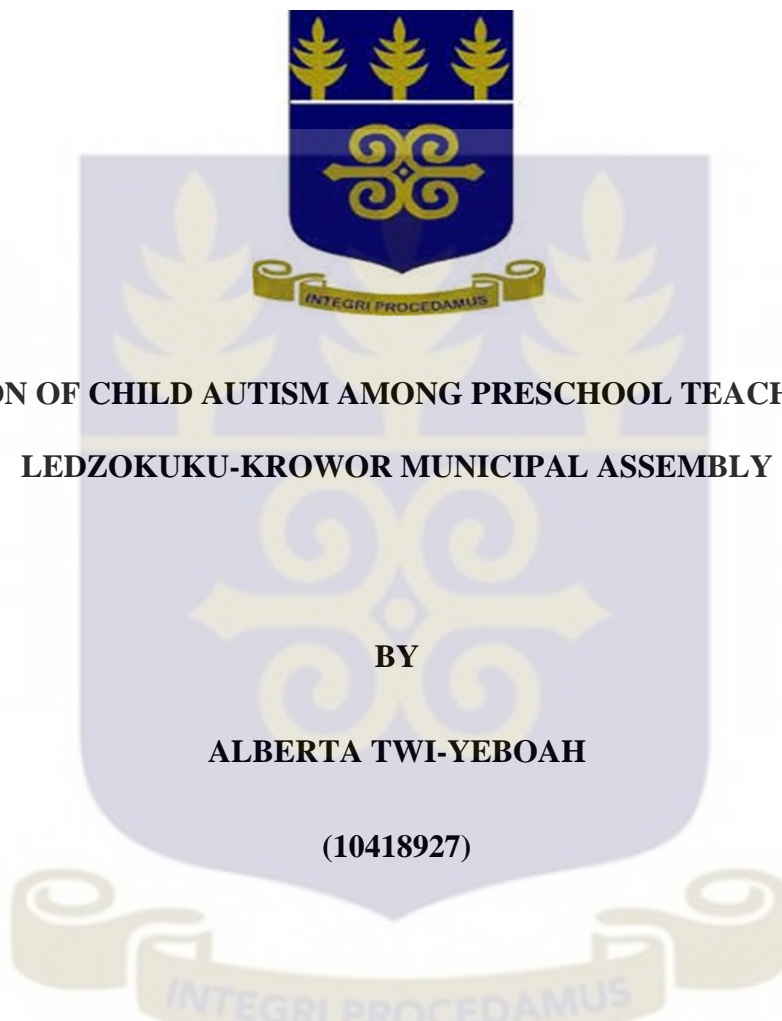


SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA



**PERCEPTION OF CHILD AUTISM AMONG PRESCHOOL TEACHERS IN THE
LEDZOKUKU-KROWOR MUNICIPAL ASSEMBLY**

BY

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DECLARATION

I, ALBERTA TWI-YEBOAH declares that every content and results in this research except the ones that have been cited appropriately is the result of my own original research work done under supervision. I take full responsibility for this work.

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DEDICATION

I dedicate the entirety of this thesis to my late father, Mr. Emmanuel Twi-Yeboah, I know he would be proud wherever he is.

ABSTRACT

Background

Autism is a condition that is increasing worldwide. Preschool teachers who are the primary caregivers beside parents in most situations, are not able to accurately detect the signs and symptoms of autism and respond appropriately as this is of utmost importance to help provide the best healthcare to autistic children. The study was conducted with the aim to assess the perception of preschool teachers towards child autism in the Ledzokuku-Krowor Municipality.

Methods

A total of 210 preschool teachers (58% females) in 8 selected communities in the Ledzokuku Krowor Municipal Assembly, Ghana completed questionnaires relating to their demographic characteristics, level of knowledge in typical child development and child autism, perceptions and attitudes towards the efficiency in educating children with the diagnosis as well as the their knowledge of institutions that render services and care for children with the syndrome. Using univariate and multivariable analyses, the association between demographic and school level variables and knowledge of typical child development and ASD were examined.

Results

The findings of the study revealed that teachers had low levels of knowledge on ASD. The results also showed that there was a quite positive attitudes and perceptions towards the education of children with autism (include stats here). Finally, there was a significant association between knowledge on ASD and attitudes and perceptions towards ASD (include stats here).

Conclusion

Preschool teachers generally possess low levels of knowledge about autism spectrum disorder. Even though preschool teachers have a quite positive attitudes and perceptions towards the disorder, increasing their knowledge has the tendency to make them have a more positive attitude and perception towards autism spectrum disorder.

Table of contents

DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
ABSTRACT.....	v
Table of contents.....	vii
LIST OF TABLES	xi
LIST OF ABBREVIATIONS.....	xii
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.0 Background of the Study.....	1
1.1 Problem Statement	3
1.2 Research Questions	4
1.3 General Objective.....	4
1.5 Significance of the Study	5
CHAPTER TWO	7
Literature review	7
2.0 Introduction	7
2.1 Child autism and mental health.....	7
2.2 Etiology of child autism and challenges faced by autistic children	9
2.3 Knowledge of child autism among various populations	11
2.4 Attitudes of individuals towards child autism.....	17
2.5 Perceptions of the public concerning child autism.....	19
2.6 Summary	20

CHAPTER THREE	21
METHODOLOGY	21
3.0 Introduction	21
3.1 Study Area/Location	21
3.2 Study Design	22
3.3 Study Population	22
3.4.1 Inclusion Criteria.....	22
3.4.2 Exclusion Criteria.....	23
3.5 Sampling Technique.....	23
3.6 Sample Size Determination.....	24
3.6.1 Dependent variables	24
3.6.2 Independent variables.....	24
3.7 Data collection Instruments and Methods.....	25
3.7.1 Knowledge level.....	25
3.7.2 Attitude and Perceptions	26
3.8 Data Processing and Analysis	27
3.9 Quality Control.....	27
3.10 Ethical Consideration	28
3.11 Informed Consent.....	28
3.12 Anonymity and confidentiality.....	29
3.13 Compensation.....	29
3.14 Risks	29
3.15 Voluntary withdrawal.....	29
3.16 Conceptual Framework	29
CHAPTER FOUR.....	32

RESULTS.....	32
4.0 Introduction	32
4.1 Characteristics of Participants.....	32
4.2 Knowledge of typical child development and Knowledge of Autism Spectrum Disorder .	34
4.2.1 Knowledge about typical child development.....	34
4.3.2 Knowledge about autism.....	36
4.3.3 Knowledge performance based on socio-demographic data.....	38
4.4 Attitudes and Perceptions towards care and education of children with ASD.....	41
4.5 Influence of Knowledge on attitude and perceptions.....	43
CHAPTER FIVE	44
DISCUSSION	44
5.0 Introduction	44
5.1 Knowledge of child autism among preschool teachers.....	44
5.2 Demographic factors influencing knowledge of ASD among participants.....	46
5.3 Attitudes and perceptions towards care and education of autistic children	47
5.4 Effect of knowledge on attitudes and perceptions	48
5.5 Limitations and Strengths of the Study	49
CHAPTER SIX.....	51
CONCLUSIONS AND RECOMMENDATIONS	51
6.0 Introduction	51
6.1 Conclusion.....	51
6.2 Recommendations	52
REFERENCES	53
APPENDICES	61
PARTICIPANT INFORMATION SHEET	61

CONSENT FORM	64
APPENDIX II: QUESTIONNAIRE	66

LIST OF TABLES

Table 1: Characteristics of Study Participants (n=210)	33
Table 2: Knowledge of typical child development questionnaire items passed by <50% of respondents	35
Table 3: Knowledge of ASD questionnaire failed by >50% of respondents	37
Table 4: Performance based on demographic characteristics:	39
Table 5: Predictors of knowledge score	40
Table 6: Attitudes and Perceptions towards care and education of children with Autism Spectrum Disorder.....	42
Table 7: The effect of knowledge on attitudes and perceptions of pre-school teachers towards the care and education of children with autism.	43

LIST OF ABBREVIATIONS

ADHD- Attention-Deficit Hyperactivity Disorder

APA- American Psychiatric Association

ASD-Autism Spectrum Disorder

CDABD- Childhood Developmental and Behavioral Disorders

CDC- Center for Disease Control and Prevention

ID- Intellectual Disability

LEKMA- Ledzokuku-Krowor Municipal Assembly

ND- Normal Development

NGO- Non-Governmental Organization

ONS- Office for National Statistics

SN- Special Needs

WHO- World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

American Psychiatric Association (APA) explains Autism Spectrum Disorder (ASD) to be a range of neuro-behavioral problems that occurs a few years after a child is born. This condition is mostly identified with extreme difficulty in communication and relational connection as well as repeated patterns of doing things and likes among others (APA, 2013). Children who are affected by this condition usually have three main developmental deficiencies which include: difficulty in building social relationships, inability to communicate verbally and non-verbally, and obsessive practices. The most common and easiest ways to identify autistic children includes the presence of some of these traits: difficulty to understand simple issues and instructions, unresolved influences, poor social interactions and connection, social confinement and adjustment issues (Dodd Inglese & Harrison Elder, 2009). Mazurek, Kanne, & Wodka, (2013) also affirmed that children who present with the condition not only have communication problems, they also show very aggressive behavior, some act in reckless manner and others show very unacceptable forms of behavior or a combination of all of these. Autism Spectrum Disorder according to Ballentine (2015) is a neuro-developmental problem that is gaining attention and increasing in scope of terms of prevalence. An estimate of the prevalence of ASD on a global level has shown that, ASD is becoming common across the globe at 62 per 10000 children. The Centre for Disease Prevention and Control (CDC) again in 2010 estimated this prevalence in the United States and reported it to be affecting every 1 in 110 children and was shown to be 4 or 5 times more prevalent in males than in females. In 2018, an exponential growth in the prevalence of autism was recorded as the CDC reported about 1 in 59 children being diagnosed as having autism spectrum disorder (ASD). Wireko-Gyebi & Ashiagbor, (2018) in their study pointed out that, the autistic spectrum was considered as a

condition that occurred in children mostly in Western cultures and was not considered a regular condition in Africa. However previous studies revealed the proximity of the disease in certain countries in Africa including Ghana. Nonetheless, information which reveals the extent of its predominance in Africa was reliably missing. The World Health Organization has indicated that, ASD is becoming far more prevalent in some low-and middle-income countries than was anticipated. It has been over two decades since the universality of the autistic condition became a question of interest to researchers. With only a few studies emphatically establishing the prevalence of autism in some, some more published works have tried to affirm this existence of the condition in Africa. And from this it can be concluded with some degree of confidence that autism actually does exist in Africa. According to Ruparelia et al. (2016), characteristic features common in Africa pertaining to ASD include: intellectual disability (ID), extreme speech delays and late identification: that is identification after age 8. Similar to this is what can be identified in Ghana with regard to information about children suffering from ASD. The center for Disease Control and Prevention confirms that few published studies provide basic data on ASD in Ghana (Abubakar, Ssewanyana, & Newton, 2016). They however revealed the existence of various unpublished documents, which mostly focus on the training and treatment of children with ASD. What they brought to light more importantly was that, most of these reports are organized by non-profit organizations (NGO's). Other ASD research in Ghana has focused on speech therapies for ASD children, education for ASD children and conditions in the classroom for ASD children (Denkyirah & Agbeke, 2010).

