RELATIONSHIP BETWEEN ATTENTION DEFICIT HYPERACTIVITY DISORDERAND ACADEMIC PERFORMANCE AMONG PRIMARY SCHOOL PUPILS IN KATAGUMEDUCATION ZONEBAUCHI STATE, NIGERIA

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DECLARATION

I hereby declare that this work is the product of my research efforts undertaken under the supervision of Professor Auwal Muhammad Lawal, and has not been presented anywhere for the award of a degree or certificate. All sources have been duly acknowledged

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CERTIFICATION

This is to certify that the research work for this dissertation and the subsequent write-up by (NasiruNuhuGarkuwa SPS/13/MED/00081) were carried out under my supervision

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ABSTRACT

This research work was aimed at finding the relationship between Attention Deficit Hyperactivity Disorder,and academic performance among primary six pupils in Katagum

Education Zone of Bauchi State Nigeria. A correlationalresearch design was employed for the study, the population was 126 primary 6 pupils in Katagum education zone of Bauchi state and a total sample of 126 pupils (87males, 39 females) were purposively selected using purposive sampling technique. The instrument used for the study was adapted ADHD diagnostic rating scale which has a reliability coefficient of .69 achievement test was also used and it has a reliability coefficient of .84.The data collected were analyzed using Pearson product moment correlation in SPSS statistical package computer programme. Analysis of the data revealed that there is significant relationship between inattention, impulsivity and academic performance in English, while there is insignificant relationship between hyperactivity and academic performance. At the same time the prevalence of attention deficit hyperactivity disorder was 33%.Based on the findings from the study it is recommended that, there should be adequate and regular reinforcement to the ADHD pupils, there is need for teachers, parents and counsellors to work hand in hand to improve the academic performance of ADHD pupils, there is a need to plan academic work that will be suitable for ADHD pupils etc.

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OPERATIONAL DEFINITION OF TERMS

Attention Deficit: Having short attention span or failure to pay attention.

Hyperactivity: The tendency to overact or being restless.

Impulsivity: To be impatient, acting impetuously like difficult in waiting turns.

Academic performance: This has to do with the pupil's performance in English language/verbal aptitude test

Katagum Education Zone: Means primary schools under seven local government education authorities in Katagum zone. i.e Katagum Gamawa, Jama`are, Giade, Itas, Shira and Zaki.

ABBREVIATIONS

ADHD: Attention deficit hyperactivity disorder

ADD: Attention deficit disorder

ADHDDRS: Attention deficit hyperactivity disorder diagnostic rating scale

APA: American Psychiatric Association

APA: America Psychological Association

DSM III-R: Diagnostic and statistical manual of mental disorders, Revised third edition

DSM IV: Diagnostic and statistical manual of mental disorders fourth edition

IRTs: inter-response times

LD: learning disability

SUBEB: State universal basic education board Bauchi state

P6: Primary six pupils

AP in ENG: Pupil's academic performance in English

Chapter one

INTRODUCTION

1.1 Background to the Study

Many behavioural disorders makes children and adult experience a lot of difficulty in an attempt to learn a variety of knowledge, and this in one way or the other affect their academic performance. One of such behavioural disorders is known as Attention deficit Hyperactivity disorder. Based on the little experience from primary school setting and literatures review, it is observed that there is a strong need to carry out a research on this particular disorder (Attention deficit Hyperactivity disorder) more especially at a grass root level of our educational system, so as to educate the classroom teachers more especially those who may not be aware of the disorder, at the same time they will learn how to handle the children with this disorder so as to ensure better academic performance. This disorder, as currently understood, can manifest in one of the three ways: Individuals with this disorder may be primarily inattentive,be primarily impulsive hyperactive, or present with a combination of both inattention and impulsive/hyperactive behaviours

Researcher like Diaz (2004) "have investigated the relationship between academic achievement and variables like social competences, age, sex, socio economic background etc". It is important to note that most of these works have concentrated on adolescents (secondary school students). Only little effort has been made in respect of primary school pupils who are in the foundation level of education.It is needful to explore some other factors. This study therefore focused on Attention deficitHyperactivity disorder among learners particularly primary school pupils. Hyperactivity is a term used to describe mode of behaviours that is felt to be excessive for age example jumping from seat to seat in the class, talking excessively, climbing chairs and desk etc.

Attention deficit on the other hand is persistent and frequent pattern of developmentally inappropriate, in attention and impulsivity with or without hyperactivity (Harriet, 2003).

Attention deficit hyperactivity disorder is a disorder involving inattentiveness and hyperactive-impulsivity. Each of these two components of the disorder is defined in terms of several behavioural criteria. Inattentiveness is characterized by such behaviours as carelessness, forgetfulness in daily activities, and other attention problems. Inattentive children commonly lose their belongings, are easily distracted, cannot follow through on instructions, and have difficulty organizing tasks. The hyperactive-impulsive component is further divided in to the subtypes of hyperactivity and impulsivity. Hyperactive is characterized by fidgeting, restlessness, running about inappropriately, difficulty in playing quietly, and talking excessively. Impulsivity is evident in pupils/students who blurt out answers, cannot wait their turn, and interrupt or intrude on others. Pupils/students can be diagnosed as having attention deficit hyperactivity with a predominant characteristic of inattentiveness, hyperactive-impulsivity, or a combination of the two.

The recognition that a child has attention deficit hyperactivity disorder usually occur fairly early in the child's life. Prior to school age (Applegate 2001) children with ADHD in Katagum education zone of Bauchi state like in other areas are usually regarded as "difficult" by their parents, relatives, and friends, who are responding to the child's impulsivity and hyperactivity. Therefore, the relationship these traits have on academic performance is very important to the teachers in Katagum education zone of Bauchi state. Because it will help them to plan their teaching so that such children will benefit in the class.

1.2 Statement of the Problems

Attention deficit hyperactivity disorder is one of behaviour disorder affecting the academic performance of both children and adult. Based on the experience it is evident that the disorder occurred among primary school pupils in Katagum Education zone of Bauchi state.

Educated and concerned parents in Katagum education zone have expressed concern about why their children under achieve in school. They expected their children to be like them or even do better than them in academic matters but to their surprise they have one or two children who struggle to pass in school. Little do they know of this personal and individualized trait (Attention Deficit Hyperactivity Disorders). It has been observed in the area that (2%) of the children have proved to have above average IQ in conversation and daily interaction with others but they remain underachievers in school. Many of these cases have been linked to Attention Deficit Hyperactivity disorders.This disorder has been proved to exist in males and females, children and adults and it interferes with several aspects of their behaviours (Geoffrey, 2001)

From the above observation, there is therefore the need to work on this area in Katagum education zone of Bauchi State in order toadd to the effort being made to improve pupil's academic performance.

Very often teachers in Katagum education zone of Bauchi State identify in the classrooms pupils who find it difficult to sit at a place for even one lesson period. Such pupils move in and out of the classroom, change seats at random, make noise in the class, lack concentration etc. These set of pupils have posed serious problems to the teachers and their fellow pupils whose attention they distract and this seriously affects teaching and learning in the classroom. These children have behavioural problems associated with Attention Deficit Hyperactivity Disorders.

In this research therefore it becomes pertinent to find out the relationship between Attention Deficit Hyperactivity Disorders and Academic performance among the primary school pupils.

1.3 Objectives of the Study

The main objectives of this research include;

i. To find out the prevalence of ADHD among primary six pupils in Katagum Education zone of Bauchi State
ii. To find out the relationship between inattention and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi State.
iii. To find outthe relationship between hyperactivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi State.
iv. To find out the relationship betweenimpulsivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi State.

1.4 Research Questions

This research will provide answers to the following questions;

i. What is the prevalence of ADHD among primary six pupils in Katagum Education zone of Bauchi state?
ii. Is there any relationship between inattention and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state?
iii. Is there any relationship between hyperactivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state?
iv. Is there any relationship between impulsivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state?

1.5 Research Hypotheses

For the purpose of this study the following research hypothesis have been generated;

Ho1. There is no significant relationship betweeninattention and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state.

Ho2. There is no significant relationship between hyperactivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state.

Ho3. There is no significant relationship between impulsivity and academic performance in English language among primary six (6) pupils in Katagum Education Zone of Bauchi state.

1.6 Significance of the Study

This research is significantly carried out in order to ascertain the relationship between attention deficit/hyperactivity disorderand academic performance of primary school pupils in Katagum Education zone of Bauchi state.Therefore, the research work will be useful to teachers, Guidance and counsellors, Curriculum planners, parents, policy developers and theorist.

It will be useful to teachers because it will enrich their knowledge of Attention Deficit Hyperactivity in children and give them insight into how to manage such children to ensure better academic achievement. For instance a teacher who has such problem in the class will plan his/her lesson to include activities and skills that will help to sustain the pupil's attention. He/she will adopt proper sitting arrangement in the classroom for the pupils with attention deficit and hyper activity disorder.

This research will be useful to the curriculum planners in the sense that awareness of thebehavioural problem of the pupils for which the curriculum is planned will help in enhancing their academic achievement. Therefore, this research will provide the curriculum planners with the knowledge ADHD in pupils so as to come up with the curriculum that will take care of such pupils

The research will also be useful to guidance and counsellors who will acquire better knowledge of attention deficit hyperactivity disorder in children so that it help them to diagnose pupils' problems and counsel them and their parents properly.

This research will be particularly useful to the parents because it will give them a better understanding of what their children are passing through. It will educate them on their roles as parents to improve the academic achievement of pupils with attention deficit hyperactivity. For instance parent need to have regular check of the pupils books, school bag, homework etc.

parent will also learn to have a link with the school so that they will compensate one another's effort. This research will also educate the parents on the need to seek medical attention for pupils with this type of problem (attention deficit hyperactivity).

The research is also useful to those who are responsible for making government policies,because they will understand the basic characteristic of ADHD child so that they will include these category of children in their policies

The findings of this research will also assist in the conduct of future researches that are related to this area of study. Therefore, it will be of benefit to future researchers.

1.7 Scope and Delimitations of the Study

The scope of this study focused on the relationship between Attention Deficit Hyperactivity Disorder, and academic performance of primary school pupils in Katagum education zone of Bauchi state. The study has focused on primary six (6) pupils in Katagum education zone of Bauchi state because they have reached the age to understand themselves and some of their behaviour they could also answer relevant questions to this study. Therefore, the study was limited to relationship ADHD and academic performance. Therefore other behavioural problems were delimited from the study. Junior and senior secondary school ware also delimited, other education zone of the state were also delimited from the study.

Chapter two

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter discusses at length the meaning of attention deficit hyperactivity disorder, and academic performance as well as the various theories on the aforesaid variables. The chapter also discussed some empirical studies related to the variables as well as the summary.

2.2 Conceptual framework

2.2.1Concept of Attention deficit Hyperactivity disorder

Attention-Deficit Hyperactivity Disorder (ADHD) is a seemingly heterogeneous group of behavioural disorders affecting between 2% and 12% of grade- school children (American Academy of Paediatrics, 2000). The disorder usually, but not always, manifests itself before the child is 7 years old (Applegate, 2001). Of children diagnosed with ADHD, 50-70% will have problems related to social adjustment and functioning, and/or psychiatric problems as adolescents and young adults (Cantwell, 2000). Of these, 20-30% will continue to suffer from ADHD during late adolescence and adulthood (Muglia, Jain, Macciardi, & Kennedy, 2000), while the full ADHD syndrome is found in only 4% of the adult population (Mannuzza, Klein, Bessler, Malloy, &LaPadula, 2000). Before now Attention Deficit Disorder (ADD) and Hyperactivity were treated as separate entities but recently some researchers such as Gotlieb (2002) and Peter (2003) have proved that the two are linked to each other and often go together. Joel and Rosman (2001) define attention Deficit Disorder (ADD) as the outward manifestations of one or several influences upon the developing nervous system of the child. They saw ADD as a syndrome while Hyperactivity is one of the symptoms. Hyperactivity according to Joel (2001) is motor behaviour that is felt to be excessive for age. They use Hyperactivity and hyperkinesis interchangeably. In the same vain Lane (2003) defined ADD

as “a persistent and frequent pattern of developmentally inappropriate inattention and impulsivity are obvious and has recently been referred to as deficiency in response inhibition. Children with ADD and without hyperactivity may not manifest high activity levels, most exhibit restlessness or jitteriness and impulsiveness, while some may be passive or lethargic. Geoffrey (2001) define Attention Deficit Hyperactivity Disorder as a common but complex medical condition characterized by excessive inattentiveness, impulsiveness, or hyperactivity that significantly interferes with everyday life. The continuing presence of symptoms is essential for diagnosis. Many complications may mask or overshadow the underlying core symptoms and worsen with time. Some of these common co-existing conditions and complications of ADHD according to Geoffrey (2001) are conduct disorder, low self-esteem, substance abuse, social skill difficulties, anxiety obsession auditory processing difficulties etc. Attention deficit hyperactivity disorder (ADHD) is the most common neurobehavioral disorder of childhood and can profoundly affect the academic achievement, well-being and social interactions of children. Any type of mental illness can have a negative impact on cognitive development and learning, and involves a very high cost to both the individual and society (Fathia, 2015).

Attention deficit hyperactivity disorder becomes apparent in the preschool and early school years. The most predominant three subtypes are inattention, hyperactivity– impulsivity and combined inattentive/hyperactive impulsive subtype.

2.2.2.1 Subtypes of ADHD and their Symptoms

According to DSM-IV There are three subtypes of ADHD

1. Predominantly inattentive.

2. Predominantly hyperactive-impulsive. The majority of symptoms are hyperactive and impulsive

3. Combined Inattentive symptoms and hyperactive-impulsive symptoms.

Symptoms of Inattention

a. Fail to pay close attention to details or make careless mistakes in schoolwork

b. Have trouble staying focused in tasks or play

c. Appear not to listen, even when spoken to directly

d. Have difficulty following through on instructions and fail to finish schoolwork or chores

e. Have trouble organizing tasks and activities

f. Avoid or dislike tasks that require focused mental effort, such as homework

g. Lose items needed for tasks or activities, for example, toys, school assignments, pencils

h. Be easily distracted

i. Forget to do some daily activities, such as forgetting to do chores

Hyperactivity and Impulsivity

A child who shows a pattern of hyperactive and impulsive symptoms may often:

a. Fidget with or tap his or her hands or feet, or squirm in the seat

b. Have difficulty staying seated in the classroom or in other situations

c. Be on the go, in constant motion

d. Run around or climb in situations when it's not appropriate

e. Have trouble playing or doing an activity quietly

f. Talk too much

g. Blurt out answers, interrupting the questioner

h. Have difficulty waiting for his or her turn

i. Interrupt or intrude on others' conversations, games or activities

2.2.2.2 Causes of Attention Deficit Hyperactivity Disorder

A greater understanding of the nature of ADHD, its likely causes, and its associated treatments is critically important when considering the well-being of our future generations and the need to offer accurate and informed advice to parents on intervention options. Accordingly, ADHD researchers have emphasised that: discussions of the etiology of ADHD have serious implications. Because conclusions from such discussions are likely to drive future research and treatment development, how we address these issues will ultimately affect the lives of the many children, adolescents, and adults who suffer from this disorder. (Faraone&Biederman, 2000) Those who believe that ADHD is a medical disorder generally assert that ADHD-type behaviours are the result of a neurological condition (e.g., Barkley, 2006, Pliszka, 2007). While some of these sources rightly acknowledge that definitive proof for a biological cause has not been established, they do assert that available evidence is converging on an underlying biological cause (e.g., Barkley, 2000). Thus, despite there being currently no "reliable, valid set of neurobiological markers to diagnose ADHD" (Lollar, 2008, p. 16), ADHD as a neurological disease or illness is seen by many as an unquestionable and well established fact. For example, Barkley et al. (2002) in their international consensus statement, clearly express their opinion on the validity of ADHD. In a response to criticisms

by those who question the medical conceptualisation of ADHD (e.g., Sami Timimi, 2004), Barkley et al. (2004) state "Any 'debate' over the legitimacy of ADHD as a valid disorder exists only in some segments of the popular media, not in the scientific community" (p. 65). However, as will be shown throughout the rest of this chapter, there are members of the scientific community who do question the validity of ADHD as a medical condition.

