

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

KUMASI, GHANA

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF COMMUNITY HEALTH

PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG  
PUBLIC BASIC SCHOOL PUPILS IN THE ASANTE-AKYEM NORTH DISTRICT

ASHANTI REGION, GHANA

BY

NTIAKOH-AYIPAH, DANIEL AMANFI

NOVEMBER, 2015

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## **DECLARATION**

I hereby declare that, except for reference to other people`s work, which has been duly acknowledged, this work is a result of my original research and it has neither in whole or in part been presented for any degree elsewhere.

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## **DEDICATION**

This thesis is dedicated to my beloved wife Theodora Palm-Ayipah, my children Eunice, Emmanuel and Pearl

## **ACKNOWLEDGEMENTS**

I would like to express my heartfelt gratitude to all those who rendered their time, support and assistance towards the completion of the current study. Special thanks is conveyed to Dr. Joslin Dogbe my research adviser for his advanced and critical professional attention, guidance, counseling, support, assistance and encouragement in the development of the present thesis. I would further express appreciation for the editing and statistical work rendered by Mr. Daniel Odoom.

I would like to thank my wife and children for being my sources of inspiration and strength every step of the journey. Special thanks conveyed to the Ghana Education service specially the Asante Akyem North District Education and all Head teachers, teachers, and parents for granting me permission to execute my study.

To all my friends and classmates, thank you for the gift of friendship and to all the wonderful things it entails.

## **Definition of Terms**

### **ADHD symptoms**

Refer to the 18 ADHD symptoms enumerated in the DSM-IV-TR Diagnostic criteria (APA, 2000). 9 out of the 18 ADHD symptoms are inattention symptoms and the other 9 are Hyperactivity-impulsivity symptoms.

### **Inattention Symptoms**

These refer to the 9 inattention symptoms enumerated in the Diagnostic and statistical Manual for Mental Disorder Version IV, text revision (DSM-IV-TR): often (1) fails to give close attention to details, or makes careless mistakes, (2) can't pay attention, (3) does not listen, (4) does not follow instructions and fails to finish work or chores, (5) disorganized, (6) can't concentrate, (7) loses things, (8) distractible, and (9) forgetful.

### **Hyperactivity- Impulsivity symptoms**

These refer to the 6 hyperactivity symptoms and 3 impulsivity symptoms enumerated in DSM-IV-TR (APA, 2000). Hyperactivity symptoms are as follows, often (1) fidgets or squirms, (2) leaves seat as expected, (3) excessively runs about or climbs, (4) has difficulty playing or engaging in leisure activities quietly, (5) on the go act as if driven by a motor, (6) talkative. The impulsivity symptoms include; often (1) blurts out answers before questions have been completed, (2) can't wait turn, (3) interrupts or intrude on others.

### **Possible ADHD Cases**

A child having at least 6 inattentive symptoms or 6 hyperactivity- impulsivity symptoms reported by the child`s teacher, or a child having at least 6 inattentive symptoms or 6 hyperactivity-impulsivity symptoms reported by the child`s parent/ guardian.

### **Matched ADHD Cases**

These are possible cases with at least 6 inattentive symptoms or 6 hyperactive-impulsive symptoms both reported by the child`s teacher and parent reports of the potential cases were combined. There were at least 6 unique symptoms of inattention or 6 unique symptoms of hyperactivity-impulsivity. Each of the symptoms must be positive from both the parent and teacher report.

### **ADHD Cases**

These are matched cases with the following;

ADHD Predominantly Inattentive Type Cases=ADHD cases with >6/9 inattention symptoms

ADHD Predominantly Hyperactive-Impulsivity Type Cases=ADHD cases with > 6/9 hyperactive-impulsive symptoms.

ADHD Combined Type Cases= ADHD cases with >12/18 ADHD symptoms= C who are both inattentive and hyperactive-impulsive type

## **ABSTRACT**

This study aimed to investigate the prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among public basic school pupils in the Asante Akyem North District of Ashanti – Region, Ghana, using categorically based checklists and DSM – IV – TR ADHD diagnosis criteria as case identification tools. SNAP-IV rating scale checklist was used to screen positive ADHD symptoms among the respondents. Both the teacher and parent of each student answered the rating scale checklist to identify possible cases. Possible cases from the teacher and parent reports were compared and symptoms were matched according to the DSM- IV-TR criteria to determine matched ADHD cases. Schools were put into clusters and simple random sampling was used to select 15 schools. Purposive sampling was used to select 374 respondents for the study, SPSS was used to analyzed the data. Prevalence estimate was then obtained by getting the percentage of research – identified ADHD cases among the total number of pupils assessed. Results revealed that out of 374 pupils in the public basic schools in the Asante – Akyem North district, 21 met the DSM – IV – TR research criteria for ADHD giving a prevalence estimate of 5.6%, and 2:1 ratio of boys and girls respectively. This prevalence estimate falls within the frequently quoted ADHD prevalence rate of 3% to 7%.The study recommended that Guidance and Counselling centers be created in the basic schools to handle ADHD cases, ADHD studies should be included in the curriculum of the colleges of Education and also there should be Educational campaign for parents and teachers to help in the early detection and identification of the disorder.



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## **ABBREVIATIONS**

ADHD	Attention Deficit Hyperactivity Disorder
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders 4 Ed Text Revised
SNAP-IV	Swanson, Nolan and Pelham Rating Scale

## **CHAPTER ONE**

### **Introduction**

This chapter presents the background to the study, followed by the statement of the problem and the rationale of the study. The research questions that guided the investigation as well as the conceptual framework, general objectives and specific objectives are also presented.

#### **1.1 Background of the Study**

Attention Deficit and Hyperactivity Disorder (ADHD) is a neuro-behavioural disorder manifested by chronic level of hyperactivity, impulsivity and attention. It is one of the most common childhood behavioural disorder affecting 3 to 7 percent of school age pupils (American Psychiatric Association [APA], Diagnostic and Statistical Manual for Mental Disorder IV, text revision [DSM-IV-TR,(2000). Attention Deficit and Hyperactivity Disorder (ADHD) is one of the most common disorders in early children. It can be identified by its main characteristics that include: impulsivity, hyperactivity, cognitive, behavioral, emotional deficits, and inattention. The symptoms of nearly half of ADHD children are shown when children are 5 years old (Dreyer, 2006).

According to the Center for Disease Control and Prevention (CDC,2015) children, with ADHD have many troubles in paying attention, sometimes acting without thinking about what the result will be, and in some cases, they are overly active (CDC,2015).Consequently, these children face many difficulties in school. They show behavioural and academic problems due to the conflict between the academic requirements of the school and the specific characteristics of this disorder.

Based on the high prevalence rate, the (CDC, 2015) now consider ADHD as a public health concern. It is not just the high prevalence that make this neuro-behavioural disorder a problem but how it could impair the child's academic, social and work functioning. Effect of this disorder could be devastating without proper treatment. In addition, because of its chronicity, its effect could be long term if not forever. Without the proper medical and other special needs rendered, some of the children with ADHD could carry this disorder till adulthood. However, identification of ADHD cases remains to be a problem. Dr Peter Joare, a member of the medical faculty of University of Edinburgh and one of the leading authorities on ADHD, said only between 3 and 10 percent of children worldwide affected by ADHD are getting diagnosed (Cahir, 2010). Despite the immense amount of research, literature, and information on ADHD, the disorder is often misunderstood. It is a disability plagued by misconceptions and myths (Brown, 2007). The behaviour of a child with ADHD is often misinterpreted by parents, teachers and professionals alike who perceive the child to be bad-mannered disobedient and lazy (Burns, 2003) because of this, the problem must be investigated.

Another study conducted in Nigeria found out that the inattentive prevalence among 7 – 12 aged children was 4.9%, the hyperactive / impulsive prevalence was 2% (Adewuya and Famuyiwa, 2007). According to Bryman, (2004) the inattentive type prevalence was 5.4%, the hyperactive /impulsive prevalence was 3.6%, and the combined type prevalence was 2.4%.

On the other hand, several studies indicate that the prevalence rate among male children was higher than female counter part. (Adewuya and Famuyiwa, 2007).

According to Uwe (2000), Agbu (2003) ADHD may affect all aspects of a pupil's life, as impact may not only be on the child and his / her parents but also on teachers and peers, thereby causing disturbances in the school settings. Some pupils may exhibit traits that are explorative,

inquisitive, playful, restless, impulsive and over active. According to a report by strengthening Transparency, Accountability and Responsiveness, Ghana (STAR-Ghana) Attention Deficit Hyperactivity Disorder is a fairly new area and needs support and commitment. ADHD is a persistent pattern of inattention and / or Hyperactivity – impulsivity that is more frequent and severe than is typically observed in individual at a comparable level of development. According to (STAR – Ghana,2013) symptoms include difficulty in completing task which affect their grades adversely, short attention span, need to have questions and directions repeated, difficulty delaying gratification, fidgeting, rushes through chores or tasks, and difficulty remaining on task. Until recently, health service statistics were not disaggregated by age and sex specifically for this age group, therefore very little systematic data, collected for pupil`s health programming in Ghana.

Here in Ghana, there is no data on pupils with ADHD. Early recognition, assessment and management of this condition can redirect the education and psychosocial development of most pupils with ADHD and this paper could help in such direction. This study may be used to help in the early detection of ADHD among school pupil`s as assessment is focused at the earliest classes. Identification of the prevalence of ADHD among these pupils will be one step in addressing their health needs and other special needs like special education and psychosocial therapy. The main purpose of the study was to identify the prevalence of ADHD and its subtypes among a sample of pupil`s in basic schools in the Asante-Akyem North District in Ghana.



## **1.2 Statement of the problem**

Generally pupils with ADHD problems present negative behaviours that impinge on their learning and often their social development. Most common behavior problems that occurred are noncompliance, aggressive behaviour that physically harms others, disruptive, nuisance or threatening behaviour to others. Characteristics associated with ADHD are emotional disturbance and behavioural. Problems of ADHD may also include aggressive or anti-social behaviour, inattentiveness, distractibility and impulsiveness, impaired social interactions, general inability to cope with the routine of daily tasks, obsessive and repetitive behaviours; attention – seeking behaviours such as negative interactions or a poor attitude towards work, peers or teachers and depressed behaviours such as withdrawal, anxiety or mood swings (signposts,

2009).Some students with emotional disturbance and / or behavioural problems have negatives self – concept and low esteem. In the classroom, students may be frequently off – task and may adversely affect the learning of some others. Students may have some problems working in groups and in forming relationships. Some students may show aggression towards others and refuse to co – operate.

Attention Deficit Hyperactivity Disorder (ADHD) is a disorder of children and adolescence characterized by a pattern of extreme pervasive, persistent and debilitating attention, over activity and impulsivity. There are three major different subtypes of ADHD, predominantly inattentive subtype, predominantly hyperactive – impulsive subtypes, and combined inattentive / hyperactive – impulsive. ADHD is one of the most prevalent chronic health disorders affecting school age children. It is also the most frequently occurring neuro – psychiatric disorder in children. Epidemiologic information on ADHD is scare partly because few population – based studies have been done and partly because of changing diagnostic criteria over time. ADHD

manifest in approximately 4 – 12 % of children between the ages of 6 and 12 years. In view of this proper identification ,diagnosis and effective treatment can dramatically improve their ability to function successfully in the classroom setting, to relate to family members and friends, and to develop a positive sense of self. Some impairment from the symptoms of ADHD are to be seen in two or more settings at school and at home.

