeyili: 214567179@stu.ukzn.ac.za

Uyamenywa ukuba ubambe iqhaza kucwaningo olumayelana nethuluzi elisetshenziselwa ukubheka izimpawu zesifo somqondo i-ADHD. Inhloso yalolucwaningo ukuthola ukuthi lelithuluzi elivela e-USA likulungele yini ukusetshenziswa kubantu baseMzansi Afrika. Kulindeleke ukuba lolucwaningo lwenziwe kubafundi abayikhulu (100) basezikolweni ezimbili zaseMgungundlovu (Pitersburg), amashumi amahlanu abafundi azovela esikoleni esisendaweni eyidolobha bese kuthi lawa amane amashumi amahlanu abafundi azovela esikoleni esisendaweni yasemakhaya. Okulindeleke ukuba kwenzeke kulolucwaningo ukuthi abantwana besikole babhekwa abazali babo kanye nothisha babo ukuthi zingakanani zimpawu abanazo zesifo somqondo i-ADHD ngokwalelithuluzi. Lelithuluzi linemibuzo ebhekiswe kumzali womntwana liphinde libe nemibuzo ebhekiswe kuthishela womntwana ngakhokhe ingane ngayinye izobe inethuluzi eligcwaliswe abantu ababili, elilodwa lizogcwaliswa umzali elinye ligcwaliswe uthisha. Kuthataha imizuzu ecishe ibe ngamashumi amabili (20) ukugcwalisa/ukuphendula imibuzo yalelithuluzi.

Kuyangabazeka kodwa kungenzeka kube nobungcuphe noma ukungaphatheki kahle mayelana nemiphumela ezovezwa yilelithuluzi nokuthi lemiphumela ichaza ukuthi mayelana nomfundi. Khona kunjalo, kuzoba nencwadi yemiphumela ezobe ichaza kabanzi mayelana nemiphumela ezobhalwa abacwaningi bese inikwa abazali abazobamba iqhaza. Akukho okuyinzuzo ephathekayo okuzonikwa labo abazobamba iqhaza kulolucwaningo. Abazali kanye nothishela abazobamba iqhaza kulolucwaningo bazothola ulwazi olujulile noluzosiza ukubavula amehlo mayelana nalesisifo iADHD kanye nezinye futhi izifo zomqondo ezihlasela abantwana besikole. Lokhu kuzobe kuyimfundiso nje mayelana nezemiqondo kanye nokukhombisa ukuthi zibhekwa kanjani izimpawu kokunye. Lolucwaningo luzophinde lubhekelele ukushoda kwamathuluzi aqondene nokubhekana nezimpawu zezifo zomqondo eziphazamisa inqubekela phambili kubantwana kwezemfundo zaseMzansi Afrika.

Uma sibona ukuthi unokuphazamiseka okanye ukucindezeleka njengomzali ngemuva kokuthola imiphumela yomntwana wakho, sizokuxhumanisa nabesikhungo sethu sezingane kanye nomndeni (Child and Family Centre) ukuze nithole ukwesekwa enikudingayo nokufanelekile.

Lolu cwaningo luhloliwe ngokwenqubonhle lwagunyazwa i-UKZN Humanities and Social Sciences Research Ethics Committee (inombolo yokugunyazwa_____).

Uma kunezinkinga noma imibuzo/ukukhathazeka ungaxhumana nomcwaningi lapha (nikeza imininingwane yokuxhumana) noma i- UKZN Humanities & Social Sciences Research Ethics Committee, kulemininingwane elandelayo:

**EZOKUPHATHWA KWEZENQUBONHLE KWEZOCWANINGO EKOLISHI LEZESINTU
ESIKOLENI SEZIFUNDO NGENHLALO YOMPHAKATHI**

Ihhovisi LezoCwaningo, iKhempasi i-Westville
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Ucingo: 27 31 2604557- Fax: 27 31 2604609
I-imeyili: HSSREC@ukzn.ac.za

Umcwaningi

U-Nana Khambule
Ucingo: 033 3211 319
Imeyili: [nnkhambule255@gmail.com](mailto:nkhambule255@gmail.com)

Ophethe umcwaningi

U-Carol Mitchell
Ucingo: 033 260 6054
Imeyili: mitchellc@ukzn.ac.za

Ukubamba kwakho iqhaza kulomncwaningo kungokuzikhethela kwakho okuphelele kanti futhi uvumelekile ukuba uyeke noma inini nangabe ingasiphi isizathu. Uma ufisa ukuyeka kade usuvumile wathatha ithuluzi ukuyoligcwalisa, kuoyomele uthumele imeyili kumncwaningi ukuze akukhulule ngokukukhipha kwasocwaningweni.

