



ST. PAUL HOSPITAL MILLENNIUM MEDICAL COLLEGE

GRADUATE STUDY PROGRAM

**KNOWLEDGE, ATTITUDE AND ASSOCIATED FACTOR OF AUTISM SPECTRUM
DISORDERS AMONG PRESCHOOL AND PRIMARY SCHOOL TEACHERS IN ADDIS
ABABA PUBLIC SCHOOLS, ADDIS ABABA, ETHIOPIA, 2024**

BY; DR. MIZAN TSEGAYE

**ADVISOR: DR FASIL MENBERE (CONSULTANT PEDIATRICIAN AND ASSISTANT
PROFESSOR OF PEDIATRICS AND CHILD HEALTH)**

**A THESIS REPORT SUBMITTED TO THE DEPARTMENT OF PEDIATRICS AND CHILD
HEALTH, ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE FOR THE
PARTIAL FULFILLMENT OF THE REQUIREMENT FOR A CERTIFICATE IN PEDIATRIC
AND CHILD HEALTH**

ADDIS ABEBA, ETHIOPIA

MARCH, 2024



ST. PAUL HOSPITAL MILLENNIUM MEDICAL COLLEGE
KNOWLEDGE, ATTITUDE AND ASSOCIATED FACTOR OF AUTISM SPECTRUM
DISORDERS AMONG PRESCHOOL AND PRIMARY SCHOOL TEACHERS IN ADDIS
ABABA PUBLIC SCHOOLS, ADDIS ABABA, ETHIOPIA, 2023

BY; MIZAN TSEGAYE (MD, PEDIATRICS RESIDENT)

ADVISOR; FASIL MENBERE (CONSULTANT PEDIATRICIAN AND ASSISTANT
PROFESSOR OF PEDIATRICS AND CHILD HEALTH)

A THESIS TO BE SUBMITTED TO THE DEPARTMENT OF PEDIATRICS AND CHILD
HEALTH, SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE FOR THE
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE CERTIFICATE IN
PEDIATRICS AND CHILD HEALTH

ADDIS ABABA, ETHIOPIA

MARCH, 2024

Thesis report declaration

I, the under signed declare this is my original work, has never been presented in this or other university, and that all the resource and materials used for the thesis work have been fully acknowledged.

Name of student: _____ Signature: _____ Date: _____

This thesis has been submitted for examination with my approval as the student thesis work advisor.

ABSTRACT

Background: Autism spectrum disorder (ASD) is a neurodevelopmental disorder primarily impacting social communication and behavior. The prevalence of ASD has been rapidly increasing, leading to a corresponding rise in the number of children with ASD attending mainstream schools. Preschool and primary school teachers have a vital role in identifying and supporting these children. However, the extent of teachers' knowledge about the disorder and their attitudes towards including children with ASD in their classrooms remains uncertain.

Objective: The objective of this study was to evaluate the knowledge, attitude towards including children with autism spectrum disorders in their classrooms, and associated factors among preschool and primary school teachers in public schools in Addis Ababa.

Methods: Data from preschool and primary school teachers were collected using a self-administered questionnaire between September 2023 and December 2023. The collected data were analyzed utilizing SPSS version 27. Descriptive statistics were employed to summarize the findings, while bivariate binary logistic regression was utilized to examine associations between variables.

Results: The study findings revealed that only 35.5% of teachers had adequate knowledge, and the mean attitude score was 3.4, indicating a slight positive inclination towards inclusive education. Teachers between the ages of 20 and 25 had 90% lower knowledge compared to those above 40 years (AOR = 0.1, 95% CI = 0.48-0.7) with a p-value of 0.014. First to sixth-grade class teachers were 2.4 times more likely to have adequate knowledge (AOR = 2.4, 95% CI = 1.2-4.5) with a p-value of 0.007. Those who relied on social media as a knowledge source were 60% more likely to have knowledge compared to those who did not (AOR = 0.4, 95% CI = 0.2-0.8) with a p-value of 0.013. Previous experience with a child who has special needs increased the likelihood of having adequate knowledge by 44% (AOR = 0.54, 95% CI

= 0.2-0.9) with a p-value of 0.04. Furthermore, teachers with a positive attitude towards including students in regular classes were 72% more likely to have adequate knowledge (AOR = 0.28, 95% CI = 0.1-0.6) with a p-value of <0.001. Finally, teachers whose source of knowledge about ASD did not come from surrounding people were 2.5 times more likely to have a positive attitude (AOR = 2.5, 95% CI = 1-6).

Conclusion and recommendation: The overall level of knowledge regarding ASD is inadequate; however, there is a positive tendency towards including students with ASD in regular classes. It is recommended to provide professional development programs, as well as develop guidelines and curriculum, to enhance teachers' knowledge and attitude.

Keywords:

Autism spectrum disorder, Knowledge, Attitude, Preschool teacher, Inclusive education, Addis Ababa

ACKNOWLEDGEMENTS

I would like to express my heartfelt appreciation to the Department of Pediatrics at SPMHMMC for granting me the opportunity to conduct this research and for providing the necessary resources and facilities. My deepest gratitude goes to my advisor, Dr. Fasil Menbere, for his invaluable guidance, unwavering support, and constant motivation throughout my academic journey. I also extend my thanks to Dr. Surafel Worku for his expertise and support. Lastly, I am sincerely grateful to all those who assisted me in data collection and supervision.

TABLE OF CONTENTS

Contents

ABSTRACT	i
[ACKNOWLEDGEMENTS].....	iii
TABLE OF CONTENTS	iv
[ACRONYMS AND ABBREVIATIONS].....	ix
1. INTRODUCTION.....	1
1,1 Background.....	1
1.2 Statement of the Problem.....	3
1.3. Rationale of the study	5
1.4 Significance of the study	6
2. Literature Review	7
2.1 Teachers Knowledge.....	7
2.11 level of knowledge	7
2.12 Determinates of knowledge	7
2.13 Instruments used to assess knowledge.....	8
2.2 Attitude of Teachers	8
2.21 Type of Attitude	8
2.22 Determinates of Attitude	8
2.23 Instruments used to asses Attitude	9
2.3 Recommendations from previous studies.....	9
Conceptual frame work	10
3. OBJECTIVES	11
3.1 General Objective:.....	11
3.2 Specific objectives:.....	11
4. METHODS AND MATERIALS.....	12
4.1. Study Area and Period	12
4.2. Study design	12