In stark contrast to those who claim that ADHD is a well-recognised medical disorder, there are those researchers (Baughman & Hovey, 2006; Breggin, 2001; D.B. Stein, 2001b; Sami Timimi, 2007) who claim otherwise. They assert that in the absence of any scientific/medical test identifying an underlying brain pathology specific to ADHD, the behaviours of those children that are attributed to a neurological illness are simply normal (albeit, sometimes problematic) behaviours that manifest at the outer limits of the normal curve for childhood behaviours. While these critics acknowledge that children who are labelled as having ADHD often have problems that warrant attention, they believe that psycho-social explanations that examine the child in the broader context of families, modern society, and schools, are better able to serve the child.

Given the absence of scientific certainty in regard to the validity of ADHD as a medical condition, Graham (2010) aptly suggests that it is "the medical equivalent of where there's smoke, there's fire". With the assumption of a "fire," the topic of how to "extinguish" the fire arises, in particular through the use of stimulant medication.

According to Fatihia et-al (2015) to date, no single factor has been identified as the cause ofADHD. ADHD is thought to be the result of complex interactions between genetic, environmental, and neurological factors. Attention deficit hyperactivity disorder is attributed to genetic factors in about 80%. Various environmental factors are associated with ADHD, such as pregnancy and birth related risk factors which are classified into three groups

including prenatal, perinatal, and postnatal risk factor(6). Attention deficit hyperactivity disorder is commonly associated with other psychiatric and neurological conditions.

Therefore, based on the above argument it can be seen that the exact cause of attention-deficit hyperactivity disorder is not clear, research efforts continue. Factors that may be involved in the development of ADHD include:

a. **Genetics.** ADHD can run in families, and studies indicate that genes may play a role.

b. **Environment.** Certain environmental factors, such as lead exposure, may increase risk.

c. **Development.** Problems with the central nervous system at key moments in development may play a role.

2.2.2.3 Prevention of ADHD

To help reduce the child's risk of attention-deficit hyperactivity disorder the following point must be considered:

a. During pregnancy, avoid anything that could harm fetal development. For example, don't drink alcohol, use recreational drugs or smoke cigarettes.

b. Protect your child from exposure to pollutants and toxins, including cigarette smoke and lead paint (found in some old buildings).

c. Limit screen time. Although still unproved, it may be prudent for children to avoid excessive exposure to TV and video games in the first five years of life. If your child has ADHD, to help reduce problems or complications:

d. Be consistent, set limits and have clear consequences for your child's behaviour.

e. Put together a daily routine for your child with clear expectations that include such things as bedtime, morning time, mealtime, simple chores and TV.

f. Avoid multitasking yourself when talking with your child, make eye contact when giving instructions, and set aside a few minutes every day to praise your child.

g. Work with teachers and caregivers to identify problems early, to decrease the impact of the condition on your child's life.

Treatments for ADHD

A contributing factor to the controversy surrounding ADHD is the notion of children using psychotropic drugs (Mayes, Bagwell, &Erkulwater, 2009). The general acceptance of the medical model of ADHD has led to an increase in prescription of medication (Graham, 2008). Controversy centres on whether or not it is appropriate to treat a condition that is characterised by a cluster of behaviours; behaviours which many would consider to be normal for children with medication. According to the Clinical Excellence Commission (2007), stimulant medications are generally recommended as first-line treatments. The Paediatric and Child Health Division of The Royal Australasian College of Physicians (2009) advocate a multimodal approach which may include the use of medication, but further suggest that it is not recommended for every case. However, despite the wide use of medication, the NSW Commission for Children and Young People (2007) has suggested that there "is a need for social research in Australia into the nature of side effects from ADHD medications from the perspective of children, young people and their parents" (p. 7). In recognition of these concerns, the Australian Psychological Society (2007) has noted that Australia has been one of the heaviest prescribers of drugs in the world to treat ADHD. As a result of this finding, the APS is urging doctors and parents to consider psychological interventions instead of medical interventions, because of the risk of side effects and misuse of these drugs. This view is consistent with that offered by the American Psychological Association (2006), whose report on psychotropic medication

for children states that: “the preponderance of available evidence indicates that psychosocial treatments are safer than psychoactive medications, it is the families’ decision about which treatments to use”. Hence, controversy also abounds about the most appropriate type of treatment for ADHD-type behaviours. Furthermore, Glasser (2005) cautions about the dangers of polypharmacy (as sometimes happens when the need arises to prescribe other drugs to counteract the side effects of stimulant medication). On this matter, the policy statement of the American Academy of Child and Adolescent Psychiatry (2001) notes: “Little data exist to support advantageous efficacy for drug combinations, used primarily to treat co-morbid conditions.”

With regard to the medical model, DeGrandpre (2000) has also observed that implicating the child’s genetic material places the problem solely within the nature of the child, which often leads to a medical intervention. Given the claims regarding the problems of stimulant medication (H. Glasser, 2005; G. Jackson, 2009), there is strong opposition by both experts and parents alike to its use. For example, Breggin (2002) notes that stimulants (such as Ritalin) work by suppressing the brain’s activity to generate spontaneous mental life and behaviour, and do not help children in their scholastic abilities. Some of the physical side effects of Ritalin as described by the Paediatric and Child Health Division of the Royal Australasian College of

Physicians (2009) include decreased appetite, sleep problems, and increased heart rate and blood pressure. With regard to the impact on growth, longitudinal research undertaken by Poulton and Cowell (2003) suggested that children with ADHD experienced a decrease in growth (as indicated by weight and height measurements) when on stimulant medication. However, a limitation of this research was that the growth characteristics of children on stimulant medication were compared to normative growth charts, and not unmedicated controls, due to the difficulty of obtaining children with ADHD who were not on medication. Perhaps what is most

troubling for those concerned about the use of medication, is not so much the side effects, as side effects can be expected with most medications, but rather, the use of medication to treat what many would consider normal childhood behaviour, rather than a proven medical condition. On this matter, Breggin (2001) asserts that: The drugging of children for behavior control should raise profound spiritual, philosophical, and ethical questions about ourselves as adults and about how we view the children in our care. Society ignores these critical questions at great peril to itself, to its values, and to the well-being of its children. (p. 140)

Regardless of whether medication is an appropriate from of treatment, or even if ADHD is a valid medical condition, one fact remains unchanged, that children with ADHD can be a source of frustration and challenges for their families. It naturally follows that families with children displaying ADHD are in need of support, and not criticism.

2.2.2 Concept of Academic Performance

Academic performance refers to the extent or degree to which individuals attain school success (Gusau, 2005). When people hear the term "academic performance" they often think of a person GPA. However, several factors indicate a student's academic success. Students' academic performance is monitored closely so as to identify early any student whose performance is likely to lead to academic failure. Academic performance represents performance outcomes to which a person has accomplished specific goals that were the focus of activities in instructional environments specifically in school, college and University (Richarda, 2014).

Academic performance according to the Cambridge university reporter (2003), is frequently defined in terms of examination performance.Therefore academic performance is the extent to which an individual achieve educational goal.

Academic achievement is commonly measured through examinations or continuous assessments but there is no general agreement on how it is best evaluated or which aspects are most important – procedural knowledge such as skills or declarative knowledge such as fact. Furthermore, there are inconclusive result over which individual factors successfully predict academic performance, element such as test anxiety, environment, motivation and emotions require consideration when developing models of school achievement

Academic achievement is measured in relation to what is attained at the end of a course, since it is the accomplishment of medium or long term objective of education, what is important is that the test should be a standard test to meet national norms for a test to be standardized, it must be valid for over a period of time (Jabir, 2017).

2.3 Theoretical framework

For the purpose of this study, the following theories of attention deficit hyperactivity disorder was reviewed

1. Dynamic developmental theory

2. Executive dysfunction

3. Delay aversion

4. State regulation

2.3.1 A Dynamic Developmental Theory of ADHD by TarjeSagvolden (1982)

The Dynamic Developmental Theory (DDT) of ADHD has been developed by Sagvolden and colleagues over the past 20 years and has been the subject of a recent major review process. This comprehensive theory attempts to explain the behavioural manifestations of ADHD from a neurotransmitter through to a societal level and aims to explain all symptoms of ADHD.

Much of the data supporting this theory is based on animal data and the theoretical underpinning of this theory is behaviourism. The theory suggests that there are two main behavioural mechanisms underpinning many of the symptoms of ADHD: altered reinforcement of novel behaviour and deficient extinction of inadequate behaviour. The basis for this theory lies in the delay-of-reinforcement gradient between a response to a stimulus and a reinforcement of that response. The efficacy of the reinforcer is greater if the delay between the response and the reinforcement is smaller rather than larger. It is hypothesised that in ADHD, the critical "window of opportunity" for the reinforcer to take effect is smaller than for normal children. The result is that socially desirable behaviour is not reinforced in time, leading to many of the symptoms of ADHD. Extinction occurs when delivery of the reinforcer stops and subsequently the response is not elicited. Extinction may occur in time with a phasic decrease in tonic levels of dopamine. It is hypothesised that in ADHD the extinction process will be faulty because of the lowered tonic level of dopamine [11].

The DDT has adapted some of the findings from the Executive Dysfunction and Delay Aversion literature, incorporating attentional, behavioural organisation, motor coordination, nondeclarative habit learning deficits and delay aversion, as auxiliary hypotheses, into a larger dopaminergic, fronto-striatal neurological model. Reinforcement and extinction processes are hypothesised to be the core problems in ADHD due to abnormally low levels of dopamine, affecting the functioning of the anterior cingulate, dorsolateral prefrontal and motor circuits and subsequently a variety of behaviours.

Does the theory explain all of the symptoms of ADHD?

The DDT holds a theoretical position on hyperactivity, impulsivity and inattention. The shorter delay-of-reinforcement gradient and deficient extinction effect in ADHD is hypothesised to occur within the mesolimbic dopamine branch along the anterior cingulate-

fronto-striatal circuit. Hyperactivity, impulsivity and delay aversion are explained through this system. Hyperactivity may be due to a combination of factors including failing extinction resulting in too many responses, a deficit in the pruning of ineffective or inappropriate responses resulting in a relative increase in these, and a short delay-of-reinforcement gradient resulting in poor reinforcement of appropriate behaviour. Impulsiveness may be due to the short delay-of-reinforcement gradient, as the appropriate behaviour is not reinforced well and the significance of the immediate reinforcer is much stronger then the delayed reinforcer, which remains unlinked to the original response. Delay aversion is also explained by the shortened delay-of-reinforcement gradient. Stronger and more salient reinforcers are required to produce the desired behaviour in children with ADHD, compared with control children. The larger but delayed reward loses its saliency. Abnormally low dopamine levels within the mesocortical and nigrostriatal branches are hypothetically linked with poor reinforcement and extinction processes in the dorsolateral prefrontal and motor circuits, respectively. This is hypothesised to lead to deficient attention and poor behavioural organisation (dorsolateral prefrontal circuit) and poor motor coordination, response disinhibition and nondeclarative habit learning (motor circuit)

Behavioural variability may be due to a combination of an increased number of types of responses and a deficient extinction process resulting in a greater number of inappropriate responses. Variation between people with and without ADHD may be due to variation within the biological starting position of the person (genes and pre-natal environment), the delay gradient and the ongoing neuromodulatory effects of the environment (learning and experience).

Is the theory testable?

The DDT is testable. The altered-reinforcement hypothesis makes two explicit predictions. The delay-of-reinforcement gradient is steeper for children with ADHD than controls,

meaning that the retroactive effect of a reinforcer is shorter with children with ADHD. A reinforcer in close proximity to a response will be more effective for these children. High-frequency responding (hyperactivity) and fast responses (impulsiveness) should manifest as a function of the number of reinforcers delivered, rather than present at the beginning of a task. (2) If there is a short delay gradient in ADHD, then there will be a weakening in the association between the response and the reinforcer, thus negatively affecting the percent correct responses (sustained attention). These predictions were supported through testing of spontaneously hypertensive rats (SHR), a putative animal model of ADHD and children with and without ADHD.

Researchers may interpret the results as suggestive of deficits in spatial working memory and indeed Aase and Sagvolden suggest that reduced working memory capacity may be underlying the performance of the children with ADHD. The rate of reinforcer presentation is also of importance and reminds one of the theoretical positions of the State Regulation hypothesis. When the rate of reinforcement was low (and infrequent), children with ADHD showed deficits in the number of correct responses and variability in response on the task, but normal performance on the frequency of responding and the number of very short responses. When the rate of reinforcement was high (and thus often), then no performance decrements were found in the ADHD group, particularly in the younger children.

Has a falsifiable hypothesis been stated?

The DDT provides a well described theoretical framework that has produced falsifiable hypotheses within the confines of the stimulus-response-reinforcer experimental set-up. Theoreticians of the DDT relate the theory to everyday behavioural manifestations of ADHD, for example in terms of sustaining attention and learning.

2.3.2 Executive DysfunctionTheory of ADHD

Executive dysfunction is a term used to explain deficits in "higher-order" cognitive processes, such as planning, sequencing, reasoning, holding attention to a task, working memory, inhibition of inappropriate and selection of appropriate behaviours. These supervisory processes control, regulate and manage the "lower-level" cognitive operations, such as language, perception, explicit memory, learning and action. Executive functioning involves the operation of neural circuits that link the frontal cortices with the basal ganglia, thalamus and parietal cortices. Anatomical and functional studies have found evidence of structural differences and altered activation of the prefrontal cortex, fronto-parietal and fronto-striatal circuits in children with ADHD. Dopaminergic and noradrenergic neurotransmitter dysfunction are implicated in the disorder; these neurotransmitters are critical to the functioning of the fronto-striatal and fronto-parietal circuits. Although the use of these neural circuits in the theorisation of ADHD is not specific to the Executive Dysfunction hypothesis they are directly relevant to this hypothesis.

The Executive Dysfunction theory of ADHD suggests that the symptoms of ADHD arise wholly as a result of a reduction in executive control, which is caused by abnormalities in the structure, function and biochemical operation of the fronto-parietal and fronto-striatal neural networks (for a recent meta-analysis of executive function in ADHD. Neuropsychological tests that are sensitive to the workings of the executive function system have been used to assess children with ADHD. The results of these tests have been directly (via fMRI and EEG) and indirectly (via behavioural studies) related back to the physiological, anatomical and biochemical dysfunctions within the frontal cortex, the fronto-parietal and fronto-striatal circuits in ADHD.

Does the theory explain all of the symptoms of ADHD?

In terms of the three broad symptom types of ADHD, the Executive Dysfunction theory explains impulsivity and inattention, but has largely ignored the hyperactivity element of ADHD. Response inhibition, as the neuropsychological marker of impulsivity, has been earmarked by some as the critical deficit in ADHD, leading to secondary impairments in other executive functions, specifically working memory, internalisation of speech, self-regulation of affect-motivation-arousal and novel goal-directed action, resulting in decreased motor control of internally represented information and action. Response inhibition has been investigated using neuropsychological tasks such as the go/no-go and stop signal in children and adults with ADHD. Different forms of attentional dysfunction in ADHD have also been investigated, with many studies using forms of the continuous performance task (CPT) to assay sustained attention deficits in children and adults with ADHD, and have related the findings back to deficits in the executive functioning circuitry. Posner's influential theory of attention has been used to parse the roles of the proposed alerting, orienting and executive control attention networks, with evidence of dysfunction in the alerting and executive control networks in children with ADHD. Within this framework, predictive value of the Executive Dysfunction theory is highlighted, as this theory predicts and presents evidence of dysfunction in other executive functions in ADHD apart from the three broad symptom types that define this disorder. This assertion is supported by evidence from neuropsychological studies investigating higher-order cognitive processes such as working memory, planning and temporal processing.