In a recent research performed on 400 subjects, the prevalence rate of ADHD has been reported as 9%. Teachers reported ADHD in a higher frequency than parents (Signpost, 2009). However, applying a combination of reports from teachers and parents, screening of ADHD is likely to be more accurate. The reasons are that children spend most of their time in classrooms and other school settings. Here, they are expected to follow rules, behave in socially appropriate ways, participate in academic activities and refrain from disrupting the learning process or activities of others. Teachers do not only have to teach learners the skills and knowledge that form part of the described behaviour mainly for this age group. However, it should be noted that ADHD can be problematic in the preschool age group and continue into adolescence. Also adulthood and boys have a greater incidence than girls, with the ratio being 3 to 1. (CDC, 2015) It has been estimated that more than 50% of children with ADHD are prone to experience other psychiatric disorder such as oppositional defiant disorder (ODD), depression and anxiety disorder and teachers have to teach them to behave in a manner that meets organizational, cultural and social expectations. However, their problems with attention span, impulse control and activity level frequently interfere with both classroom and social activity (Chamberlain, 2006).

In Ghana, attention has not been paid to ADHD cases in schools. Teachers find it difficult to handle such pupils in the classroom. It is recently that the government of Ghana is advocating for inclusive education which is yet to takeoff in the 2015 academic year. Between 2012 and 2014 the number of students who were referred to Agogo College of Education, Counselling Unit for help was so alarming that this problem needs to be investigated. Records show that these pupils show signs of symptoms of ADHD in the classroom such as withdrawal, aggressiveness, inattention behaviour and most at times are off-task and also affect them academically. It is

important to detect ADHD in pupils at an early age and to develop a specific set of psychological

clinical interventions for helping them. There is therefore the need to investigate this phenomenon in order to identify the prevalence of pupils with ADHD in the public basic primary schools in Ghana. From my own works perspective, it is clear that learners with ADHD struggle to conform to behaviours considered appropriate and acceptable in the classroom setting. The pupil often performs poorly academically, and the class as a whole is often impacted upon negatively which leads to learners with ADHD being labelled and simply-remaining a problem for themselves and others around them.

The preliminary literature study documents suggest that 3%-7% of pupils of school going age are ADHD. Given the significant impact of ADHD on academic and educational performance generally public basic pupils in Ghana especially pupils in the Asante-Akyem North District, it is clear that ADHD prevalence in the District should be investigated to identify these pupils so that they may be helped. It is clear that early identification of pupils with ADHD will help to find interventions and practical assistance that require to assist them. As school counsellor, I have many referred pupils every week. Teachers of these pupils complaining of pupils` disruptive ways, pupils inattention and negative impact upon other members of the class and a poor academic record is also cited. This behavior leads to impatience, frustrations and even anger among staff members who at times feel that they are making no progress academically, with pupils exhibitory ADHD type symptoms in a classroom situation. As the number of cases being referred to me have remained consistently high over the past years, research into the problem raised the possibility of identifying pupils with ADHD and utilizing special management techniques to assist them in the classroom. Whilst no work has been done to determine the prevalence of ADHD among public basic schools in the district the prevalence rate, ADHD subtypes and gender difference of ADHD in the district is unclear and needs to be investigated.

### **1.3 Rationale for the study**

This study will generate knowledge on ADHD among pupils in the public basic schools in the Asante Akyem North District. It would provide a baseline information to teachers, parents guidance personnel, school administrators, and policy makers in Education. The information obtained would be a starting point for further discussion among medical professionals, parents, school personnel, and other trained individuals in the public health. An important key is to talk to the school officials, licensed doctors, and other trained professionals when dealing with a child with ADHD to develop the best plan of action to create opportunities for success in school.

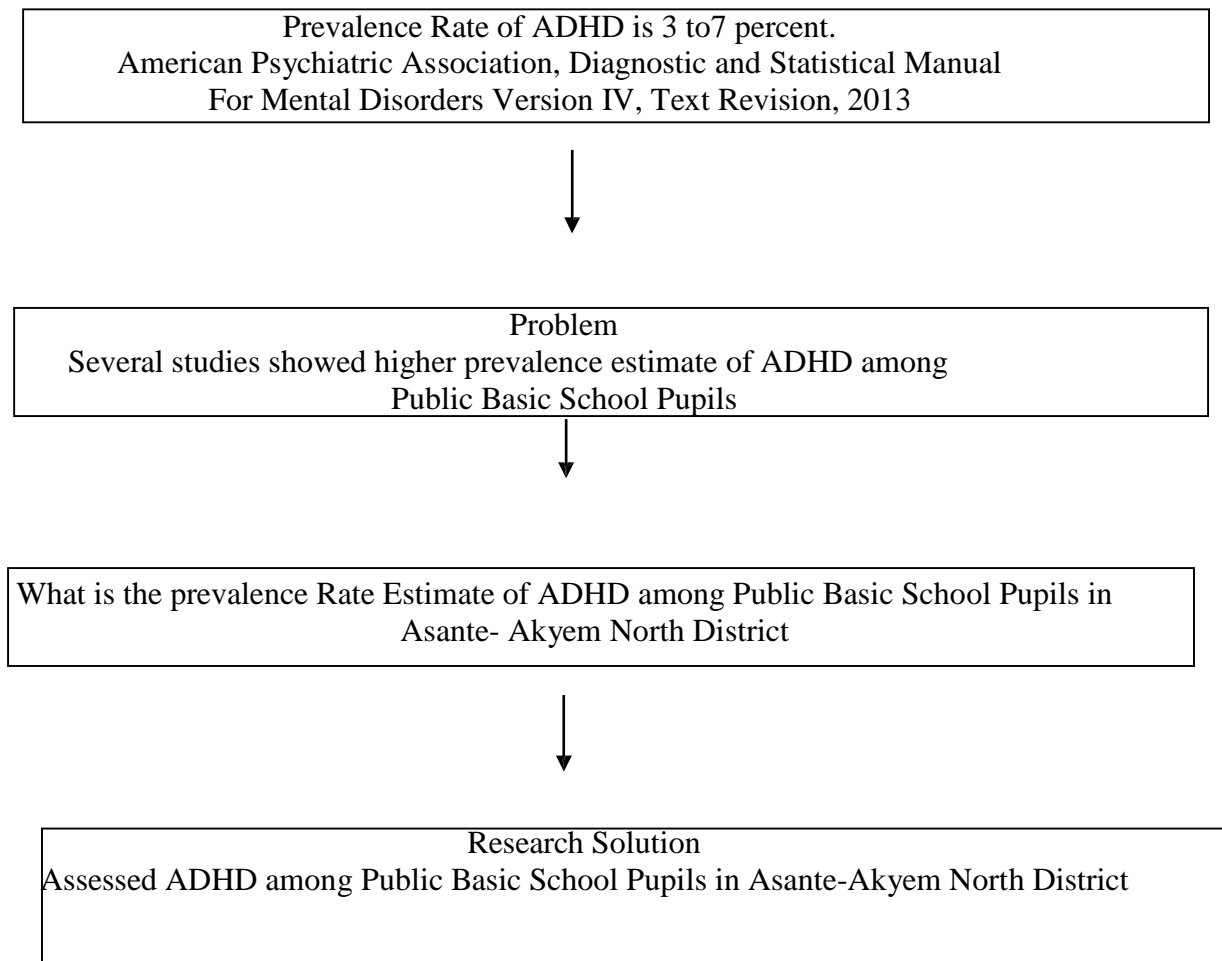
The research finding will assist teachers in recognizing that there are individual difference in the classroom and would know how to deal with pupils with ADHD.

Parents will find the research findings valuable in gaining a better understanding of what it is like for them to deal with a diverse group of pupils every day. Better understanding may lead parents to be even more involved and supportive of teachers regarding their children with ADHD.

Therapists and mental health practitioners will find the research findings significant in that it will illuminate their understanding of ADHD. Lastly, the research findings will also bring relief to students with ADHD in the form of improved academic achievements as well as peer relationships. The study is expected to add new knowledge to the existing ones in the area of ADHD in the basic schools. It will serve as a source of reference to teachers and help them to know how to treat students with ADHD in the classroom which will inturn could promote good student-teacher relationship. Accurate estimate for the prevalence of ADHD in children are also critical to providing the mental health services needed.

#### 1.4 Conceptual Framework

Several studies have suggested that ADHD among pupils in schools could be much more prevalent. ADHD has now become a public health concern and more concerned to teachers in the classroom. (DuPaul et al, 2006). At present, there is still no study done to determine the prevalence of ADHD among public basic schools pupils in the Asante-Akyem North District in Ghana. This study was done in an attempt to determine how prevalence ADHD is among public basic school pupils in the Asante-Akyem North District. Research criteria were set to identify ADHD cases (DSM-IV- TR Diagnostic criteria for ADHD) were adopted to come up with this study's own research criteria for case finding.



### **1.5 Research Questions**

Investigating the prevalence of pupils with ADHD in the public basic schools in the Asante – Akyem North District in the Ashanti Region, Ghana, four central research questions were raised to guide the study;

1. What is the possible ADHD cases identified as rated by both teachers and parents report?
2. What are the ADHD subtypes from the possible cases as rated by the teacher and parent reports?
3. What is the prevalence of ADHD cases from the matched cases of both the teacher and parent rating reports?
4. What is the ratio of gender difference of researched identified cases of both the teacher and parent reports?

### **1.6 General Objectives**

The general objective of the study was to investigate the prevalence of pupils with ADHD among public basic schools in the Asante -Akyem North District in the Ashanti Region of Ghana.

### **1.7 Specific Objectives**

This study was designed specifically to:

1. To determine the prevalence of Attention Deficit Hyperactivity Disorder symptoms as rated by both classroom teachers and Parents to identify possible cases.
2. To examine the prevalence of Attention Deficit Hyperactivity Disorder subtypes as rated by both parents and teachers.

3. Compare the teacher and parent rating scale reports of the possible ADHD cases to determine the prevalence.
4. To ascertain the ratio of gender difference of research-identified ADHD cases of both teacher and parent reports.

### **1.8 Limitation**

This study focusing on the determination of ADHD among public basic school pupils in the Asante-Akyem North District was limited in several ways. First, since this study assessed public basic school pupils, the study may only be generalized to that same level assessed. Second, assessment of significant clinical impairment on social functioning, academic and home impairment were not assessed. Finally, the identified ADHD cases were based on the research criteria only and not confirmed by a clinical diagnosis as the participants were not evaluated by a behavioral specialist. It is therefore envisaged that generalization could be seriously threatened consequently, it is advised that readers become cautious in interpreting whatever result derived from the study.

### **1.9 Delimitation**

Ideally, a study of this nature should cover all public basic schools in Ghana but this will certainly not be possible due to time and financial constraints. As a result, the scope of the study was limited to the public basic school pupils in Asante-Akyem North District in the Ashanti Region of Ghana. The study was also focused primarily on only prevalence of ADHD in the Asante-Akyem North District. The findings and recommendations could however be applicable to the other public basic schools the study could not cover.



### **1.10 Assumption**

It is assumed that;

1. ADHD is a condition of some children that impacts negatively on their ability to learn in the classroom.
2. Most pupils show symptoms of ADHD in the classroom.
3. Teachers and parents gave correct responses.

### **1.11 Organization of Report**

The report has been organized into six chapters. Chapter one deals with introduction, chapter two with literature review, chapter three deals with study designs and method. Chapter four looks at the result, chapter five with discussion and lastly chapter six give conclusion and recommendation.