1.1 Problem Statement

Child autism in most cases also results in high cost of financial burden, when it is compared to other disabilities that children suffer. Interventions are however available to be accessed and have been proven to yield effective results when they are applied in the very early stage of the condition's diagnosis. This can result in improvement in the child's social connection and interaction and could even result in increased IQ scores. The ability to diagnose autism at a much younger age plays a relevant role in choosing what treatment option will yield the desired outcomes for an autistic child (Makrygianni, Gena, Katoudi, & Galanis, 2018). This implies that poor awareness of ASD could result in poor recognition of interventions or a lack of these interventions. Moreover, lack of awareness could also contribute to delays in seeking help and could be attributed to families of children with autism experiencing a high degree of stigma. Based on a study carried out in China, a middle-income country with very similar and low prevalence estimates (i.e. 0.11%) like Ghana, it was observed that, the general population shows inaccurate recognition of the etiology and intervention options available for the disorder.

Most children are enrolled in pre-schools at a very tender age mostly due to the high demands of their parent's jobs and so preschool is the first school for children. This makes preschool teachers the second to parents to contribute to the child's development. A Swedish study revealed that, about 77% of children between one and five years of age spend almost four to eight hours a week in pre-school while their parents work or study or when their children have their own special needs (Swedish National Education Agency 2006). This could be likened to Ghana specifically Accra because of its cosmopolitan nature. Therefore, pre-school teachers play an important role in training and shaping these children's academic and psychological needs. They help coach these children in diverse ways. However, children with ASD appear to be perfectly normal, but they

most of the time exhibit disturbing behaviors that differ distinctly from those of typical children. Autistic children demonstrate adverse behavior patterns such as banging of head, hyperactivity and attention deficit, depression, etc. Consequently, preschool teacher's inadequate knowledge and understanding regarding the disorder could lead to mishandling of such children. It could also result in their behavior being attributed to deliberate disobedience. Their lack of knowledge and misconceptions of the condition hinders the likelihood of early identification and intervention for these children. This can make verbal interventions unrealizable and could largely account for the many non-verbal cases found in Africa. ((Bakare & Munir, 2011; Dillenburger, McKerr, Jordan, & Keenan, 2016; Harrison, Slane, Hoang, & Campbell, 2017).

1.2 Research Questions

1. What is the level of knowledge of preschool teachers towards child autism in the Ledzokuku-Krowor Municipal Assembly?
2. What are the attitudes and perceptions of preschool teachers towards child autism in the Ledzokuku-Krowor Municipal Assembly?
3. How does knowledge influence the attitudes and perceptions of preschool teachers on child autism in the Ledzokuku-Krowor Municipal Assembly?

1.3 General Objective

To examine the perception of preschool teachers about child autism in the Ledzokuku-Krowor Municipal Assembly.

1.4 Specific Objectives

1. To determine the level of knowledge of preschool teachers on child autism in the Ledzokuku-Krowor Municipal Assembly.

2. To assess the attitudes and perceptions of preschool teachers towards child autism in the Ledzokuku-Krowor Municipal Assembly.

3. To determine the effect of knowledge on attitudes and perceptions of preschool teachers' towards child autism in the Ledzokuku-Krowor Municipal Assembly.

1.5 Significance of the Study

Literature shows that there exists a lack of research into the attitudes and the level of knowledge of the general public regarding child autism as a childhood condition. This is problematic because, children with autism and families who have children suffering from the condition are usually faced with emotional and social repercussion of social stigma. Research findings in Africa shows that supernatural causes are still used to explain the etiology of ASD (Owalabi Bakari et al., 2009). . One sector in which this need may be most pressing is the educational sector. This is because, in addition to parents and guardians, teachers especially those that teach the very little children are more likely to work closely with autistic children. This is even more crucial since some of these parents are not even aware of their children's conditions at the time they enroll them into these regular preschools. Teachers have been the focal point of research conducted lately with regards to knowledge possessed and attitudes towards autism and the integration of special education into the main curricula. However, much of these researches have been concentrated on primary and secondary school teachers. Less concentration however has been given to the condition of information in pre-school teachers and very limited research of this kind has been carried out in Ghana in general. Also, more children who suffer from developmental disorders like autism are enrolled into mainstream schools by the day.

Findings from this study would help expand knowledge about the correlates of ASD and inform policies and advocacy. The findings will also expand information and awareness of ASD which

will improve early identification and diagnosis which will result in a good prognosis as well as early childhood interventions.

CHAPTER TWO

Literature review

2.0 Introduction

This chapter presents significant literature in reference to the study objectives. Below are the covered themes:

- Child autism and mental health
- Etiology of child autism and challenges faced by autistic children
- Knowledge of child autism among various populations
- Attitudes towards child autism
- Perceptions concerning child autism

2.1 Child autism and mental health

World Health Organization has defined mental health as “a state of well-being in which every individual realizes his or her own potential, can manage or survive with the normal stresses of life, can work productively and effectively, and is able to give his or her contribution to his or her community” (Galderisi, Heinz, Kastrup, Beezhold, & Sartorius, 2015). This definition therefore implies, the lack of mental disorder does not necessarily warrant good mental health. In another scope of view, people with mental or psychiatric disorder can also attain quality standards of living. This will be highly possible if their condition is properly identified and managed if not thoroughly dealt with- to enable them live a fulfilling, relevant and manageable life in the absence of pain, stressful or debilitating symptoms (WHO, 2014).

In a meta-analysis assessing the prevalence of mental disorders worldwide in adolescents and children, discoveries from the existing literature indicated that there has been a significant increase in the prevalence of mental disorders which affects children and adolescents over the last three

decades around the world (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Psychiatric health conditions in children comprise of disorders such as: depression, anxiety, disruptive, attention-deficit hyperactivity, as well as autistic spectrum disorders among others (American Psychiatric Association, 2013). According to Dillenburger et al. (2016), children with ASD also suffer other conditions like epilepsy, mental illness and intellectual disabilities. Findings suggest that, almost 22% of autistic cases are also reported as suffering from epilepsy (Lai et al., 2011) also approximately 57% presented with mental illnesses including depression and 65% with anxiety (Barnard, Muldoon, Hasan, O'Brien, & Stewart, 2008). Intellectual disability co-occurrence with autism also reported between 15% and 55% of the cases (Elsabbagh et al., 2012).

Autism is described as a 'spectrum of disorders' because the symptoms that are displayed by one child may differ from that of another child and it may be displayed in different combinations, from mild to serious. Autism makes communicating and interacting with other children difficult. Another symptom displayed by autistic children is involvement in the same kind of activities over and over and backward movements, being upset about everyday changes and having unusual answers to some particular situations. As early as 12 months, signs of autism may be noticed in some children. Children who don't babble or are unable to point to objects by one year old can show early signs of autism. Regressive autism can occur in other children when after they have started speaking normally and engaging in usual activities for a while, but then they regress with autism. Childhood vaccines are believed to cause autism in older children, but this is not proven, hence vaccines should still be in use. Children suffering from autism can be very sensitive to some smells, loud noise, touch, extreme temperatures and some particular colors. Too much rigorous activities can lead to upset and even collapse of an autistic child. The child may have difficulty calming and relaxing. Children with autism may experience difficulty in learning, problems in

speaking, movement problems, unusual bodily development or functions, inappropriate emotional reactions and sensory stimulus oversensitivity. However, very few cases occur where autistic people can possess excellent skills in particular areas (Martin, 2012). According to See (2012), children who suffer autism usually have problems pertaining to how they behave, these include restlessness fidgetiness, showing tendencies to engage in fist fights, making unusual noises (shouting or screaming), throwing tantrums, being careless, failure to comply and becoming stiff. These patterns of behavior could be extreme and highly apparent or very mild. It has been reported that every ASD behavior can vary from mild to severe (Lai et al., 2011).

2.2 Etiology of child autism and challenges faced by autistic children

It is believed that a disorder that affects the normal way the brain functions caused autism. This therefore affects the development of social interaction and communication (See, 2012). There were two main autism surveys conducted in France and the United States in 2009 and 2010 respectively. In those two surveys, a greater number of respondents believed that biological mechanisms such as heritability which represents 33-44% were the risk factors of autism (Durand-Zaleski, Scott, Rouillon, & Leboyer, 2012; Obeid et al., 2015). Another cause of autism is believed to be that of interactions between parents and their children and stressful events which happened in life also represented between 22% and 23% (Durand-Zaleski et al., 2012). The exact cause of autism is not yet known, and researchers around the world continue to handle the subject with pleasure, although autism nowadays is considered a genetic disorder. Some investigators have discovered a relationship between autism and infectious diseases (Ratto & Mesibov, 2015). Bakare et al., (2009) also in their study reported findings in literature discovered a relationship between autism and malaria in Africa. 21 percent (n=3) had the onset of malaria that led to researchers' hypothesizing

“... that severe malaria can lead to autism when contracted in the first few years of life” in an investigation of 14 children who met the autism criteria.

Owing to the diagnostic criteria, it is unsurprising that, challenges are faced by people with autism in diverse areas of their daily lives. The specific challenges children with autism face are varied from one autistic child to another and performance in their education cover a wide range from exceptional achievement to significant educational challenges, but for various unknown reasons, autistic children tend to have poor educational results (Green, McGinnity, Meltzer, Ford, & Goodman, 2004). According to Emam & Farrell (2009), waiting times at vehicular stop points, delays in schedule or overcrowded buses cause special problems for people with autism, the quality of life of people with autism are adversely affected by these kinds of problems. It is also difficult for people with autism to make friends, usually tend to have few playing mates or no friends in comparison to normally developing children or children who are academically challenged (Green et al., 2004; Tonkin, Ogilvie, Greenwood, Law, & Anaby, 2014). Similarly, having only a handful of friends or none at all were reported in a study conducted among adults suffering from autism (Lai et al., 2011). According to Papadopoulos (2016), autistic children are also usual victims of bullying in their schools. Also, according to (Little, 2002), high - level autistic school children or those with ' Asperger's Syndrome tend to be more likely (about four times more) intimidated than normally growing children.

Dolah, Wan Yahaya, & Chong (2011) conducted a research and found that there exist a gap in knowledge about autism among a Malaysian population. They further suggested that action needs to be taken to help improve their knowledge.

Based on existing studies, it appears that there is a lack of awareness of autism among several different populations. The population around them must have a clear comprehension of their condition for accurate diagnosis, treatment, and overall quality of life for autistic people.