Yonke imininingwane eveza ukuthi ungubani izogcinwa iyimfihlo. Kumubiko wokugcina (neminye imishicilelo engase ilandele) ukungaziwa kwakho kuyogcinwa ngokusebenzisa igama ekungasilo elakho. Uma usubuyisa konke okunemininingwane yakho kuyobe kuvikelekile ebhokisisni elizobe libkwe umcwaningi eskoleni (ehhovisis likathisha omkhulu), eliyovulwa uyena kuphela uma esezolanda konke okumayelana nocwaningo.

UKUVUMA

Mina (Igama lakho) ngazisiwe mayelana nocwaningo “Ukubheka kabanzi imisebenzi yethuluzi lokubheka izimpawu zesifo somqondo i-ADHD, i-Vanderbilt Attention Deficit/Hyperactivity Disorder Rating Scale (VADRS), uma lisetshenziswa abantu baseMzansi Afrika” olwenziwa ngu-Nana Khambule.

Ngiyayiqonda inhloso nenqubo yocwaningo.

Nginikeziwe ithuba lokubuza mayelana nocwaningo, ngathola izimpendulo ezigculisayo.

Ngyavuma ukuthi ukubamba kwami iqhaza kulolucwaningo kungokuzinikela kwami futhi ngiyazi ukuthi ngingacela ukuyeka noma nini phakathi kocwaningo ngaphandle kwenkinga nangaphandle kokuphucwa lokhu engithenjise khona.

Uma ngineminye imibuzo noma izinkathazo mayelana nocwaningo ngingayiqondisa ngqo kumcwaningi kwinombolo ethi (033 3211319).

Uma nginemibuzo noma ngikhathazekile mayelana namalungelo ami njengomuntu obambe iqhaza kulolucwaningo, noma ngingenkinga nengxenye yocwaningo noma ngabacwaningi uqobo, ngingathintana nehhovisi;

EZOKUPHATHWA KWEZENQUBONHLE KWEZOCWANINGO EKOLISHI LEZESINTU ESIKOLENI SEZIFUNDO NGENHLALO YOMPHAKATHI

Ihhovisi LezoCwaningo, iKhempasi i-Westville

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Ucingo: 27 31 2604557 - iFeksi: 27 31 2604609

I-imeyili: HSSREC@ukzn.ac.za

Signature of Participant

Date

Appendix 5 – Parent participation invitation letter

Dear Parent

My name is Nana Khambule a Masters Student from the University of KwaZulu- Natal department of Psychology. I would like to invite you to consider participating in a study that involves research on an ADHD Screening tool.

The aim and purpose of this research is to establish whether this screening tool which was standardized on a USA population would be suitable for use on a South African population. The study is expected to enroll 100 scholars from two schools in Pietermaritzburg, 50 participants from a school in an urban area and 50 from a rural area. It will involve the following procedures; screening of the sampled children on the tool, there is a parent rater and a teacher rater for this scale and hence each child will be screened by two people, their parent and teacher.

Parents taking part in the study will also be required to fill out a demographic questionnaire that will be used in the data analysis stage of the research. Therefore the participants needed in the study are parents to partake in the screening of their children and in the case where a parent is taking part in the study, the teacher would also be required to fill out the teacher rating scale.

Duration of your participation if you choose to enroll and remain in the study is expected to be minimum 3 days and maximum 5 days. The study is funded independently therefore there will be no remuneration but there will instead be psychoeducation as to sensitize and make parents and teachers aware of the traits of the disorder and when one needs to take necessary action to get the child psychological interventions.

Please note that this is a basic screening tool for traits of ADHD and therefore it is not a diagnostic tool. However, should there be concern based on the results, information for a Centre for psychological services where you may refer the child will be provided.