4.3. Population.....	12
4.3.1. Source of Population.....	12
4.3.2. Study population	12
4.4. Inclusion and Exclusion Criteria	12
4.4.1. Inclusion criteria	12
4.4.2. Exclusion criteria	12
4.5. Sample size determination.....	13
4.6. Sampling techniques and procedures for record reviews	13
4. 7. Data collection and instrument	15
4.8. Variables	16
4.8.1. Dependent variable (outcome).....	16
4.8.2. Independent variables	16
4.9. Data Quality Control	16
4.10. Operational Definition.....	17
4.11. Methods Data Analysis and Interpretation	17
4.12. Ethical considerations.....	18
4.13. Plan for dissemination of results	18
RESULT	19
5.1 Sociodemographic characteristics of study participant.....	19
5.2 Response of participants regarding Previous training, formal education, and experience r elated to ASD.....	21
5.3 knowledge based characteristics of the study participant on ASD.....	22
5.4 Determinant of participant’s knowledge about autism spectrum disorder	25
5.5 Attitude-based characteristics of study Participants on inclusion of student with ASD to regular schools.....	28
5.6 Determinant of participant’s Attitude about autism spectrum disorder.....	31
6. Discussion	33
7. Conclusion.....	36

8. Limitations of the study.....	37
9. Recommendations	38
10 . REFERENCE.....	39
11. Appendix	42
11.1 Questionary.....	42
Part I: socio demographic characteristics	43
Part III: Knowledge related questions about childhood autism spectrum disorder.....	45
Part IV: Attitude related questions about childhood autism spectrum disorder.....	47
11.2 Translated questionnaire to Amharic	49

List of Tables

Table 1 Socio-demographic characteristics among preschool and primary school teachers (n=413)	19
Table 2 Participant Responses to questions regarding previous training, formal education and experience related to ASD (n=413)	21
Table 3. The knowledge characteristics of study participants for the individual question on the questionnaire	23
Table 4. The knowledge characteristics of study participants in the subdomain of symptoms, ethology, treatment and endorsement of stigma	25
Table 5. Determinant of having adequate knowledge with regards to ASD among teachers	26
Table 6. The response of participants on Attitude based questions.	29
Table 7. Determinate of Attitude of teachers towards including student with ASD in the class room	31
Table 8. Socio demographic characteristics questions	43
Table 9 Questions related to experience, training and source of information about ASD	43
Table 10. Knowledge related questions about ASD	45
Table 11. Attitude based question about ASD	47
Table 12. translated questionnaire related socioeconomic demographic factor	50
Table 13. Translated questionnaire related to experience, training and source of knowledge about ASD.	51
Table 14. Translated questionnaire on knowledge related questions	52
Table 15 translated questionnaire on attitude related questions about ASD	55

List of Figures

Figure 1 Conceptual framework of factors associated with knowledge and attitude of teachers toward ASD based on literature review	10
Figure 2. Schematic presentation of sampling procedure on study.....	14
Figure 3. Knowledge based characteristics of the study participant on ASD.....	22
Figure 4 The overall attitude of study participants on ASD	29

ACRONYMS AND ABBREVIATIONS

ASD = Autism spectrum disorders

DSM= Diagnostic and Statistical Manual of Mental Disorders

AAST= Autism Attitude Scale for teachers

ASKQ= Autism stigma and knowledge questionnaire

AOR = Adjusted Odds Ratio

COR= Crudes Odds Ratio

CI= Confidence Interval

OR=Odds Ratio

SPSS=Statistical Package for Social Science

MOH= Ministry of Health

MOE= Ministry of Education

WHO= World Health Organization

1. INTRODUCTION

1.1. Background

Autism spectrum disorder (ASD) is a diverse neurodevelopmental disorder characterized by impairments in social communication, social interaction, and the presence of restricted and repetitive behavior patterns. The severity of ASD can vary greatly, ranging from severe forms that necessitate extensive lifelong support for significant social and behavioral challenges to milder forms where individuals can lead relatively normal lives with learned coping strategies. Classification of ASD may also consider the presence of associated disorders, such as intellectual disability and language impairment [1].

ASD poses a significant global financial burden due to various factors, including healthcare services, therapeutic interventions, educational expenses, as well as the costs associated with the loss of productivity among caregivers and adults with ASD. The combined impact of these costs contributes to the economic challenges faced by individuals, families, and societies affected by ASD [2].

The core characteristics of ASD contribute to the academic challenges in students with these disorder[3]. Recent significant increase in its prevalence has meant a parallel increase in the number of children with this disorder in mainstream pre-schools [4]. Teachers' knowledge about ASD is crucial for fostering inclusive education and promoting social change. They can advocate for acceptance, implement appropriate strategies, and create supportive learning environments for students with ASD[5]. Global policy as well as Ethiopian give great importance to the inclusion of children with special needs within regular classrooms[6]. Inclusive education has many benefits: it minimizes stigma, provides academic resources and social learning opportunities. In addition, students with autism who are in inclusive classes demonstrate better cognitive and adaptive characteristics[7]. However, it may also cause multiple challenges for students with ASD and their teachers[8]. Therefore, teachers need to be equipped with appropriate knowledge about special education and inclusive environments, so as to become competent in teaching students with ASD[9]. Besides awareness of teachers about ASD helps children with this disorder obtain better access to the early screening, identification process and early intervention [10]. Evidence suggests early intervention is associated with a better outcome[11].

Positive attitude toward the disorder is essential since pedagogical activity carried out by teachers can facilitate inclusive practice despite the challenge of teaching students with these disorder [10].

A number of general education teachers practices interventions found to be successful in improving academic outcomes across individuals with ASD[12]. Social, behavioral, and academic teaching strategies can be implemented to improve the educational experiences of students with ASD[13].

Teachers who are supposed to work with student with ASD are expected to have knowledge about specific characteristics, individual learning differences, social interactions and treatments[14].

Poor knowledge and attitude of teachers regarding ASD can lead to delayed diagnosis by attributing problematic behavior associated with ASD to disobedience or personality disorder[15] in addition to recommending ineffective treatment and stigma[14].

1.2. Statement of the Problem

ASD is a significant public health concern. Studies have shown a rapid increase in its prevalence in recent years. According to a comprehensive systematic review and meta-analysis, the global prevalence of ASD was found to be 0.6%[16]. The Centers for Disease Control in the USA indicates that ASD affects 1 in 36 children of the age of 8 years [17].

Data are scarce on the prevalence of ASD in Africa compared to other regions of the world. However, four studies conducted in African communities (Uganda, Nigeria, Somalia, and Libya) were assessed, revealing an overall prevalence rate of 1%[16]. In Uganda a prevalence of 0.68% was recorded[18] In a population-based survey of autistic traits in Kenyan adolescents and young adults 0.63% were estimated as having high autistic traits while 14.9% had borderline autism traits [19]. The prevalence of ASD in Ethiopia, as in many developing nations, lacks official documentation. Nonetheless, it appears ASD is an unaddressed problem given the overcrowding and lengthy waiting lists at existing autism centers in Addis Ababa.[20]

In China, it has been observed that a lack of knowledge about autism often leads to teachers being hesitant to accept autistic children into their classrooms. This limited understanding can result in behaviors associated with autism being misinterpreted as intentional misbehavior or a reflection of a disordered personality, rather than being recognized as manifestations of the condition. Moreover, this lack of awareness hinders the recognition and understanding of autism among teachers [15, 21].