## **CHAPTER TWO**

### **REVIEW OF LITERATURE**

#### **2.0 Introduction**

The literature will be reviewed under four sub-headings.

1. Nature of ADHD and subtypes
2. Statistical Prevalence of ADHD
3. ADHD as measured by both teachers and parents.
4. ADHD and Gender Differences

#### **2.1 Nature of ADHD and sub types**

Attention Deficit Hyperactivity Disorder is the common neuropsychiatric disorder of infancy and one of the most prevalent chronic disease found in school children. ADHD, is described as a behaviour disorder characterized by three core symptoms: Inattention, impulsivity and hyperactivity (Harlacher et al. 2006). Simplicio (2007) includes boredom with these core symptoms when describing the diagnostic label of ADHD. The Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR (American Psychiatric Association 2000) classifies ADHD under the subheading: Attention Deficit and Disruptive Behaviours Disorders, which are disorders in which children do not have adequate control over their thought, feelings, and behaviour. Three subtypes of ADHD are recognized: predominantly inattentive, predominantly hyperactive – impulsive and a combined type. Although description of this disorder are not new a tremendous amount of recent research energy has been expended investigating this disorder. For example, it was estimated that between the 1957 to 1980 only 31 articles were published on what was then called hyperkinetic impulse disorder. However, by 1990 to 2,000 over 3,000

articles had been published (Cole et al, 2005). Further, Cohen (2007) suggests that this figure has surely doubled in the past ten years. Furthermore, the Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR has established criteria to determine the presence of ADHD, according to a Standardized Clinical definition. Several characteristics need to be present in order for a clinical diagnosis of ADHD to be made. The US Department of Education (2003) cites the following criteria from the DSM-IV-TR as the standardized clinical definition to determine the presence of ADHD: Severity of behaviour, early onset, duration of symptoms, impact on child's academic and social life and lastly, settings. According to Du Paul (2007), in order to meet DSM-IV-TR criteria, individuals must present with at least six inattention or at least six hyperactive-impulsive before the age of seven, for a minimum of six months in two or more settings, with concomitant academic or social impairment. Although core symptoms affect attention, self-control and impulsiveness, displaying any of these symptoms does not necessarily imply the presence of ADHD (Holz & Lessing 2002). Research by Daly et al. (2007) indicates that ADHD is a chronic disorder with deficits in multiple areas of functioning where both cognitive and behavioural manifestations typically emerge during the childhood years. This means that if the disorder is not thoroughly assessed, it may be confused with such things as anxiety, depression, giftedness, learning disability, bipolar disorder, conduct disorder and opposition defiant disorder. ADHD is recognized by a persistent pattern of significant problems occurring more frequently than is typical, in the areas of attention, motor activity and impulsivity (Evans, Serpell, Schultz and Pastor, 2007). The US Department of Education (2006) reports that the core symptoms of inattention, impulsivity and hyperactivity result in, among other things, immature behaviour that may have social consequences. Difficulties in romantic relationships, traffic violations and substance abuse are just some of the problems encountered by pupils with

ADHD. (Huizink, Vatter and Criynen 2009). According to Loe and Feldman (2007), the initial symptoms of hyperactivity, distractibility, impulsivity and aggression tend to decrease in severity over time, although more recent research suggest that the impact of ADHD is felt even beyond adolescence into adulthood. Thus the aforementioned research suggests that ADHD cases are prevalence among school age going pupils. Behaviours are developmentally inconsistent with the age of the child, and ADHD affects children differently at different ages. Children can, in fact, exhibit a range of symptoms and levels of severity. As a function of their ADHD symptoms, learners with this disorder experiences numerous difficulties within the school setting such as behaviour control and academic achievement (Du-Paul and Weyandt ,2006). When behaviours associated with ADHD are exhibited by a child, the consequences thereof can include difficulties forming peer relationships if appropriate interventions are not implemented (US Department of Education, 2003). Maintaining friendship have also been found to be problematic (Hoerger and Mace, 2006) through research, Hoza (2007) has confirmed that peer rejection that children with ADHD often experience. In this case, much of the research conducted seem consistent and seem to conclude that ADHD symptoms posed problems to pupils in the public schools.

In the classroom, distractibility and excess motor activity combine to create a learner whose peer interactions are fraught with difficulty; primarily due to the high levels of verbal and physical aggression they often display (Du Paul and White, 2006). In focusing on peer relationships of learners with ADHD, it appears that rejection is not the only issue. Their peer difficulties relate to both excesses of negative behaviour as well as deficits in social skills. Research by (Junod, et al. 2006) suggest that Scholastic progress is therefore impaired and ADHD learners relationships within the school situation are negatively affected due to the feelings of frustration and other

negative emotions. Thus, interplay between inattention, peer conflict and learning disabilities amongst other factors, compromise learning for learners with ADHD. Du Paul and White (2006) document the significant academic difficulties experienced at school resulting in learners with ADHD achieving grades well below their potential. This means that closing the achievement gap for learners with ADHD is thus the critical importance.

Understanding the nature of the three core symptoms characterizing ADHD is vital. Focusing firstly on the inattention category, it becomes clear that learners with manifest problems such as giving and sustaining attention, when compared to learners of the same age without ADHD. This inattentiveness can be the cause of learning problems.

In a school environment, they fail to complete mark set and their organization and processing of information to pay attention to detail are further signs of ADHD, as are classroom behaviour problems (Anhalt, McNeil and Bahl, 2008). Scime and Narvilities (2006) present findings showing that learners with ADHD have unique needs, such as the need to use coping skills when frustrated and to be able to work at a slower pace than their peers. The difficulty these learners with ADHD face in maintaining on task-behaviour results in them producing poor quality work in the classroom if, in fact, they manage to follow through when given instructions. Anhalt, et al. (2008) describe the behaviour of learners with ADHD as shifting attention away from an assigned task to a competing task, as immediate gratification may be provided by the latter. This is supported by Antrop, Buysse, Roeyers and Van Oost (2005), who reported that it is particularly in stimulus-rich settings that inattention, is expressed by learners with ADHD. Impulsivity is a second core symptom of ADHD and can be experienced as a learner's difficulty in delaying impulses, so that consequences are not considered before a course of action is taken.

Impulsivity, possibly the defining characteristic of ADHD, is also described as behavioural disinhibition and results in poor planning and organization. ( Anhalt et al. 2009).

Hyperactivity is the third symptom, referring to excess and immature motor activity which is often highly inappropriate and more frequently expressed in settings that are stimulus-poor (Antrop et al. 2005). Impulsivity and hyperactivity are most often connected and these two core symptoms are more aversive and disruptive in nature than that of inattention, according to Graczyk, Atkins, Jackson et al. (2005) Graczyk, et al, anticipated that learners with ADHD would be non-challenging in the classroom setting than learners without ADHD. Thus it is these situations that cause difficulties such as waiting, that learners with ADHD will exceed activity levels of non-ADHD learners. Behaviour manifested by learners with ADHD that differentiates them from learners without ADHD includes negative vocalizations, gross motor movements and general level of activity (Lauth, Heubeck and Mackowiak, 2006). Research by Parsons, found learners with ADHD to exhibit more overall body movement than their peers without ADHD, and noted that increases hyperactivity in a learner resulted in greater inattention given to a task. This suggest that the core symptoms are in fact interrelated, which impacts in a complex manner on the behaviour of learners with ADHD and in general, these three symptoms combine and non-compliant behaviours are exhibited. Kapalka, (2005) had indicated that impulsivity in learners with ADHD often results in an immediate negative reaction, which translates into oppositional behaviour . To conclude, a strong evidence has been provided that ADHD symptoms have been found to be significant predictors of concurrent and future academic difficulties. The difficulties experienced by learners with ADHD often result in lower than potential grades and less chance of them pursuing tertiary education that is that learners with ADHD often experience poor educational functioning throughout their school career.

### **2.3 Statistical Prevalence of ADHD from Different Countries**

Although figures vary according to where and when studies are carried out and the diagnostic criteria used, it appears that ADHD is present throughout the world. Internationally, prevalence rates are conservatively estimated between 3% and 7% among children from a wide variety of cultures and geographical regions (Cooper, 2006). More recent international estimates suggest that between 4% and 10% or 8% and 12% of children worldwide are affected by ADHD (Bierderman and Faraone, 2005). Symptoms emerge more clearly between the ages 6 and 9 according to Arcelus et al, 2000. This means that the disorder is considered to be more prevalent in the age range 6 to 11 years.

Estimate for different countries vary. Goldstein and Goldstein (2006) suggest 1%-6% of school age children in the use with a diagnosis reported in the US. Other estimate approximately 3% to 7% had been reported by Du Paul and Stoner, 2003 or up to 7% of U.S children. This was reported by Cooper and Bilton, 2002. An American data collected in 2003 suggests that incidence rates varied significantly from a low of approximately 5% to a high of 8% in children age 4 to 14 years old (Goldstein, 2006). The above ratios given suggested that ADHD cases are rare in schools.

In the U.K it is difficult to ascertain accurate national figures. The breakdown of figures provided in government statistics does not include a discrete category for ADHD. Maras and Kerdmanyne (2007) suggest that although it is not clear how many pupils currently have a diagnosis of ADHD, the incidence is increasing. Figures published by the National Institute for Clinical Excellence (NICE) (2006) had indicated an estimate of 5% of school aged children of about 69,000 between 6 to 16 years old in England. The estimated prevalence of all ADHD is considerably higher around 5% of school-aged children. The same report had given 345,000 and

21,000 cases of ADHD in England and Wales respectively. On average this means that in a mainstream class of 30 children it is likely that at least one child will have ADHD. From the above it means that ADHD distribution is not even, with some schools having a disproportionate number of pupils displaying ADHD-type characteristics.

According to Barkley, 2008 incidence estimates depend significantly on which ADHD subtypes are included. Boys outnumber girls by 4:1 in the hyperactive-impulsive/mixed type groups, but boys and girls are represented in about equal number in the non-hyperactive type (Cooper and O'Regan, 2009). There are several sources for information on the statistical prevalence of ADHD among school-age children. The most recent estimates based on national survey had been provided by Centers for Disease Control and prevention (CDC, 2015). According to data from (CDC, 2015) for children ages between 4-17 years, highlighted data include 5.1 million children (8.8%) or 1 in 11 of this age group between 4-17 years have a current diagnosis of ADHD. According to the same report 6.8% of children ages 4-10 were ADHD. The average age of current ADHD diagnosis was 6 years, including mild ADHD diagnosed at 7 years, moderate ADHD diagnosed at 6 years and severe ADHD diagnosed at 4 years. The same report indicated that 3.5 million children 6.9% of children with current ADHD were taking medication for ADHD. These reports indicate that ADHD prevalence were higher among pupils of school going age. In a report by the Creswell (2009) data on the most common co-occurring conditions among 4 million pupils in a community, ADHD subtype indicated as follows. In a predominantly inattentive subtype the study reported that, 20% had Minor Depression/ Dysthymia, 21% had oppositional Defiance Disorder (ODD) and 19% had generalized Anxiety Disorder (GPD). In predominantly hyperactive-impulsive subtype 42% had ODD. In the combined subtype 50.7% had ODD. Parsons (2007) had reported that the world wide pooled prevalence of ADHD for



persons age 18 and under was 5.29%, based on a review of 102 studies comprising 171,756 subjects from all world regions. Erskine (2010) had found that Global ADHD prevalence for males aged 5-19 is 2.2% and females is 0.7% based on a review of 44 studies covering 21 world regions. According to Fanzen, (2008) in a study in Saudi Arabia, found out that out of 200 pupils a total of 13.5% of students were positive regarding ADHD cases. These research had confirmed that there is statistical significant difference of ratio of ADHD prevalence worldwide.