Should you be interested in taking part in the study please fill out and return the slip below.

Kind Regards
Nana

Participation Slip

I parent/guardian would like to be a participant in the study, please send further detail.

Parent Signature

Appendix 5.1 – Parent participation invitation letter – IsiZulu version

Mzali Othandekayo

Igama lami ngingu-Nana Khambule waseNyuvesi yakwaZulu Natal (UKZN) kumnyango wezokusebenza kwengqondo. Uyamenywa ukuba ubambe iqhaza kucwaningo olumayelana nethuluzi elisetshenziselwa ukubheka izimpawu zesifo somqondo i-ADHD.

Inhloso yalolucwaningo ukuthola ukuthi lelithuluzi elivela eMelika likulungele yini ukusetshenziswa kubantu baseMzansi Afrika. Kulindeleke ukuba lolucwaningo lwenziwe kubafundi abayikhulu (100) basezikolweni ezimbili zaseMgungundlovu (Pietermaritzburg), amashumi amahlanu abafundi azovela esikoleni esisendaweni eyidolobha bese kuthi lawa amane amashumi amahlanu abafundi azovela esikoleni esisendaweni yasemakhaya. Iminyaka yabantwana kufanele ibe phakathi kweyisithupha neyishumi nambili (6-12). Lelithuluzi linemibuzo ebhekiswe kumzali womntwana liphinde libe nemibuzo ebhekiswe kuthishela womntwana ngakhokhe ingane ngayinye izobe inethuluzi eligcwaliswe abantu ababili, elilodwa lizogcwaliswa umzali elinye ligcwaliswe uthisha. **Umntwana ngeke aze abonane nabacwaningi nhlobo.**

Abazali abazoba yingxenywe yalolucwaningo bazophinde bagcwalise ipheshana leminingwane elizosetshenziswa uma sekuhlaziywa imiphumela yocwaningo. Uma umzali evuma ukubamba iqhaza kulolucwaningo, uthisha womntwana naye kuzomele agcwalise ithuluzi lemibuzo ebhekene nothisha.

Niyaziswa ukuthi lelithuluzi elokubheka izimpawu ezithize ze-ADHD, imiphumela izobe ingachazi ukuthi umntwana unaso lesifo somqondo. Nizonikezwa imiphumela yabantwana benu. Uma unokhukhatazeka mayelana nemiphumela uzoyalelwa ukuthi ungamuyisa kuphi umntwana ukuze athole usizo oluqhubekayo.

Uma ungathanda ukubamba iqhaza kulolucwaningo sicela ugcwalise isiqeshana ngezansi bese ubuyisela esikoleni.

Ozithobayo

Nana (Umcwaningi)

Isiqeshana sokuvuma ukubamba iqhaza

Mina umzali/umqaphi ngingathanda ukubamba iqhaza kulolucwaningo, ningayithumela iminingwane elandelayo.

Isiginesha yomzali

Appendix 6 – Ethical Approval/ Gatekeepers permission



UNIVERSITY OF
KWAZULU-NATALTM
INYUVESI
YAKWAZULU-NATALI

04 September 2018

Ms Nana N Khambule 214567179
School of Applied Human Sciences - Psychology
Pietermaritzburg Campus

Dear Ms Khambule

Protocol reference number: HSS/1233/018M

Project title: Investigating the psychometric properties of the Vanderbilt Attention Deficit/Hyperactivity Disorder diagnostic rating scale (VADRS) in the South African Context.

Provisional Approval – Full Committee Reviewed Protocol

This letter serves to notify you that your application received on 02 August 2018 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee on 29 August 2018. The protocol has been provisionally approved, subject to the following conditions set out below being addressed:

1. How will participants (parents and teachers) be recruited?
2. How will the 50 learners from each school be selected?
3. How many parents and how many teachers will constitute the sample?
4. Explain which teachers will be involved given that some primary schools practise subject specialisation.
5. Question 3.7, How will feedback be given to participants after completion of the study?
6. Please translate the informed consent documents into the first language used by participants. The language used in the informed consent should be simplified.
7. Informed consent document, how do you plan to address the potential risks, however minimal?
8. Concerns, Please consider a different approach to administering the questionnaire other than leaving them with the receptionist.
9. Please clarify how you are to get back the completed questionnaire.
10. Question 3.7, How will feedback be given to participants after completion of the study?