A study conducted in Tanzania revealed that a lack of sufficient knowledge and inadequate training among teachers are key factors contributing to their perceived challenges in teaching regular classes. Teachers expressed feelings of frustration and stress as they struggled to provide appropriate support to children with disabilities. Teachers' reports also reveal the use of aversive punishment to ensure children with autism benefit from regular classes. This suggests that inadequate knowledge about developmental problems among learners can lead to inappropriate teaching methods[22].

There is a significant lack of knowledge about ASD in Ethiopia among the general public, and educational and social sectors, including teachers, health professionals, and government officials [23].

School system support for children with ASD is also very underdeveloped at both government and public facilities[20]. According to a previous study on the lived experiences of parents with children with autism, one of the most significant challenges they faced was accessing

schools that could provide professional services for their children. These parents expressed constant worry about the limited availability of facilities such as schools, autism centers, and therapeutic centers, particularly those that offered speech therapy. The lack of resources, services, and trained professionals posed obstacles to parents in supporting their children's academic and social progress effectively. Moreover, the mainstream schools that were accessible to them were ill-equipped to meet the specific needs of children with special needs. These schools lacked proper equipment, professional staff, and adherence to ethical standards. As a result, parents had to navigate through inadequate school systems that had unfair admission rules and where their children received unprofessional treatment from staff members[24].

Previous researches, done in Addis Ababa, has examined the learning difficulties experienced by children with autism and the challenges encountered in teaching processes within autism centers. Studies have also explored the challenges faced by families raising children with ASD, focusing on the perspectives of mothers. However, it is worth noting that the researcher's search in peer-reviewed journals did not identify similar studies conducted in Ethiopia that specifically investigate the knowledge and attitudes of teachers in regular schools towards ASD.

So far there is limited data regarding the problem in developing countries including Ethiopia. Thus, the purpose of this study is to explore the level of knowledge, attitudes, and associated factors of public preschool and primary school teachers toward autism spectrum disorders in Addis Ababa, 2023

1.3. Rationale of the study

To effectively teach students with ASD, teachers need to possess the necessary knowledge and maintain positive attitudes towards inclusive education. This involves implementing successful teaching strategies that cater to the unique needs of students with ASD. In Ethiopia, inclusive education is a current goal of educational reforms. Preschool and primary school teachers play a crucial role in identifying children with ASD. The research conducted provides valuable insights into the level of understanding among preschool and primary school teachers in Addis Ababa regarding ASD, including its characteristics and signs, as well as their familiarity with effective intervention strategies. Additionally, the study explores the attitudes of preschool and primary school teachers towards children with ASD, including their level of acceptance, inclusiveness, and willingness to accommodate their specific needs. Furthermore, the research investigates various factors that may influence preschool teachers' knowledge and attitudes towards ASD, such as their educational background, access to training opportunities, and prior experience working with children with ASD.

1.4. Significance of the study

The outcomes of the study provide valuable insights for various stakeholders, including public schools, curriculum developers, the Ministry of Education, and the Ministry of Health. These findings serve as guidance for these stakeholders to evaluate the current level of knowledge and attitudes among preschool teachers towards ASD. The results highlight specific areas that require intervention and improvement, thereby facilitating the enhancement of the overall system.

2. Literature Review

2.1. Teachers Knowledge

2.1.1. level of knowledge

According to previous studies, overall the level of knowledge regarding ASD is low on a global scale. In a systematic review of studies done in different parts of the world, eleven studies revealed low levels of knowledge regarding ASD among their participants, nine studies reported medium knowledge and five studies described a high level of knowledge. Studies carried out in Saudi Arabia and Jordan showed low level of knowledge. While Studies done in Iceland and Ireland showed medium and high level of knowledge respectively [9].

In studies done in Africa, South African study suggested that educators have adequate baseline knowledge about ASD but their knowledge was found to be lacking in specific detail[25]. Conversely, a Tanzanian study revealed a low level of knowledge among public school teachers[26]. On the other hand, a study assessing primary school teachers in Nigeria demonstrated that participants had a high level of knowledge[27]. These findings indicate variations in knowledge levels across different African countries.

In Ethiopia, a study was conducted to assess the knowledge among nurses working in governmental hospitals in Addis Ababa, and the findings indicated that nurses had a good level of knowledge about ASD[28]. However, to the best of the researcher's knowledge, there is no publication available specifically regarding the knowledge of teachers regarding ASD in Ethiopia or Addis Ababa. Considering the extent of awareness gaps observed in developed countries, it is reasonable to assume that similar or even greater knowledge gaps may exist in less developed countries like Ethiopia.

2.1.2. Determinates of knowledge

Previous studies have identified several determinants that influence knowledge about ASD. These determinants include the number of years of experience, previous experience working with autistic children, specialization or prior training in ASD, and the level of education at which teachers are teaching. The findings suggest that training, practical experience, and prior contact with students with ASD play a crucial role in enhancing knowledge and understanding of the disorder among teachers [9].

2.1.3. Instruments used to assess knowledge

Previous studies commonly utilized quantitative tools to assess knowledge levels. These tools include the Autism Knowledge Survey (AKS), the Knowledge about Childhood Autism among Health Workers (KCAHW) Questionnaire, the Autism Knowledge Questionnaire (AKQ), and the Autism Inclusion Questionnaire (AIQ) [9]. The translated version of the KCAHW questionnaire was specifically used in the South African study[25]. In contrast, the research conducted in Tanzania employed open-ended interviews as a method to gather data [9].

2.2. Attitude of Teachers

2.2.1. Type of Attitude

In a systematic review examining teachers' attitudes towards inclusive education for children with ASD, four studies (conducted in the USA, Indonesia, and Australia) reported that teachers held a positive attitude towards inclusive education. On the other hand, six studies (conducted in Malaysia, Greece, Turkey, and China) showed a neutral attitude, while only one study conducted in Ireland reported a negative attitude out of the total of 11 studies [10].

In Africa, a study conducted in Nigeria demonstrated a positive attitude among teachers [27]. However, to the best of the researcher's knowledge, there are no publications in peer-reviewed journals specifically addressing the attitudes of teachers towards ASD in Ethiopia or Addis Ababa. This indicates a gap in the existing literature and highlights the need for further research in this area.

2.2.2. Determinates of Attitude

Previous studies have examined various variables in relation to attitudes towards inclusive education for children with ASD. These variables include experience working with children with ASD, training in inclusive environments, knowledge about the disorder, self-efficacy regarding ASD, institutional culture, and gender. The findings indicate that there is a positive correlation between knowledge, experience, training, and self-efficacy and a positive attitude towards inclusive education. Additionally, studies have shown that individuals of female gender tend to exhibit a more positive attitude. Furthermore, the institutional culture in Western countries has been associated with promoting a positive attitude towards inclusive education[10].

2.2.3. Instruments used to assess Attitude

In a systematic review Attitudes of teachers towards inclusive education mentioned above only used qualitative instruments. More than half of the included studies utilized a previously published questionnaire, while nine preferred to create their own questionnaire[10].