2.3 Knowledge of child autism among various populations

Individuals having low levels of knowledge of ASD or knowledge about ASD symptoms, etiology and treatment can raise the burden of families with ASD-diagnosed children (Obeid et al., 2015). Variability in ASD awareness worldwide contributes to widespread service discrepancies, especially in low- and middle - income countries (Kang-Yi et al., 2018), contributes to the escalation of stigmas and misunderstandings that bring disadvantages to families (Khan, Ooi, Ong, & Jacob, 2016) and may impede epidemiological efforts (Elsabbagh et al., 2012). Many less developed countries encounter differences because of low ASD knowledge despite the increased awareness of ASD in Western countries. According to Bakare et al. (2009), low levels of ASD knowledge and awareness can be found in Africa. It is still unclear, however, whether that is the situation in Ghana. Health professionals who are part of the general public are key in this awareness. This is because their ability for early detection and diagnosis success mainly depends on their knowledge of ASD.

The African Network for Prevention and Protection against Child Abuse and Neglect in 2007 indicated that various health care workers possessed averagely low to medium understanding of ASD. However, high level of awareness existed in psychiatrics. A research conducted by Atsun-Einy & Ben-Sasson (2018) assessing the knowledge that health professionals in the Pediatric field possessed with regards to ASD as well as their self efficacy involving 234 clinicians; 82 physical therapists, 85 occupational therapists and 67 speech-language pathologists showed that only 37 professionals had previously had an experience with an autistic child. The research showed that

clinicians generally turned down statements describing misapprehensions with regards to ASD etiology, prognosis and treatment. There was emphasis based on the observation that there are knowledge gaps pertaining to specific interventions. Another observation pointed was that, knowledge in ASD by the study participants was not associated to pediatric or previous encounter with an autistic child. Clinicians seemed to have more accurate knowledge of the core diagnostic characteristics than they did of the helpful and irrelevant characteristics. It was also observed from the findings that professionals who had experience with ASD had significantly higher mean knowledge and self-efficiency values compared to inexperienced professionals, apart from confidence in parental communication. The differences in profession however was not associated to the differences in mean knowledge. In another comparative study by Wireko-Gyebi & AShiagbor (2018), knowledge about Autism Spectrum Disorder among pediatric and psychiatric nurses was sought. The study involved 130 pediatric and 93 psychiatric nurses sampled from five public hospitals in the city of Kumasi. Findings indicated that, Psychiatric nurses had higher knowledge of the disorder compared to pediatric nurses, but they both averagely had a low level of knowledge about the disorder. Statistically, no significant differences was found between pediatric and psychiatric nurses' gender, age, marital status, working experience and their knowledge of ASD with the exception of their knowledge from the previous experience. Both Reichow and Newton discovered inadequate knowledge among healthcare providers and inadequate specialist care as a key issue for autism in Africa (Reichow & Volkmar, 2011). The situation differs considerably from Westernized countries. In London for example, a study was conducted to evaluate ASD awareness and knowledge among medical students, it was observed that the majority of respondents had enough knowledge and awareness of childhood autism but are very difficult in the field of early detection and diagnosis (Wireko-Gyebi & Ashiagbor, 2018).

Daley reported that healthcare professionals in India believe that autism is difficult to diagnose (Rudra et al., 2017). This claim was confirmed by 80% of 165 psychiatrists, 95 psychologists and 677 pediatricians. Like London, there was very high level of knowledge of this phenomenon, especially among pediatricians. In a study involving speech and language pathologists, psychiatrists, primary health care providers and clinical psychologists including family doctors, neurologists and pediatricians, Heidgerken et al., (2005) came to a conclusion that health workers have enough knowledge of ASD. Another study by Cascella and Colella, which focuses on the knowledge of speech pathologists, indicated that school speech pathologists from Connecticut are more certain that they recognize autistic behavior, however, they were not certain in the treatment of autism patients (Cascella & Colella 2004). Emphasizing on knowledge of autism in medical students, Shah (2001) discovered that there was no difference in the level of knowledge for medical students at the different levels regarding the treatment and prognosis of patients with autism. Both student groups were equally familiar with the symptoms and autism diagnosis. A bulk of these researches have laid emphasis on health workers since the level of health workers' knowledge and awareness, especially pediatricians and psychiatrists, cannot be overemphasized. This is due to the important connection between ASD knowledge and its diagnosis. Surmen et al. (2015) acquired data from patients from 160 FHC hospital over the age of 18 through face - to - face interviews in trying to examine the general populace level of knowledge of autism. Discoveries suggest that 38.8% were familiar with the word 'autism', and knowledge and awareness of autism varied greatly with the study participants' level of education. However, there were no change in these parameters with the participants' gender and income levels. According to Shamsudin & Rahman (2014), although many Malaysians know the term Autism, many of them still do not comprehend the characteristics of autistic children.

As parents are the main caregivers in most situations, their ability to recognize and answer properly to the symptoms of autism is of chief significance to ensure that autistic individuals receive the best health care. Anwar et al. (2018) carried on a study on parents living in Karachi, Pakistan with the exclusion of those from the medical profession, those with children with autism and those who fully could not understand English and Urdu and reported that, 75 percent of the study participants were aware of autism, and those who had knowledge of someone suffering from autism were more aware of it. The participants, however, exhibited poor knowledge scores in the domain on accurate diagnosis of autism and on knowledge of signs and symptoms in the section testing.

Dillenburger et al. (2016) likewise found higher accurate levels of knowledge of autism, in fact more than 80 percent of the sample knew ASD and more than 60 percent of the respondents either had an autistic child in their own family, or knew a friend or colleague with one. The knowledge of the challenges faced by people with ASD was generally accurate. The perception of interventions and the responsibilities of service providers was however vague and uncertain.

In a research carried on by Schwartz and Drager, 67 school - based Speech Language Pathologists (SLP's) from 33 different states concluded a study to examine their knowledge of the disorder and how comfortable they felt with children with autism. According to the results in Schwartz & Drager (2007), there is an indication that "current professionals in the field have an unbalanced comprehension of autism and have particular uncertainties concerning their potential to make provision of effective service to these students". According to Dillenburger, Jordan, McKerr, Lloyd, & Schubotz (2017), a previous study by Barger and Campbell reported there was an assessment of knowledge of autism among the students in high school and conclusion was made that 41.6% of the students had heard about ASD. Another important aspect in Barger & Campbell's discoveries was that autism-conscious students had a more accurate comprehension of autism

compared to their mates who were ignorant of the existence of the disorder. Overall, the students were varied in their knowledge of the characteristics of autism. The study concludes to enable autistic children effectively partake in any education system, the extent of knowledge about autism among their peers must be increased. Children with ASD have the potential of benefitting from universal educational policies and initiatives that have been designed to address the needs of children with special needs. But quite often, there is often inadequate schooling for children with ASD, partly due to lack of knowledge and skills of teachers needed to work with these autistic children (Sharma, Forlin, & Loreman, 2008). Arif, Niazy, Hassan, & Ahmed (2013) examined primary school teachers' knowledge and perception of autism in both private and public schools in Karachi, Pakistan. They carried on a cross - sectional survey involving 170 teachers from different primary schools in different districts in Karachi. The teachers comprised 85 from the private sector and 85 from the public schools. Their findings indicated 55% of teachers had heard about autism from the media while only 9% had received formal training in autism through workshops. Sixty-two (62) percent of the teachers had the belief that autism can be treated. Majority of the participants agreed that proper education for autistic children is needed. They stressed that the media is the main source of knowledge of autism. Although the role of the media cannot be undermined, training must be done formally for teachers in the differentiating characteristics of autism, which in turn aids in diagnosing the disease early.

Educators at the pre - school level work with the extreme population, where timely diagnosis leads to a beneficial result. All things considered, their timely potential to identify developmental disorders and, along these lines, proposes for medical consideration for guardians and school staff is very important. However, review of literature has indicated that they are the least population

that research regarding knowledge in child autism has emphasized on. The very few carried on also brought to light lack of knowledge and adequate awareness among pre-school teachers.

Lian et al. (2008) evaluated knowledge, attitudes and practices in ND and Childhood Developmental and Behavioral Disorders (CDABD) among 503 teachers who teach at the preschool level, majority between ages 30–44 years. Their discoveries show that majority of the teachers had been trained formally in early childhood but not special-needs (SN) education. There was an achievement of a knowledge pass rate (50 percent total score) in 56 percent of the participants. In the domain of Normal Development, ASD and attention deficit / hyperactive disorder, a pass rate of 66 percent, 68 percent and 32 percent was gained respectively, with a median block score of 56 (0, 100) percent, 50 (0, 100) percent, 40 (0, 100) percent, respectively.

Following from Lian's discovery, Liu et al. (2016) also carried on a study in China examining preschool teachers' knowledge in ASD. They also assessed participants' knowledge in normal childhood development, attitudes of teachers and self-views of effectiveness towards the care and education of children with ASD. Their research compared the extent of knowledge of ASD among pre-school teachers in the cities of Guangzhou and Foshan and made an observation that majority of participants (84%) accurately answered over 50% of the items evaluating their understanding in normal childhood development as against 83 percent incorrectly answering to more than half of the questionnaire items evaluating ASD knowledge. It was also observed that, knowledge of the typical development of children and ASD knowledge were both connected to the geographical region (higher levels observed among teachers in Guangzhou than in Foshan, $p < 0.0001$). Level of education also showed significant association to ASD knowledge ($p < 0.05$) and the type of school ($p = 0.023$). Participants generally were of the opinion that more service was required for autistic children and showed agreement to additional specialized training.

The outcomes of this research are expected to raise public awareness of autism. When more people have a better comprehension of autism, the hope is that people will not only sympathize with autistic children, but that they will also feel responsible for fostering relationships between humans and offering helping hands with complete truth.

2.4 Attitudes of individuals towards child autism

In the past, people with disabilities like autism have been discriminated against, isolated and segregated. Today, however, national policy stresses that disabled people should be given equal treatment as every other person in terms of access to education, opportunity for employment and community cohesion (Shamsudin & Abdul Rahman, 2014). Positive attitudes towards disabled people are necessary to enable them feel comfortable and accepted in the society. According to Ditchman et al. (2013), public attitudes can encourage interactions between disabled people and the general public. Durand-Zaleski et al. (2012), indicated in his findings that the majority of public attitudes and behaviors towards various disorders seem to be based on assumptions rather than knowledge or evidence. The research indicated that with some particular changes in mental health literacy, could lead to a change in the stigmatization of people with mental disorders. Several factors affect people's attitudes towards individuals with disabilities. According to Ditchman et al. (2013), the source of information is also relevant for the provision of more accurate information on autism. There was a report that majority of the people in Britain have the belief that people with mental illness should be sympathized with, and over 80 percent of people in Britain have the belief that society should be more tolerant of them. Outcomes from Lian et al. (2008) on attitudes and perceptions on child autism indicated that most people in the classroom were in support of mainstream integration, and came into an agreement that financial burden accompanying should be shared between the government and parents. While most felt unfit, they were interested in

further training, with over 90 percent wanting and feeling they can make a difference for these children (Lian et al., 2008). Liu et al. (2016) in his study asserts, attitudes to the ASD children's needs were on an average fairly neutral or slightly preferred to better education for children with autism. In general, there were no vivid opinions concerning the integration of autistic children into mainstream schools, they as well showed agreement to allowing parents of children with special needs to be present in the classroom. Similarly, a higher percentage (72- 73%) of teachers vividly felt that there should be availability of more funding from the government to teachers who work with special needs children for training and staffing. Comparable percentages of teachers showed vivid feelings concerning the provision of increased insurance covering costs.