#### **2.4 ADHD Symptoms Measured by both Teachers and Parents**

Teachers are often the first ones to recognize or suspect ADHD in children. That is because ADHD Symptoms typically affects school performance or disrupts the rest of the class. Also, teachers are with children for most of the day and for months throughout the year. Since teachers work with many different children, they also come to know how students typically behave in classroom situations requiring concentration and self-control so when they notice something outside the norm, they may speak with the school psychologist or the parents about their concerns. There is no one test for measuring ADHD the diagnosis is based on observation of a child's behavior. Anastopulos, 2014 had indicated in a report when he assessed ADHD diagnostic status using categorical and dimensional approaches as well as parent and teacher-report measure confirmed that although both teacher and parent ratings were significantly predictive of diagnostic status and that teacher ratings made a stronger contribution to the prediction of subtype membership. From its findings this means teacher rating Scale is most important tool in predicting ADHD cases. Major concern of researchers in the field of attention- deficit/hyperactivity disorder (ADHD), over the past 20 years has been identification of core symptom clusters. Numerous rating scales have been developed to assess children for ADHD. Broadband rating scales, designed to assess a wide range of externalizing and internalize.

(Du Paul and White, 2005) which contains a home and school version, was developed to reflect symptoms of ADHD as described in the DSM-IV. In this report it strongly indicated that the home and school versions of the rating scale have acceptable reliability and criterion-related validity. Lessing and Dreyer, (2009) in a report suggested that an approach to diagnostic prediction that includes both teachers and parents may be superior to a single informant approach, although this finding was not demonstrated consistently. The finding of this study provides a method for using teacher and parent report information when making diagnostic decisions about ADHD. Elias, et al (2003) in a report indicated that teacher ratings on the ADHD rating Scale-IV are extremely important in predicting subtypes. He continued to indicate that although parent ratings were also significantly predictive of diagnostic status, teacher ratings were better at predicting ADHD subtypes than parent ratings. A result from Achenbach, 1996 had indicated that an approach to diagnostic prediction should include both teachers and parents and this may be good to a single informant approach. It is on this ground that the current study adopted both teacher and parent rating scales. According to report by Sherman, (2006) a data from parents and teachers on a large sample of Urban School children aged 6 to 12 years on the Attention deficit Hyperactivity disorder using (ADHD) rating scale, and collected criterion measure (e.g., direct observations of classroom behaviour, academic achievement scores) proofed to be more successful. The ADHD Rating Scale of both teacher and parent rating scales found to be a highly reliable questionnaire with adequate criterion-related validity. In another report by Sherman (2006) in a study using parent and teacher rating collected on 977 children between 6 to 14 years of age concluded that the ADHD rating scale-IV on both teacher and parent ratings appears to be a reliable, valid and user friendly measure for screening pre-scholars

with behaviour problems. This findings means that using both the teacher and parent scale to measure the predictability of ADHD Cases is more reliable and valid. Children with ADHD characteristics often experience severe problems in the classroom. Even though ADHD behaviours are apparent in various situations, the classroom is still where it is most noticeable. Children with ADHD in a classroom tend to demonstrate a wide variety of behaviours that may disrupts the teaching process, as well as interrupt their own learning, which may include off a

task behavior, physical restlessness and inappropriate or intrusive talking (Schulz, 2007).

Teachers are considered to play a key role in identifying potential children with ADHD, since parents may be too close to their children to identify ADHD cases. Given that ADHD tends to affect functioning most strongly at school, teachers may be the first to recognize a child`s hyperactive and inattentive symptom and may point it out to parents or consult with the school psychologist or counselors. According to Muscott et al 2008, diagnostic children with ADHD were difficult, bearing in mind the numerous symptoms, characteristic and combination of symptoms. This means that it is uncommon to hear of misdiagnosis of ADHD, wherein a child`s behavior are attributed to ADHD when actuality they are caused by or related to some other conditions or traits, such as giftedness. According to Leedy and Ormrod, 2005, teachers are the ones who are most likely to identify ADHD children based on their observations of symptoms such as hyperactivity, short attention span, poor social skills, insubordination, high levels of frustration and disruptive behaviour. Thus this statement suggest that having teachers involved in the assessment of ADHD is vital, yet at times doctors and psychologist may be influenced by a teacher`s subjectivity and preconceived notion about the child, and this may result in the over diagnosis of ADHD. Girio and Owens (2009) suggest that teachers who need to identify and rate ADHD type behaviours in the classroom, will also need to observe children behaviour for a

while before making the distinction between ADHD or excessive, normal behaviours. Glass and Hopkins (2000) concluded in their findings by questioning the legitimacy of diagnosing children with ADHD on characteristics alone that may be assessed by teachers who do not have sufficient knowledge on ADHD type behaviours and normal childhood behaviours. Gureasko, (2006) tries to draw a distinction between what is appropriate behaviour for a child and what is not. His investigation of the correct procedure for diagnosing ADHD begins with thorough interviews of the parents in order to obtain a complete case history. The child is then interviewed in order to understand how he/she views the problems. A complete medical examination is done to rule out physiological problems. The child is then given an intelligence and achievement test and screened for other mental problems. In the same report Gureasko,2006 suggested that, when the above procedure are followed that the parents and teachers ratings scale could be used to evaluated and a diagnosis could be reached. Since very few physicians spend such a lengthy time performing these examinations, the ADHD diagnosis were left to the teachers and parents who filled out the behaviour rating scales. This means that deciding if a child has ADHD is a several-step process. There is no single test to diagnose ADHD. All research read indicates that some impairment from the symptoms is present in two or more setting (at school, work, home, with friends and relatives. In this study the teacher and parent ratings of DSM-IV Symptoms related to ADHD, as assessed by the ADHD rating scale-IV were examined to determine their ability to predict the presence of ADHD.A strong evidence has been provided that the home and school version of this scale have acceptable reliability and criterion-related validity.

## **2.5 ADHD and Gender Difference**

Gender difference in psychopathology is an important area of interest that often has been neglected by researchers. Gender differences in the form of psychopathology have been formally

recognized since Freud presented his views of the beginning of the 20<sup>th</sup> century however, psychopathology in girls has received far less research attention than psychopathology in boys (Maras and Redmayne, 2007). In the past, many studies have excluded girls from their samples or did not examine girls separately. In addition, until recently there have only been a few studies on disruptive behaviour disorder in girls. Attention Deficit Hyperactivity Disorder (ADHD) is one behavioural disorder that is commonly studied, diagnosed, and treated in predominantly male populations. Many experts argue that there is evidenced that, ADHD is under diagnosed in females (National Institute of Mental Health 2003). Differential sex prevalence has been found when diagnosing several mental disorders. It has generally been found that males are more likely to have ADHD, learning disorders, language disorders, Autism and Aspergers disorder (Harris, et al 2005). Specifically, males with a diagnosis of an externalizing behaviour disorder have thought to outnumber females by ratios of 2-5, (Holowenko and Pashute 2000).

It is also been found that females are more likely to have a comorbid anxiety disorder, mood disorder and eating disorder than boys, (Creswell, 2007). Generally, there has been consensus in the field that males are more likely to have an externalizing disorder (Attention Deficit Disorder, Conduct Disorder) where girls are more likely to have an internalized disorder (i.e. Generalized Anxiety, Major Depressive Disorder). While these gender differences have been well established their meaning has not been well understood (Delport, 2005). In this case, much of the researchers conducted seem consistent that there is gender difference in ADHD cases.

ADHD is a neurological disorder that has been thought to affect far more males than females. Females with ADHD especially those who are adolescents and adults have been largely neglected in the research, there has been a slow growing body of research that has clearly shifted the Conceptualization of ADHD and suggests that ADHD is not a predominantly male disorder

despite prevalence rates. In addition, recent research suggests that ADHD in males and females are more similar than different. More studies with larger samples and equal representations across gender are greatly needed (Derrington, 2004). It is well known that ADHD exists in girls and causes considerable impairment in female samples (Connor, 2002). However, information regarding the course of ADHD in females is lacking (Connor, 2002). This means that most of what is known about ADHD in females is based on clinical experiences and observations rather than scientific findings. Research have shown that girls with ADHD are more likely than boys to be diagnosed with predominantly inattentive type of ADHD (Biederman, et al 2002).

Check lists commonly used by schools, pediatricians, and psychologists to identify children with ADHD continue to emphasize hyperactive/impulsive behaviour patterns that are more typical of boys (Atkins et al, 2010). Several hypothesis that rely on biological or child-rearing differences by gender have been offered to explain the disproportion of ADHD in males when compared to females but have failed to resolve this issue (Anstopoulos et al. 2009). The literature offers no clear explanation to what causes or contributes to the difference in gender prevalence rates of those diagnosed with ADHD. ADHD is much more common among males than females. It is estimated that boys are two to three times more likely to have ADHD than girls. They are up to nine times more likely than girls to be referred for evaluation and treatment (Chambers, 2000). In terms of gender, according to Reid et al (2000) boys are diagnosed at a rate of 4 to 9 for every one girl. This occurs because boys are referred more often for behavioural problem; while girls are referred more for learning problems. Recent studies have shown that girls may be at an increased risk of remaining under detected and untreated. A common explanation for this is that girls are presumed to have ADHD with the subtype inattentiveness, which may be less obvious to parents and less likely to prompt help seeking. Therefore, gender correlated behavioural

problems may be identified more as ADHD in boys than in girls due to the frequency of disruptive classroom behaviour exhibited by boys.

## **CHAPTER THREE**

### **RESEARCH METHODS**

#### **Introduction**

This chapter lays out the procedures that were used in conducting the study. It describes the area of the study, research design, population of the study, sample and sampling techniques, data collection procedure, research instrument and data analysis.

#### **3.1 Study Type and Design**

The present study sought to use a descriptive survey design which was primarily quantitative in nature in order to give a detailed description of the prevalence of ADHD among public basic school pupils. This sought to confirm, validate relationships and to develop generalization that contribute to the prevalence of ADHD among public basic school pupils in the Asante-Akyem North District, in the Ashanti Region of Ghana.

#### **3.2 Data Collection Tool**

The major tool used in this study was Swanson, Nolan and Pelham questionnaire (SNAP-IV). It is a rating scale checklist which had been used in other epidemiologic studies regarding ADHD. It is in two parts the teacher and the parent rating scales. Most of the items in the teacher and parent rating scales used in this study were uplifted verbatim from the SNAP-IV rating scale. There were item numbers 1 to 18 in the teacher rating scale checklist and item numbers 1 to 18 in the parent rating scale checklist.

#### **3.3 Data Collection Techniques**

The overall strategy for identifying ADHD cases in this study involved two phases or stages I



and II

In the stage I, possible ADHD cases were identified from the teacher rating reports and from the parent rating reports.

In stage II, after determining the possible cases from the teacher and the parent reports, they were combined to determine matched cases. All those who met the research criteria based on DSM-IV-TR were considered as ADHD Cases. The DSM-IV-TR diagnostic criteria for ADHD was used to identify the potential ADHD Cases.