Whilst there is supporting evidence of deficits in performance by participants with ADHD on executive functions such as response inhibition, sustained attention and spatial working memory, the recent Willcutt *et al*., meta-analysis concluded that the Executive Dysfunction theory failed to explain the full complexity of symptoms of ADHD. The weighted mean effect size for all 13 executive function measures evaluated was .54, with the range (d = .43 – .69)

considered to be of *medium* effect size. Executive dysfunction is not always found in all children with ADHD. For example, in a recent study, an estimated 35–50% of ADHD combined type cases showed response inhibition deficits; yet we also note that a division of cases into those who show deficits and those who do not is essentially based on an arbitrary cut-off point on a continuous dimension.

Neuropsychological tests of executive function are often quite complex and involve a number of different executive functions, making it difficult to resolve the exact locus of dysfunction. Additionally, the root cause of poor performance on the neuropsychological tasks might lie with a motivational or a state regulation deficit that causes a down-regulation of the neural circuits associated with executive functioning. Therefore, the Executive Dysfunction theory cannot be said to explain all of the symptoms of ADHD.

Is the theory testable?

Many papers have used the Executive Dysfunction theory to produce testable hypotheses about the role of the frontal cortices and their circuits in the symptomatology of ADHD. One difficulty, however, with the Executive Dysfunction theory is the complexity in defining and then testing an executive function. The behavioural manifestations of ADHD probably represent a combination of cognitive and motor processes. For example, response inhibition, as measured by the Stop Signal task, is the summation of cognitive processes (such as sustained attention, goal-orientation and target detection) and control of the primed motor response. Ideally, the contribution of each of these processes would be taken into account when formulating hypotheses for testing the response inhibition capacities of participants. The potentially poor understanding of the contribution of each of these processes may be one explanation for the inconsistency in the results from behavioural and functional imaging studies for some of the executive functions studied.

Has a falsifiable hypothesis been stated?

In its most general form, the Executive Dysfunction hypothesis in ADHD is difficult to falsify, as poor performance on a general executive function task is taken as evidence of an executive function deficit in ADHD, without conditions specified for testing alternative hypotheses. This need not to be the case however and studies have been carried out where the cognitive process under study has been precisely identified (using careful control conditions) and the predictions for an alternative have been explicitly stated and tested. This raises the possibility that while ADHD is associated with poor performance on aspects of executive functioning, this poor performance may not be limited to executive dysfunction per se but may be part of a more general deficit or process. For future progress, we propose that future studies on aspects of executive functioning in ADHD aim to state explicitly a falsifiable hypothesis.

2.3.3 Delay Aversion or Dual Pathway Theory of ADHD

The Delay Aversion theory was first described by Sonuga-Barke and colleagues in the early 1990s, and has undergone a recent elaboration process to incorporate elements of the Executive Dysfunction theory, providing an excellent example of Lakatos' auxiliary hypothesis. The Delay Aversion hypothesis accounted for the finding that children with ADHD symptoms 'can wait but often don't want to'. The original delay aversion hypothesis predicted that children with ADHD are not impulsive in the sense of always opting for an immediate reward at the expense of overall rewards, but that they do so only in circumstances where this leads to a shorter overall delay. It is a motivational account of ADHD, in contrast to theories focusing on cognitive deficits.

Inattentiveness and hyperactivity are considered to reflect attempts to reduce subjective experience of delay in situations where delay cannot be avoided. The original paradigm's test

of the hypothesis included two conditions, in each of which children made a choice, a fixed number of times, between a small immediate reward and a large delayed reward. In the 'no post-reward delay' (experimental) condition, choosing either an immediate small reward or a delayed larger reward led immediately to the next trial. In the 'post-reward delay' (control) condition, choosing the small immediate reward led to an extra delay period so that the length of each trial was equated and independent of the choice made. A group difference was found only in the 'no post-reward delay' condition, with children with ADHD symptoms choosing the small, immediate reward more often than control children. The finding of an absence of group difference in the control condition was replicated with preschool children; but see.More recently, Sonuga-Barke incorporated the delay aversion hypothesis within a new framework, the Dual Pathway theory. This theory proposed the existence of two distinct subtypes ('pathways') within combined type ADHD: one characterised by inhibitory deficits and the other by delay aversion. The theory predicted that the pathway involving inhibitory deficits is linked to the meso-cortical dopamine branch, is categorical in nature (i.e. children with ADHD are qualitatively different from other children) and less strongly associated with genetic factors than the second pathway. In contrast, the pathway involving delay aversion is linked to the meso-limbic dopamine branch and 'disturbances in reward centers', and is proposed to reflect a continuously distributed trait that is under stronger genetic influence. Further elaboration on the modelincluded consideration of additional factors, such as compensatory strategies, that may contribute to task performance in children with ADHD.

Sonuga-Barke (2002) developed the dual pathway model based on data from a study that compared performance of children with ADHD and comparison children on an inhibition task (stop task) and a delay aversion task (choice-delay task). Whereas poor performance on both tasks was associated with ADHD, there was a lack of a significant association between inhibition and delay aversion performance, leading to the argument of two independent

pathways. Sonuga-Barke and colleagues have since reported a similar lack of an association between inhibition or 'executive function' and delay aversion performance also in younger (pre-school) children.

Recently the concept of delay aversion has also been revised such that it no longer is viewed as a competing causal model with impulsivity-as-lack-of-self-control. Delay aversion is viewed as contributing to choice impulsivity, observed on the choice-delay paradigm as a relative increase in choice impulsivity in the no post-reward delay condition. Hence, whereas the original formulation predicted a significant ADHD-control group difference only in the no post-reward delay condition, the revised formulation predicts group differences under both conditions (choice impulsivity), although a larger effect for the no post-reward delay condition (delay aversion specific effect). The new data from a large international sample support the revised formulation of the theory.

Does the theory explain all of the symptoms of ADHD?

The main focus of the theory is on impulsiveness. Inattentiveness and hyperactivity are considered to reflect attempts to reduce subjective experience of delay in situations where delay cannot be avoided.

Is the theory testable?

The original delay aversion hypothesis that contrasted the different conditions included testable hypotheses. The revised formulation e.g. includes the related testable hypothesis of a statistical interaction between diagnostic group and delay condition. The more general prediction of an association between ADHD and choice impulsivity is not specific to delay aversion theory but is shared for example with the Dynamic Developmental Theory of Sagvolden and colleagues.

The dual hypothesis includes several predictions, including that of the two subtypes, but to our knowledge this is yet to be investigated at the level of individual children. The dual

pathway model relies on a correlational pattern of findings, the interpretation of which is somewhat difficult at present. The effects of combining ADHD and control groups in the analyses are unknown. Further development of the model would benefit from a clear description of tasks and variables that measure the proposed constructs. Many of the links proposed in the model are yet to be tested and, overall, replication and extension of findings with independent samples will be important. There are no studies, as yet, describing the neural pathways or role of genetics in delay aversion behaviour in ADHD.

Beyond the proposal of the two subtypes, the dual pathway model includes the assumption of poor performance on the Stop Task as reflecting an inhibition deficit. There is ERP evidence to suggest that slower SSRT may be related to early problems with shifting attention to the stop signal, questioning the validity of the SSRT as an inhibition measure. Meta-analyses of the SSRT in ADHD have also concluded that SSRT differences between children with and without ADHD do not reflect real differences in stopping speed (inhibition) but reflect differences in mean reaction time to go stimuli. Another issue regarding the Stop Task concerns the difficulty of the task itself. In some studies, data from a large number of participants have been excluded due to concerns regarding the ability of the children to perform the task. For example, one study excluded Stop Task data from 27% of the participants due to very high omission and commission error rates (i.e. the worst performing children were excluded from the analysis), the effects of which are unknown.

Has a falsifiable hypothesis been stated?

The original delay aversion hypothesis included the falsifiable hypothesis of an ADHD-control difference in the no post-reward delay condition and its absence in the post-reward delay condition (and therefore an implicit group-by-condition interaction). The most recent formulation of the delay aversion theory includes the prediction of a group-by-condition

interaction effect. The Dual Pathway model was the first model to incorporate two theories of ADHD as an explanation for the many observations in ADHD. Yet more specific, testable hypotheses are required regarding performance on tasks and the proposed links within the model. Currently it is not clear which findings would specifically falsify or support the model.

2.3.4 State RegulationTheory of ADHD

The State Regulation hypothesis states that a non-optimal energetic state could explain performance deficits in children with ADHD. This hypothesis is based on research using the Cognitive Energetic model of Sanders. In this model, the efficiency with which a task is performed is considered to be a product of elementary cognitive stages and their energy distribution. The elementary stages are stimulus encoding, memory search, binary decision and motor preparation and may be seen as structural computational information processes. The availability of these processes is related to the arousal and activation levels of the subject. Arousal is defined as a time-locked phasic physiological response to input, whereas activation refers to a long-lasting voluntary readiness for action. Effort is necessary to meet task demands and to compensate for a sub-optimal state of arousal and/or activation by either activating or inhibiting the arousal and activation levels. The effort system is under control of an evaluation mechanism, which scans the momentary state of the arousal and activation levels. The state regulation theory states that children with ADHD have difficulty in keeping an optimal activation state, possibly due to inefficient extra effort allocation. Using Sternberg's additive factor method (1969), Sergeant and van der Meere found the encoding, memory search, and decision stages to be intact. However, deficient response organization was noted, especially when stimuli were presented slowly. Later studies also noted that children with ADHD tend to perform more poorly in conditions of relatively slow, compared with fast and moderate event rates. The typically slow and variable response style in ADHD, when stimuli are presented slowly, is a consistent finding in these studies, whereas with

respect to errors of commission, findings are mixed. The robustness of the response time (RT) event rate effect also remains under sustained attention conditions of more than 30 minutes. Children with ADHD were found to have a rapid decline in task efficiency over time with a slow presentation rate, but not with a fast presentation rate. According to the Cognitive Energetic model, event rate influences the motor activation level. Activation levels increase with an increase in event rate, whereas slow event rates may induce under-activation. To compensate for a sub-optimal activation state, extra effort allocation is necessary. Consequently, the event rate RT findings may suggest that children with ADHD are easily under-activated and have difficulty in adjusting their under-activated state because of insufficient extra effort allocation. Effort allocation has its physiological costs; hence further testing of the state regulation hypothesis may be critically dependent on the development of direct measures of the energetic pools. In this vein, psychophysiological studies have been recently carried out. Children with ADHD showed higher heart rate variability (HRV) in the slow condition only, suggesting less effort allocation. Using the event-related potential (ERP) methodology, Wiersema and colleagues showed that the poor performance of children with ADHD in the slow condition was related to a missing increase of the parietal P3 amplitude, which may be an indicator of effort allocation. The same results were found for male adults with ADHD, indicating that problems in state regulation may persist in adult ADHD. In conclusion, several studies indicate that event rate, which has been argued to have its locus in the activation pool, plays an important role in task performance in ADHD. Recent psychophysiological studies underscore the hypothesis of a state regulation deficit in ADHD and highlight the disturbed involvement of the effort pool in ADHD, especially in relation to an under-activated state. Another factor argued to influence energetic state and to optimise performance of children with ADHD is motivation. As Luman et al. (2005) have noted, there is clear evidence that motivational factors such as reward and response cost have a positive effect on performance of both typically developing children and children with ADHD. In

some studies, however, reward was more beneficial for children with ADHD than for controls. In a recent study, both factors (event rate and incentive) were combined and ADHD was associated with greater improvement in RT variability from baseline to fast-incentive condition. According to the Cognitive Energetic model, effort allocation and motivation are strongly related. Hence, the sensitivity for reinforcement contingencies in children with ADHD would be interpreted, in state regulation terms, as evidence for a lack of effort allocation in ADHD.

Several issues regarding the State Regulation hypothesis remain. Direct supportive evidence for disturbances in the activation pool in ADHD is limited. Only a few studies have tried to directly measure the motor activation pool. Besides the cardiac response studies of Börger and colleagues, most of the evidence for disturbed motor activation comes from studies reporting Contingent Negative Variation (CNV) differences. Effects in the first CNV (orienting) wave, however, have been reported more often than in the late CNV (motor readiness) and these studies did not include an event rate manipulation. Moreover, as the state regulation model is based on research using the cognitive-energetic model, a distinction is made between arousal and activation. Yet psychophysiological evidence for this distinction is limited and more research is warranted. The higher theta/beta ratio in the EEG signal, often found in ADHD populations (see for review, has been argued by most investigators to be an indication of cortical under-arousal.

Although most evidence suggest that the state regulation problems in children with ADHD are related to under-activation problems, originally it was suggested that activation and performance take an inverted 'U' function where either increases or decreases in activation from an optimal energetic state lead to performance decrements. In order to test whether ADHD is also related to over-activation, more than two conditions of presentation rate should

be used: not many studies have done this. Nevertheless, there is some data supporting the inverted 'U' predictions. Children with ADHD were found to have problems with response inhibition in a fast and slow condition, but performed equally well as controls in a medium condition. Sonuga-Barke (2002) found children with ADHD to experience the largest problems with time use on trials with a short and long duration, while they performed equally well in trials with a medium duration. Finally, it is not clear which exact brain areas underlie the state regulation problems in ADHD. Although several brain structures and neurotransmitters have been argued to be associated with the different energetic mechanisms few attempts have been made to investigate this directly.

Does the theory explain all of the symptoms of ADHD?

The state regulation account argues that ADHD symptoms may increase or decrease depending on the child with ADHD's state. For example, symptoms of inattention may appear when tasks are slow or boring. Children may become impulsive or hyperactive in an attempt to increase stimulation (self-stimulation). This may explain findings such as longer RTs, higher intra-subject variability of responding and increased error rates in children with ADHD.

With respect to the specificity of a state regulation deficit in ADHD, the following findings should be emphasised. Performance in adults with High Functioning Autism (HFA) was disproportionally impaired by a fast event rate condition, whereas no difference between groups was noted in a slow condition. Poor RT performance occurred independently of event rate in children with ADHD and comorbid Tic Disorder, in children with early- and continuously treated phenylketonuria (PKU), in learning disabled children without ADHD, and in children with Mild Mental Retardation plus Conduct Disorder.

Is the theory testable?

Crucially, the state regulation account suggests that differences between children with ADHD and typically developing children will be minimal when children with ADHD are in an optimal state. Unfortunately, it is difficult in practice to specify the optimal state as this may be task/context dependent and will also differ between children.

Has a falsifiable hypothesis been stated?

Falsifiable hypotheses have been stated. The specificity of these hypotheses, however, is not always clear. Most evidence suggests that the state regulation problems in children with ADHD are related to under-activation problems, however originally it was suggested that either increases or decreases in activation from an optimal energetic state lead to performance decrements in ADHD. One way to improve the testability of this hypothesised inverted U function, is to incorporate more than two event rates, including an individually-based optimal event rate.