When answers to questions about autism attitudes such as "Do you feel anxious when your neighbor is an autistic patient next door?" were compared, participants who were aware of autism, as well as those with a higher level of education gave answers more often as "No, I don't mind. 50% and 30% of those who heard and didn't hear the word "autism" respectively answered that, "I don't feel uncomfortable if an autistic person works in my workplace". The question "Do you care if your child shares the same classroom with an autistic child?" was negatively answered by 36 participants. As there is an increase in the level of education, the number of people who answered affirmatively also expands significantly. According to Surmen (2016), majority of the people who knew 'autism' confirmed that, they wouldn't move away or be scared if an autistic person sat next to them in the bus compared to those who were ignorant of the condition. Surmen acquired data from 160 FHC admitted patients over the age of 18 through face-to-face interviews. Results suggest that 38.8% had heard the word 'autism', and attitudes and behaviors towards this disorder varied immensely with the study participants level of educational ($p < 0.05$). On the other hand, these values remained unchanged with the participants' gender and level of income ($p > 0.05$).

However, not all attitudes to mental illness are so positive. Any kind of mental illness, such as autism, is often stigmatized (Shamsudin & Abdul Rahman, 2014). Similarly for autism, because autistic children appear just like normal children, individuals who do not comprehend these children frequently see them as selfish, slow and strange (Dolah et al., 2011)

Results on attitudes and perceptions by Lian et al. (2008) indicated that most teachers were in agreement of mainstream integration for autistic children.

2.5 Perceptions of the public concerning child autism

According to Bakare & Munir (2011), the findings of their research have indicated that, individuals still associate the cause of autism to supernatural forces. They explained in their research on autism in Africa that many individuals still associate the cause of autism and other neuro-developmental conditions to witchcraft, demonic afflictions, and evil spirits. It was further explained that, individuals with ASD as well as their families are frequently face rejection, negative and derogatory comments, which further improve stigma. In order to prevent stigmatization, families tend to hide the concerned children from society. This can cause late presentation and diagnosis of African children's disorder. According to their parents, teachers and self-reports by their typically developing peers, autistic children are often stigmatized and detached Arif, Niazy, Hassan, & Ahmed (2013). While quantitative studies often report negative attitudes to autistic children, how understanding of autism affect attitudes is still unclear. John, Knott, & Harvey (2017) in their pursuit to comprehend the views individuals hold about autism, carried on an exploratory research, by assessing Autism misinterpretation or myths that is the cognitive component of attitudes using focus groups. Their data found seven often held autism beliefs. The first four had to do with the social interaction of autistic individuals, including beliefs such that autistic children don't like to be touched. The fifth belief was the perception that all autistic children have a unique talent and

the last two beliefs were that autistic children are harmful. In his conclusions, he stressed that the findings of this research indicate that people with diverse autism encounters or knowledge frequently have false beliefs about autism.

2.6 Summary

This chapter explored the appropriate literature on the knowledge, attitudes and views of individuals towards child autism more particularly among pre-school teachers. It also examined its low outcome level as well as interventions to address the challenge. Many of the studies examined had been conducted in high income countries, with very few from low-income countries especially sub-Saharan Africa. This notwithstanding, evidence from cross sectional studies carried on among pre-school teachers in China and Singapore indicates that low extents of knowledge likewise poor views and attitudes still remain among pre-school teachers- a very vital group in the early diagnosis and management of children with autism and therefore requires to be addressed. More important is the very little evidence on the extent of knowledge and attitudes likewise views of pre-school teachers towards child autism in Ghana since there is a gap in literature in Ghana.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section looks at details of how the study will be carried out. It covers the areas of study design, philosophical underpinning of the study, study area, location, and variables of interest, sample size determination, collection of data, and instrument for data collection, data processing and analysis of data, quality control and ethical consideration.

3.1 Study Area/Location

This research was conducted in the communities of Ledzokuku-Krowor Municipality Lekma is one of the sixteen districts situated in the Greater Accra Region. Lekma's complete land area is estimated at 50 square kilometers. The Gulf of Guinea (from the Kpeshie Lagoon to the Sakumo Junction borders the municipality to the South. It continues to the 'on the run' traffic light along the railway line through Sakumono. It is bordered to the East by the Spintex road in the direction of the Coca Cola Roundabout. Johnson Wax turns left and right. The motorway to the Tetteh Quarshie interchange is located north of the border and travels south along the limits of the Ashitey Akomfra Electoral Area and the Kpeshie Lagoon estuary. The municipality's population is roughly 227,932. The municipality's settlement patterns are based on revenue groups. The municipality is widely classified into three primary areas; First class, second class 'A', second class 'B' and third class. The Residential First and Second class 'A' constitute high-income zones, while second-class 'B' occupants fall in the middle income zone. The third class areas are covered by low income communities. The communities for the study were selected from all classes which enabled comparison to be made on the basis of the study objectives per the community classes. According to the Ledzokuku Krowor Municipal Assembly, (2019), a total of 214 registered pre-schools exist in the municipality with a staff strength of 535 spread across the various zonal communities which

is made up of 31 public pre-schools and 183 private pre-schools. There are 124 teachers in public pre-schools and 106 (90.8%) of them are trained. There are 411 teachers in private kindergartens and 63 (5.3%) of them are trained (Ledzokuku Krowor Municipal Assembly, 2019). Lekma was selected as the study area because of its class nature like that of the cities of Guangzhou and Foshan.

3.2 Study Design

The study was a cross-sectional study involving teachers in private and public pre-schools. The cross-sectional survey design is a type of survey design that collects data from a sample at a one time. This design allows the researcher to collect the opinions and views of a large pool of respondents that were private and public pre-school teachers. Quantitative method was used which involved the use of structured questionnaire that was adapted from Lian et al, 2008. These questionnaires were given to preschool teachers who completed the survey. The duration for the data collection lasted for four weeks for this study

3.3 Study Population

The study's target population were all preschool teachers within the selected preschools in the Ledzokuku-Krowor Municipal Assembly.

3.4.1 Inclusion Criteria

Participants for this study were all preschool teachers with at least one-year preschool teaching experience. This was to ensure that teachers had enough experience with child normal development to enable them differentiate otherwise.

3.4.2 Exclusion Criteria

All preschool teachers who met the inclusion criteria but were absent on the day of the data collection as well as those who refused to voluntarily take part in the study were excluded from the data collection.

3.5 Sampling Technique

This study employed a multi-stage sampling approach to achieve its objectives: this sampling approach involves the use of two or more stages in sample selection. In this study, stratified, systematic and simple random sampling methods were employed in this multi-stage sampling. In the first stage, since the municipality had already been stratified into four classes based on the socio-economic status, two communities were randomly selected from each zone. Within these selected communities, purposive sampling was used to select preschools because of the absence of a complete list of schools and location of public and private preschools in the communities. Within the selected preschools, all teachers who teach at the preschool level were identified and all of those who willingly consented to participate and satisfied the inclusion criteria were recruited for the study. Sample units from pre-schools were selected using the simple random sampling method (Yes or No). Even though female teachers outnumbered male teachers in the pre-schools, the sampling was done to ensure that males sampled were representative.

3.6 Sample Size Determination

The least sample size that is required for this study was estimated by using the Cochran formula for determining proportions as shown below:

$$n = \frac{z^2 \times P \times (1 - P)}{e^2}$$
$$n = \frac{1.96^2 \times 0.17 \times (1 - 0.17)}{0.05^2} = 216.8$$

n = minimum sample size required

z = 1.96 at 95% level of confidence

p = proportion of teachers well knowledgeable with ASD = 17% (Liu et al., 2016)

q = 1-p = 1-0.17 = 0.83

e = level of precision, set at 5% = 0.05

3.7 Study Variables

The variables for this study are in two categories; dependent and independent variables.

3.6.1 Dependent variables

The primary outcome variable for this study is level of knowledge of preschool teachers on child autism while participant's attitude and perceptions towards child autism is the secondary dependent variable.

3.6.2 Independent variables

The independent variables considered were the background characteristics of the participants measured in the study. This comprised of their age, years of working experience, sex, type of school, marital status, whether they have a child or not, level of education, their previous

experience with an autistic child and whether they have received some training on early child education and special-needs disorders or not.

3.7 Data collection Instruments and Methods

Data for the study was collected with an adapted questionnaire from a previous study conducted by Liu et al. (2016) in China in the cities of Guangzhou and Foshan, specifically chosen in order to enable comparison to be made across urban areas with different socio-economic classes. This made its adaptation possible since Lekma shares similar characteristics and has communities that are divided based on socio-economic classes and will therefore enable comparison across these classes. Another factor that fostered the adaptation of this questionnaire was also the fact that China is also a middle-income country and Guangzhou is one of its biggest industrial cities just like Ghana with Accra being one of its biggest industrial cities. The questionnaires were self-administered since the target group which was teachers were a learned class of people who could read and write in English. The questionnaire comprised five sections; section A which had questions that measuring participant's background characteristics while sections B,C,D and E measured participant's knowledge in normal child development as well as child autism, attitude and perceptions and awareness on autism-friendly centers in Ghana respectively. The questionnaire assessing knowledge, attitude and perception on ASD and the awareness of autism-friendly centers was adapted from previous researches ((Lian et al., 2008; Liu et al., 2016) intended for this purpose. Questionnaire in appendix A.

3.7.1 Knowledge level

Comprises of 21 True/False questions with two domains. The first domain contained 14 items which were focused on measuring participants knowledge on typical child development (Lian et al., 2008) whiles the last 7 items are targeted at assessing participants knowledge on ASD (Lian

et al., 2008; Liu et al., 2016). Each correctly answered question will be awarded a score of 1 while “don’t know” and wrong answers will be given a score of zero. The level of knowledge of the respondents in these areas will be obtained by summing all the item scores to generate the total scores for the two aspects of knowledge. The scores will range from 0 to 15 points for the knowledge on the domain of typical child development and 0 to 15 for the domain for knowledge on ASD (with the exception of the last two items, one repeated question and the last question which served as a predictive validity question).

The last item in the domain regarding knowledge on ASD will be excluded from generating the total score (T-score) as it was going to be used to assess the predictive validity of the scale on ASD.

Adopting the procedure used by previous researchers, respondents were categorized as “Pass” if correctly answered more than half of the questions per each domain (>50%).

3.7.2 Attitude and Perceptions

This aspect (Section D) of the questionnaire was used to assess respondents’ attitude and perceptions towards the caring for and educating children with the spectrum. It comprised of nine Likert items measured on a scale of 1 to 5 (1- Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree 5- Strongly Agree). The nine-item questionnaire assessing attitudes and perceptions was adapted from the survey by Lian et al. (2008). The questions were assessing among others, the attitudes concerning entitlements for children with ASD (e.g. ‘Preschools should have teachers with special education and therapists who would provide services for children with special needs’, etc.). The average of the responses on the Likert-style scale was found for each questionnaire item.