This approval is granted provisionally and the final clearance for this project will be given once the above-mentioned condition has been met. Note that data collection may not proceed until final ethics approval letter has been issued after the remaining conditions have been met and approved by the research ethics committee.

Please submit your earliest response as soon as possible to Dr Shamila Naidoo (Deputy Chair) % ximbap@ukzn.ac.za Research Office, Westville Campus.

Humanities & Social Sciences Research Ethics Committee
Professor Shenuka Singh (Chair)/Dr Shamila Naidoo (Deputy Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snymam@ukzn.ac.za / mohungu@ukzn.ac.za

Website: www.ukzn.ac.za



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INYUVESI
YAKWAZULU-NATALI

Yours faithfully



Dr S Naidoo

/px

cc Supervisor: Dr Carol Mitchell
cc Academic Leader Research: Dr Maud Mthembu
cc School Administrator: Mrs Priya Konan

Humanities & Social Sciences Research Ethics Committee
Professor Shenuka Singh (Chair)/Dr Shamila Naidoo (Deputy Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000





Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snvmanm@ukzn.ac.za / mohunp@ukzn.ac.za

Website: www.ukzn.ac.za



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Appendix 7 – CFC Permission letter



19 March 2018

To whom it may concern

This letter serves to provide the assurance that should any research participant in the study by Ms Nana Khambule (Psychology masters student) require psychological assistance as a result of any distress arising from the research project titled: ***“Investigating the psychometric properties of the Vanderbilt Attention Deficit/Hyperactivity Disorder diagnostic rating scale (VADRS) within the South African context”***, the service will be provided by Psychology Masters students and/or intern psychologists at the Child and Family Centre, University of KwaZulu-Natal, Pietermaritzburg Campus. It is acknowledged that Ms Khambule's project is under the supervision of Dr Carol Mitchell. The rate per session is R200.

Yours sincerely,



Dr Phindile L. Mayaba
Director: Child and Family Centre
University of KwaZulu-Natal
Pietermaritzburg Campus


CHILD AND FAMILY CENTRE

School of Applied Human Sciences

Discipline of Psychology

Postal Address: Private Bag X01, Scottsville, Pietermaritzburg 3209, South Africa

Telephone: +27 (0)33 260 5166/6368 Email: mayabap@ukzn.ac.za Website: psychology.ukzn.ac.za

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

Appendix 8 – Department of Education permission letter



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Phindile Duma

Tel: 033 392 1063

Ref.:2/4/8/1568

Miss NN Khambule
PO Box 11269
Dorpspruit
Pietermaritzburg
3206

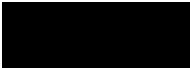
Dear Miss Khambule

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **"INVESTIGATING THE PSYCHOMETRIC PROPERTIES OF THE VANDERBILT ATTENTION DEFICIT/HYPERACTIVITY DISORDER DIAGNOSTIC RATING SCALE (VADRS) WITHIN THE SOUTH AFRICAN CONTEXT"**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the Intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 July 2018 to 01 October 2020.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Miss Phindile Duma at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report/dissertation/thesis must be submitted to the research office of the Department. Please address it to The Office of the HOD, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education.

(PLEASE SEE LIST OF SCHOOLS ATTACHED)



Dr. EV Nzama
Head of Department: Education
Date: 04 July 2018

KWAZULU-NATAL DEPARTMENT OF EDUCATION
Postal Address: Private Bag X9137 • Pietermaritzburg • 3200 • Republic of South Africa
Physical Address: 247 Burger Street • Anton Lembede Building • Pietermaritzburg • 3201
Tel.: +27 33 392 1063 • Fax.: +27 033 392 1203 • Email: Phindile.Duma@kzndoe.gov.za • Web: www.kzndoe.gov.za
Facebook: KZNDOE... Twitter: @DBE_KZN... Instagram: [kzn_education](https://www.instagram.com/kzn_education)... Youtube: [kzndoe](https://www.youtube.com/kzndoe)

...Championing Quality Education - Creating and Securing a Brighter Future



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

LIST OF SCHOOLS

1. Scottsville Primary School
2. Ndlelayabasha Primary School