Conclusion

In this review we have considered the strengths and weaknesses of the four theories of ADHD, especially as they relate to the requirement for scientific hypotheses to be open to falsification. We conclude that hypotheses relating to specific aspects of executive functioning in ADHD have the potential to be falsifiable; yet, in most published studies to date this requirement has not been fulfilled. Reflecting on these four theories of ADHD, it is striking that the researchers coming from different theoretical positions may be describing the same phenomena but utilising different words, concepts and schemas; they may also be defining the same phenomena or process but from a different temporal or anatomical point of view. Each of these theories is able to explain many of the phenomena we observe in ADHD.

2.4Review of Empirical Studies

The following empirical studies were reviewed for this research

2.4.1 Prevalence of ADHD (inattention, hyperactivity impulsivity)

El-Gendy et-al (2016) conducted a study on Attention deficit Hyperactivity Disorder: Prevalence and risk factors in Egyptian primary School Children. The study was carried out in Al-Qalyubiagovernarate, Egypt. The population of their study comprises of 921 students, aged 6-12 years from four primary schools in Al-Qalyubia. 912 students were sample out, using multi-stage sampling technique which involved dividing Al-Qalyubia governorate in to clusters of ten districts. Survey research design was used in the study. The diagnostic scale for ADHD was developed based on DSM IV for ADHD the instrument was validated and it has a reliability of .70 and it has a teacher copy and a parent copy. This comprises of 12 items for the inattention subtype and 12 items for the hyperactivity/impulsivity subtype. The combined subtype was considered when the child has scores for inattention and hyperactivity/impulsivity. The scale was 3 likert scale. Their finding showed that, the prevalence of ADHD was 21.8% based on the teacher rating scale and 16.2% based on the parent's rating scale the hyperactivity was more frequent and inattention was the lowest.

Caroline, Gabriel and Anneke (2006) carried out a research on the prevalence of attention deficit hyperactivity disorder among school aged children in Benin City Nigeria. A total of one thousand three hundred and eighty four primary school pupils aged between six and thirteen were recruited from six primary schools. Out of this number six hundred pupils were used as a sample for the study. Purposive sampling technique was used. Correlational research design was used in the study. The DBD rating scale was used to measure the presence and degree of ADHD related symptoms formulated in the DSM IV. The psychometric properties of the instrument include a good predictive power with positive

predictive performance score from 0.4 to 0.7. Teacher's ratings of the 18 DSM-IV symptoms of ADHD were collected and analysed as function of gender and subtype. Their results showed that the overall prevalence of ADHD was 8.0% and prevalence of various subtypes were ADHD-HI 2.7% ADHD-PI 3.0% AND ADHD-C 2.3%. Male had a higher prevalence rate than their female counterpart meaning that there is a significant gender difference in the prevalence of all the three subtype of ADHD

Ambuabunos, Ofovwe and Ibadin (2011) carried out a research on Community survey of attention deficit hyperactivity disorder among primary school pupils in Benin City Nigeria. The study was carried out in Egor local government area of Edo state. The population of their study was One thousand four hundred and seventy three public primary school pupils aged 6-12 years. The sample of the study comprises of all the 1473 pupils. Systematic sampling technique was used in the study. Correlational research design was used in the study. Pupils were screened with the Disruptive Behaviour Disorder Rating scale to identify children who had ADHD symptoms as contained in the DSM-IV. The instrument has a reliability coefficient of .70. The ADHD children were compared with randomly selected controls. The academic record of both the groups were also compared. Their result showed that, the prevalence of ADHD was 15% the prevalence was higher in boys 94.5% when compared with the girls 5.5%. Of the three different sub types of ADHD, the predominantly inattentive subtype (ADHD1) was the most prevalent (47.3% of the ADHD population) followed by the combine type (ADHD C;31.3%) while the least prevalent was the hyperactive/impulsive subtype (ADHD-HI; 21.4%). There was no statistically significant difference in the prevalence of ADHD amongst the different age cohorts.

Fatiha M., Badr H and Salem S. (2015) in their study on Prevalence of Attention Deficit Hyperactivity disorder in children. The study was carried out in Minoufia governorate Egypt from January to the end of July 2013. The population of the study was 600 children aged 5-12

years. All the 600 children was used as a sample for the study. Purposive sampling technique was used. Complete physical examination and neurological examination was performed for all children. Experimental research design was used in the study. Screening for ADHD was done using the ADHD rating scale. The scale was developed based on the criteria of the 4th edition of the diagnostic and Statistical Manual of Mental Disorder (DSM IV) the instrument has a good internal consistency (r=.91). The study showed that the prevalence of probable ADHD among children sample was 19.7%. The study also revealed higher prevalence in urban areas than in rural areas

Abolhassanzadeh et-al (2016) carried out a study on The prevalence and risk factor of attention deficit hyperactivity disorder among elementary school students in Ardabil Iran. The study was carried out in Ardabil Iran. The population of their study was two thousand eight hundred and twenty six school children aged 6-11 years. The sample of the study was two hundred and fifty seven individuals. Stratified random cluster sampling method was used. Correlational research design was used in the study. The instruments used in information collection were research-made demographic questionnaire which a reliability of .65 and ADHD rating scale (Conner's teacher rating scale) which has a reliability of .71. Their findings indicate that the overall prevalence was 9.8% and hyperactivity has a high prevalence rate of 6.8%, while 2.0% were inattentive and 1.0% were combine types respectively

Alizadeh et-al (2015) in their study on The prevalence of attention deficit hyperactivity disorder among primary school students in an Iranian rural region. The study was carried out in Birjan south eastern Iran. The population of the study comprises three thousand four hundred and eight elementary students. One thousand three hundred and eighty one was used as a sample. Cluster random sampling method was used in the study. The researcher used correlational research design in the study. Conner`s teachers rating scale was used as an instrument for data collection and it has a reliability coefficient of .93. At the end of screening

one hundred and twenty nine students have ADHD the prevalence rate was 14%. The hyperactivity has a high prevalent of 6.0% and it is followed by impulsivity which has 5.0% and the least one was inattention which 3.0%.

In another study by Kwock J. et-al (2017) on ‘‘Prevalence of Comorbid Attention Deficit Hyperactivity Disorder in Chinese Hong Kong Children with Autism Spectrum Disorder. The research was carried out in Alice HoMiu Ling, Hong Kong. A total of one hundred and one thousand children formed the population of the study. The sample of the study comprises of all the one hundred and one children who were sample out using purposive sampling technique. Experimental research design was used in the study. The instrument used for collecting data was Diagnostic interview schedule for children version iv, parent version. It is a highly structured respondent based diagnostic interview schedule originally designed for used by non-clinician in large scale epidemiological surveys to assess psychiatric diagnosis in children and adolescent upon a 12-month time- frame. There are six modules covering more than 30 psychiatric diagnoses in childhood. The ADHD module was used in this study. There is literature supporting good reliability and validity of it various versions including a translation in Cantonese for the use in Hong Kong in diagnosing ADHD with parents reported version. The reliability coefficient was 0.9. Their finding shows that the prevalence rate was 48.5%.

Claudio M., Kunst G., Margulies D. and Yakhkind A. (2007) in their research on Symptom, Prevalence of ADHD and ODD in a Pediatric population in Argentina. Their population comprises of entire children from Buenos Aires, Argentina. Their sample consisted of 300 school children 149 boys and 151 girls, the age range was 6-12 years. Stratified sampling technique was used in the study. Survey research design was used in the study. The instrument used in evaluation of ADHD symptom was Dupaul Scale. It measures all 14 items

of the DSM III-R. The scale was validated and it has a reliability of .75. Their finding shows that the prevalence of ADHD was 14%

Wamulugwa J. et-al (2017) carried out a research on Prevalence and associated factors of attention deficit hyperactivity disorder among Uganda children; a cross sectional study. The study was carried out in Mulago Uganda. The population of their study was five hundred and twenty children aged 4-18 years. Three hundred and thirty two children were used as sample. The researchers adopted stratified sampling technique. Experimental research design was used in the study. The disruptive behaviour disorder rating scale (DBRS) was used as an instrument of data collection. The scale consist of 45 items representing symptoms of disruptive behaviour disorder including conduct disorder, oppositional defiant disorder and ADHD. All the 45 screening items were scored in the study. The instrument has a reliability coefficient of .75. Their finding indicate that the prevalence of ADHD was 11.7% and inattention has a high prevalence rate

2.4.2 Relationship between ADHD (inattention, hyperactivity impulsivity) and Academic performance

Greta, Benjamin and William (2006) tried to examine the effect of each symptom of ADHD on academic performance,the study was carried out in Mulago Uganda the population of their study was elementary school pupils aged 6- 12 in Mulago area, they used a sample of 200 pupils who were drawn using stratify sampling technique. Vanderbilt diagnostic rating scale was used as an instrument for data collection. The instrument has a reliability coefficient of .67. Their findings showed that the child who met the criteria for predominantly inattentive sub-type of ADHD had problems with reading, spelling and mathematics scores over time than children with other sub-types of ADHD.

Njoku (2009) in her research on relationship between ADHD and academic performance, the study was carried out in Sokoto, Kebbi and Zamfara state Nigeria. The population of her study were primary school pupils from Sokoto, Kebbi and Zamfara State a sample of 275 pupils were drowned using a purposive sampling technique. Correlational research design was used in the study. ADHD diagnostic rating scale was used for collecting data in the study, the instrument has a test retest reliability of .80, she found out that all the symptoms of ADHD namely inattention, hyperactivity and impulsivity resulted to poor academic performance. She maintained that a child who is predominantly inattentive or impulsive hardly sustain attention in class he is easily distracted and act irrationally some times and this will not allow him to grab the salient point the teacher is making. On the other hand the child that is predominantly hyperactive may have higher activity level that does not interfere with given attention to the teacher.

Dupaul, Weyandt and Janusis(2011) in their study on ADHD in the classroom: effective intervention strategies. The population of their study comprises of the elementary students from section of five regular school. The study was carried out in New York. 150 students were sample out using purposive sampling technique. Vanderbilt diagnostic rating scale was administered to the sample students. The instrument was found to have a test retest reliability of .78. Correlational design was used in carrying out the investigation. Descriptive statistic Pearson product moment correlation was used to analysed the data. Their findings revealed that there is no significant relationship between inattention sub type of ADHD and academic performance while there is a significant relationship between hyperactivity, impulsivity and academic performance. They recommended that ADHD students need special attention in the class.Parma (2001) in his research titled “classroom academy performance in ADHD boys”. The study was carried out in America. He used the small population of 33 pupils. All the 33 pupils were used as a sample. Purposive sampling technique was used in the study.

Herecorded daily academic classroom performance in the day school for 11 weeks using a commonly employed reading and mathematics series on 33 hyperactive boys.Expost-facto design was used in the study.ADHD diagnostic rating scale was used as an instrument in the study and it has a reliability of .71. He found out that ADHD is one of the personal factors, which affects academic achievements. ADHD children have a varying degree of deficits as well as individual variability. Some have problem with mathematics particularly when a more mathematics function like addition with carrying over subtraction with borrowing or a combination of the function is involved. This is due to the high level of concentration needed to operate these functions. Some other ADHD children have problem with reading and speech.

Willcutt E. (2005) conducted a research title ‘‘Effects of attention deficit hyperactivity disorder on child academic achievement. The study was carried out in Indian. The population of his study was fifteen thousand two hundred and fifty students. 122 students was used as a sample for the study. The researcher used stratified sampling technique. Expost-facto research design was used in the study. The instrument used for data collection was ADHD diagnostic rating scale and Conner`sparents rating scale. The psychometric properties was established, the instruments have a reliability of .72 for ADHD rating scale and .68 for Conner`s parents rating scale respectively. His finding indicate that there is a negative correlation between inattention and academic achievement while there is a positive correlation between impulsivity, hyperactivity and academic achievement.

Mohammad A., Aboul-ata and Amin F. (2015) in their study on Attention deficit hyperactivity disorder among school age children in Fayoum city. The study was carried out in Fayoum City Egypt. Their population one thousand two hundred and fifty three children aged 6-14 years. One hundred and six children. Purposive sampling technique was used in the study. Correlational research design was used in the study. The instrument used for the study

was ADHD rating scale adopted from diagnostic and statistical manual of mental health. The psychometric properties of the instrument was established, the instrument has a reliability of .71. Their finding indicated that there is a negative correlation between ADHD and academic performance.

2.5 Summary and Uniqueness of the Study

Attention deficit and Hyperactivity disorders are one of the current areas of interest to educational and medical researchers, The evidence of this condition or disorder is no longer in doubt since researchers like Applegate (2001), Cantwell (2000), Muglia et al (2000) have indicated the presence of the disorder in children and adult.

Theories related to attention deficit hyper activity disorder also exist. On attention deficit hyperactivity disorder theDynamic developmental theory, Executive Dysfunction theory, Delay Aversion theory and State regulation theory of were reviewed because it is relevant to the study. In dynamic developmental theory it is proof that there might be two main behavioural process causing attention deficit hyperactivity disorder i.e the altered reinforcement of novel behaviour and deficient extinction of previously reinforced behaviour. This process according to Johansen (2002)may be primarily associated with a hypo functioning of mesolimbic dopamine system.

Empirical studies has indicated that there are researchers who study the prevalence of Attention deficit hyperactivity disorder and relationship between attention deficit hyperactivity disorder and academic performance. El-Gendy et-al (2016) in their study on prevalence of ADHD, their result revealed that the prevalence of ADHD was 21.8% based teacher rating scale and 16.2% based on parent`s rating scale. Caroline, Gabriel and Anneke (2006) there results revealed that the prevalence of ADHD was 8.0%. While Ambuabunos, Ofovwe and Ibadan (2011) result showed that the prevalence of ADHD was 15%. FatihaM,

Badr H. and Salem S (2015) result showed the prevalence rate at 19.7%. Abulhassanzadeh et-al (2016) their result showed that the prevalence rate was 9.8%. While Alizadeh eta-al (2015) results showed the prevalence rate at 14%. At the same vein Cloudio M., Kunst G., Margulies D. and Yakhkind A. (2007) results revealed that the prevalence rate was 14%. While Wamulugwa et-al (2017) results revealed that the prevalence rate was11.7%

Literatures also indicated that the study was carried out on relationship between ADHD and academic performance, some of them include that of Greta, Benjamin and William (2006) in their research has found a positive correlation between inattentive subtype of ADHD and academic performance. Njoku (2009) result reveal that all the symptom of ADHD resulted to poor performance. Lane (2003) also maintained that 90% of ADHD children have academic problem.Willcut E. (2005) results revealed that there is a negative correlation between inattention and academic performance while there is a positive correlation between hyperactivity, impulsivity and academic performance. While Mohammad A. Aboul-ata and Amin F. (2015) results revealed that there is a negative correlation between all the subtype of ADHD and academic performance.Therefore, the research viewed above reveals that there are no empirical evidences that a study was carried out in KatagumEducation Zone Bauchi state on relationship between attention deficit hyperactivity disorder and academic performance. Therefore, this study aims to fill the gap. The study is therefore unique in Katagum Education Zone of Bauchi state as it seeks to bring in to limelight a research work which attempts were not known to have carried out. The study is also unique in that primary 6 pupils are used as a subjects here, unlike previous research carried out in different level of elementary schools and higher stages of learning. The study is also unique in the sense that the researcher employed the use of two different sets of instruments in the conduct of the research i.e. one adapted scale and achievement test in English language.

Chapter three

METHODOLOGY

3.1 Introduction

This chapter discussed the method used in carrying out the research. It deals with the following headings under which the research was carried out; the research design, population of the study, sample size, sampling technique, data collection instruments, scoring procedure, and validation of the instrument.