3.8 Data Processing and Analysis

The data that was gathered with this questionnaire was entered using the code assigned to each response into SPSS. Consistency checks and data cleaning were done and the data was exported into STATA (Version 15) for data analysis.

Shapiro-Wilk, skewness and kurtosis tests for normality were used to assess the normality of continuous data. Reliability of the various scales in the questionnaire were ascertained with the Cronbach's alpha test statistic. An extra question was added to some of the subscales and that was the predictive validity question and this was used to assess the validity of the scale.

Descriptive statistics for categorical variables were presented in the form of frequencies and percentages. That of continuous variables were reported in terms of averages and standard deviations or median and interquartile range based on the distribution of the data. Bar charts and box and whisker plots were used to graphically display the distribution of some categorical and continuous data respectively. Welch t-test was used to compare means across categorical variables with only two levels and One-way ANOVA tests were used to compare the average total score by the subgroups under the demographic characteristics in this case where the total score was normally distributed. Multiple linear regression model was used to identify the factors that determined whether a participant passed or not.

3.9 Quality Control

The questionnaire was pretested in three selected schools among 24 participants in Nungua, one of the communities in Lekma. After this all issues with the wording of the questions as well as questions that were ambiguous and difficult to understand were changed or replaced before it was used for the main survey. In both pretest and main survey, filled questionnaires were double-checked by the researcher and two field research assistants on the field to identify non-responses

to questions and all deviations were corrected instantly. After all inconsistencies had been checked and corrected, the data entered after each day's activity.

3.10 Ethical Consideration

Ethical approval was sought from the Ghana Health Service Ethics Review Board (GHS-ERC052/02/19/ Appendix III). Permission was also sought from the Lekma Ghana Education Service (Appendix IV). The approval from the Ghana Education Service- Lekma together with the ethical approval from Ghana Health service were submitted to heads of schools to seek their permission before each data collection started. Informed consent forms together with information sheets were first administered to study participants and participants were assured of their anonymity and confidentiality. Participants who then agreed to partake in the study were given the questionnaires to complete.

3.11 Informed Consent

At every selected institution, an approval was sought from the school authorities after the aim of the study, the various procedures involved in the study, potential risks and benefits of participating in the study were explained to them. The right of the study participants and all other necessary information were thoroughly discussed with the participants and all questions and concerns were answered and addressed appropriately. A written consent was sought from all participants before the questionnaires were given to them. Participant's consent was obtained before the questionnaire was given to be filled. Each participant was given a maximum of an hour to answer and return the questionnaire.

3.12 Anonymity and confidentiality

All participants were given the assurance that any information they provided was going to be treated with strict confidentiality and that they would be identified by unique codes and not by their names. They were assured that the data collected was strictly for academic purposes and other members in the research team had limited access to data.

3.13 Compensation

There was no compensation for participants who took part in the study.

3.14 Risks

No risk or discomfort was inflicted on preschool teachers who participated in this research apart from their time that was spent in participating in answering the questionnaire which may have caused them some form of distress.

3.15 Voluntary withdrawal

Study participants were not obliged to answer every question and were free to withdraw from the study at any time.

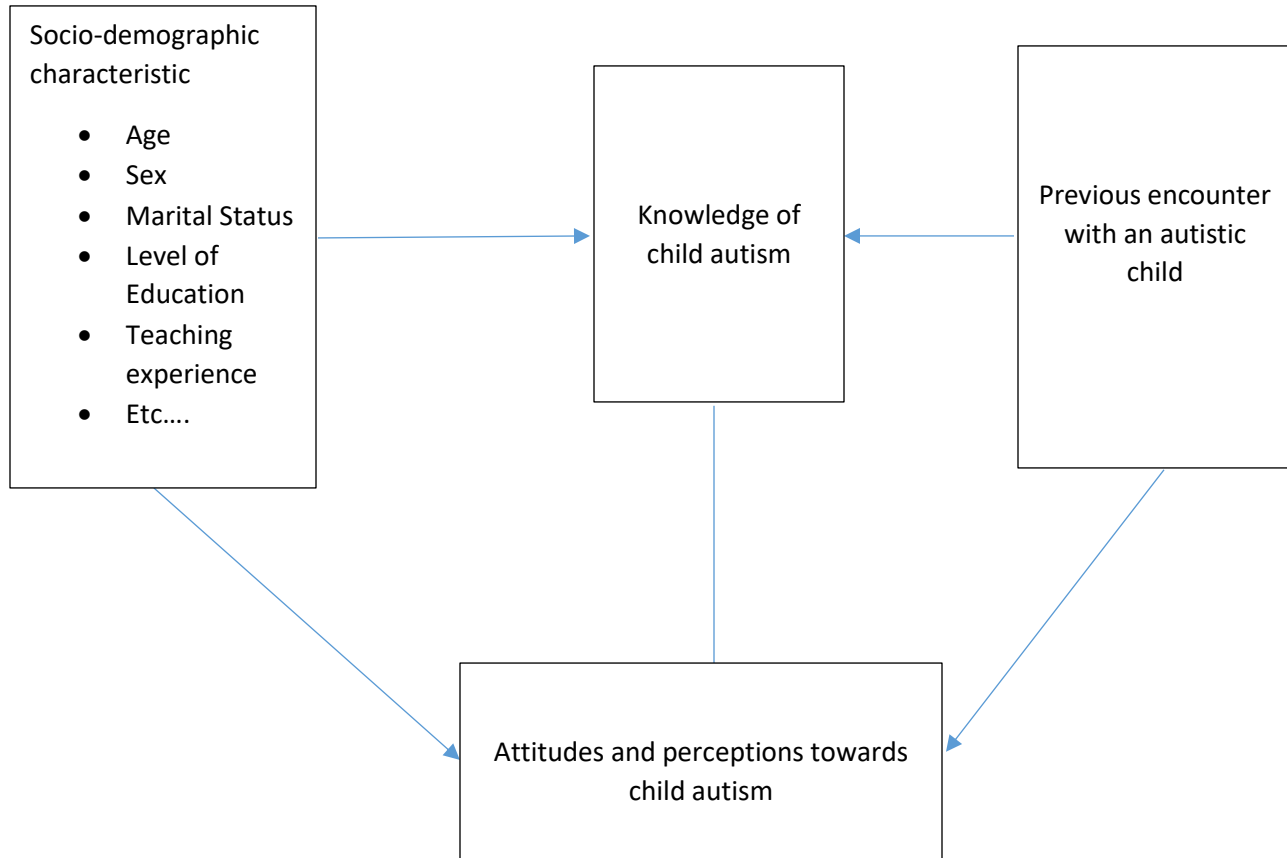
3.16 Conceptual Framework

Based on past research of several different populations, it can be observed that there exists a gap in the awareness of child autism (Ahanotu, Achor, Igwe, Igwe, & Bakare, 2011). It is necessary that everyone becomes aware and has accurate knowledge of autism especially preschool teachers who work directly and in such a timely stage with children. This is necessary in order for people with autism to receive proper diagnosis and treatment, and to have an improved quality of life.

The conceptual framework in Figure 1.1 links the factors that influence and or are associated with knowledge on autistic spectrum disorder as well as attitudes and perceptions that a preschool teacher shows towards education and integration of autistic children into mainstream schools. It

also assesses how these factors dependently and independently influence knowledge of autism. It also links how the level of knowledge in turn influences attitudes and perceptions of preschool teachers towards child autism. The factors identified from previous studies include; socio-demographic factors such as age, sex, demographic location, marital status, level of formal or informal education attained etc. as well as previous encounter with an autistic child. Previous study by Liu et al. (2016) indicated that socio-demographic factors such as geographic region and also school type and location could be associated with their level of knowledge on autism. Although level of education could be considered as a socio-demographic factor, He found out that education independently as a factor could significantly influence knowledge as well as the attitudes of participants towards child autism. Quite significant also to influence both knowledge and attitudes was a participant's previous encounter with an autistic child. Finally, level of knowledge in-turn influences the attitudes and perceptions of participants towards child autism. In the early diagnosis of child autism, knowledge levels and awareness among preschool teachers carry utmost importance.

Figure 1.1: Conceptual framework. Source: Author's own framework



CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter gives a presentation of the characteristics of participants, level of knowledge of typical child development and ASD, participants' attitudes and perceptions and the association between knowledge level and attitudes and perceptions of participants obtained from the study.

4.1 Characteristics of Participants

A total number of 210 participants from 31 preschools participated in the study. Majority of the participants were females (58%). More than half of the participants reported they were unmarried, whereas 53% reported that they had a child/children. The average age of teachers was 33.91 with a minimum age of 18 and a maximum age of 65. Teachers generally had an average of 7.70 years of experience teaching as a preschool teacher. Majority of the respondents (59%) indicated that they had received some training in early childhood development, likewise training in special-needs disorders (61%). With this, more than 70% of all participants stated that they had a previous/current working experience with a special-needs child. Table 1 shows a summary of the background characteristics of participants.

Table 1: Characteristics of Study Participants (n=210)

Characteristics	Frequency	Percentage %
Age of respondent		
< 28	66	31.0
28-36	73	34.3
>37	71	33.3
Sex of respondent		
Male	87	40.8
Female	123	57.7
School type		
Public	44	20.7
Private	166	77.9
Marital Status		
Married	96	45.1
Unmarried	114	53.5
Has a child		
Yes	113	53.1
No	97	45.5
Level of Education		
WASSCE/SSCE	124	58.2
Diploma/HND	66	31.0
Bachelor's Degree	18	8.5
Masters	2	0.9
Teaching Experience		
< 5 years	71	33.3
5-9 years	71	33.3
>= 10 years	68	31.9
Training in childhood development		
Yes	126	59.2
No	84	39.4
Training in special-needs disorder		
Yes	130	61.0
No	80	39.0
Experience with special-needs child		
No previous experience	55	25.8
Previous experience	65	30.5
Child in present class	90	42.3
Community Socio-economic class		
Residential First class	78	37.1
Residential second class	87	41.4
Residential Third class	45	21.4

4.2 Knowledge of typical child development and Knowledge of Autism Spectrum Disorder

The first objective of this study was to assess the level of knowledge of preschool teachers towards child autism in the Ledzokuku-Krowor Municipality. Participants were assessed on their level of knowledge in early childhood development and on child autism. This was to enable comparison to be made between their knowledge on normal childhood development and child autism.