All the students assessed have never been diagnosed to have ADHD and were not on any medication before and during the entire study period. All the students assessed attended the normal public basic school and were never part of the special education school. The teachers were asked to complete the teacher rating scale checklist without them knowing what is considered a positive response. They were asked to check the response which best describes the child behaviour since the beginning of the second term. A four-point Likert Scale adopted verbatim from the SNAP-IV rating scale was used to identify the positive ADHD Symptoms. Four possible answers were given in each item in the SNAP-IV` rating scale “Not At All”, “Just A Little”, “Quite A Bit”, “Very Much”, “Quite A Bit” and “Very Much”. The two top most extreme answers (“Quite a Bit” and “Very Much”) were considered a positive response because these response are considered psychopathological responses while “Not at All” and “Just a Little” are considered normal responses. Pupils having at least six positive symptoms of attention or at least six positive symptoms of hyperactivity-impulsivity were considered as possible ADHD Cases.

## **Parent Screening**

A parent or caregiver of each pupil was asked to fill out the parent rating scale checklist that was sent out to their homes together with the letter and consent form. After completion of the said checklist, they were asked to return them together with the consent form to their classroom adviser. For those who had difficulty understanding some of the items in the checklist and they do not have any other household member who could help them out in answering the questionnaire were identified and assisted by the research assistant to make them understand the items they find difficult to understand. 55 of the 374 parents were assisted.

All of these 55 parents have not reached high school level. There were a total of 62 parents out of the 374 parents whose educational background did not reach high school level. The parent rating scale question item numbers 1 to 18 were exactly the same as that in the teacher rating scale.

The parents were asked to check the response which best describes their wards behaviour for the past six months. Again, responses of “Quite a Bit” and “Very Much” were considered positive symptoms. A child with having at least six positive symptoms of inattention and at least six positive symptoms of hyperactivity-impulsivity was considered as a possible ADHD case.

## **Combining Teacher and Parent Reports**

Possible cases from the teacher screening and possible cases from the parent screening were compared to be declared as a matched case. A matched case is a possible ADHD case from both parent and teacher screening results. In addition to this, if a pupil has at least 6 of the 9 inattention symptoms or 6 out of the 9 hyperactivity-impulsivity symptoms when parent and Teacher`s report were combined. The symptoms should be both positively reported by both the child`s parent and teacher. To illustrate these criteria clearly, consider these two examples.

**Table 1. Matching Teacher And Parent Reports**

### MATCHING TEACHER AND PARENT REPORTS

Although this child has both at least 6 inattention symptoms from the teacher and parent report, this child will still not be considered a matched case because only 3 inattentive symptoms were both found to be the same in both the teacher and parent ratings.

**Example 1 Child A**

Inattention Symptoms	Teacher Report	Parent Report
1. Makes careless mistakes	+	+
2. Can't pay attention		+
3. Doesn't listen	+	+
4. Fails to finish work	+	+
5. Disorganized	+	
6. Can't concentrate		+
7. Loses things	+	
8. Distractible		+
9. Forgetful	+	
Total Positive Inattention Symptoms	6/9	6/9
Total Matched Positive Inattention Symptoms	3/9	

Although this child has both at least six inattention symptoms from the teacher and parent report, this pupil will still not be considered a matched case because only 3 inattentive symptoms were both found to be the same in the teacher and parent report.

**Table 2. MATCHED CASES OF POSITIVE INATTENTION SYMPTOMS  
(EXAMPLE 2)**

**Pupil No. 2 has the following positive inattention symptoms.**

Pupil No. 2 has a total of 7 positive out of the 9 inattention symptoms unlike pupil number 1. This pupils is declared a matched case because it has at least 6 out of the 9 inattention symptoms from both the teacher and the parent reports.

**EXAMPLE 2 (CHILD B)**

INATTENTION	TEACHER REPORT	PARENT REPORT
1. Makes careless mistakes	+	+
2. Can't pay attention	+	+
3. Doesn't listen	+	+
4. Fails to finish work	+	+
5. Disorganized	+	+
6. Can't concentrate		+
7. Loses things	+	+
8. Distractible	+	
9. Forgetful	+	+
Total Positive Inattention Symptoms	7/9	8/9
Total Matched Positive Inattention Symptoms	7/9	

Child B has a total of 7 positive out of the 9 inattention symptoms unlike child number 1. This child may be declared a matched case because it has at least 6 out of the 9 inattention symptoms from both parents and teachers when it was matched.

### **Teacher Rating Scale Checklist**

The teacher rating scale checklist was pre-tested, pre-validated, standardized self administered checklist which was utilized to assess ADHD symptoms.

Item numbers in this checklist were taken verbatim from the SNAP-IV checklist. 9 items from the SNAP-IV checklist was used to assessed inattention symptoms, 6 items were used to assess hyperactive symptoms and 3 items were used to assess impulsive symptoms. Each item in this study "s checklist adopted a four-point rating scale: "Not At All" = 0, "Just A Bit" = 1, "Quite a Bit" = 2, and "Very Much" = 3.

### **Parent Rating Scale Checklist**

The parent rating scale checklist used in this paper was also adopted from the SNAP-IV checklist. The checklist contained 18 questions. The item numbers in the teacher rating scale was the same item numbers as in the parent rating scale were used to assess specific symptoms and or disorder (e.g. #1 to #9 = inattention symptoms, and 6 and 3 respectively= hyperactivity-impulsivity symptoms).

A four-point Likert scale was also used in rating each question, same as in the teacher rating scale: "Not At All" = 0, "Just A Bit" = 1, "Quite a Bit" = 2 and "Very Much" = 3 .

According to the criteria for the ADHD diagnostic types in the DSM-IV-TR, a score of 6 or greater on the inattention items was required for a diagnosis of predominantly inattention type. A score of 6 or greater on the 9 hyperactivity/impulsive item was required for a diagnosis of predominantly hyperactivity/impulsive type, and a score of 6 or greater on the inattention items alone with a score of 6 or greater on the hyperactivity/impulsive were required for a diagnosis of combined types.

Below are the dates on which the teachers and parents questionnaires were administered at the various schools in the circuits (cluster).

Researcher toured the selected schools.....26 -30 January, 2015.

## Administration of questionnaires

Agogo East circuit (cluster A).....	2-13 February, 2015.
Agogo West circuit (cluster B).....	16-27 February, 2015.
Amantenaman circuit (cluster C).....	2-13 March, 2015.
Owarriman circuit (cluster D).....	16-27 March, 2015.

The researcher spent two weeks in each cluster of school with schools selected. Completed Questionnaires were collected within the two weeks.

Table 3 Number of schools in the district as sampled for the study

Circuit	Name of schools	Schools sampled
<b>Agogo East (Cluster A)</b>	Abrewapong D/A Primary School	
	Addokrom D/A Primary School	Addokrom D/A Primary
	Adinkrakrom D/A Primary School	Agogo D/A Saviour A
	Agogo D/A Pentecost Primary School	Agogo Methodist Primary
	Agogo D/A Saviour A Basic School	Hwidiem Meth. Primary
	Agogo D/A Saviour B Basic School	Pataban D/A Primary
	Agogo Methodist Primary	
	Agogo A.P.C.E Demonstration A Basic School	
	Agogo A.P.C.E Demonstration C Basic School	
	Asenkyem D/A Primary School	
	Brantuokrom D/A Basic School	
	Hwidiem Methodist Primary School	

	Kansanso D/A Primary	
	Onyemso Presby Basic School	
	Pataban D/A Basic School	
<b>Agogo West (ClusterB)</b>	<b>Name of Schools</b>	<b>Schools Sampled</b>
	Agogo D/A D Basic School	Dukusen D/A Primary
	Agogo A.P.C.E Demonstration B School	Bebuso D/A Primary
		Agogo R/C Primary
		Kowireso D/A Primary
	Agogo Presby A Basic School	
	Agogo Presby Basic B Basic School	
	Agogo Presby C Basic School	
	Agogo R/C Primary	
	Agogo T.I Ahmadiyya Primary	Nhyiaeso D/A Primary
	Ananekrom D/A Primary	
	Bebuso D/A Primary	
	Brahabebome D/A Primary	
	Dukusen D/A Primary	
<b>Agogo West Circuit</b>	<b>Name of Schools</b>	<b>Schools Sampled</b>
	Kowireso D/A Primary	
	Nhyiaeso D/A Primary	
	Nsoyame D/A Primary	
	Serebuoso D/A Primary	
<b>Amantenaman (Cluster C)</b>	<b>Name of Schools</b>	<b>Schools Sampled</b>
	Akutuase D/A Primary	Wioso Presby Primary
	Akutuase Presby Primary	Mennam D/A Primary

Owerriman (Cluster D)	Name of Schools	Schools Sampled
	Amantena Presby Primary	
	Behwe/Dawereso D/A Primary	
	Mennam D/A Primary	
	Nyinaamponase Presby Primary	
	Wioso Presby Primary	
	Woraponso D/A Primary	

**Table 4 DISTRIBUTION OF SCHOOLS PER CLUSTER.**

Name of Circuit (Cluster)	Number of Schools	Number Of Schools Sampled
Agogo East Circuit (Cluster A)	17	5
Agogo West Circuit (Cluster B)	15	5
Amantenaman Circuit (Cluster C)	8	2
Owerriman Circuit (Cluster D)	10	3
<b>Total</b>	<b>50</b>	<b>15</b>



The table 4 shows number of schools and the schools sampled. There were 50 schools in the district. These schools were grouped into clusters. Cluster A had 17 schools and 5 schools were sampled, Cluster B had 15 schools and 5 schools were sampled, Cluster C had 8 schools and 2 Schools were sampled, Cluster D had 10 schools and 3 schools were sampled. The cluster of schools and the number of schools sampled was represented clearly in table 4.

**Table 5 shows how students were sampled according to cluster and Gender. Distribution of Sampled Students According to Cluster and Gender**

Circuit (Cluster)	Population Sampled	Samples According to Gender	
	Number of students	Boys	Girls
Agogo East (Cluster A)	105	76	63
Agogo West (Cluster B)	112	85	56
Amantenaman (Cluster C)	90	24	26
Owerriman (Cluster D)	67	20	24
<b>Total</b>	<b>374</b>	<b>205</b>	<b>169</b>

Table 5 shows the number of students according to cluster and gender. 105 students were sampled from cluster A, 76 were boys and 63 were girls, 112 students were selected from cluster B, 85 were boys and 56 were girls, 90 students were sampled from cluster C, 25 boys and 26 were girls, 67 students were sampled from cluster D, 20 were boys and 24 girls.

### 3.4 Study Area

This study was conducted among pupils in the public basic schools in the Asante-Akyem North District, Ghana from January 26<sup>th</sup> till the end of March, 2015. The study was conducted in this

district because the researcher had worked in the district for eight years, and had encountered such problem of ADHD among his students through Counselling Session. The Asante-Akyem North District is a newly formed district. The district was formally part of the Asante-Akyem Central and it is a farming community. Each basic school has six classes and averagely each class consisted of seventy pupils.

### **3.5 Population of the Study**

The reference population of this research study was all pupils in public basic schools in the Asante-Akyem North District in the Ashanti Region, Ghana. The target population was all pupils in the public basic schools in the Asante-Akyem North District with signs of ADHD.

#### **Participates**

##### **Inclusion Criteria:**

- i. Selected Pupils of public basic schools in the Asante-Akyem North District
- ii. Pupils whose parents consented for them to be included in the study and returned the checklist.
- iii. Pupils who have been enrolled in the school and have been taught by the teacher for more than six months.
- iv. Pupils who are in classes one and six

##### **Exclusion Criteria:**

- i. Pupils who have been absent for more than a month till the whole duration of the implementation of this study.
- ii Pupils who have dropped out of the class before the start of the implementation period of the study
- iii Pupils who have been transferred to another school before the start of the implementation period of the study.
- iv Transfer pupils who have been enrolled in the class for less than six months.
- v Pupils whose parents did not consent for their ward to be included in the study.
- iv Pupils whose parents did not return the checklist given through their wards.