3.2 Research Design

The research design used in this study wascorrelational research design. This type of design was resorted to because the work was aimed at finding out the relationship between two or more variables. In correlational research design, data is collected from the same group of units on two or more variables and correlation coefficient computed to determine the degree of the relationship between the variables (Joshua, 2013). This Design is useful because the more strongly two events or variables are correlated the more effective we can predict one from the other. Correlational design is the best design to test the hypothesis formulated in this research which mainly tests relationship between variables such as ADHD, personality and academic achievement. This is because Joshua (2013) believed that correlational design is one of the best way of interpreting relationships between variables that have something in common. Correlational design does not involve manipulation of factors or variables rather it assesses relationship among naturally occurring variables with the goal of identifying predictive relationship (Shaughnessy, 2000).

3.3.1 Population of the Study

This research covered all the primary six pupils in Katagum Education zone of Bauchi state. There are 16229 primary six (6) pupils. Gamawa local Government has a total of 1980 primary six pupils, Giade local government has a total of 1805 primary six pupils, Itas local government has a total of 2648 primary six pupils, Jama`are local government has a total 1890 primary six pupils, Katagum local government has a total of 3990 primary six pupils, Shira local government has a total of 1988 primary six pupils, Zaki local government has a total of 1928 primary six pupils, the population of this study was extracted from the above primary school pupils.

Table 3.1 showing population of the study:

S/N	LGA	NO. OF P6 PUPILS	NAME OF SCHOOL	P6 PUPILS IN SELECTED SCHOOLS	NO. OF MALE ADHD	NO. OF FEMALE ADHD	TOTAL ADHD PUPILS
1	GAMAWA	1980	CPS GAMAWA	56	9	3	12
2	GIADE	1805	DOGUWA P.S	37	8	2	10
3	ITAS	2648	GADAU P.S	50	11	7	18
4	JAMA'ARE	1890	CPS JAMA'ARE	67	17	9	26
5	KATAGUM	3990	BABA. K. P.S	74	16	10	26
6	SHIRA	1988	YANA P.S	50	16	5	21
7	ZAKI	1928	CPS ZAKI	44	10	3	13
TOTAL		**16229**		**378**	**87**	**39**	**126**

3.3.2 Sample Size

The sample size was drawn from seven primary schools in Katagum Education zone of Bauchi State, the sample were purposively selected for this research, and in the same vein all the 126 primary six pupils who were identified with ADHD were purposively selected and formed the sample of this research. In order to conduct this research effectively, seven teachers were selected who rated the pupil's level of ADHD.

Table 3.2 showing sample drawn from population and prevalence of ADHD characteristic

S/N.	SCHOOLS	INATT.	HYP	IMPUL	TOTAL
1	C P S Gamawa	8	2	2	12
2	Doguwa P. S	2	5	3	10
3	Gadau P. S	4	12	2	18
4	C. P. S Jama`are	8	7	11	26
5	Baba Kafinta P. S	10	6	10	26
6	Yana P. S	12	3	6	21
7	C. P. S. Zaki	7	4	2	13
Total		51	39	36	126

Table 3.2 showed the sample drawn from the population and their ADHD characteristic. From the table it can be seen that 12 pupils were sample out for the study from cps Gamawa out of this number 8 pupils were Inattentive, 2 Hyperactive and 2 Impulsive. Doguwa primary school has 10 ADHD pupils 2 Inattentive, 5 Hyperactive and 3 Impulsive. Gadau primary school has 18 ADHD 4 Inattentive, 12 Hyperactive and 2 Impulsive. Jama'are has 26 ADHD out of which 8 were Inattentive, 7 Hyperactive and 11 Impulsive. Baba kafinta has 26 ADHD pupils out of which 10 were Inattentive, 6 Hyperactive and 10 Impulsive. Yana primary school has 21 ADHD out of which 12 were Inattentive, 3 Hyperactive and 6 Impulsive. Zaki has 13 ADHD out of which 7 pupils were Inattentive, 4Hyperactive and 2 were Impulsive pupils. Therefore the total number of inattention were 51, hyperactivity 39 and Impulsivity36 which is equal to one hundred and twenty six pupils.

3.3.3 Sampling Technique

The technique used for this research was purposive sampling technique, this is necessitated because the researcher is interested in pupils with certain specified characteristics, and want to ensure that only those that meet such required purpose, attributes or characteristics are

selected, itis preferred because a sampling technique is only useful if it succeed in reaching the target population. It is therefore necessary to reach the target group in order to conduct this research.

3.4 Data Collection Instruments

The instrument used for this research was a questionnaires to measure the variables of interest. There was one questionnaire used in this research, and it was adapted. A self-designed achievement test in English was also used.

3.4.1. ADHD Diagnostic Rating Scale (ADHDDRS) by American Psychiatric Association (APA). This was adapted from DSM IV. The DSM-IV is a categorical classification of mental disorder in to types based on criteria sets. Attention Deficit Hyperactivity Disorder is one of the varied categories of mental disorders. The Scale has three parts testing Inattention, Hyperactivity and Impulsivity. The instrument is made up of eighteen items, Inattentive (9), Hyperactivity (6) and Impulsivity (3). The instrument was translated to Hausa language for easy understanding by the respondent.

3.4.2Achievement Test

The achievement test in English language was a researcher developed instrument. It is made up of 40 questions which were extracted from primary six English text book, it has an objective items with options a-e. Every item has one correct answer that the pupils should circle. The items of the test were drawn from English language syllabus for primary six. Five primary six teachers also vetted the items and attested to its content validity.

3.5 Validity of Data Collection Instruments

3.5.1 Validity of ADHDDRS

The validity of the ADHDDRS can be proved by considering the professionals that formed the task force and work group that put the instrument together. The task force on ADHDDRS includes professionals in various health associations, clinical practitioners, and researchers, experts on gender, age, and cultural issues. International experts and advisory groups identified pertinent questions regarding each item. The items were subjected to critiqued literature review and the experts participated in field trial and data analysis. The ADHDDRS is a widely used instrument. Blackwell (2005) in his research on comparisms of the DSM IV combined and inattentive types of ADHD in a school based sample of Latino/Hispanic children attested to the construct validity of the instrument. In the same vein Gadow, Sprafkin and Carlson (2002) in their research to examine the reliability and validity of a DSM IV referenced self-report rating scale with youths reported that the instrument has a convergent validity with other self-reporting measures and discriminant validity by differentiating children with and without diagnosed attention deficit/ hyperactivity disorder. Ingenta (2005) in his research to examine the validity of the three subtypes of ADHD defined by DSM IV found out that factor analytical and genetic studies provide some support for the validity of the distinction between the three subtypes. Studies by James (2000) also confirmed the test's content, construct and criterion related validity. He established the concurrent validity of the instrument by correlating the instrument with others such as Conner`s Rating Scale and Attention Deficit Evaluation Scale.

For the purpose of this research, the instrument was taking to the professional who went through the items of the scale and validate it for use in this research.

3.6 Reliability of the Instruments

3.6.1 Reliability of ADHDDRS

The test-retest reliability of the scale was established by administering the Hausa translated version of the instrument twice to a group of 20 pupils with a time interval of two weeks the reliability co-efficient was .69. Also researchers such as James (2000) in his studies of internal consistency and test-retest reliability of ADHDDRS carried out with a sample of 1200 persons who were diagnosed with AD/HD produced a high reliability coefficient of 90+. In the same vein Gadow, et.al (2002) in their research to examine the reliability of the DSM IV referenced self-report rating scale with youths came up with a satisfactory internal consistency (alpha value. .66-.87) and test-retest reliability (r value 0.54-0.92). The variation observed in the coefficients may attributed to the sample size used and environmental location.

3.6.2 Reliability of Achievement Test

The instrument was tested by the researcher for reliability estimate. The researcher has carried out a test-retest on the instrument with which the reliability of the test has been ascertained. A particular school was chosen and the interval between the test and the retest was two weeks. The scores obtained were correlated and the estimate of the coefficient found was 0.84 through pre-test post-test techniques. This showed that items within the test are stable.

3.7 Scoring Procedure

The ADHDDRS has a frequency code of (0, 1, 2, & 3) for the options never, occasionally, often and very often respectively. For the eighteen items, the maximum score is 54, a child who scores 0-9 will be consider as haven Nil ADHD, those who scored 10-26 were considered haven Mild ADHD and those scored 27 and above were considered as haven

Severe ADHD. Pupil scored at each section will be counted for in order to determine ADHD characteristic the child have. The achievement test has options a- e, each item has only one correct answer. The correct answers were counted accordingly.

3.6 Data Collection Procedure

In the course of this research the researcher visited all the sample schools and administered the instruments by himself with the help of class six teachers, the instruments was administered in sets, the first set were the ADHDDRS for teachers respectively. The researcher administered the ADHDDRS to the teachers in the school. Teachers who have been with the pupils rated them according to ADHDDRS. Second instrument was the achievement tests, this was also administered pupils diagnosed with ADHD.

3.7 Data analysis procedure

In this research work the data collected were analysed using descriptive statistics, Pearson product moment correlation coefficient was used in computing the relationship between attention deficit hyperactivity disorder (Inattention, Hyperactivity and Impulsivity) and academic performance.spss package of the computer programme was used in the analysis of the data. Simple percentage was also used in determining the prevalence of ADHD. .

Chapter four

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter deals with data presentation, analysis and discussions of findings from the study. The data obtained are presented and analysed to answer the research questions and test the hypotheses in this study

4.2 Summary of data

The data used for this study was obtained using two different instruments and one of them was adapted and used for the research and a self-designed achievement test in English, the adapted questionnaire was ADHD diagnostic rating scale

Table 4.1 MEAN AND STANDARD DIVIATION OF PUPILS SCORES

S/N	Variable	N	X	SD
1	Inattention	51	20.13	5.89
	Academic performance		28.80	5.81
2	Hyperactivity	39	20.64	6.40
	Academic performance		32.58	6.16
3	Impulsivity	36	21.30	6.19
	Academic performance		29.16	6.06

Table 4.1 showed the summary of data collected for the purpose of this study, the total number of pupils, mean of their score and standard deviation of the scores.

4.3 Data Analysis

RESEARCH QUESTION

One research question was answered for the purpose of this study i.eWhat is the prevalence of ADHD among primary six pupils in Katagum Education Zone of Bauchi state?

To answer this research question simple percentage was used in the table below

Table 4.2 Prevalence of ADHD among primary six pupils in Katagum Education zone

S/N.	SCHOOLS	INATT.	HYP	IMPUL	TOTAL
1	C P S Gamawa	8 (66%)	2 (17%)	2(17%)	12
2	Doguwa P. S	2 (20%)	5(50%)	3(30%)	10
3	Gadau P. S	4 (22.2%)	12(66.7%)	2 (11.1%)	18
4	C. P. S Jama`are	8 (30.8%)	7 (26.9%)	11 (42.3%)	26
5	Baba Kafinta P. S	10 (38.5%)	6 (23%)	10 (38.5%)	26
6	Yana P. S	12 (57.1%)	3 (14.3%)	6 (28.6%)	21
7	C. P. S. Zaki	7 (53.8%)	4 (30.8%)	2 (15.4%)	13
Total	prevalence	51 (40.5%)	39 (31%)	36 (28.5%)	126

From the table 4.2 above it can be seen that 12 ADHD pupils were foundin Central Primary school Gamawa out of this number 8 (66%)) pupils were Inattentive, 2 (17%) were Hyperactive and 2 (17%) were Impulsive. Doguwa primary school has 10 ADHD pupils 2 (20%) were Inattentive, 5 (50%) pupils were Hyperactive and 3 (30%) pupils were Impulsive. Gadau primary school has 18 ADHD 4 (22%) pupils were Inattentive, 12 (66.7%) pupils were Hyperactive and 2 (11.1%) pupils were Impulsive. Jama'are has 26 ADHD out of which 8 (30.8%) pupils were Inattentive, 7(26.9%) pupils were Hyperactive and 11(42.3%) pupils were Impulsive. Baba kafinta has 26 ADHD pupils out of which 10(38.5%) pupils were Inattentive, 6 (23%) pupils were Hyperactive and 10 (38.5%) were Impulsive. Yana primary school has 21 ADHD out of which 12(57.1%) were Inattentive, 3(14.3%) pupils were

Hyperactive and 6 (28.6%) pupils were Impulsive. Zaki has 13 ADHD out of which 7 (53.8%) pupils were Inattentive, 4 (30.8%) pupils were Hyperactive and 2 (15.4%) were Impulsive pupils. Therefore, the prevalence of inattention represent 40.5% of the total population, hyperactivity 31% and impulsivity 28.5%. While the overall ADHD prevalence rate was 33% ADHD.

HYPOTHESES TESTING

Three hypotheses were formulated for the purpose of this research and the data were analysed one hypothesis after the other

HO1: There is no significant relationship between attention deficit and academic performance in English language among primary 6 pupils in Katagum Senatorial zone Bauchi State.

To test this hypothesis the researcher employed Pearson Product Moment correlation, the result is presented in the table below

Table 4.3 Correlation between Inattentive and Academic Performance

Variables	N	X	SD	Rcal	P	DECISION
Inattentive	20.13	5.89				
	51	-.802	.000	Rejected		
AP.	28.80	5.81				

<0.05(2tailed) Table 4.4 above showed that thecalculated Pearson product moment correlation (rcal) is -.802and p-value .000 tested at 0.05 level of significance (2 tailed). From the result the p-value of .000 is less than the level of significant which is 0.05, this implied rejection of null hypothesis, meaning there is significant

relationship between ADHD and academic performance in English language among primary six pupils in Katagum Senatorial zone of Bauchi State.

HO2: There is no significant relationship Hyperactivity and academic performance in English language among primary 6 pupils in Katagum Senatorial zone Bauchi State.

To test this hypothesis the researcher employed Pearson Product Moment correlation, the result is presented in the table below

Table 4.4 Correlation between Hyperactivity and Academic Performance

Variables	N	X	SD	Rcal	P	DECISION
Hyperactivity	20.64	6.40				
	39			-.320	.047	Accepted
AP.		32.58	6.16			

<0.05(2tailed)

Table 4.5 above showed that the calculated Pearson product moment correlation (rcal) is -.320 and p-value .047 tested at 0.05 level of significance (2 tailed). From the result the p-value of .047 is greater than the level of significance which is 0.05, this implied accepting of null hypothesis, meaning there is insignificant relationship between hyperactivity and academic performance among primary six pupils in Katagum Senatorial zone of Bauchi State.

HO3: There is no significant relationship between Impulsivity and academic performance in English language among primary 6 pupils in Katagum Senatorial zone Bauchi State.

To test this hypothesis the researcher employed Pearson Product Moment correlation, the result is presented in the table below

Table 4.5 Correlation between Impulsivity and Academic Performance

Variables	N	X	SD	Rcal	P	DECISION
Impulsivity	21.30	6.19				
36	-.792		.000	Rejected		
AP.	29.16	6.06				

<0.05(2tailed)

Table 4.6 above showed that the calculated Pearson product moment correlation (rcal) is -.792 and p-value is .000 tested at 0.05 level of significance (2 tailed). From the result the p-value of .000 is less than the level of significant which is 0.05, this implied rejection of null hypothesis, meaning there is significant relationship between Impulsivity and academic performance in English language among primary six pupils in Katagum Education zone of Bauchi State.

4.4 Summary of Findings

Based on the analysis of Data, the findings of the research are summarised as follows.