4.2.1 Knowledge about typical child development

In the domain of typical early childhood development, it was observed that, almost half of the participants generally had high knowledge in typical child development (48.57%). The average score of participants in this domain was 7.26 (SD=2.09) (this was out of a total of 15 points). Similarly, on the domain of knowledge of ASD, a lesser percentage of respondents (approximately 34%) answered more than 50% of the items correctly. Participants averagely scored 6.60 (SD=1.95) (out of a total of 15 points). Comparatively, participants scores were not significantly different on the domain of typical childhood development and the domain on knowledge of ASD ($p>0.05$). More than half of the participants identified correctly that ‘it is true for a 3-year-old child to alternate between games to play (57%)’. They also suggested accurately that, ‘a 5-year-old should be able to engage in conversations about activities in the day’ (66%). Majority of the participants (54%) were also able to correctly identify that, ‘An inattentive child may be having seizures’. About 51% were able to identify that it was not normal for a child at 3 years to frequently mouth objects. An average of 57% of participants also correctly answered that, “A child should participate meaningfully during Music and Movement”. Finally, 54% of participants answered correctly as true that, “A child with poor language skills can appear hyperactive and inattentive in class” likewise that, “most children are slightly hyperactive and inattentive before the age of 5”. The results of participants on domain on typical child development are presented in table 2

Table 2: Knowledge of typical child development questionnaire items passed by <50% of respondents

Question	Correct Response	% correct (95% CI)
1. A child at 3 can still be unsteady when walking.	False	22.86(17.4-29.1)
2. A year and a half old should have hand dominance.	False	48.57(41.6-55.5)
3. A child can only stage play at 4 years old.	False	30.14(24-36.9)
4. 3-year-old child should alternate between games to play	True	56.94(49.9-63.7)
5. 5-year-old should be able to engage in conversations.	True	66.19(59.4-72.6)
6. Inattentive child may actually be having seizure.	True	53.59(46.6-60.5)
7. A 3-year-old should not understand simple instructions.	False	47.62(40.7-54.6)
8. It is normal for a boy to start speaking at the age of 2.	False	47.62(40.7-54.6)
9. At 3 years a child should still be mouthing objects.	False	51.43(44.5-58.4)
10. A child should participate during Music and Movement.	True	56.67(49.7-63.8)
11. 3 year olds should be able to recognize things but unable to speak.	False	45.71(38.8-52.7)
12. Most children are hyperactive and inattentive before 5.	True	54.29(47.3-61.2)
13. A child with poor language skills can appear hyperactive.	True	54.29(47.3-61.2)
14. Family problems can lead to behavioral problems.	True	45.24(38.4-52.2)

Note: CI-confidence interval

4.3.2 Knowledge about autism

On the domain of knowledge of child autism, with the exception of three questions that more than half of participants answered correctly, less than half of the participants were unable to answer correctly to the rest of the questions on the knowledge of child autism. Some of the inconsistencies identified in participants' responses included: most of the preschool teachers identified autism as a psychological disorder and were of the impression that autistic children are deliberately negativistic and non-compliant. Most participants also believed that, autism may be caused by poor parenting and perhaps changing the diet of an autistic child could make an impact on his/her outcome. Most participants were also of the view that, autism is curable and also believed that, "with the proper treatment, most autistic children will eventually outgrow autism". Most teachers also shared the view that autism occurs more commonly among children born to parents in the higher socio-economic bracket. Most teachers again failed to identify correctly that autistic children do not want friends and are non-affectionate towards people. However, teachers were able to correctly identify that; child autism often exhibits features of speech and language delay between ages 2 and 3. Likewise majority of teachers identified accurately that autism presents in repetitive behavior and that it is important that special education services are provided for autistic children at school. Table 3 presents the performance of participants on the domain on Autistic spectrum disorder

Table 3: Knowledge of ASD questionnaire failed by >50% of respondents

Question	Correct Response	% correct (95% CI)
1. Autistic children present with language delay	True	75.24(68.8-80.9)
2. Autism is curable	False	43.33(36.5-50.3)
3. Autism is caused by poor parenting	False	34.29(27.9-41.1)
4. Autism is a psychological problem	False	32.38(26.1-39.2)
5. Diet can make a difference in autism	False	30.48(24.3-37.2)
6. Autism presents in repetitive behavior	True	59.52(52.6-66.2)
7. Autism occurs in less than 10% of the population	True	45.24(38.4-52.2)
8. Autistic children are unable to pursue higher education	False	49.05(42.1-56.0)
9. Autistic children do not want friends	True	30.95(24.8-37.7)
10. Autistic children do not show social attachments	True	48.57(41.6-55.5)
11. An autistic child may avoid making eye contact	True	35.24(28.8-42.1)
12. Autistic children should receive special education	True	63.81(56.9-70.3)
13. Autistic children are deliberately negativistic	False	37.14(30.6-44.1)
14. Rich parents are likely to have autistic children	False	35.71(29.2-42.6)
15. Autistic children do not show affection	True	33.81(27.4-40.6)

Note: CI- confidence interval

4.3.3 Knowledge performance based on socio-demographic data

A bivariate analyses of the relationship between the level of knowledge on typical childhood development and knowledge of ASD and the socio-demographic characteristics were performed independently. A one-way analysis of variance was performed to determine whether the mean knowledge score was significantly different for categorical variables with more than two groups such as level of education of participants, Age categories of participants, years of working experience of participants as well as previous experience working with an autistic child. The results are presented in Table 4 Also Welch's t-test was conducted to compare the knowledge level between categorical variables with two levels only such as sex, marital status, formal training in early childhood development and special needs as well as school type. (Table 5). It was observed that, level of education, number of years of teaching experience as a pre-school teacher and age of respondents were the characteristic that showed a significant relationship with the level of knowledge on typical childhood development ($p < 0.05$). On the domain of knowledge of ASD, whether or not participant's had received any training in early childhood development showed a significant relationship to the knowledge on ASD ($p < 0.05$). All other socio-demographic characteristics did not show significant associations to this domain. A composite score of the knowledge of normal childhood development and ASD was therefore generated and this showed how each participant performed on the entire knowledge scale. A relationship between the performances of participants on the composite score and the socio-demographic characteristics was then assessed. And it was observed that level of education was again the only characteristic that showed a significant association with the knowledge level ($p < 0.05$). The regression analysis performed revealed that, participants mean knowledge score increased as they advanced in their level of education. With teachers who had master's degree with the highest mean score of 16(2.83). Table 4 presents the results of this bivariate association.

Table 4: Performance based on demographic characteristics:

	composite score maximum=30 mean (SD)	typical child development max=15 mean (SD)	knowledge of ASD maximum=15 mean (SD)
Total	13.86(2.89)	7.26(2.09)	6.60(1.95)
Educational level	0.0170*	0.0010**	0.9715
Wassce/SSCE	13.51(2.79)	6.95(2.09)	6.56(1.80)
Diploma/HND	13.97(2.76)	7.33(1.89)	6.64(2.01)
Bachelor's	15.67(3.45)	8.94(2.04)	6.72(2.76)
Masters	16.00(2.83)	9.00(1.41)	7.00(1.41)
Training in early child development	0.3015	0.3134	0.0074**
Yes	13.69(2.79)	7.38(2.08)	6.31(1.96)
No	14.12(3.03)	7.08(2.10)	7.04(1.87)
Teaching experience	0.0768	0.0131*	0.956
Less than 5 years	13.25(3.09)	6.70(2.02)	6.55(2.16)
5-9 years	14.03(2.47)	7.38(2.00)	6.65(1.64)
>= 10 years	14.32(3.00)	7.72(2.14)	6.60(2.05)
Age of respondent	0.0766	0.0320*	0.8476
less than 28 years	13.56(3.03)	6.98(1.88)	6.58(2.21)
28-36 years	13.52(2.71)	7.00(2.16)	6.52(1.77)
>= 37 years	14.49(2.87)	7.79(2.12)	6.70(1.90)

Note: *= $p < 0.05$, **= $p < 0.01$ significant, SD- Standard deviation

Table 5: Predictors of knowledge score

	B	p-value	95% CI
Age	-0.00052	0.887	-0.0774,0.067
Male-Ref			-
Female	0.5478	0.186	0.2656,1.3612
Public-Ref			-
Private	-0.3274	0.557	1.4246,0.7699
Married-Ref			-
Unmarried	-0.1375	0.813	1.2814,1.0063
Has a child-No-Ref			-
Yes	-0.3696	0.558	1.6128,0.8737
Level of Education			-
Wassce/SSCE-Ref			-
Diploma/HND	0.3987	0.432	0.6000,1.3973
Bachelor's Degree	1.8856	0.033*	0.1539,3.6173
Masters	1.937	0.363	2.2534,6.1272
Teaching Experience			-
< 5 years-Ref			-
5-9 years	0.903	0.097	0.1642,1.9702
>= 10 years	0.9352	0.271	0.7365,2.6068
Training in child development	-0.4507	0.296	1.2983,0.3970
Training in special-needs	-0.5594	0.212	-1.44,0.3212
Previous experience	-0.5	0.394	1.6535,0.6534
Child in present class	0.0533	0.922	1.0178,1.1244

Note: F= 1.54, p= 0.0986; for level of education, Wassce/SSCE is set as the reference.

4.4 Attitudes and Perceptions towards care and education of children with ASD

Objective two of the study was to determine the attitudes and perceptions of preschool teachers towards child autism. More specifically towards educating and the care of autistic children. Generally, participant's shared positive attitudes and perceptions illustrated by their strong opinions favoring improving educational opportunities for children with autism. The average score of participants in this domain was 3.71 (SD=0.47). More than half of preschool teachers expressed agreement to the integration of children with special-needs into mainstream schools. Likewise, comparative percentages also expressed agreement to preschools allowing children with special-needs to attend classes while waiting placement. As well as preschools allowing parents with such children in the classroom. Teachers were however neutral in their opinion on parents helping to bear the cost of services for their special-needs children in these preschools. Between 70-80% of teachers on another hand expressed strong opinions on government allocating more resources for providing needed services for special needs children and also on preschools having therapists and specially-trained teachers to provide therapies and treatment to children with special needs who are enrolled in these preschools. Table 6 shows the results of participants on the domain of attitudes and perceptions.

Table 6: Attitudes and Perceptions towards care and education of children with Autism Spectrum Disorder

Statement	Average score	1	2	3	4	5
1. Special-needs children should be integrated into mainstream schools	3.85	8.10%	7.62%	12.86%	33.81%	37.62%
2. Preschools should allow special-needs children to attend classes while they await placement	3.88	4.29%	5.71%	16.19%	45.71%	28.10%
3. Preschools should allow the presence of parents in class	3.69	8.57%	13.33%	16.19%	24.29%	37.62%
4. Preschools should have teachers and therapists to provide special education	4.07	1.43%	2.86%	15.71%	47.14%	32.86%
5. Government funding should be available to facilitate staff employment to meet the needs of these children	4.1	0.43%	1.90%	22.86%	36.67%	38.10%
6. Parents should help bear the cost of services within the preschool	2.07	24.76%	50.48%	19.05%	4.29%	1.43%
7. There is adequate provision of services of special-needs children in Ghana	3.71	5.74%	6.70%	23.44%	38.76%	25.36%
8. The government should allocate more resources for the provision of services for children with special needs	4.03	1.43%	1.90%	17.62%	50.00%	29.05%
9. Insurance policies should be amended to include coverage for developmental disorders	3.99	1.43%	2.86%	24.76%	37.62%	33.33%

Note: 1= strongly disagree, 2= disagree, 3= Neutral, 4= agree, 5= strongly agree

4.5 Influence of Knowledge on attitude and perceptions

The final objective of this study was to examine the impact of preschool teachers' knowledge on their attitudes and perceptions towards educating and caring for children with autism. A regression analyses on the strength of association revealed that the level of knowledge of participants significantly influenced the attitudes and perceptions of preschool teachers. The test revealed that the level of knowledge of participants was significantly associated to the attitudes and perceptions of participants towards educating and caring for children with autism ($p < 0.05$). Other demographic characteristics like number of years of teaching experience of respondent and level of education also showed significant associations to perceptions and attitudes of participants ($p < 0.05$). After adjusting for the effect of the socio-demographic characteristics that could be potential confounders on the mean score of attitudes and perceptions, it was still observed that, the knowledge level of participants was significantly associated to the attitudes and perceptions of participants ($p < 0.05$). Table 7 shows this relationship.