2.3 Recommendations from previous studies

Recommendation from previous study is to deepen the study on teachers' knowledge focusing on misconception and gaps, to study relations to variables to knowledge and attitudes toward inclusion such as self-efficacy and to use qualitative data collection tool in addition to quantitative data collection tool[9]. Including additional variables in a study that examine the formation of attitudes, such as the influence of films, books, online platforms, and social networks, would be beneficial. It is undeniable that these mass media platforms have a significant impact on attitudes and are readily accessible to individuals [10].

2.4. Conceptual frame work

The conceptual framework for this study places the outcomes, which include knowledge about autism spectrum disorder (ASD) and attitudes towards teaching students with ASD in regular classes, at the center. The arrows represent the relationships between knowledge and attitudes and their determinants. These determinants include sociodemographic factors such as gender, age, and level of education, as well as years of experience, trainings, sources of information, contact with individuals with autism, experience with students with special needs, and teaching experience in special needs or inclusive classrooms. This is conceptual framework is developed beside on literature review [9, 10, 20].

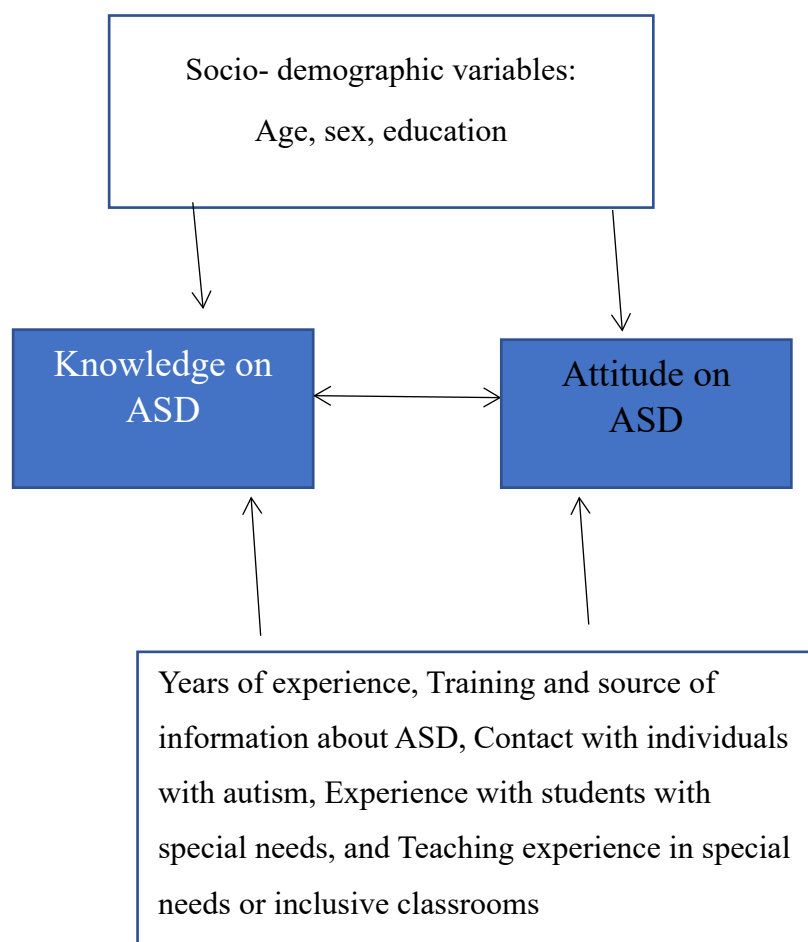


Figure 1 Conceptual framework of factors associated with knowledge and attitude of teachers toward ASD based on literature review.

3. OBJECTIVES

3.1. General Objective:

To assess knowledge, attitudes and associated factors of public preschool and primary school teachers towards autism spectrum disorders in Addis Ababa, Ethiopia 2023

3.2. Specific objectives:

1. To determine the level of knowledge of ASD among public preschool and primary school teachers in Addis Ababa, Ethiopia in 2023.
2. To determine the level of attitude towards teaching students with ASD in regular classrooms among public preschool and primary school teachers in Addis Ababa, Ethiopia in 2023.
3. To identify factors associated with the knowledge of ASD among public preschool and primary school teachers in Addis Ababa, Ethiopia in 2023.
4. To identify factors associated with the attitude of teachers towards teaching students with ASD in regular classrooms among public preschool and primary school teachers in Addis Ababa, Ethiopia in 2023.

4. METHODS AND MATERIALS

4.1. Study Area and Period

The study was conducted in Addis Ababa, the capital and largest city of Ethiopia, which is divided into 11 sub-cities. The focus of the study was on preschools and primary schools in Addis Ababa, specifically within the public school system. Out of the total 903 preschools in Addis Ababa, 227 of them are public schools. The study took place from September 2023 to December 2023, encompassing a four-month period. The target population for the study was the teachers working in public preschools in Addis Ababa, which amounted to a total of 12,019 teachers.

4.2. Study design

An institutional-based cross-sectional study design was conducted.

4.3. Population

4.3.1. Source of Population

The source population was all Addis Ababa public preschool and primary school teachers.

4.3.2. Study population

The study population was randomly selected preschool and primary school teachers working in selected Addis Ababa public schools during the study period and was willing to participate in the study.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion criteria

An inclusion criterion was preschool and primary school teachers in Addis Ababa public schools who were giving service at the time of the study.

4.4.2. Exclusion criteria

Those who were on sick leave and maternity leave at the time of data collection

4.5. Sample size determination

The sample size in this cross-sectional study was determined using a single population Proportion formula.

Considering the following assumptions

$$\text{Formula: } n = \frac{(\frac{Z\alpha}{2})^2 \times p(1-p)}{d^2}$$

Where, n=the required sample size

$(Z\alpha/2 = 1.96 = (\text{standard score corresponding to 95\% confidence interval})$

P = 80% taken from South African study done on knowledge and associated factors for knowledge of ASD [25]. However, the researcher could not find a similar study on attitude and associated factors for attitude.

d = 5% (maximum margin of error the researcher is willing to allow)

Therefore

$$n = (1.96)^2 (0.8 \times 0.2) / (0.05)^2 = 245 \text{ for knowledge.}$$

$$n = (1.96)^2 (0.5 \times 0.5) / (0.05)^2 = 384 \text{ for attitude.}$$

$$n = (1.96)^2 (0.8 \times 0.2) / (0.05)^2 = 245 \text{ for associated factors for knowledge.}$$

$$n = (1.96)^2 (0.5 \times 0.5) / (0.05)^2 = 384 \text{ for associated factors for attitude.}$$

384 was taken because it is the highest possible sample size Then, considering 10% of non-respondent rate the final desired sample size was calculated as 384 + 38 (10% non-response rate).

❖ Then, the final sample size was be 423.