1. The prevalence of ADHD among primary six pupils was 33%. Inattention has 13.4, Hyperactivity has 10.0% and Impulsivity has9.5%
2. There is a positive correlation between Inattention and academic performance in English language among primary six pupils in Katagum Senatorial Zone of Bauchi state.
3. There is a negative correlation between Hyperactivity and academic performance
4. There is a positive correlation between Impulsivity and academic performance

4.5 Discussion of Findings

This research revealed thatADHD was found in Katagum Education zone and the prevalence rate was 33.3%. Thiswas higher than previously estimated prevalence of ADHD among primary school children in other places. The prevalence contradict the one found El-Gendy et-al (2016) who repoted the prevalence rate of 21% using teachers rating scale and 16% using parents rating scale. The finding also contradict the prevalence rate reported by Caroline, Gabriel and Anneke (2006) who reported the prevalence rate of 8.0%. Ambuabunos, Ofovwe and Ibadin (2011) also reported the prevalence rate of 15% which is also contradict the finding of this research. Another finding that contradict the finding of this research was that of Kwock J. et-al (2017) who reported a prevalence rate of 48.5% that is to say the prevalence rate was higher than the one in this research. Another research which contradict the finding of this research was that of Cloudio M. et-al (2007) who reported a prevalence rate of 14%. Watkins (2003) in his research, he reported the prevalence rate of 4.6% among children under 16 years. Also in another research by Felice, et al (2000) reported that the prevalence rate was 2%. In their study Wamulugwa J. et-al (2017) they reported a prevalence rate contrary to the one in this research which was11.7%. The higher prevalence rate in this research may be due to the diagnosis of ADHD was based on highly sensitive screening tools for disorder and the respondent level of awareness and familiarity with the screening tool.

Watkins (2003) found in his research, he asserted the prevalence rate of 4.6% among children under 16 years. Also in another research by Felice, et al (2000) reported that the prevalence rate was 2%.

The result of this research showed a positive correlation between inattention, impulsivity and academic performance in English among primary six pupils in Katagum senatorial zone of Bauchi state. This finding is in line with what Watkins, (2003) found out in her research, she found out that ADHD sometimes increased along site academic performance. She said that

ADHD pupils tend to have average and above average intelligence, they are very creative and have high energy level.

However, Njoku, (2009) found out something different with this finding in her research. Also Lane (2003) stated that about 90% of ADHD pupils have academic problems, this contradict the finding of this research that when ADHD increased academic performance also increased.

Willcutt E (2005) also found something which is in line with the finding of this research and the other thing different. On inattention he found a different thing with the finding of this research because he reported a negative correlation between inattention and academic performanceat the same time he reported a positive correlation between impulsivity and academic performance which is in line with the finding of this research. He also reported a positive correlation between hyperactivity and academic performance.

Another research which contradict the finding of this research was that of Mohammad A. and Aboul-ata (2015) the results of their research indicate that there is a negative correlation between inattention, impulsivity and academic performance. While other part of his finding is in line with the finding of this research where he reported a negative correlation between hyperactivity and academic performance

Chapter five

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the research work after which conclusions were drawn. Recommendations are also drawn both from the study and finally recommendation for further study was also made.

5.2 Summary

The study was conducted with the aim of finding out the relationship between attention deficit hyperactivity disorderand academic performance in English among primary six pupils in schools of Katagum education zone of Bauchi State. It is also intended to find out the prevalence of attention deficit hyperactivity disorder among primary six pupils in Katagum education zone. Relevant literatures were consulted and reviewed to promote greater understanding of the problem under investigation. The relevant concepts enshrined in the study such as Attention Deficit Hyperactivity Disorder

The population of the study consisted of 126 primary six pupils drawn from the 845 primary schools distributed across Katagum Education Zone ofBauchi State. All the 126 pupils were sampled out purposively and achievement test was applied on themwith the view to correlate the result with their level of ADHD. Three research questions were raised to guide the researcher.To answer these questions, three null hypotheses were formulated sought to establish the significance of relationship between three subtype of ADHD and academic performance as well as the prevalence of each subtype of ADHD. To either accept or reject the null hypotheses Pearson product moment correlation was used

The following results were obtained: The prevalence rate of attention deficit hyperactivity disorder was thirty three percent 33%. There is a significant relationship between Inattention, impulsivity and Academic performance in English among primary six pupils in Katagum education Zone of Bauchi state. There no significant relationship between Hyperactivity and academic performance in English among primary six pupils in Katagum education Zone of Bauchi state.

5.3 Conclusion

ADHD is a syndrome that makes a child overactive for his/her age and class. It is seen in 126 primary six pupils in Katagum education Zone of Bauchi state which correspond to the 33% prevalence rate. Inattention, impulsivity positively correlates with Academic performance in English, Hyperactivity negatively correlate with academic performance in English.Academic enablers such as motivation, study skills and interpersonal skills will help in improving the academic performance of ADHD pupils.

5.4 Recommendations

5.4.1 Recommendations from the Study

Considering the findings of this research, the researcher recommends that:

1. There is a need for teachers, parents and councillors to work hand in hand as a team to improve the academic performance of ADHD pupils. Teachers should give regular report of the progress of the pupils in the school, parents should make sure that materials needed for their education are provided. They should also help to supervise the children at home making sure they do all their assignment or home work.
2. There should be adequate and regular reinforcement to the ADHD pupils since it has been found to be a very useful instrument for improving their academic performance.

Reinforcement could be inform of gifts, praise, recognition and assignment of responsibility.

3. The ADHD child is sometimes inquisitive and wants to know more. The teacher should make use of these characteristics to bring out the best from the ADHD child. He should do this by giving them opportunity to express themselves. He can make them leaders of group during practical work and give them enough opportunity to answer question in the class.
4. There is need to identified children with ADHD and plan academic work that will be suitable for them.
5. Those responsible for planning primary school syllabus and scheme of work should have these group of children in mind and diversify educational programmes to accommodate them. Subjects that require activity such as physical and health education, fine art, technical drawing, home economics and oral English should be properly planned and integrated in school programme to keep the children occupied.
6. Parents should be educated on the characteristics of ADHD pupils and ways to help them so that they too will be involved in the remedial therapy.
7. There should be enough extracurricular activities in the school programme for each day and this should be properly monitored and guided. This can be inform of short debate in the classroom, quiz competition and sport. The organisers should encourage the ADHD pupils to participate and even lead in some of the activities.
8. Teachers should plan enough homework and assignments for pupils to keep them busy at home

5.4.2 Recommendation for Further Research

The researcher recommend further research to be carried out in this area. It should be wider in scope. This could be made possible by making an effort to include other education zone zones

of Bauchi State and geopolitical zones. The population and sample should be larger than the ones used in this study. More statistical techniques should be used for the relationship to be explored in a variety of ways. If enough time will be taken and the recommendations given in this study be put to use, a better research output would be achieved.

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Appendix i

ADHD DIAGNOSTIC RATING SCALE. IN HAUSA

SunaYaro : …… Shekaru …….. Jinsi ……

Tsarayawaitarlamari:

Babuhaka (0), Akwaihakajifa-jifa (1), Akwaihaka a yawancinlokaci(2), Akwaihakasosai a-kai-a-kai (3)

1. Rashinmaidahankalikancikakkenbayanikoyawan yin kuskure a ayyukanmakaranta 0 1 2 3
2. Dorewarmaidahankalikanwasuayyukakolamurana da wuya gareshi 0 1 2 3
3. Babualamarsaurarawayayin da akemasa Magana kai-tsaye 0 1 2 3
4. Baya bin dokar da aka shimfida don yin waniaikikumabayaiya gamaaikinmakaranta (ba don kalubalendabi'abako ta rashin fahimta) 0 1 2 3
5. Yana ganinwahalartsattsarawasulamurakoayyuka 0 1 2 3
6. Kakkaucewaabin da baya so konunakasalakanshagaltuwa dawaniaiki 0 1 2 3
7. Yawanbatar da wasuabubuwa da suke da muhimmanciga yin waniaiki ko lamari, kamarlittafi ko fensiri ko jinga 0 1 2 3
8. Nan-da-nan yakanbirkitakanabin da ba ma shi aka sa a gababa 0 1 2 3
9. Yana da yawanmantuwa a al`amuranyau-da-kullum 0 1 2 3

SASHI NA B. HYPERACTIVITY

10. Yawankarkadahannu da kafa da jijjigaabinzama 0 1 2 3
11. Kasazamaguridaya a ajin da ake da yalwatattungurarenzama 0 1 2 3
12. Yawanzirga-zirga da kokarinhawadukgurimaidantudu don zama 0 1 2 3
13. Yana masawuyashagaltuwa da wasulamuranashakatawako wasanni 0 1 2 3
14. Kullumhankali a tafe, kamarmatafiya 0 1 2 3
15. Gayawan Magana 0 1 2 3

SASHI NA C. IMPULSIVITY

16. Gagaggawarba da amsatunba a gamafurtatambayaba 0 1 2 3

17. Ba yaiyashigalayi a gun da akebukatar yin layin 0 1 2 3

18. Yawanshishshigi da katsalandanwamutanemusamman a hirarraki 0 1 2 3

Appendix ii

ADHD DIAGNOSTIC RATING SCALE.

Frequency code:

Never (0), occasionally (1), often (2), very often (3)

Section A. Inattention

1. Fails to give attention to details or makes mistakes in school work 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 0 1 2 3
   to finish schoolwork (not due to oppositional behaviour
   or failure to understand).
5. Has difficulty organizing tasks and activities. 0 1 2 3
6. Avoids dislikes or is reluctant to engage in tasks 0 1 2 3
   that requires sustained mental effort.
7. Loses things necessary for tasks for tasks or activities (school 0 1 2 3
   Assignments, pencils or books)
8. Is easily distracted by extraneous stimuli. 0 1 2 3
9. Is forgetful in daily activities. 0 1 2 3

Section B. Hyperactivity

10. Fidgets with hands and feet squirms in seat 0 1 2 3
11. Leaves seat in classroom or in other situations 0 1 2 3
    in which remaining seated is expected.
12. Runs about or climbs excessively in situations in 0 1 2 3
    which remaining seated is expected.
13. Has difficulty playing or engage in leisure activities 0 1 2 3
    quietly.
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

Section C. Impulsivity

16. Blurts out answer before questions have been 0 1 2 3
    completed.
17. Has difficulty waiting in line 0 1 2 3

18. Interrupts or intrudes on others (e.g. butts into Conversations or games. 0 1 2 3

Appendix iii

CHECK LIST OF ADHD BY SCHOOL

S/N	SCHOOL	Q	SCALE	N.Q
1.	CPS GAMAWA	✓	A	
2.	CPS GAMAWA			✓
3.	CPS GAMAWA	✓	A	
4.	CPS GAMAWA	✓	A	
5.	CPS GAMAWA	✓	A	
6.	CPS GAMAWA			✓
7.	CPS GAMAWA			✓
8.	CPS GAMAWA			✓
9.	CPS GAMAWA			✓
10.	CPS GAMAWA	✓	A	
11.	CPS GAMAWA			✓
12.	CPS GAMAWA			✓
13.	CPS GAMAWA			✓
14.	CPS GAMAWA			✓
15.	CPS GAMAWA	✓	A	
16.	CPS GAMAWA			✓
17.	CPS GAMAWA			✓
18.	CPS GAMAWA	✓	A	
19.	CPS GAMAWA			✓
20.	CPS GAMAWA			✓
21.	CPS GAMAWA			✓
22.	CPS GAMAWA	✓	B	
23.	CPS GAMAWA			✓
24.	CPS GAMAWA			✓
25.	CPS GAMAWA			✓
26.	CPS GAMAWA			✓
27.	CPS GAMAWA			✓
28.	CPS GAMAWA			✓
29.	CPS GAMAWA	✓	A	
30.	CPS GAMAWA			✓
31.	CPS GAMAWA			✓
32.	CPS GAMAWA			✓
33.	CPS GAMAWA	✓	C	
34.	CPS GAMAWA			✓
35.	CPS GAMAWA			✓
36.	CPS GAMAWA			✓
37.	CPS GAMAWA			✓
38.	CPS GAMAWA			✓
39.	CPS GAMAWA	✓	C	
40.	CPS GAMAWA			✓
41.	CPS GAMAWA			✓

42.	**CPS GAMAWA**			✓
43.	**CPS GAMAWA**			✓
44.	**CPS GAMAWA**			✓
45.	**CPS GAMAWA**	✓	**B**	
46.	**CPS GAMAWA**			✓
47.	**CPS GAMAWA**			✓
48.	**CPS GAMAWA**			✓
49.	**CPS GAMAWA**			✓
50.	**CPS GAMAWA**			✓
51.	**CPS GAMAWA**			✓
52.	**CPS GAMAWA**			✓
53.	**CPS GAMAWA**			✓
54.	**CPS GAMAWA**			✓
55.	**CPS GAMAWA**			✓
56.	**CPS GAMAWA**			✓
57.	**DOGUWA P.S. GIADE**	✓	**B**	
58.	**DOGUWA P.S. GIADE**			✓
59.	**DOGUWA P.S. GIADE**			✓
60.	**DOGUWA P.S. GIADE**			✓
61.	**DOGUWA P.S. GIADE**	✓	**C**	
62.	**DOGUWA P.S. GIADE**	✓	**C**	
63.	**DOGUWA P.S. GIADE**			✓
64.	**DOGUWA P.S. GIADE**			✓
65.	**DOGUWA P.S. GIADE**	✓	**A**	
66.	**DOGUWA P.S. GIADE**	✓	**B**	
67.	**DOGUWA P.S. GIADE**			✓
68.	**DOGUWA P.S. GIADE**			✓
69.	**DOGUWA P.S. GIADE**			✓
70.	**DOGUWA P.S. GIADE**			✓
71.	**DOGUWA P.S. GIADE**			✓
72.	**DOGUWA P.S. GIADE**	✓	**A**	
73.	**DOGUWA P.S. GIADE**			✓
74.	**DOGUWA P.S. GIADE**			✓
75.	**DOGUWA P.S. GIADE**	✓	**C**	
76.	**DOGUWA P.S. GIADE**			✓
77.	**DOGUWA P.S. GIADE**			✓
78.	**DOGUWA P.S. GIADE**			✓
79.	**DOGUWA P.S. GIADE**	✓	**B**	
80.	**DOGUWA P.S. GIADE**			✓
81.	**DOGUWA P.S. GIADE**			✓
82.	**DOGUWA P.S. GIADE**			✓
83.	**DOGUWA P.S. GIADE**			✓
84.	**DOGUWA P.S. GIADE**	✓	**B**	
85.	**DOGUWA P.S. GIADE**			✓
86.	**DOGUWA P.S. GIADE**			✓
87.	**DOGUWA P.S. GIADE**			✓

88.	**DOGUWA P.S. GIADE**			✓
89.	**DOGUWA P.S. GIADE**			✓
90.	**DOGUWA P.S. GIADE**			✓
91.	**DOGUWA P.S. GIADE**			✓
92.	**DOGUWA P.S. GIADE**	✓	**B**	
93.	**DOGUWA P.S. GIADE**			
94.	**GADAU PRI. SCH.**	✓	**B**	
95.	**GADAU PRI. SCH.**			✓
96.	**GADAU PRI. SCH.**			✓
97.	**GADAU PRI. SCH.**			✓
98.	**GADAU PRI. SCH.**			✓
99.	**GADAU PRI. SCH.**	✓	**A**	
100.	**GADAU PRI. SCH.**			✓
101.	**GADAU PRI. SCH.**	✓	**B**	
102.	**GADAU PRI. SCH.**	✓	**B**	
103.	**GADAU PRI. SCH.**	✓	**C**	
104.	**GADAU PRI. SCH.**			✓
105.	**GADAU PRI. SCH.**			✓
106.	**GADAU PRI. SCH.**			✓
107.	**GADAU PRI. SCH.**			✓
108.	**GADAU PRI. SCH.**	✓	**A**	
109.	**GADAU PRI. SCH.**			✓
110.	**GADAU PRI. SCH.**			✓
111.	**GADAU PRI. SCH.**			✓
112.	**GADAU PRI. SCH.**	✓	**B**	
113.	**GADAU PRI. SCH.**			✓
114.	**GADAU PRI. SCH.**	✓	**B**	
115.	**GADAU PRI. SCH.**			✓
116.	**GADAU PRI. SCH.**			✓
117.	**GADAU PRI. SCH.**			✓
118.	**GADAU PRI. SCH.**	✓	**B**	
119.	**GADAU PRI. SCH.**			✓
120.	**GADAU PRI. SCH.**			✓
121.	**GADAU PRI. SCH.**			✓
122.	**GADAU PRI. SCH.**	✓	**C**	
123.	**GADAU PRI. SCH.**			✓
124.	**GADAU PRI. SCH.**			✓
125.	**GADAU PRI. SCH.**			✓
126.	**GADAU PRI. SCH.**	✓	**B**	
127.	**GADAU PRI. SCH.**			✓
128.	**GADAU PRI. SCH.**			✓
129.	**GADAU PRI. SCH.**			✓
130.	**GADAU PRI. SCH.**	✓	**B**	
131.	**GADAU PRI. SCH.**	✓	**B**	
132.	**GADAU PRI. SCH.**			✓
133.	**GADAU PRI. SCH.**			✓