Table 7: The effect of knowledge on attitudes and perceptions of pre-school teachers towards the care and education of children with autism.

Characteristics	Unadjusted		Adjusted ¹	
	Mean difference (95%CI)	Unadjusted P-value	Adjusted Mean difference (95%CI)	Adjusted P-value
Level of Knowledge		0.042		0.047
Total composite score	-0.023(-0.045,-0.001)		-0.023(-0.045 , -0.00)	

¹ Estimates were adjusted for the effect of background characteristics on the attitudes and perceptions of participants. Age, sex, teaching experience, level of education, working experience with an autistic child etc.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter provides a discussion of the results obtained from the study. It discusses the level of knowledge, attitudes and perceptions of preschool teachers in the Ledzokuku-Krowor Municipality that were realized from the findings of the study towards child autism.

5.1 Knowledge of child autism among preschool teachers

Findings from this study revealed a low level of knowledge of child autism among preschool teachers with majority of participants unable to answer accurately responses to half of the items in the domain of Autism Spectrum Disorder. Findings from this study corroborates findings in Africa by establishing the low awareness of child autism knowledge among the general population including preschool teachers; a population that play a vital role in the early detection and treatment of autistic spectrum disorder (M. O. Bakare et al., 2009; Ahanotu et al., 2011; Wireko-Gyebi & Ashiagbor, 2018). Quite similarly, findings from a study conducted by Liu et al. (2016) in China on the level of knowledge of child autism among preschool teachers. Liu in his study discovered that, only 17% of respondents had adequate knowledge in child autism. Other studies by (Ahanotu et al., 2011; M. O. Bakare et al., 2009; Atun-Einy & Ben-Sasson, 2018; Lian et al., 2008) assessing knowledge regarding ASD among health professionals revealed low levels of knowledge on ASD among health professionals. Wireko-Gyebi & Ashiagbor (2018) in their study assessing knowledge of ASD among health professionals in Ghana also revealed generally low levels of knowledge of ASD. However, findings show contrasting results in more Westernized societies. For example, a study by Lüleci et al. (2016) revealed high levels of knowledge of ASD among first-grade nursing and medical students in Istanbul similar to results from a study on ASD knowledge among medical students in London. It is therefore imperative that the people that work

closest to these children in their tender age have adequate knowledge of the condition to enable them detect its prime stage.

This study further revealed that slightly less than half of respondents had adequate knowledge on typical childhood development which contrasts with findings from previous studies by Liu et al. (2016) where majority of participants had adequate knowledge in typical childhood development. This is quite problematic and conflicting because the study population are preschool teachers and whose majority indicated they had received training in early childhood development. It is therefore expected that they would have adequate knowledge in the development of the children they are dealing with. This perhaps could be attributed to the high percentage of the participants who reported having a WASSCE/SSCE certificate since the results indicated that level of education was significantly associated to knowledge in typical childhood development ($p < 0.01$) and therefore the mean knowledge score increased as the level of education rises from WASSCE through to Master's level of education. This could also indicate that most participants did not receive adequate training in childhood development. This was also confirmed by Alharbi et al. (2019), who in their study discovered that post hoc analysis found that higher levels of education were significantly associated with higher knowledge in typical childhood development and ASD. Anwar, Tahir, Nusrat, & Khan (2018) in their study on parents' also found that parents knowledge increased as their level of education advanced and therefore knowledge in typical childhood development and ASD could also increase with advancing level of education. Surmen (2016) discovered that participants' knowledge varied greatly with their level of education. This could also be attributed to the fact that preschools fail to train teachers adequately in childhood development due to lack of a strict protocol adherence on all preschools providing early childhood development training

for all teachers employed. Most participants identified child autism as a psychological problem which is similar to what other studies found.

5.2 Demographic factors influencing knowledge of ASD among participants

Demographic characteristics of study participants in the study were similar to those assessed by other participants. Atun-Einy & Ben-Sasson (2018) in their study reported that findings showed professionals who had previous experience with an autistic child possessed significantly higher knowledge in ASD than their inexperienced counterparts. They however found no differences in ASD knowledge among occupational therapists, physical therapists and speech and language pathologists. Wireko-Gyebi & Ashiagbor (2018) in their study found that significant differences did not exist between participants gender age, marital status, years of working experience and their level of knowledge on ASD. They however similarly found that participants' previous encounter with an autistic child was significantly associated with their level of knowledge on ASD. Similar results were also confirmed by Ahanotu et al. (2011) in their study in Nigeria. The plausible causes that could account for these differences could be associated to the number of participants who had previous encounter with a special-needs child in this study compared to these previous studies. In this study, a greater percentage of the participants reported they had previous/current encounter with a special needs child compared to relatively lower percentages in these studies reporting they had a previous encounter. Anwar, Tahir, Nusrat, & Khan (2018) in their study also found that sex of participants was significantly associated to knowledge on ASD. They reported that more females than males were able to correctly identify accurate responses regarding ASD than males. Quite contrary, findings from this study did not show any significant association between many of the demographic characteristics (school type, sex, marital status, years of working experience, previous encounter with an autistic child, etc.) and the knowledge on ASD with the exception of

whether respondents had received formal training in early childhood development and the level of education of participants ($p < 0.05$). Liu et al. (2016) also in their study discovered higher educational level of participants was significantly associated to their knowledge on ASD. But in addition to this, they also reported findings showing that, the geographical region of teachers as well as the type of school participants taught also showed significant associations to ASD knowledge. In this study, the Ledzokuku-Krowor Municipality has been divided into three classes based on the socio-economic profile of the communities in the Municipality. These classes are residential first-class, second-class and third-class in order of higher to lower socio-economic status. Knowledge on ASD was compared among participants based on the socio-economic classes of communities. It was however observed that, the knowledge of ASD was not significantly different across the various socio-economic classes ($p > 0.05$). The different settings could possibly have accounted for the differences in the outcomes.

5.3 Attitudes and perceptions towards care and education of autistic children

This study brought to light the attitudes and perceptions that preschool teachers in the mainstream preschools in Lekma hold towards the care and education of children with autism. The results showed that, majority of the participants supported the integration of children with special needs into mainstream schools. This is similar to findings by Lian et al about preschool teachers supporting the integration of special-needs children into mainstream classrooms. Quite similar to findings from this study, participants agreed that government funding should be readily available to provide staff employment services for children with special needs. These findings however contrast with that observed by Jensen et al. (2015) in their study where participants were neutral in their opinions regarding the integration of special-needs children into mainstream schools. This could be as a result of the slight differences in the level of knowledge of participants regarding

ASD in the two studies. Since it has been established by other researchers and also confirmed by this study that, high levels of knowledge in ASD influences positive attitudes towards the integration of autistic children in mainstream schools, the comparative higher knowledge of ASD in this study to that observed by other researchers could explain the differences in participants opinions. Also, participants in this study did not show any strong opinions towards parents of autistic children bearing the cost of services in these preschools for their children. Participants however showed agreement to the presence of parents of children with special-needs in the classroom and this was also affirmed by previous studies. Similar results were observed by Humphrey & Symes (2013) in their study on inclusive education for pupils with autism in mainstream secondary schools. An appreciable percentage of participants expressed strong opinions about preschools having special-education teachers and therapists as well as adequate government funding for the provision of services for children with special needs. Participants had a mean score of 3.71 on the attitudes and perceptions domain which generally indicates a fairly neutral opinion by participants.

5.4 Effect of knowledge on attitudes and perceptions

Durand-Zaleski, Scott, Rouillon, & Leboyer (2012) realized in their findings that, the attitudes that most individuals exhibit towards various disorders are as a result of assumptions rather than knowledge or evidence. Their findings showed that changes in mental literacy has the potential to change the stigmatization of people. This was affirmed in this study when regression analysis between the mean score on attitudes and perceptions showed significant association to the knowledge of participants on ASD. This therefore implies that, the level of knowledge of participants has significant effects on their attitudes and perceptions towards the care and education of children with special needs like autism. Similarly, Dolah et al. (2011) and Papadopoulos (2016)

both stated in their findings that, knowledge in special needs disorder reduces stigma against children with special needs and also influences the attitudes of parents, teachers and the general population towards autism. Their findings indicated that, significant associations existed between knowledge and stigma change as well as knowledge and attitudes; increase in the knowledge of ASD positively influenced the attitudes and perceptions people showed towards the disorder. As per Surmen (2016), participants of his study with higher levels of education exhibited highly positive attitudes and perceptions towards the disorder. He further concluded that, positive viewpoints held by participants mainly stemmed from their higher level of awareness regarding ASD. Adequate knowledge in special needs is therefore required if integration of special-needs education into mainstream education is to be realized. In a paper commissioned by the Education for all Global Monitoring (EFA) Report as background information for the EFA drafted by Anthony.J.H (2010), on access to education for students with autism in Ghana, he concluded that, for autistic children to have successful education, there is the need for teachers to have accurate understanding of the disorder as well as its unique characteristics. This he stated is necessary to achieve inclusive education for autistic children in Ghana.

5.5 Limitations and Strengths of the Study

The key strength of this study can be attributed to the fact that it is the first quantitative study to assess the knowledge of ASD among preschool teachers in the Greater Accra Region and Ghana at large.

A major limitation lies within the generalizability of the results due to the small number of participants successfully reached, which is accounted for by the limited proportion of consenting participants.

Another possible limitation would be the method of purposive sampling used in the multi-stage sampling which may have introduced selection bias against non-participating preschools.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter presents a summary of the conclusions and recommendations made based on findings from the study.

6.1 Conclusion

In assessing the knowledge of preschool teachers towards child autism, it was discovered that, the respondents generally possess low levels of knowledge about autism spectrum disorder. Training in early childhood development among preschool teachers indicated significant association to the level of knowledge in child autism. The study also discovered an association between respondents' level of education and their knowledge in ASD. This study failed to establish an association between teachers' previous encounter with an autistic child, the type of school as well as the geographical location of preschool and the level of knowledge of teachers in ASD. The study also revealed that, only a minority of preschool teachers in the Ledzokuku-Krowor Municipality possess adequate knowledge in typical childhood development as opposed to majority of preschool teachers having adequate knowledge in typical childhood development from previous findings.