### **Informants**

Four hundred and forty public basic school pupils from Asante-Akyem North purposively received invitation to participate in the study. These pupils also met the inclusive criteria. Purposive sampling allowed the use of cases that have the required information with respect to the subject of the study.

Each pupil was assessed by his/her classroom teachers and also by his/her parents or caregivers. Teachers were selected as informants to provide the pupils behaviour data in school. Parents or caregivers were selected as informants to provide data regarding their wards behaviour at home.

### **3.6 Sample Techniques /Sampling Size**

#### **School and Participant selection**

A sample of 450 participants (pupils) were purposively selected for the study based on the information given by their teachers but 374 pupils were allowed by their parents to participate in the study. The schools in the district were first grouped into four clusters. The simple random sampling of the lottery method was adapted to select the schools from the clusters. The lottery method is where the researcher used numbers corresponding to the schools, wrote them on pieces of papers and put them in a box, thoroughly mixed and picked one after the other. In the selection of the schools in each cluster, the names of the schools were put in a box and schools were picked one after the other until the desire number require is selected.

The 50 schools in the district were grouped into 4 circuits (clusters), and a random selection of 15 schools were selected from the circuits (cluster). Five schools were selected from cluster A, 5 schools from cluster B, 2 schools from cluster C and 3 schools from cluster D. After this activity informal interview was conducted for teachers in the schools selected to help in the selection of the respondents (students) for the study thus teachers were informants. In all 450 participants were selected by the teachers to participate in the study and 374 of these pupils were permitted by their parents or caregivers to be included in the study.

### **3.7 Pre-Testing**

The teacher rating scale checklist was pre-tested among teachers from schools in the district which were not included in the study. All found each of the questions understandable. The parent rating scale was pre-tested among a parent from each cluster. Seven of the parents were university graduates who have their wards in the school. The other 23 were senior and junior secondary school graduates. All 30 parents said that they could understand the items in the questionnaire. The researcher was not able to pre-test the questionnaire to a parent who has not reached high school.

To address this problem, it was anticipated that there would be some of the parents who would want their wards to be included in the study but could not understand all the items in the questionnaire. Those interested parents or caregivers were identified and a research assistant was assigned to assist them in answering the questions.

### **3.8 Data Handling**

The questionnaire of both teacher and parent scales were securely kept in the office of the

principal investigator and handed over to a statistician the following day for analysis using SPSS. Data from the teacher's and the parent's questionnaires were entered into Microsoft excel sheet for sorting and cross-checking the accuracy for subjects who met the DSM-IV criteria for the diagnosis of ADHD, and those who did not were sorted and copied to a separate sheet to facilitate examination. The data were exported to the statistical package for social science software (SPSS version 13) for calculation of statistical significance.

### **3.9 Data Analysis**

Data analysis in the present study comprised coding, statistical and content analysis. **Coding** is the process of translating data form that make it amenable to computer analysis. In the current study, each individual respondent was termed as unit of analysis. Two questionnaires were used to collect the data. The teacher rating scale and parent rating scale was used to screen for ADHD symptoms. The criteria for ADHD diagnoses and its subtypes were established by adherence to the DSM-IV-TR criteria. There were 18 ADHD symptoms corresponding to 18 criteria in DSM-IV-TR (9 inattention items, 6 hyperactive items, and 3 inclusive items). Each item was scored on a scale of 0 (NO) 1, 2, 3, (YES) by the teachers and parents if the children behaviour were persistent across the six months observation period as required by DSM-IV-TR criterion.

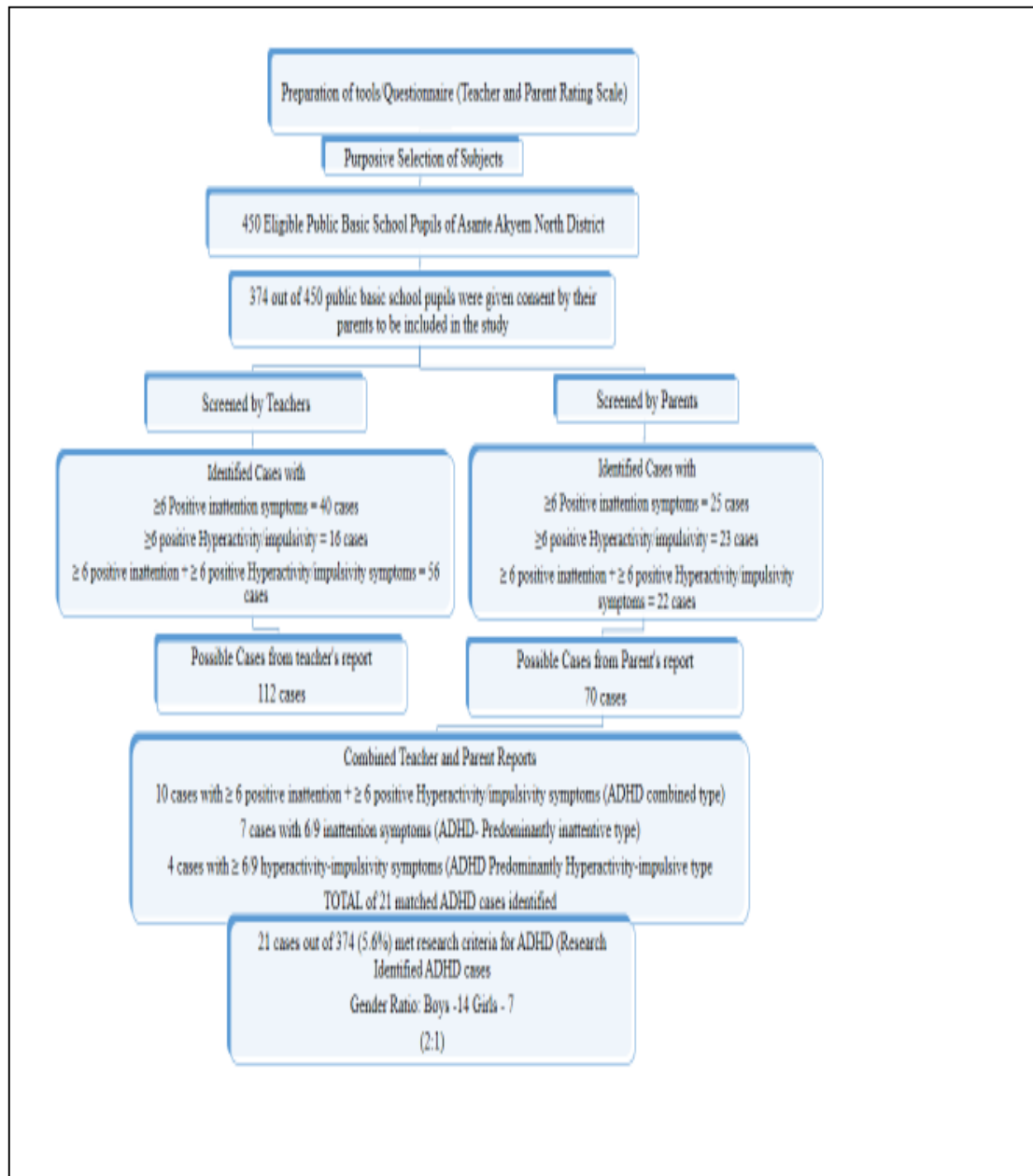
### **Statistical Analysis**

In analyzing the data, the statistical package for the social science (SPSS) was used to analyze data on the prevalence of ADHD among public basic school pupils in the Asante-Akyem North District in the Ashanti Region, Ghana. The SPSS package was used in the present study for several reasons. The SPSS package included a wide variety of statistical procedures and easily handled large sets of data, multiple variables and missing data points present all research in a easy-to-read table format.

With the intimate knowledge of the data, the researcher derived true meaning from the statistics computed and used them to address the research problem of the current study. The main statistical tool that was used for analyzing the data on each of the research question was frequencies and percentages. The prevalence rate was computed by dividing the number of research – identification ADHD cases identified with the total number of respondents assessed. The purpose of the analysis was to find out the prevalence of Attention Deficit Hyperactivity Disorder in the Asante-Akyem North District in the Ashanti Region, Ghana. The respondents were requested to answer all the items on the questionnaire. They were supposed to choose from the options that were provided. To facilitate scoring and analysis of the data, the weights of 0, 1, 2, 3 were assigned to Not at all, Just A little, Quite A Bit, and Very Much respectively for the questions. The scores for each respondent were summed up to obtain their score. The statistical programming for social sciences (SPSS) was used to compute for

their raw score as well as used in calculating the frequency and percentages values which seek answers to the research questions stated in chapter one.

**Content Analysis;** this was used to analyze data from the questionnaire items because it produces a relatively systematic and comprehensive summary of the data sets as a whole. The researcher examined data from the questionnaire items for recurrent instances which were systematically identified across the data sets and grouped together thematically. The frequency table gave a clear and precise description of the data obtained.



## Flow of activities



## **Overall Approach of ADHD Assessment**

The overall strategy for identifying ADHD cases in this study involved two phases. Phase 1 and 2. In phase 1, possible ADHD cases were identified from both the teacher rating scale report and from the parent rating report. After determining the possible cases from the teacher and parent reports, they were combined to determine matched cases. Further assessment was done among the matched cases to address the other research questions, to find out the subtypes of ADHD and the ratio of boys and girls among the possible cases. All those who met the research criteria based on DMS-IV-TR were considered as ADHD cases.

### **3.10 Ethical Consideration**

A study ethically begins with the identification of the research topic and continues through to the publication of the study. The execution of studies demand not only expertise and diligence but honesty and integrity. Ethics ensure that research is done in the best interest of the research participants.

The following were the discussion of the ethical standard that were adhered to in the current study in order to ensure the rights and welfare of all the research participants. The teachers, parents and pupils were observed, respected and protected and none of them was harmed or hurt in any way during and after the research process.

#### **Permission**

In order to secure the approval of the research participants, the researcher first sought and secured clearance from the Kwame Nkrumah University of Science and Technology, Department of Community Health. Permission was Health. Permission was also sought from all Head teachers of the

schools involved in the study. All parties example teachers, parents and pupils were provided with a brief, clear, concise and precise research profile so as to get the permission required to execute the study. They were assured of absolute confidentiality.

### **Confidentiality**

In the current study, the researcher kept the nature and quality of the performance of the research participants strictly confidential by informing the participating teachers and parents that they were not required to write the names of the pupils on the administered questionnaires. **Anonymity**

Research participants in the present study were identified by serial numbers rather than by name. Anonymity was also guaranteed through grouping data rather than presenting individual response. Research report was presented in such a way that others would be unaware of the particular participating or selected pupil.

### **Informed Consent**

Informed consent demand that respondents be allowed to choose to participate or not to participate. In a study after receiving full information about the possible risks or benefit of participating from the researcher. Teachers and parents were informed about the rationale and nature of the study and given the choice of either participating or not participating.

### **Validity and Reliability**

To make the study valid and reliable, the questionnaires for both teachers and parents were pilot tested. The pilot group did not participate in the main study because it had completed the questionnaire twice in tandem with the test re-test reliability method, hence was familiar with the questionnaire items.