134.	**GADAU PRI. SCH.**			✓
135.	**GADAU PRI. SCH.**	✓	**A**	
136.	**GADAU PRI. SCH.**	✓	**B**	
137.	**GADAU PRI. SCH.**			✓
138.	**GADAU PRI. SCH.**			✓
139.	**GADAU PRI. SCH.**			✓
140.	**GADAU PRI. SCH.**	✓	**B**	
141.	**GADAU PRI. SCH.**	✓	**A**	
142.	**GADAU PRI. SCH.**			✓
143.	**GADAU PRI. SCH.**	✓	**C**	
144.	**C P S JAMA'ARE**			✓
145.	**C P S JAMA'ARE**			✓
146.	**C P S JAMA'ARE**			✓
147.	**C P S JAMA'ARE**			✓
148.	**C P S JAMA'ARE**			✓
149.	**C P S JAMA'ARE**			✓
150.	**C P S JAMA'ARE**	✓	**C**	
151.	**C P S JAMA'ARE**	✓	**C**	
152.	**C P S JAMA'ARE**	✓	**C**	
153.	**C P S JAMA'ARE**			✓
154.	**C P S JAMA'ARE**			✓
155.	**C P S JAMA'ARE**			✓
156.	**C P S JAMA'ARE**			✓
157.	**C P S JAMA'ARE**			✓
158.	**C P S JAMA'ARE**	✓	**C**	
159.	**C P S JAMA'ARE**	✓	**A**	
160.	**C P S JAMA'ARE**	✓	**A**	
161.	**C P S JAMA'ARE**			✓
162.	**C P S JAMA'ARE**			✓
163.	**C P S JAMA'ARE**			✓
164.	**C P S JAMA'ARE**	✓	**C**	
165.	**C P S JAMA'ARE**			✓
166.	**C P S JAMA'ARE**			✓
167.	**C P S JAMA'ARE**			✓
168.	**C P S JAMA'ARE**			✓
169.	**C P S JAMA'ARE**	✓	**C**	
170.	**C P S JAMA'ARE**			✓
171.	**C P S JAMA'ARE**	✓	**A**	
172.	**C P S JAMA'ARE**	✓	**B**	
173.	**C P S JAMA'ARE**	✓	**A**	
174.	**C P S JAMA'ARE**			✓
175.	**C P S JAMA'ARE**	✓	**C**	
176.	**C P S JAMA'ARE**			✓
177.	**C P S JAMA'ARE**			✓
178.	**C P S JAMA'ARE**	✓	**B**	
179.	**C P S JAMA'ARE**			✓

180.	**C P S JAMA'ARE**			✓
181.	**C P S JAMA'ARE**			✓
182.	**C P S JAMA'ARE**	✓	**B**	
183.	**C P S JAMA'ARE**			✓
184.	**C P S JAMA'ARE**			✓
185.	**C P S JAMA'ARE**	✓	**B**	
186.	**C P S JAMA'ARE**			✓
187.	**C P S JAMA'ARE**			✓
188.	**C P S JAMA'ARE**	✓	**B**	
189.	**C P S JAMA'ARE**	✓	**C**	
190.	**C P S JAMA'ARE**	✓	**A**	
191.	**C P S JAMA'ARE**			✓
192.	**C P S JAMA'ARE**	✓	**C**	
193.	**C P S JAMA'ARE**	✓	**B**	
194.	**C P S JAMA'ARE**			✓
195.	**C P S JAMA'ARE**			✓
196.	**C P S JAMA'ARE**	✓	**C**	
197.	**C P S JAMA'ARE**	✓	**B**	
198.	**C P S JAMA'ARE**			✓
199.	**C P S JAMA'ARE**	✓	**B**	
200.	**C P S JAMA'ARE**	✓	**B**	
201.	**C P S JAMA'ARE**			✓
202.	**C P S JAMA'ARE**	✓	**B**	
203.	**C P S JAMA'ARE**	✓	**B**	
204.	**C P S JAMA'ARE**	✓	**C**	
205.	**C P S JAMA'ARE**			✓
206.	**C P S JAMA'ARE**			✓
207.	**C P S JAMA'ARE**			✓
208.	**C P S JAMA'ARE**			✓
209.	**C P S JAMA'ARE**			✓
210.	**C P S JAMA'ARE**			✓
211.	**C P S JAMA'ARE**			✓
212.	**BABA KAFINTA P. S.**			✓
213.	**BABA KAFINTA P. S.**			✓
214.	**BABA KAFINTA P. S.**	✓	**A**	
215.	**BABA KAFINTA P. S.**	✓	**B**	
216.	**BABA KAFINTA P. S.**			✓
217.	**BABA KAFINTA P. S.**			✓
218.	**BABA KAFINTA P. S.**			✓
219.	**BABA KAFINTA P. S.**	✓	**A**	
220.	**BABA KAFINTA P. S.**	✓	**B**	
221.	**BABA KAFINTA P. S.**	✓	**C**	
222.	**BABA KAFINTA P. S.**	✓	**B**	
223.	**BABA KAFINTA P. S.**	✓	**B**	
224.	**BABA KAFINTA P. S.**			✓
225.	**BABA KAFINTA P. S.**			✓

226.	**BABA KAFINTA P. S.**			✓
227.	**BABA KAFINTA P. S.**			✓
228.	**BABA KAFINTA P. S.**	✓	**C**	
229.	**BABA KAFINTA P. S.**	✓	**C**	
230.	**BABA KAFINTA P. S.**			✓
231.	**BABA KAFINTA P. S.**			✓
232.	**BABA KAFINTA P. S.**			✓
233.	**BABA KAFINTA P. S.**	✓	**C**	
234.	**BABA KAFINTA P. S.**	✓	**A**	
235.	**BABA KAFINTA P. S.**	✓	**A**	
236.	**BABA KAFINTA P. S.**			✓
237.	**BABA KAFINTA P. S.**			✓
238.	**BABA KAFINTA P. S.**	✓	**C**	
239.	**BABA KAFINTA P. S.**	✓	**C**	
240.	**BABA KAFINTA P. S.**			✓
241.	**BABA KAFINTA P. S.**	✓	**A**	
242.	**BABA KAFINTA P. S.**	✓	**A**	
243.	**BABA KAFINTA P. S.**	✓	**C**	
244.	**BABA KAFINTA P. S.**			✓
245.	**BABA KAFINTA P. S.**	✓	**C**	
246.	**BABA KAFINTA P. S.**	✓	**A**	
247.	**BABA KAFINTA P. S.**			✓
248.	**BABA KAFINTA P. S.**	✓	**A**	
249.	**BABA KAFINTA P. S.**	✓	**C**	
250.	**BABA KAFINTA P. S.**			✓
251.	**BABA KAFINTA P. S.**			✓
252.	**BABA KAFINTA P. S.**	✓	**B**	
253.	**BABA KAFINTA P. S.**			✓
254.	**BABA KAFINTA P. S.**	✓	**B**	
255.	**BABA KAFINTA P. S.**			✓
256.	**BABA KAFINTA P. S.**	✓	**A**	
257.	**BABA KAFINTA P. S.**			✓
258.	**BABA KAFINTA P. S.**			✓
259.	**BABA KAFINTA P. S.**	✓	**C**	
260.	**BABA KAFINTA P. S.**			✓
261.	**BABA KAFINTA P. S.**	✓	**A**	
262.	**BABA KAFINTA P. S.**			✓
263.	**BABA KAFINTA P. S.**			✓
264.	**BABA KAFINTA P. S.**			✓
265.	**BABA KAFINTA P. S.**			✓
266.	**BABA KAFINTA P. S.**			✓
267.	**BABA KAFINTA P. S.**			✓
268.	**BABA KAFINTA P. S.**			✓
269.	**BABA KAFINTA P. S.**			✓
270.	**BABA KAFINTA P. S.**			✓
271.	**BABA KAFINTA P. S.**			✓

272.	**BABA KAFINTA P. S.**			✓
273.	**BABA KAFINTA P. S.**			✓
274.	**BABA KAFINTA P. S.**			✓
275.	**BABA KAFINTA P. S.**			✓
276.	**BABA KAFINTA P. S.**			✓
277.	**BABA KAFINTA P. S.**			✓
278.	**BABA KAFINTA P. S.**			✓
279.	**BABA KAFINTA P. S.**			✓
280.	**BABA KAFINTA P. S.**			✓
281.	**BABA KAFINTA P. S.**			✓
282.	**BABA KAFINTA P. S.**			✓
283.	**BABA KAFINTA P. S.**			✓
284.	**BABA KAFINTA P. S.**			✓
285.	**YANA P. S.**	✓	**A**	
286.	**YANA P. S.**	✓	**B**	
287.	**YANA P. S.**			✓
288.	**YANA P. S.**	✓	**A**	
289.	**YANA P. S.**			✓
290.	**YANA P. S.**	✓	**C**	
291.	**YANA P. S.**	✓	**B**	
292.	**YANA P. S.**			✓
293.	**YANA P. S.**	✓	**A**	
294.	**YANA P. S.**	✓	**C**	
295.	**YANA P. S.**			✓
296.	**YANA P. S.**	✓	**A**	
297.	**YANA P. S.**			✓
298.	**YANA P. S.**	✓	**B**	
299.	**YANA P. S.**			✓
300.	**YANA P. S.**	✓	**A**	
301.	**YANA P. S.**			✓
302.	**YANA P. S.**	✓	**A**	
303.	**YANA P. S.**			✓
304.	**YANA P. S.**	✓	**A**	
305.	**YANA P. S.**	✓	**C**	
306.	**YANA P. S.**			✓
307.	**YANA P. S.**	✓	**C**	
308.	**YANA P. S.**	✓	**A**	
309.	**YANA P. S.**			✓
310.	**YANA P. S.**			✓
311.	**YANA P. S.**	✓	**A**	
312.	**YANA P. S.**			✓
313.	**YANA P. S.**			✓
314.	**YANA P. S.**			✓
315.	**YANA P. S.**	✓	**A**	
316.	**YANA P. S.**			✓
317.	**YANA P. S.**			✓

318.	**YANA P. S.**			✓
319.	**YANA P. S.**			✓
320.	**YANA P. S.**	✓	**A**	
321.	**YANA P. S.**			✓
322.	**YANA P. S.**			✓
323.	**YANA P. S.**			✓
324.	**YANA P. S.**			✓
325.	**YANA P. S.**	✓	**A**	
326.	**YANA P. S.**			✓
327.	**YANA P. S.**			✓
328.	**YANA P. S.**			✓
329.	**YANA P. S.**	✓	**C**	
330.	**YANA P. S.**			✓
331.	**YANA P. S.**			✓
332.	**YANA P. S.**			✓
333.	**YANA P. S.**			✓
334.	**YANA P. S.**	✓	**C**	
335.	**CPS ZAKI**	✓	**A**	
336.	**CPS ZAKI**	✓	**A**	
337.	**CPS ZAKI**			
338.	**CPS ZAKI**	✓	**A**	
339.	**CPS ZAKI**			✓
340.	**CPS ZAKI**			✓
341.	**CPS ZAKI**			✓
342.	**CPS ZAKI**	✓	**A**	
343.	**CPS ZAKI**	✓	**B**	
344.	**CPS ZAKI**			✓
345.	**CPS ZAKI**			✓
346.	**CPS ZAKI**			✓
347.	**CPS ZAKI**	✓	**B**	
348.	**CPS ZAKI**			✓
349.	**CPS ZAKI**			✓
350.	**CPS ZAKI**	✓	**B**	
351.	**CPS ZAKI**			✓
352.	**CPS ZAKI**	✓	**A**	
353.	**CPS ZAKI**			✓
354.	**CPS ZAKI**	✓	**A**	
355.	**CPS ZAKI**			✓
356.	**CPS ZAKI**			✓
357.	**CPS ZAKI**	✓	**C**	
358.	**CPS ZAKI**			✓
359.	**CPS ZAKI**			✓
360.	**CPS ZAKI**			✓
361.	**CPS ZAKI**	✓	**C**	
362.	**CPS ZAKI**			✓
363.	**CPS ZAKI**	✓	**A**	

364.	**CPS ZAKI**			✓
365.	**CPS ZAKI**	✓	**B**	
366.	**CPS ZAKI**			✓
367.	**CPS ZAKI**			✓
368.	**CPS ZAKI**			✓
369.	**CPS ZAKI**			✓
370.	**CPS ZAKI**			✓
371.	**CPS ZAKI**			✓
372.	**CPS ZAKI**			✓
373.	**CPS ZAKI**			✓
374.	**CPS ZAKI**			✓
375.	**CPS ZAKI**			✓
376.	**CPS ZAKI**			✓
377.	**CPS ZAKI**			✓
378.	**CPS ZAKI**			✓

Appendix iv

PREVALENCE OF ADHD SUB-TYPE BY SCHOOL

S/N	SCHOOL	INAT.	HYP.	IMP.	TOTAL	SUB-TYPE	AP. SCORES
1.	**CPS GAMAWA**	22	2	2	26	A	31
2.	**CPS GAMAWA**	-	15	2	17	B	34
3.	**CPS GAMAWA**	-	-	8	8	C	38
4.	**CPS GAMAWA**	20	-	-	20	A	26
5.	**CPS GAMAWA**	23	1	-	14	A	33
6.	**CPS GAMAWA**	27	-	-	27	A	16
7.	**CPS GAMAWA**	27	4	-	31	A	22
8.	**CPS GAMAWA**	25	-	-	25	A	13
9.	**CPS GAMAWA**	-	14	-	14	B	30
10.	**CPS GAMAWA**	24	-	-	24	A	27
11.	**CPS GAMAWA**	18	-	2	20	A	38
12.	**CPS GAMAWA**	-	-	8	8	C	35
13.	**DOGUWA P.S. GIADE**	18	-	-	18	A	26
14.	**DOGUWA P.S. GIADE**	2	7	-	9	B	39
15.	**DOGUWA P.S. GIADE**	1	6	-	7	B	40
16.	**DOGUWA P.S. GIADE**	22	-	-	22	A	26
17.	**DOGUWA P.S. GIADE**	-	18	-	18	B	23
18.	**DOGUWA P.S. GIADE**	2	18	-	20	B	33
19.	**DOGUWA P.S. GIADE**	3	3	9	15	C	36
20.	**DOGUWA P.S. GIADE**	-	-	8	8	C	33
21.	**DOGUWA P.S. GIADE**	-	-	8	8	C	35
22.	**DOGUWA P.S. GIADE**	-	17	-	17	B	29
23.	**GADAU PRI. SCH.**	2	17	-	19	B	26
24.	**GADAU PRI. SCH.**	25	-	-	15	A	22
25.	**GADAU PRI. SCH**	-	16	1	17	B	31
26.	**GADAU PRI. SCH**	-	15	-	15	B	30
27.	**GADAU PRI. SCH.**	5	-	7	12	C	35
28.	**GADAU PRI. SCH.**	27	-	-	27	A	23
29.	**GADAU PRI. SCH.**	2	16	-	18	B	26
30.	**GADAU PRI. SCH.**	-	14	-	14	B	27
31.	**GADAU PRI. SCH.**	-	17	-	17	B	30
32.	**GADAU PRI. SCH.**	-	-	8	8	C	23
33.	**GADAU PRI. SCH.**	-	16	-	16	B	18
34.	**GADAU PRI. SCH.**	-	17	-	17	B	35
35.	**GADAU PRI. SCH.**	-	14	-	14	B	26
36.	**GADAU PRI. SCH.**	20	-	-	20	A	26
37.	**GADAU PRI. SCH.**	4	12	-	16	B	25
38.	**GADAU PRI. SCH.**	-	15	-	15	B	31
39.	**GADAU PRI. SCH.**	27	-	-	27	A	22
40.	**GADAU PRI. SCH.**	-	16	-	16	B	26
41.	**C P S JAMA'ARE**	27	-	-	27	A	34