4.6. Sampling techniques and procedures for record reviews

The study was conducted in Addis Ababa public schools that have kindergartens. Three sub cities of Addis Ababa will be selected randomly. For each sub-city, the sample size will be allocated by using the proportional-to-size allocation formula. Schools will be selected from each sub-city based on the sample size. All preschool teachers from each school were included in the study

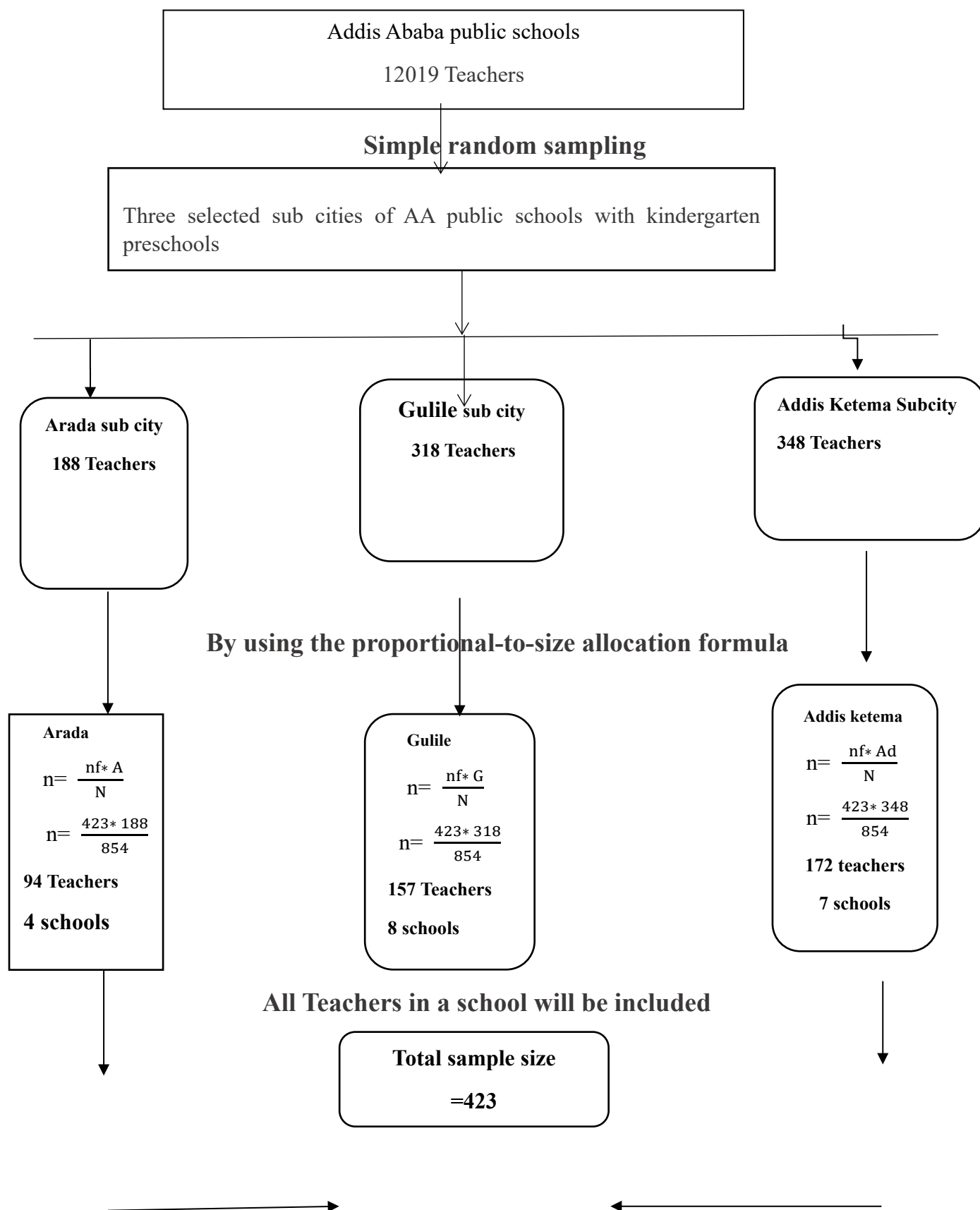


Figure 2. Schematic presentation of sampling procedure on study

4.7. Data collection and instrument

A validated self-administered questionnaire was chosen as the appropriate method for data collection in this study due to its advantages in terms of standardization and efficiency. The Autism Stigma and Knowledge Questionnaire (ASK-Q) was chosen as it is a validated tool with robust psychometric support and cross-cultural applicability in measuring knowledge. The ASK-Q draws upon published research conducted in 11 countries, including the US, UK, Iran, India, Saudi Arabia, Malaysia, Tanzania, Senegal, Cape Verde, Zambia, and Burkina Faso. The questionnaire includes four domains that assess different aspects of knowledge. The first domain focuses on symptoms and diagnosis of ASD. The second domain explores the etiology and nature of the disorder. The third domain examines knowledge about the treatment of ASD. Lastly, the fourth domain delves into the topic of stigma associated with ASD. To assess the reliability of the ASK-Q, a test-retest method using a reliability metric developed for Dichotomous Classification Models (DCMs) was employed. The findings revealed high-reliability coefficients for the classifications of the four subscales, namely 0.982, 0.954, 0.984, and 0.933. Additionally, the ASK-Q exhibited strong internal consistency, as indicated by a Cronbach's Alpha coefficient of 0.88[29].

For this study, a total of 19 items were selected from the original 49 items of the ASK-Q, representing all four subscales. Proportional cut-off values were calculated to determine inadequate knowledge.

The Autism Attitudes Scale for Teachers (AAST) is used in this study. It is a Likert-type scale used to measure school teachers' attitudes towards children with ASD. It consists of two alternate forms, each containing seven items, and offers five response options: strongly disagree, disagree, uncertain, agree, and strongly agree. The correlation between Forms A and B is reported to be 0.84. The reliability coefficients for Forms A and B are 0.85 and 0.78, respectively. The combined 14-item scale has an alpha reliability coefficient of 0.91

Accordingly, attitude scores are obtained by summing the scores of individual items. Notably, Questions 1, 2, 4, 6, 7, 8, 9, 11, 13, and 14 are reverse graded. A higher total score on the scale indicates a more positive attitude towards children with ASD[30]. Both of the form was used in this study.

4.8. Variables

4.8.1. Dependent variable (outcome)

- Knowledge of preschool and primary school teachers ASD.
- Attitude of preschool and primary school teachers towards teaching students with ASD in regular classroom.

4.8.2. Independent variables

- Socio demographic factors variables
Age, Sex, marital status, educational statuses
- Years of experience
- Training on autism spectrum disorder
- Previous exposure to child with ASD
- Source of knowledge about ASD
- Training on early childhood development
- Teaching a Child with special need in the classroom
- Previous experience of children with special need

4.9. Data Quality Control

Before data collection, to ensure the quality of the data, The questionnaire underwent a translation process to Amharic by experts, and then it was retranslated back to English to identify any discrepancies. To ensure the suitability and clarity of the questionnaire, a pretest was conducted at Yeka Terar Preschool and Primary School, located in Yeka Subcity. A sample size of 42 participants, which represents 10% of the total sample size, was used for the pretest. Based on the feedback received during the pretest, minor modifications were made to improve the wording and clarity of the questionnaire. These adjustments were made prior to deploying the final version of the questionnaire for the actual study. It's important to note that the data collected during the pretest is not included in the final analysis of the study.