In determining the attitudes and perceptions that respondents hold towards the disorder, it was observed that, preschool teachers held fairly positive attitudes and perceptions towards care for autistic children. Findings also revealed that respondents were in support of the integration of children with special-needs into mainstream preschools and also shared strong opinions that government needs to provide adequate services to help make this integration possible.

Finally, in examining the effect of knowledge in ASD on the attitudes and perceptions of preschool teachers towards child autism, the study revealed that teachers' increased level of knowledge in ASD had a significant positive effect on their attitudes and perceptions towards child autism.

6.2 Recommendations

Based on the results from the study, the following recommendations were made:

- Continued professional development programs by the Ghana Education Service in the area is needed to update preschool teachers, who are considered important members in the early detection, identification and treatment of children with autism.
- There is the need for the incorporation of educational programs and curricula that focuses on children with special-needs in teacher-trainings
- There is also the need for strict policies by the Ministry of education for preschools to incorporate early childhood education and special-needs education in to the training for all preschool teachers.
- There should also be intermittent trainings and seminars held for teachers on childhood development and special-needs.
- Much awareness needs to be created especially at the preschool level by the autistic center in the month of autism through educational seminars and the media aimed at educating the public on child autism.

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APPENDICES

Appendix I- Participants Consent Form

PARTICIPANT INFORMATION SHEET

TITLE OF STUDY: AWARENESS OF CHILD AUTISM AMONG PRESCHOOL TEACHERS IN THE LEDZOKUKU-KROWOR MUNICIPAL ASSEMBLY

Introduction

My name is Alberta Twi-Yeboah. I am a graduate student from the School of Public Health, University of Ghana, Legon in Accra. I am carrying out a research on awareness of child autism among preschool teachers in the Ledzokuku Krowor Municipal Assembly as partial fulfillment of the requirement for a Master's Degree in Public Health. You can reach me through telephone number, 0244197652 and email: atwiyeboah@yahoo.com

Background and purpose of research

The purpose of the research is to determine the level of knowledge, attitude of perceptions that preschool teachers have towards child autism as lack of information and awareness about ASD connects with numerous different factors in late identification and diagnosis. The research will therefore help identify and educate preschool teachers on child autism to help in early diagnosis and treatment as well as identify challenges with the perceptions and attitude of preschool teachers towards child autism to help avoid the emotional and social consequences of social stigma faced by children with autism and families with an autistic child.

Nature of study and study procedure

The goal of this study is to assess the knowledge, attitude and perceptions that preschool teachers hold towards child autism in the Ledzokuku Krowor Municipal Assembly. The study will involve you answering questions on a questionnaire that will be administered to you by the researcher.

Duration / What is involved

The interview will entail answering questions regarding yourself, socio-demographic factors as well as your knowledge on normal child development and child autism as well as your attitudes

and perceptions towards children with the disorder. The entire study is expected to last for about a month but your participation will be for only today and will last for about 45 minutes.

Potential Risks

No risk or discomfort is foreseen concerning participation in this research apart from your time that will be spent in participating in answering the questionnaire which might be a form of distress.

Benefits

There are no direct benefits for participating in this survey however, the outcome of this study will be used to inform policy creating awareness on child autism among preschool teachers and the integration of special-needs education and training into main-stream education.

Costs

There will be no personal cost incurred by you except for your time to respond to questions should you agree to participate in the study.

Compensation

There will be no payments made to you for your time to participate in this study

Confidentiality

Please do not write your names or any identifying information on the questionnaire. Your responses will be confidential and your identity will be anonymous. You will be identified by unique code and not by names. Data collected will be used for academic purposes only and other members in the research team will have limited access to data. The questionnaire will be kept in locked cabinet with limited access to other members in the research team and they will be discarded when they are of no importance to the research.

Voluntary participation / withdrawal

Being part of the study is completely voluntary therefore you can decide not to participate in it. At any stage in the study when you feel uncomfortable, you have the right to stop the interview with no consequences whatsoever to you. You are entitled to ask questions at any point in the study and the interviewer will clarify any aspect that is not well understood for your understanding.

Outcome and feed back to participant

Data collected from the study will be analyzed. Findings will then be shared with educational institutions and the Lekma education office.

Funding information

This study is a self-funded study with no external funding from any donor.

Sharing of participant information/Data

Data generated from this study will be solely owned by the principal investigator and will not be shared with other organization or individual.

Storage of samples

Data will be stored for a period of 5 years after which it will be destroyed. During this period, if the principal investigator needs to use the data for a different purpose, ethical clearance from the Ghana Health Service Ethical Review Committee would be sought for before it is used.

Provision of information and consent for participants

A copy of the Information sheet and consent forms will be given to you after it has been signed for your keep.

This research has been reviewed and approved by the Ghana Health Service Ethic Review Committee. For questions and enquiries about this study, you may contact the principal investigator or her supervisor through the following addresses:

1. Alberta Twi-Yeboah (Principal Investigator)

School of Public Health

University of Ghana-Legon

Email: atwiyeboah@yahoo.com

Mobile number: 0244197652.

2. Dr. Franklin Glozah (Supervisor)

School of Public Health

University of Ghana-Legon

Email: fglozah@hotmail.com

Mobile number: 0572000534

For clarification on ethical issues and rights as participants, please contact the following:

Hannah Frimpong

GHS-ERC Administrator

Office: +233-302681109

Mobile: +233 (0) 243235225 / 0507041223

Email: Hannah.Frimpong@ gmail.org

CONSENT FORM

PARTICIPANT STATEMENT

I acknowledge that I have read the purpose and contents of the Participant's Information Sheet and that all questions have been satisfactorily explained to me in a language I understand (English). I fully understand the contents and any potential implications as well as my right to change my mind or withdraw from the research even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant..... ID Code.....

Participants' signature..... OR Mark (Please Specify).....

Date.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature.....

Date.....

APPENDIX II: QUESTIONNAIRE

**DEPARTMENT OF SOCIAL AND BEHEVIORAL SCIENCE
SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA**

**ASSESSMENT OF KNOWLEDGE, ATTITUDES, AND PERCEPTIONS OF AUTISM
SPECTRUM DISORDER AMONG PRE-SCHOOL TEACHERS IN LEKMA**

SECTION A: BACKGROUND INFORMATION

Questionnaire Code:.....

Please tick the appropriate response that best describes you for questions where options have been provided, and write the appropriate response for open ended questions.

	Statement	Response
1	Name of school	
2	Name of community	
3	School Type	1 – Public [] 2 – Private []
4	Sex	1 – Male [] 2 – Female []
5	Age at last birthday (completed years)years
6	Marital status	1 –Married [] 2 – Unmarried []
7	Do you have a child	0 – No [] 1 – Yes []
8	What is your highest level of educational qualification	1 – WASSCE [] 2 SSCE certificate [] 3 - Diploma \ HND [] 4 - Bachelor's Degree [] 5 – Masters []
9	How long have you been teaching as a pre-school teacher (in years/months)?	-----
10	Have you received any formal training in early childhood education?	0 – No [] 1 – Yes []
11	Have you received any formal training in special-needs disorders?	0 – No [] 1 – Yes []
12	Working experience with special-needs children	1 - No such Previous experience [] 2 - Previously taught a special needs child [] 3 - Special-needs child in present class []

SECTION B: Normal Development (ND) Block				
In the series of statements below, please indicate in each statement as whether it's true, false, or do not know.		TRUE	FALSE	DON'T KNOW
1	At 3 years old, it is acceptable for a child to still be unsteady when walking.			
2	It is normal for a 1.5-year-old child to have already developed definite hand preference (dominance).			
3	A child only develops make-believe play (pretend play/role play) at 4 years old.			
4	A 3-year-old child should be learning to take turns at play.			
5	A 5-year-old child should be able to exchange conversation about daily activities and experiences.			
6	A child who appears inattentive may actually be having seizure.			
7	It is normal for a 3-year-old child not to understand simple instructions.			
8	It is normal for a boy to start speaking at the age of 2.			
9	It is normal for 3-year-old children to frequently mouth objects (put things in their mouth).			
10	A child should participate meaningfully during Music and Movement Time in nursery class.			
11	There is no cause for concern if a 3-year-old child can recognize all the letters of the alphabets and numbers, but does not speak in sentences.			
12	Most children are slightly hyperactive and inattentive before the age of 5.			
13	A child with poor language skills can appear hyperactive and inattentive.			
14	Children who have learning or behavioral problems may have underlying family concerns.			
15	All children with speech and language delay should have a hearing test done.			

SECTION C: Autistic Spectrum Disorder (ASD) Block				
In the series of statements below, please indicate in each statement as whether it's true, false, or do not know.		TRUE	FALSE	DON'T KNOW
1	A child with autism often presents with speech and language delay between 2 and 3 years old.			
2	Autism is curable if diagnosed early and the appropriate intervention provided.			
3	Autism is caused by poor parenting skills or poor home care.			
4	Autism is a psychological problem.			
5	Changing the diet of a child with autism will make a difference to his outcome.			
6	A child with autism may exhibit ritualistic or repetitive behavior.			
7	Autism is a developmental disorder occurring in less than 10% of the population.			
8	All children with autism will be unable to pursue further education at the university level.			
9	A child with autism does not want friends.			
10	Autistic children do not show social attachments, even to parents.			
11	A child with autism may avoid making eye contact.			
12	It is important that autistic children receive special education services at school.			
13	Autistic children are deliberately negativistic and noncompliant.			
14	Autism occurs more commonly among higher socioeconomic and educational levels.			
15	With the proper treatment, most autistic children eventually outgrow autism.			
16	Autistic children do not show affectionate behaviors.			
17	Autism has manifestations in physical pain in certain parts of the body.			

SECTION D: Attitudes and Perceptions						
For each statement below, please indicate the option that best corresponds to your attitude about the statement. 1-strongly disagree, 5 - strongly agree.		Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
1	Special-needs children should be integrated into mainstream school					
2	All pre-schools should allow children requiring special education to attend their classes while awaiting placement					
3	Pre-schools should allow the presence of parents in class for children with special needs.					
4	All pre-schools should have special education teachers and therapists to provide services for special-needs children who are attending classes there.					
5	Government funding should be made available to facilitate staff employment in pre-schools to meet the needs of these children.					
6	The parents should help bear the cost of services within the pre-schools.					
7	There is adequate provision of services of special-needs children in Ghana.					
8	The government should allocate more resources for the provision of services for special needs children.					
9	Insurance policies should be amended to include coverage for developmental disorders as chronic disabilities.					

SECTION E

Awareness of supporting institutions			
Have you heard of any of these institutions before? Please circle.....			
1	New Horizon Special School	Yes	No
2	Dworwulu Special School	Yes	No
3	Woodfield Manor Autism & Special Needs School	Yes	No
4	Multikids Inclusive Academy	Yes	No
5	Autism Awareness Care And Training Center	Yes	No

Appendix III: Ethical Clearance

Appendix IV: Approval from Education Service-LEKMA