## CHAPTER FOUR

### RESULTS

#### Introduction

In the chapter present, the data generated from the current study is presented in tabular form respective to the research questions. Data for each participant were entered onto statistical package for the social science (SPSS). All items on the teacher and parent scales were recorded preceding analysis in line with the recommendation of the scoring of SNAP-IV.

#### 4.1 Socio-Demographic

##### Characteristics

The study was conducted in 15 public basic schools in the Asante-Akyem North district in the Ashanti Region. Demographic characteristics of the samples are displayed in the table 6

**Table 6. Age Distribution of Students in Years**

Ages of Students (Years)	Frequency	Percentage
6	51	13.6%
7	69	18.4%
8	60	16%
9	40	10.7%
10	34	9.1%
11	19	5.1%
12	28	7.5%
13	28	7.5%
14	45	12%
<b>Total</b>	<b>374</b>	<b>100%</b>

**Table 7. Distribution of Students by Gender**

<b>Gender</b>	<b>Frequency (F)</b>	<b>Percentage (%)</b>
Boys	205	54.8%
Girls	169	45.2%
<b>Total</b>	<b>374</b>	<b>100.0%</b>

Table 8. Distribution of students according to class (Levels)

<b>Class (Basic)</b>	<b>Frequency</b>	<b>Percentages (%)</b>
1	66	17.6%
2	78	21%
3	54	14.4%
4	48	13%
5	68	18%
6	60	16%
<b>Total</b>	<b>374</b>	<b>100.0%</b>

Source; Field Report March, 2015

The age distribution of the students ranged from 6 (minimum age) years old to 14 years old (maximum age). 59 (13.6%) of the students were 6 years, 60 (16%) were 7 years, 69 (18.4%) of students were 8 years, 40 (10.7%) of students were 9 years, 34 (9.1%) of students were 10 years, 19 (5.1%) of students were 11 years. 28 (7.5%) of students were 12 years, 28 (7.5%) of students were also 13 years and 45 (12%) of the students out of the 374 students were 14 years old.

The data in table 7 shows the distribution of students according to gender. The table shows that out of the 374 students 205 (54.8%) were boys and 169 (45.2%) were girls.

The data in table 8 shows the distribution of students according to class or level. The table shows that out of the 374 students sampled for the study 66 (17.6%) of the students were in class 1, 78 (21%) students were in class 2, 54 (14.4%) students were in class 3. Also out of the 374 students, 48 (13%) of the students were in class 4, 68 (18%) of the students were in class 5 and 60 (16%) of the students were in class 6.

## **4.2 ANALYSIS OF RESEARCH QUESTIONS**

### **Teacher and Parent Scores**

In analyzing this part of the questionnaire and for purposes of classify and easy comparisons, the scores of “Just A Bit” “ Quite A Bit” and “Very much” were put together and regarded as positive symptoms while “Not At All” were regarded as normal symptoms. Each item in this study ’ s checklist adopted a four point rating scale “Not At All” = 0 “Just A Bit” = 1 “ Quite A Bit = 2 and “very much” = 3 for items Numbers 1 – 18 on both the teacher and parent rating scale. Item numbers 1 – 9 were used to assess inattention symptoms of ADHD. Item Numbers 10 to 18 were used to assess hyperactivity-impulsivity symptoms of ADHD. The prevalence rate was computed by dividing the number of research-identified ADHD cases identified with the total number of respondents assessed.

**Possible cases of ADHD identified as rated by both Teachers and Parents. Table 9.**

**ADHD cases as rated by both Teachers and parents.**

Type of Rating Scale Report	Frequency (F)	Valid Percentage
Teacher(s)	112 (374)	30%
Parents(s)	70 (374)	19%

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Source; Field Report March, 2015

Results in table 9 showed that based on the teacher reports, 112 possible ADHD cases out of 374 pupils (30%) were identified.

Meanwhile, based on the parent report 70 possible ADHD cases out of the 374 pupils (19%) were identified.

**ADHD Subtypes from the possible cases among public basic school pupils in the Asante Akyem North District.**

**Table 10****ADHD subtypes according to teacher and parent rating reports**

ADHD Subtypes	Teacher Report		Parent Report	
	Frequency (F) Valid	Percentage%	Frequency (F) Valid	Percentage %
Hyperactive/impulsive type	16	14.3%	23	33%
Combined type	56	50%	25	35.7%
Total	112	100%	70	100%

The tables 10 shows that out of the 112 possible ADHD cases identified from the teacher report

56 or 50% were combined type, 40 or 35.7% were predominantly inattentive types, and 16 or

14.3% were predominately hyperactive-impulsive type. Out of the 70 possible cases identified from the parents report, 25 or 35.7% were combined types, 22 or 31.43% were inattentive type and 23 or 33% were predominately hyperactive impulsive types these results suggest that in both setting at school and at home more possible ADHD cases are of combined type than of the other subtypes.



**Prevalence of ADHD cases from the matched cases of both the teacher and parent rating scales**

**Table 11. Summary of identified Matched ADHD Cases**

Number Of Pupils	Code Of Pupils	Sex Of Pupils	Inattentive ≥ 6/9	Hyperactivity/ Impulsive Type ≥ 6/9	Combined Subtype ≥ IN + H/M Symptoms
1	111	B	1	H/M	C
2	102	G	1	H/M	C
3	95	B	1	H/M	C
4	40	G	1		
5	60	B	1	H/M	C
6	81	B	1		
7	122	G		H/M	
8	130	B	1	H/M	C
9	141	G	1		
10	332	B	1	H/M	C
11	2	G		H/M	
12	10	B	1		
13	16	B	1	H/M	C
14	90	G	1		
15	66	B	1	H/M	C
16	17	G	1		
17	220	B	1	H/M	C
18	129	B	1	H/M	C
19	219	B		H/M	
20	153	B	1		
21	100	B		H/M	
<b>NUMBER = 21</b>	NUMBER= 21	BOYS – 14 GIRLS- 7 = 2:1	Inattentive =7/21 33.3%	Hyperactivity impulsive 4/21 19%	Combined = 10/21 47.6%

Source Field Report, March, 2015.

Table 11 shows that 21 matched cases (21 / 374 or 5.6% among the possible cases identified in both settings of the teachers and parents report. Among the 21 cases 7 pupils were found

to have inattention symptoms and 4 pupils out of the 21 pupils were found to have Hyperactivity - Impulsive symptoms. The inattention and hyperactive/impulsive symptoms were then combined to get the combined cases. Out of the 21 cases 10 (47.6%) were combined cases.

#### **Gender difference of research-identified ADHD cases**

**Table 12. Matched researched-identified cases according to Gender differences.**

<b>Gender</b>	<b>Frequency (F)</b>	<b>Valid Percentage</b>
Boys	14	66.7%
Girls	7	33.3%
<b>Total</b>	<b>21</b>	<b>100%</b>

Source; Field Report, March, 2015.

The table 12 shows that 21 out of the 374 (5.6%) pupils assessed, met this study matched ADHD criteria. 14 out of the 21 (66.6% matched cases were boys while the remaining 7 cases (33.3%) were girls.

## **CHAPTER FIVE**

### **DISCUSSION**

#### **5.0 Introduction**

The study is aimed at investigating the prevalence of ADHD among public basic schools pupils in the Asante-Akyem North District, in the Ashanti Region, Ghana. In the present chapter, the data generated from the current study is discussed in the context of the sub-headings derived from the research questions that guided the current study. An exposition of the research context enhances the comprehension of the presented, analyzed and discussed data on the subject at hand.

This study was conducted in an attempt to estimate the prevalence rate of ADHD among school-aged children in the Asante-Akyem North District in the Ashanti Region, Ghana. However, due to limited resources and time, subjects were limited to pupils in basic public schools that have given its consent for this study. The basic schools pupils were chosen because the researcher wants to help identify potential ADHD children as early as possible. Pre-school aged children were not chosen because the tool utilized in this study was not intended for pre-school aged pupils. As such symptoms may not be picked up by this tool. Another difficulty in identifying ADHD cases among pre-school aged pupils is that their characteristics behaviour is much more variable than that of older pupils (APA, 2000), Dreyer, 2006). Out of the 449 eligible public basic pupils, 374 (83.3%) were permitted by their parents to be included in the study. 17 out of the 449 (1.6%) parents signed „No“ in the consent form indicating that they were not allowing their wards to be part of the study.

## **5.1 Characteristics of Pupils**

Many of the characteristics of pupils in this study were comparable to those of pupils in other studies that have examined prevalence of ADHD in public basic schools (APA, 2002). Like the large majority of studies in the literature, most pupils who took part in the research were between 6 and 14 years. The study conducted by Grimes and Schulz, 2002 is an exception to this finding, with most pupils being 6 and 14 years. This finding is similar to the one that was obtained in the study conducted by Purdie, et al, 2002 where most of the age of pupils were 6 and 14 years. According to Arcelus et al, 2000, the disorder is considered to be more prevalent in the age range of 6 to 11 years. Also participants in the current study reported according to gender distribution as sampled by both teachers and parents were that boys outnumber girls, 205 and 169 respectively. This finding is similar to that of the McMillan and Schumacher, (2006) study and Remschidt, (2005) study, in which they found ADHD cases more in boys than in girls. Distribution of students according to class was in line with the finding of Nisbet, 2004. They reported that ADHD cases are mostly found among pupils immediately after their formative years that is pupils in basic 1 and 6.

## **5.2 ADHD Symptoms Measured by both Teachers and Parent**

To answer this question a child having at least six out of the nine attention symptom and or at least six out of the nine hyperactivity /Impulsivity symptoms of ADHD was considered a possible case. Results showed that based on the teacher reports, 112 possible ADHD cases out of 374 pupils (30%) were identified. 374 pupils (19%) were identified. This means that more possible cases were identified from the teacher reports as compared with those identified from the parent

reports. This finding suggests that pupil's behaviour may be different in different setting.

This report of teachers and parents seem to be in line with that of Elias,et al (2003) who claim that often behaviour is greatly affected by the environment and that teachers report more cases of ADHD than parents. The findings of the current study is also in support of study by Anastopulos, 2014 who confirmed that although both teacher and parent ratings are significant predictive of diagnostic status of ADHD, teacher ratings made a stronger contribution to the prediction of ADHD subtypes. Other report from Kewley, 2005 suggested that an approach to diagnostic prediction of ADHD that includes both teachers and parents rating may be superior to a single informant approach. A result from Achenhach, 1996, had indicated that an approach to diagnostic prediction of ADHD should include both teachers and parents and thus may be good to a single informant approach. It is on this ground that the current study adopted both teacher and parent rating scale.

### **5.3 ADHD Symptoms and Subtypes**

Out of the 112 possible ADHD cases identified from the teacher report 56 or 50% were combined type, 40 or 35.7% were predominantly inattentive types, and 16 or 14.3% were predominately hyperactive-impulsive type. Out of the 70 possible cases identified from the parents report, 25 or 35.7% were combined types, 22 or 31.43% were inattentive type and 23 or 33% were predominately hyperactive impulsive types. These results suggest that in both settings at school and at home more possible ADHD cases are of combined type than of the other subtypes. This findings support the assertion of Biederman et al, 2004, in their combined analysis of two studies of 522 children with and without ADHD concluded that ADHD cases are of combined types. This study has confirmed the assertion that ADHD cases are more of combined type.