A one-day training session was conducted for both data collectors and supervisors. The training covered various aspects, including the objective and relevance of the study, the importance of maintaining confidentiality of information, the rights of the respondents, obtaining informed consent, and the methods of data collection. Following the training, data collection was started.

At the end of each day, the supervisors and principal investigator reviewed and examined the collected questionnaires for completeness and relevance. Feedback and guidance were provided to the data collectors as necessary, ensuring the quality and accuracy of the data collection process.

4.10. Operational Definition

Preschool teachers – teachers who were teaching students in kindergarten class at the time of study

Primary school teachers - teachers who were teaching students from 1st grade to 8th grade at the time of study

Autism spectrum disorder: disorder which meet the ASD criteria of DSM-5TR.

Regular classroom: General education classroom that follows the standard curriculum for the given grade level.

Adequate Knowledge - Respondents who score above or equal to the cut-off score of knowledge-related questions[29].

Inadequate knowledge - Respondents who scored below the cut-off score of knowledge-related questions[29].

Positive attitude - Respondents who scored the mean and above score of attitude-related questions[31].

Negative attitude - Respondents who scored below the mean score of attitude-related questions[31].

4.11. Methods Data Analysis and Interpretation

Data collection was carried out using the Kobo Tool software. Subsequently, the collected data underwent a cleaning process and was exported to the SPSS Version 27 software for analysis. Descriptive analyses were conducted for all variables after ensuring the data's distribution, and any outliers, missing values, or inconsistencies were identified and addressed.

Continuous variables were reported as mean $\pm$ standard deviation, while categorical variables were presented as numbers (percentages). Adequate knowledge was coded as "1" and inadequate knowledge as "0" for the knowledge outcome. Similarly, a positive attitude was coded as "1" and a negative attitude as "0" for the attitude outcome. Univariate and bivariate regression analyses were conducted to examine the association between dependent and

independent variables. Statistical significance was determined at a 95% confidence interval, with a p-value threshold of less than 0.05. The study's results were presented using text, tables, and pie charts to enhance comprehension

4.12. Ethical considerations

Before commencing the research, ethical clearance was obtained from the Ethical Committee of SPHMMC (name of the institution) with additional support in the form of a letter from the Pediatrics Department and the City Government of Addis Ababa Education Bureau.

Before their involvement in the study, all participating school teachers were provided with a written informed consent document. This document assured them of the confidentiality and anonymity of their responses. It was clearly stated in the consent form that the participants had the right to withdraw from the study at any stage if they wished to do so. Furthermore, the questionnaire did not collect any personally identifiable information, and all data collected were treated as strictly confidential, and solely used for research purposes. Participation in the study was entirely voluntary.

4.13. Plan for dissemination of results

The results of the research will be presented to the Department of Pediatrics and Child Health at SPHMMC to share the findings with colleagues and experts in the field. Additionally, the research findings will be submitted for publication in relevant scientific journals, ensuring that they are accessible to a wider audience making them available to beneficiaries, including researchers, educators, policymakers, and other stakeholders.

5. RESULT

5.1. Sociodemographic characteristics of study participant

In this study, a total of 416 teachers participated, resulting in a response rate of 98.3%. However, data from 3 participants had missing values exceeding 50%, so the final sample size used for analysis was 413. The mean age of the participants was 32.5 years, with a standard deviation of 7.3. Of the participants, 52% (214) were female and 48% (197) were male. The majority of teachers had a work experience ranging from 5 to 10 years, which accounted for 30% of the sample. Regarding monthly income, the mean was reported as 7795 birr, with a range of 2799 to 19030 birr.

Table 1 Socio-demographic characteristics among preschool and primary school teachers (n=413)

Variable		Frequency	Percent
Age	20 – 25 years	65	16.1%
	26 – 30 years	124	30.7%
	31 – 40 years	166	41.1%
	Above 40 years	49	12.1%
Sex	Female	214	51.8%
	Male	197	47.7%
Marital statues	Married	236	57.7%
	Single	155	37.5%
	Divorced	14	3.4%
	Widowed	7	1.7%
Level of education	Certificate	10	2.4%

	Diploma	158	38.3%
	Degree	228	55.2%
	Masters	17	4.1%
Work Experience	< 1 year	17	4.1%
	1 – 5 years	92	22.3%
	5 -10 years	124	30%
	10 – 20 years	104	25.2%
	20 – 30 years	27	6.5%
	30 – 40 years	9	2.2%
Level of classroom teachers teach	Preschool	65	15.7%
	1 st – 6 th Grade	204	49.4%
	7 th – 8 th Grade	130	31.5%
Sub-city of school teachers teaches	Arada	90	21.7%
	Addis Ketema	175	42.3%
	Gulelea	148	35.8%

5.2. Response of participants regarding Previous training, formal education, and experience related to ASD

In response to questions regarding previous training, formal education, and experience related to ASD, Only 6 out of the 413 teachers (1.5%) reported that they had not heard about autism before. The majority of teachers (80.9%) reported teaching in inclusive schools. Approximately 57.1% of the teachers reported having come across an autistic child in their previous work experience. About 54% of the teachers reported knowing an autistic person closely. when it comes to sources of information about autism, the majority of teachers (63.2%) reported social media as a common source.

Table 2 Participant Responses to questions regarding previous training, formal education and experience related to ASD (n=413)

Variable	Response	Frequency	%
Have you heard about autism before	Yes	392	97.8
	No	6	1.5
Have you come across autistic child during your work experience as teacher?	Yes	236	57.1
	No	175	42.4
Have you had any form of formal Education about autism?	Yes	121	29.3
	No	291	70.5
Do you know a close person with autism?	Yes	224	54.2
	No	187	45.3
If the answer to the above question is yes how frequently do you meet this child	Daily	71	17.2
	Weekly	28	6.8
	Monthly	17	4.1
	Sometimes	97	23.5
	Never	12	2.9
Have you had Training on early childhood development?	Yes	145	35.1
	No	265	64.2
Are you teaching in inclusive school	Yes	334	80.9
	No	50	12.1
	I don't know	27	6.5
Have had teaching experience In a special need or inclusive classroom?	Yes	261	63.2
	No	147	35.6
Have you had Previous experience of	Yes	178	

children with special need?	No		413	43.1 55.7
What is your Source of information about ASD?				
	Frequency		Percent (%)	
	Yes	No	Yes	No
Formal education	119	228	28.9%	69.7%
Books	127	280	30.8%	67.8%
Training	99	308	24%	74.6%
Social media	261	146	63.2%	35.4%
TV and Radio	207	200	50.1%	48.4%
Surrounding People	118	289	28.6%	70%

5.3. knowledge based characteristics of the study participant on ASD

The overall knowledge of study participants on ASD was measured using the mean value, and the score of the mean value was 9.5 ± 4.2 out of 19. Adequate knowledge was demonstrated by 35.6% of the teachers based on their scores. The knowledge based characteristics is expressed in the figure below.