42.	**C P S JAMA'ARE**	-	-	8	8	C	31
43.	**C P S JAMA'ARE**	26	-	-	26	A	30
44.	**C P S JAMA'ARE**	21	-	-	21	A	29
45.	**C P S JAMA'ARE**	-	-	6	6	C	27
46.	**C P S JAMA'ARE**	-	-	6	6	C	23
47.	**C P S JAMA'ARE**	-	-	8	8	C	34
48.	**C P S JAMA'ARE**	23	-	-	23	A	31
49.	**C P S JAMA'ARE**	24	-	-	24	A	26
50.	**C P S JAMA'ARE**	-	-	9	9	C	33
51.	**C P S JAMA'ARE**	-	-	7	7	C	26
52.	**C P S JAMA'ARE**	-	-	4	4	C	38
53.	**C P S JAMA'ARE**	21	-	-	21	A	34
54.	**C P S JAMA'ARE**	-	18	-	18	B	26
55.	**C P S JAMA'ARE**	23	-	-	23	A	26
56.	**C P JAMA'ARE**	-	-	8	8	C	23
57.	**C P S JAMA'ARE**	-	17	-	17	B	35
58.	**C P S JAMA'ARE**	-	16	-	16	B	42
59.	**C P S JAMA'ARE**	-	14	-	14	B	38
60.	**C P S JAMA'ARE**	-	14	-	14	B	26
61.	**C P S JAMA'ARE**	2	-	7	9	C	35
62.	**C P S JAMA'ARE**	27	-	-	27	A	27
63.	**C P S JAMA'ARE**	-	-	6	6	C	38
64.	**C P S JAMA'ARE**	-	17	-	17	B	26
65.	**C P S JAMA'ARE**	-	-	8	8	C	29
66.	**C P S JAMA'ARE**	-	17	-	17	B	23
67.	**BABA KAFINTA P. S.**	16	-	-	16	A	35
68.	**BABA KAFINTA P. S.**	-	14	-	14	B	36
69.	**BABA KAFINTA P. S.**	14	-	-	14	A	26
70.	**BABA KAFINTA P. S.**	-	12	-	12	B	34
71.	**BABA KAFINTA P. S.**	-	-	7	7	C	34
72.	**BABA KAFINTA P. S.**	-	6	-	6	B	31
73.	**BABA KAFINTA P. S.**	-	9	-	9	B	38
74.	**BABA KAFINTA P. S.**	-	-	6	6	C	34
75.	**BABA KAFINTA P. S.**	-	-	6	6	C	42
76.	**BABA KAFINTA P. S.**	-	-	8	8	C	40
77.	**BABA KAFINTA P. S.**	10	-	-	10	A	33
78.	**BABA KAFINTA P. S.**	10	-	-	10	A	36
79.	**BABA KAFINTA P. S.**	-	-	8	8	C	33
80.	**BABA KAFINTA P. S.**	-	-	6	6	C	35
81.	**BABA KAFINTA P. S.**	20	-	-	20	A	47
82.	**BABA KAFINTA P. S.**	21	-	-	21	A	23
83.	**BABA KAFINTA P. S.**	-	-	8	8	C	33
84.	**BABA KAFINTA P. S.**	-	-	9	9	C	38
85.	**BABA KAFINTA P. S.**	27	-	2	19	A	39
86.	**BABA KAFINTA P. S.**	12	-	-	12	A	30
87.	**BABA KAFINTA P. S.**	-	-	8	8	C	33

88.	**BABA KAFINTA P. S.**	-	18	-	18	B	20
89.	**BABA KAFINTA P. S.**	-	18	-	18	B	29
90.	**BABA KAFINTA P. S.**	17	-	-	17	A	26
91.	**BABA KAFINTA P. S.**	-	-	6	6	C	20
92.	**BABA KAFINTA P. S.**	16	-	-	16	A	29
93.	**YANA P. S.**	14	-	-	14	A	33
94.	**YANA P. S.**	-	14	-	14	B	35
95.	**YANA P. S.**	17	-	-	17	A	31
96.	**YANA P. S.**	-	-	8	8	C	27
97.	**YANA P. S.**	-	14	-	14	B	38
98.	**YANA P. S.**	16	-	-	16	A	25
99.	**YANA P. S.**	-	-	9	9	C	27
100	**YANA P. S.**	22	-	-	22	A	22
101	**YANA P. S.**	-	14	-	14	B	31
102	**YANA P. S.**	26	-	-	26	A	33
103	**YANA P. S.**	27	-	-	27	A	20
104	**YANA P. S.**	26	-	-	26	A	34
105	**YANA P. S.**	-	-	7	7	C	30
106	**YANA P. S.**	-	-	6	6	C	23
107	**YANA P. S.**	27	-	-	27	A	33
108	**YANA P. S.**	20	-	-	20	A	38
109	**YANA P. S.**	22	-	-	22	A	40
110	**YANA P. S.**	27	-	-	27	A	23
111	**YANA P. S.**	20	-	-	20	A	31
112	**YANA P. S.**	-	-	6	6	C	26
113	**YANA P. S.**	-	-	6	6	C	35
114	**CPS ZAKI**	27	-	-	27	A	29
115	**CPS ZAKI**	22	-	-	22	A	25
116	**CPS ZAKI**	23	-	-	23	A	20
117	**CPS ZAKI**	22	-	-	22	A	22
118	**CPS ZAKI**	-	16	-	16	B	39
119	**CPS ZAKI**	-	14	-	14	B	35
120	**CPS ZAKI**	-	16	-	16	B	38
121	**CPS ZAKI**	24	-	-	24	A	20
122	**CPS ZAKI**	20	-	-	20	A	34
123	**CPS ZAKI**	-	-	6	6	C	26
124	**CPS ZAKI**	-	-	8	8	C	29
125	**CPS ZAKI**	27	-	-	27	A	22
126	**CPS ZAKI**	-	16	-	16	B	27

Appendix v

ACHIEVEMENT TEST

INSTRUCTIONS: Answer all questions.

Choose the most correct answer from option A-E in each question and circle it.

Read the following passage carefully and answer the questions that follow it. Circle the letter of the correct answer.

PASSAGE.

Ibrahim thought that he had taken his wallet with him to the market that morning. The wallet contained two hundred naira. On getting to the market, however he discovered that the wallet was not in his pocket. He search every nook and corner of his pocket, but it was not there. He looked around him and saw two men who seemed to be laughing at him. Yes! He taught, those men must have stolen his wallet. After all, he has seen them walking behind him.

He walked across to the men and grabbed one of them. He then accused them of stealing his wallet. The men were puzzled. Both of them denied having ever seen the wallet, Ibrahim did not believe them. He requested to search them and they agreed. He did so but to his shame he did not find anything on them. He apologized to them immediately. The two men told him were police men. They showed him their identity card and he discovered that they were police men. They told him that they will help him find his wallet. But they suggested that they will go and search his house first. When they go to his house, they found the wallet resting on the table.

Questions.

1. What happened to the wallet that morning, was that Ibrahim (a) had taken it to market (b) deliberately left it at home(c)put in his pocket (d)forgot it at home(e)gave it to policemen.
2. Immediately Ibrahim discovered that the wallet was missing he (a) started crying (b) accused the two men (c) searched his pocket (d) called the policemen (e) ran home.

3. Ibrahim had (a) one naira in his wallet (b) two hundred naira in his wallet (c) one hundred naira in his wallet (d) five hundred naira in his wallet (e) much money in his wallet.

4.The two men went to Ibrahim's house because they wanted to (a) arrest the family (b) help him look for the wallet (c) be entertained (d) prove that they were innocent (e) know his house.

5. When Ibrahim discovered his mistake about the two men he (a) begged them to forgive him (b) ran away (c) tolled a lie (d) joined the police (e) just kept quiet.

Circle the word that is nearest in meaning to the word underlined in the sentences below.

6. The shepherds tended the flock on the hill.

(a) Took after (b) sorted out(c) abandoned (d) forget (e) looked after

7. The purpose of the meeting was to cause trouble in the school.

(a) aim (b) result (c) end (d) view (e) importance

8. The criminal exposed some of their activities

(a) Concealed (b) Uncovered (c) narrated (d) admitted (e) hindered

9. The invigilator will give out the exam papers to the candidates five minutes before the exams begins.

(a) carry (b) removed (c) show (d) distribute (e) open

10. The decision to sack the boy from the job was deliberate.

(a) fair (b) just (c) accidental (d) wise (e) purposeful

From the group of words lettered A-E choses the one that has almost opposite in meaning to the underlined word in each sentence.

11. The best player is short (a) good (b) worse (c) worst (d) better (e) bad

12. That will discourage the pupils (a) encourage (b) abuse (c) disregard (d) make happy (e) none of the above

13. Very many people came to watch the football match. (a) little (b) much (c) small (d) more (e) few

14. It was a very fertile land (a) barren (b) rich (c) sandy (d) good (e) bad

15. It is risky to travel by air (a) bad (b) dangerous (c) good (d) safe (e) worse

Choose the correct spelling.

16. (a) preparation (b) preperation (c) preparasion (d) preparetion (e) all of the above.

17. (a) imaginery (b) imagenary (c) enagenary (d) imaginary (e) immagenary

18. (a) scaence (b) science (c)sciense (d) seince (e) sciensse.

19. (a) sufficient (b) suffisheint (c) sufficcent (d) sorticent (e) shoficient

20. (a) recommendedd (b) recommanded (c) recommended (e) riccommended (e) none of the above.

Verbal aptitude

In each of the following items you are given two pairs of words then a fifth world. Look carefully on the first two pairs and notice how they relate. Look at the fifth word and choose from words labelled A-E the suitable words.

Examples. Lump, slumps, tab, stabs, late… (a) lasts (b) stale (c) slates (d) states (e) slate. The answer is (c).

1. Cipher, decipher; cloth, declutch: code… (a) decode (b) encode (c) declare (d) codify (e) deceive
2. Mile, smile: ting, sting; ling.. (a) shins (b) sings (c) sling (d) slinging (e) singing
3. Live, evil; peels, sleep, liar,. (a) lie (b) rail (c) lain (d) leer (e) frail
4. Tool, loot; pool, loop: keel, (a) keep (b) lees (c)leech (d) leek (e) look
5. Sit, transit; port, transport, late. (a) transfer (b) translate (c) translator (d) transform (e) translation.
6. Bun, burn, had, hard; cod,---(a) curd (b) corn (c) cad (d) card (e) cord
7. Nip, snap; tick, stack; lit,---(a) slip (b) slack (c) slap (d) slat (e) slick

Each of the following items consists of five words labelled A-E. One of the words is a general terms, describes what the other four words are. Circle the answer. Example.

(a) Six (b) ten (c) twelve (d) number (e) twenty. The answer is (d) number

8. (a) blind (b) deaf (c) handicapped (d) dump (e) lame
9. (a) kangaroo (b) cat (c) antelope (d) animal (e) giraffe

10. (a) Bronze (b) iron (c) silver (d) gold (e) metal
11. (a) Bowl (b) bucket (c) container (d) kettle (e) bottle
12. (a) Tailor (b) occupation (c) nursing (d) teaching (e) farming

In each of the following items pick out the one that does belong to the group.

Example.

(a) Rat (b) lizard (c) dog (d) yam (e) elephant. The answer is (d) yam

13. (a) father (b) mother (c) boy (d) brother (e) sister
14. (a) white (b) green (c) yellow (d) bright (e) blue
15. (a) leg (b) shoe (c) arm (d) toe (e) knee
16. (a) swimming (b) running (c) boxing (d) wrestling (e) working

Study the following pairs of wards and how they related. Choose from the given alternatives the word that most suitably fills the space.

Example.

Food and water; eat and?---(a) drink (b) talk (c) dinner (d) rice (e) mouth the answer is (a) drink

17. Water and thirst; food and?—(a) mouth (b) hunger (c) drink (d) chew (e) eat
18. Narrow and wide, smooth and?—(a) straight (b) rough (c) sharp (d) long (e) round.
19. Bed and sleep; book and?—(a) pen (b) open (c) read (d) words (e) story
20. Tongue and taste; ear and?—(a) eat (b) smell (c) talk (d) feel (e) hear.

Appendix vi

SPSS OUT PUT

ADHD INATTENTIVE VS ACADEMIC PERFORMANCE

Descriptive Statistics

	Mean	Std. Deviation	N
AD HD INATTENTIVE	20.1373	5.89583	51
ACADEMIC PERFORMANCE IN ENGLISH	28.8039	5.81728	51

Correlations

		AD HD INATTENTIVE	ACADEMIC PERFORMANCE IN ENGLISH
AD HD INATTENTIVE	Pearson Correlation	1	-.802**
	Sig. (2-tailed)		.000
	N	51	51
ACADEMIC PERFORMANCE IN ENGLISH	Pearson Correlation	-.802**	1
	Sig. (2-tailed)	.000	
	N	51	51

ADHD HYPERACTIVE VS. ACADEMIC PERFORMANCE

Descriptive Statistics

	Mean	Std. Deviation	N
AD HD HYPERACTIVE	20.6410	6.40513	39
ACADEMIC PERFORMANCE IN ENGLISH	32.5897	6.16321	39

Correlations

		AD HD HYPERACTIVE	ACADEMIC PERFORMANCE IN ENGLISH
ADHD HYPERACTIVE	Pearson Correlation	1	-.320*
	Sig. (2-tailed)		.047
	N	39	39
ACADEMIC PERFORMANCE IN ENGLISH	Pearson Correlation	-.320*	1
	Sig. (2-tailed)	.047	
	N	39	39

ADHD IMPULSIVE VS. ACADEMIC PERFORMANCE

Descriptive Statistics

	Mean	Std. Deviation	N
AD HD IMPULSIVE	21.3056	6.19133	36
ACADEMIC PERFORMANCE IN ENGLISH	29.1667	6.06394	36

Correlations

		AD HD IMPULSIVE	ACADEMIC PERFORMANCE IN ENGLISH
AD HD IMPULSIVE	Pearson Correlation	1	-.792**
	Sig. (2-tailed)		.000
	N	36	36
ACADEMIC PERFORMANCE IN ENGLISH	Pearson Correlation	-.792**	1
	Sig. (2-tailed)	.000	
	N	36	36