## **5.4 Prevalence of ADHD Matched cases of both Teacher and Parent Scores**

Possible cases from the parent and teacher reports were compared and combined to identify matched cases. The DSM – IV – TR requires that symptoms is present in two or more settings (eg at school and at home). This was done to prevent bias of identifying pupils with ADHD who are not getting along with their teachers and or with their parents. (Rowland et. al, 2006). The problem with this criterion though vague in the sense that it did not explicitly state that each symptom must be present in at least two settings. Some researchers interpreted it as such. (Holz and Lessing, 2002) while others simply combine the symptoms positively identified from the two setting (Lahey et al, 1994). In this study, the former interpretation was followed. When teacher and parents reports were combined, the matched case should have at least six unique symptoms of inattention or at least six unique symptoms of hyperactivity – impulsivity. It is important to emphasize that the intensity of ADHD symptoms can vary considerably across settings and it is not necessary that the degree of impairment from symptoms be equivalent in different setting. For instant, it is not uncommon for a child`s difficulties to be more prominent at school than at home. When this occurs, it is often because the demand to sustain attention and inhibit activity level are greater at school than at home. Thus in order to satisfy the dual setting criteria, there is the need to be some indication that the problems are not exclusively confined to a single context. Each symptom must be positively identified by both teachers and parents. Requiring symptoms to be present in both setting as research criterion makes it more stringent as compared to these that simply combine the symptoms from the two settings (Rowland et al, 2002). Theoretically, one may expect to have more cases to be identified if symptoms will just be combined and not matched. When the 21 cases were matched (21 / 374 or 5.6 among the possible cases identified

in both settings of the teachers and parents report. Among the 21 cases 17 pupils were found to have inattention symptoms and 14 pupils out of the 21 pupils were found to have Hyperactivity – Impulsive symptoms. The inattention and hyperactive/impulsive symptoms were then combined to get the combined cases. Out of the 21 cases 10 (47.6%) were combined cases. Matching has clearly brought down the number of possible ADHD cases to a very much fewer number of possible ADHD cases, The prevalence estimate obtained falls within the frequently quoted DSM-IV-TR prevalence rate of 3% to 7% (APA 2013), and also 3% to 7% prevalence rate cited in its text revision (DSM-IV-TR, HPA, 2013). This suggests that ADHD in this study setting is as prevalent as expected.

### **5.5 ADHD and Gender Ratio Difference**

The 21 pupils out of the 374 (5.6%) pupils assessed, met this study matched ADHD criteria. 14 out of the 21 (66.7%) matched cases were boys while the remaining 7 cases (33.3%) were girls. This shows that ADHD cases are prevalent among boys than girls. This finding of the study support published studies in community sample study by Barkley (2006), and Gerber (2009) which demonstrate that ADHD diagnosis rate are higher among males than females, and that girls are at lower risk for behaviour difficulties. This current study is also similar to that of Munden and Arcelus, 2006. In their study, they indicated that boys tend to outnumber girls. A study by Cooper and O'Regan, 2001 went on to give detailed report according to the sub types. They indicated that boys outnumber girls by 4 to 1 ratio in the hyperactive, impulsive, mixed type group, but boys and girls are represented in about equal number in the non-hyperactive type. It must be noted that most of the literature read are in line with the current study. However, this current study differ from study by Bierderman and Faraone, 2005 who reported of 8 to 12 ratio of female and male respectively worldwide.

## **CHATER SIX**

### **CONCLUSION AND RECOMMENDATION**

#### **6.1 ADHD Symptom Measured by Teacher and Parent**

The study concluded that out of 374 public basic school pupils who were assessed, 30% pupils were rated by teachers and 19% were rated by parents.

#### **6.2 ADHD Subtypes as Measured by both Teachers and Parents**

The most prevalent of subtypes of ADHD according to both teacher and parent scales was the combined type being the highest prevalence, attention type and the least prevalent was hyperactive/impulsive types .

#### **6.3 Prevalence of ADHD Cases from both Teachers and Parent Rating Scales**

The prevalence rate for ADHD cases in this current study was found to be 5.6%

#### **6.4 Gender Specific Ratio**

The highest proportion of pupils diagnosed with ADHD between the ages of 6-14 years in this study according to gender were 2:1 of boys and girls respectively.

#### **6.5 Recommendations**

From the findings of the study, the following recommendations are made;

1. This study recommends mass educational campaign regarding ADHD by the government in schools and communities especially among the teachers and



- parents because they could help in the early detection and identification of the disorder.
2. Parent Teacher Association meetings could be organized to educate parents on the prevalence and impact of ADHD on their children and also for the purpose of early detection, diagnosis and intervention by clinical psychologist and medical institutions.
  3. It is also recommended that ADHD studies be incorporated in the training of teachers in the training institutions on the nature, causes, outcomes, early detection and management. Lack of appropriate training is one of the major barriers to teacher's successful management of ADHD within the classroom, hence information on ADHD should be included in curriculum of training institutions.
  4. Educational psychologists can advocate at the Ministry of Education level or school Boards to necessitate professional development for teachers concerning the needs of students with ADHD. Additionally, university departments of psychology and education can offer seminars or conferences specifically on the topic of children with ADHD and mental health problems to generate a greater awareness of the challenges, risks and interventions for children with ADHD and Mental Health problems.
  5. There should be a development of specific set of psychological and clinical interventions and special management techniques such as shaping, chaining, timeout, token economy systems, response-cost programs, self-monitoring, powerful external reinforcement, scheduling and peer tutoring among others by the ministry of education through the Ghana education service to assist ADHD pupils in the classroom.
  6. There should be vigorous teacher advocacy and awareness creation by the Ministry of Education on radio and the various Community FM stations to highlight on the nature of ADHD

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## **APPENDIX A: QUESTIONNAIRE FOR TEACHERS**

**Prevalence of Attention Deficit Hyperactivity Disorder among public basic school pupils in the Asante-Akyem North District in the Ashanti Region, Ghana.**

### **INSTRUCTIONS:**

This questionnaire seek to investigate the prevalence of ADHD among public basic school pupils in the Asante-Akyem North District in the Ashanti Region, Ghana. You do not need to write the name of any pupil and no pupil will be identified or traced from this investigation whatsoever as confidentiality and anonymity are guaranteed. All data and information provided by you will be treated as strictly private and confidential. You are therefore kindly requested to complete the questionnaire as honestly as you can. Thank you for participating.

### **TEACHER RATING SCALE**

#### **SECTION A.**

**Background of respondents; please tick ( ) as appropriate.**

1. **SEX:** BOY ( ) GIRL ( )
2. **AGE:** 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) 11 ( ) 12 ( )
3. **CLASS**.....
4. **Has the child repeated a class** ( ) YES ( ) NO
5. **If yes, what class/ how many times**.....
6. **How long have you been teaching this child**.....MONTH/YEARS.



- 7. **Code of pupil .....**
- 8. **Code of Teacher.....**

## SECTION B.

### Questions 1- 9 to measure inattention symptoms

*Not At All   Just A Little   Quite A Bit   Very Much*

1. Often fails to give close attention to detail  
Or makes careless mistakes in school work .....
2. Often had difficulty sustaining attention in  
Task or play activities. ....
3. Often does not seem to listen when spoken to  
Directly .....
4. Often does not follow through on instruction and  
fails to finish schoolwork, chores, or duties. ....
5. Often has difficulty organizing task and activities. ....
6. Often avoid, dislike, or reluctantly engages in tasks  
requiring sustained mental effort. ....
7. Often loses things necessary for activities (eg,toys,  
school assignment, pencils or books). ....
8. Often is distracted by extraneous stimuli .....
9. Often is forgetful in daily activities .....

### Questions 10 – 18 to measure Hyperactivity-impulsivity

10. Often has difficulty maintaining alertness, orienting  
to request, or executing directions .....
11. Often fidgets with hands, feet or squirms in seat. ....
12. Often leaves seat in classroom or in other situation in

- which remaining seated is expected. ....
13. Often runs about or climbs excessively in situations in  
which it is inappropriate. ....
14. Often has difficulty playing or engaging in leisure  
activities quietly. ....
15. Often is on the go or often acts as if driven by a motor. ....
16. Often talks excessively. ....
17. Often blurts out answer before questions have been completed. ....
18. Often has difficulty awaiting turn. ....

Completed This .....day of ..... 2015

Ntiakoh-Ayipah Daniel Amanfi (Researcher)

Dr. Joslin Dogbe (Supervisor)

## **APPENDIX B: QUESTIONNAIRE FOR PARENTS**

Questionnaire on Prevalence of Attention Deficit Hyperactivity Disorder (ADHD) Among Public Basic School Pupils in Asante-Akyem North District, Ashanti Region.

### **INSTRUCTION:**

This study is being carried out to investigate the prevalence of ADHD among public basic school pupils in the Asante-Akyem North District in the Ashanti Region, Ghana. You do not need to write the name of your ward and no pupil will be identified or traced from this investigation whatsoever as confidentiality and anonymity are guaranteed. All data and information provided by you will be treated as strictly private and confidential. You are therefore kindly requested to complete the questionnaire as honestly as you can. Thank you for participating.

### **PARENT RATING SCALE**

Background of respondents; please tick ( ) as appropriate.

**CODE OF PARENT.....**

**SEX OF PUPIL : BOY ( ) GIRL ( )**

**AGE OF PUPIL : 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) 11 ( ) 12 ( )**

## SECTION B:

Please check the column which best describes your child's behaviour .

### Questions 1-9 to measure inattention symptoms

	Not At All	Just A Little	Quite A Bit	Very Much
1. Often fails to give close attention to details or makes careless mistakes in School work	.....	.....	.....	.....
2. Often has difficulty sustaining attention in tasks or play activities	.....	.....	.....	.....
3. Often does not seem to listen when spoken to directly	.....	.....	.....	.....
4. Often does not follow through an instruction and fails to finish school work, chores, or duties	.....	.....	.....	.....
5. Often has difficulty organizing task and activities	.....	.....	.....	.....
6. Often avoids, dislikes, or reluctantly engages in tasks requiring sustained mental effort	.....	.....	.....	.....
7. Often loses things necessary for activities (e.g. toys, school assignments, pencils or books)	.....	.....	.....	.....
8. Often is distracted by extraneous				

- stimuli ..... ..
9. Often is forgetful in daily activities..... ..

**Questions 10- 18 to measure Hyperactivity –impulsivity symptoms.**

10. Often has difficulty maintaining alertness
- Orienting to request or executing direction ..... ..
11. Often fidgets with hands or feet
- or squirms in seat ..... ..
12. Often leaves seat in classroom
- or in other situations in which
- remaining seated is expected ..... ..
13. Often runs about or climbs
- excessively in situations in which
- it is inappropriate ..... ..
14. Often has difficulty playing or
- engaging in leisure activities quietly..... ..
15. Often is “on the go” or often acts as
- if “driven by a motor” ..... ..
16. Often talks excessively ..... ..
17. Often blurt out answers before
- questions have been completed ..... ..
18. Often has difficulty awaiting turn ..... ..

Completed this .....day of March, 2015

Ntiakoh-Ayipah Daniel Amanfi (Researcher)

DR. JOSLIN DOGBE (Supervisor)

**Appendix C – An example of the consent form as signed by parents obtaining permission for their wards participation in the study.**

**Consent Form**

I ..... parent of ..... consent to my son / daughter participating in the study. I have been informed of and clearly understand the basic nature of the project? Understand that learners taking part will remain anonymous and that I may retract my consent at any point during the study. After a discussion with my son / daughter, I confirm that he / she should participate in the study. If you agree to participate then you can put your thumb on the ink pad and stick it at the bottom of this paper or sign.

Signature of parent ..... Date .....

Thumb Print.....Date.....

\_\_\_\_\_