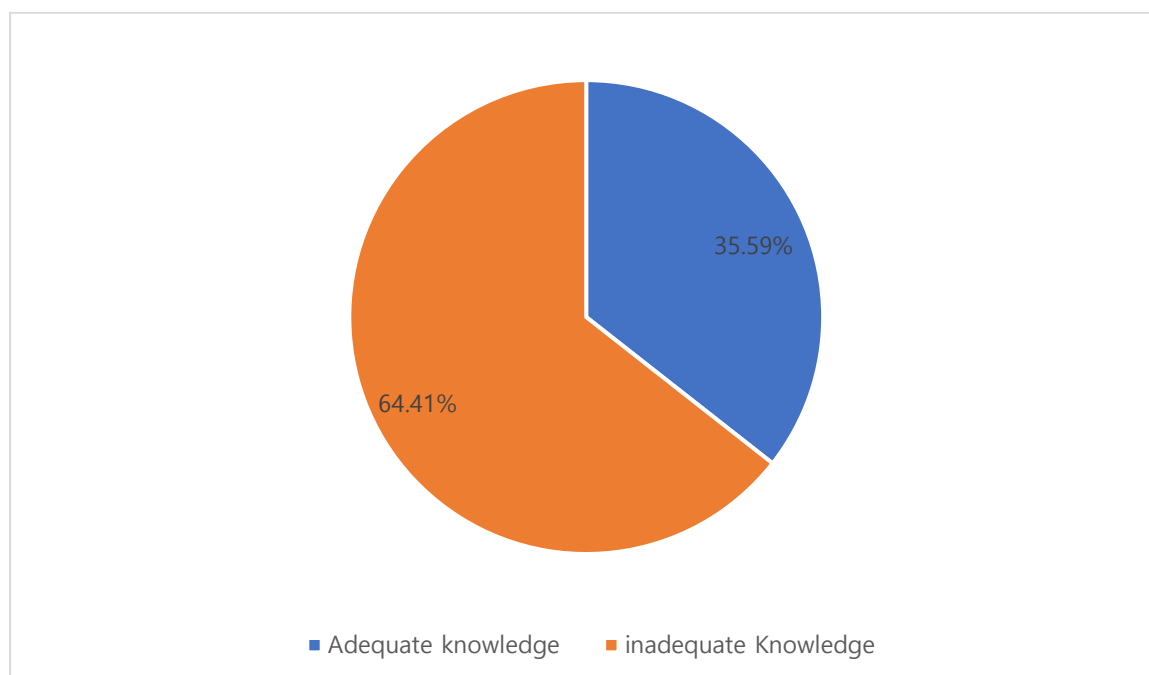


Figure 3. Knowledge based characteristics of the study participant on ASD

The mean scores for the subdomains of the knowledge questionnaire were as follows:

- Etiology of ASD: 3.35 ± 2 out of 8
- Symptoms of ASD: 4.42 ± 2.3 out of 7
- Treatment of ASD: 1.69 ± 1.1 out of 4
- Endorsement of stigma; 1.5 ± 1 out of 3.

Table 3. The knowledge characteristics of study participants for the individual question on the questionnaire

Knowledge based variable	Correct response	Frequency	Percent
Symptom based questions			
Many children with autism have difficulty using everyday language to communicate their needs	Yes	300	72.8
Many children with autism get upset if their routine is changed	Yes	285	69.3
A lot of children with autism have problems with being aggressive or hyperactive	Yes	270	65.7
Children with autism do not enjoy the presence of other	Yes	192	46.8
Many children with autism repeatedly spin objects or flap their arms	Yes	265	64.3
Many times, children with autism get excessively focused on one thing	Yes	253	61.7
Many children with autism have trouble tolerating loud	Yes	263	63.8

noises or certain types of touch			
Ethology based questions			
Autism is a result of a curse or evil eye put upon/inflicted on the family	No	281	68.2
Traumatic experiences very early in life can cause autism	No	100	24.3
Autism is due to cold, rejecting parents	No	247	60.1
Vaccinations cause autism	No	182	44.3
The number of diagnosed cases of autism has increased over the past 10 years	Yes	172	41.6
Autism occurs more commonly among higher socio economic and educational levels	No	228	55.3
Autism is something that is very rare	No	78	18.9
Autism is preventable	No	96	23.2
Treatment based questions			
Children with autism cannot learn any social skill	No	222	54.3
Autism exists only in child hood	No	269	65.1
With the proper treatment, most children diagnosed with autism eventually outgrow the disorder	No	93	22.6
We now have treatments that can cure autism	No	115	28.0

Table 4. The knowledge characteristics of study participants in the subdomain of symptoms, ethology, treatment and endorsement of stigma.

Subdomains	Adequate knowledge		Inadequate knowledge	
	Frequency	Percent %	Frequency	Percent %
Symptoms	280	67.8	133	32.2
Etiology	65	15.7	348	84.3
Treatment	98	23.7	315	76.3
	Endorse stigma		Do not Endorse stigma	
Stigma	179	43.3	234	56.7

5.4.Determinant of participant's knowledge about autism spectrum disorder

The strength of the variables was assessed using odds ratios (OR) and 95% confidence intervals (CI) through a binary logistic regression model.

In the bivariate binary logistic regression analysis, several variables were found to be associated with the adequacy of knowledge at a p-value of 0.25 level of significance.

These variables included age, work experience, source of knowledge from formal education, social media, TV and radio, previous teaching experience in inclusive classrooms, previous experience with a child with special needs, and attitudes of teachers toward inclusive education.

However, in the multivariate binary logistic regression analysis, after accounting for other variables, only certain factors remained significant at a p-value of 0.05 level of significance. These significant factors were age, level of classroom teaching, social media as a source of information, and participant's experience with a child having special needs and attitude of teachers towards inclusive education of students with ASD.

Accordingly, after adjusting for other covariates:

- Participants in the age range of 20-25 years had a 90% lower chance of having adequate knowledge compared to those aged above 40 years (adjusted odds ratio [AOR] = 0.1, 95% confidence interval [CI] = 0.48-0.7).
- Participants who had no experience with children having special needs had a 46% lower chance of having adequate knowledge compared to participants who had experience (AOR = 0.54, 95% CI = 0.2-0.9).
- First to sixth grade teachers had 2.4 times greater chance of having adequate knowledge compared to teachers who teach in the 7th and 8th grades (AOR = 2.4, 95% CI = 1.2-4.5).
- Participants who did not acquire their knowledge from social media had a 60% lower chance of having adequate knowledge (AOR = 0.4, 95% CI = 0.2-0.8).
- Participants who had negative attitudes toward teaching students with ASD in regular classrooms have 80% lower chance of having adequate knowledge (AOR = 0.2, 95% CI = 0.1-0.6).

Table 5. Determinant of having adequate knowledge with regards to ASD among teachers

Variables		Knowledge		C O R (95%CI)	AOR (95%CI)	P value
	Adequate Knowledge	Inadequate knowledge				
Age						<0.024
20-25		11	54	0.2 (0.0-0.5)	0.1 (0.48-0.7)	0.014
26-30		49	75	0.6 (0.3-1.3)	0.6 (0.2-2.0)	0.49
31-40		59	107	0.43 (0.3-1.0)	0.4 (0.1-1.2)	0.13
>40		24	25	1	1	
Work experience						0.69

1-10year	73	143	0.6 (0.2-1.4)	1.1 (0.3-3.9)	0.81
11-20year	48	56	1.5 (0.5-2.5)	1.48 (0.48-4.5)	0.48
21-30year	12	15	1	1	
Level of class of teaching					0.027
Preschool	25	40	4.3 (1.3-13)	1.6 (0.69-4.0)	0.249
1 st -6 th grade	75	129	1.5 (0.8-2.8)	2.4 (1.2-4.5)	0.007
7 th and 8 th grade	38	92	1	1	
Source of knowledge formal education					
Yes	49	70	1	1	
No	97	191	1.3 (0.8-2.1)	1.0 (0.5-1.9)	0.99
Books					
Yes	56	71	1	1	
No	90	190	0.2 (0.2-2.2)	1.0 (0.5-1.9)	0.96
Social media					
Yes	108	153	1	1	
No	38	108	2.0 (1.2-3.1)	0.4 (0.2-0.8)	0.013
TV and radio					
Yes	81	126	1	1	
No	65	135	1.3 (0.8-2.0)	0.6 (0.3-1.0)	0.07
Teaching experience in special need or inclusive class					
Yes	110	151	1	1	

No	37	110	2.1 (1.3-3.3)	0.6 (0.3-1.1)	0.13
Previous experience of children with special need child					
Yes	82	96	1	1	
No	64	166	2.2 (1.4-3.3)	0.54 (0.2-0.9)	0.04
Attitude					
Positive attitude	117	172	1		
Negative	22	23	0.4 (0.2-0.7)	0.2 (0.1-0.6)	0.001

5.5. Attitude-based characteristics of study Participants on inclusion of student with ASD to regular schools

The overall attitude of study participants towards the inclusion of autistic students in regular schools, based on the mean value score, is 3.34 ± 0.49 , indicating a mildly positive attitude. Out of the total participants, 77.5% (320 individuals) had a positive attitude where as 22.5% (93 individuals) had a negative attitude towards inclusion. The mean value score for the question "Such a good teacher can do a lot to help an autistic child" was higher at 3.95 ± 1.1 . On the other hand, the mean value score for the question "Regular schools are too advanced for autistic children" was lower at 2.66 ± 1.2 .

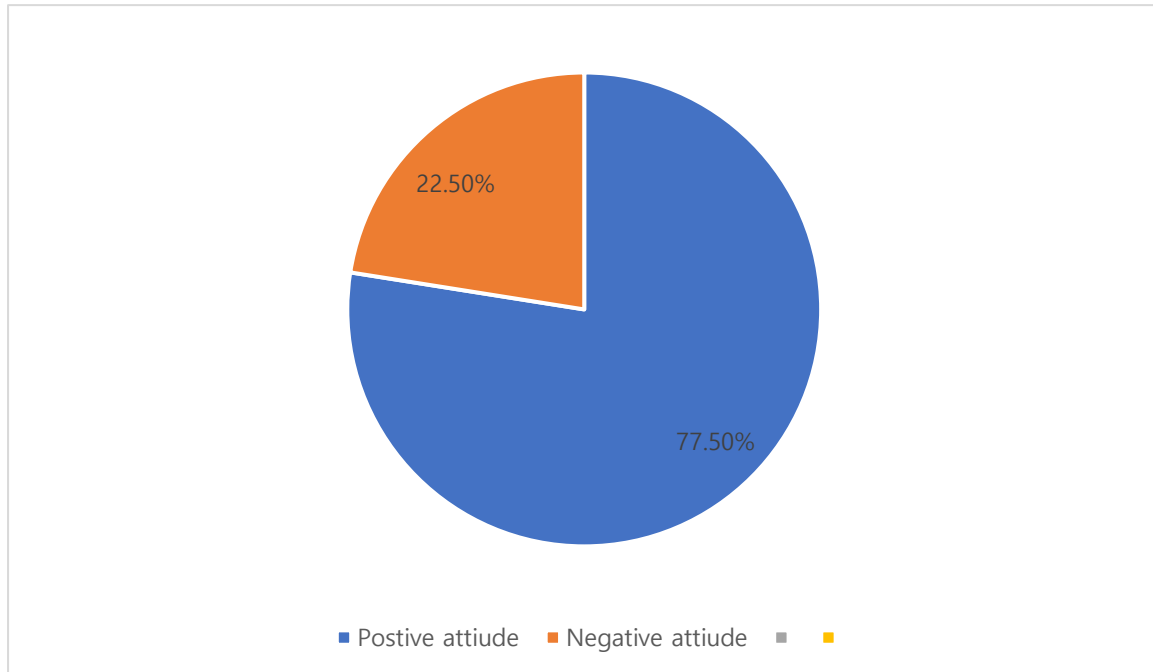


Figure 4 The overall attitude of study participants on ASD

Questions 1, 2, 4, 6, 7, 8, 9, 11, 13 and 14 are reverse graded. The higher the total score, the better the attitude toward children with ASD

Table 6. The response of participants on Attitude based questions.

Attitude related questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean
Only teachers with extensive special education training can help an autistic child	95(23%)	165 (40%)	41(9.9%)	72(17.4%)	40(9.7%)	3.49±1.2
Mealtime behaviors of autistic children are disruptive and negatively influence the behavior of children around them.	45(10.9%)	125(30.4%)	86(20.9%)	127(30.9%)	28(6.8%)	3.08±1.1
School with both normal and autistic children enhance the learning experience of normal children	9(2.2%)	200(48.5%)	77(18.7%)	99(24%)	27(6.6%)	2.84±1.0

Normal children and autistic children should be taught in separate schools.	77(18.8%)	139(34%)	41(10%)	107(26.2%)	45(11%)	3.23± 1.3
Autistic children can learn from a good teacher	29(7.0%)	42(10.2%)	65(15.8%)	188(45.6%)	88(21.4%)	3.64±1.13
Regular school are too advanced for autistic children	44(10.7%)	69(16.8%)	57(13.9%)	184(44.9%)	56(13.7%)	2.66±1.2
I would not want the children in my class to have to put up with autistic school mates	64(15.6%)	115(28.1%)	81(19.8%)	105(25.7%)	44(10.8%)	3.12±1.2
Teachers not specifically trained in special education should not be expected to deal with an autistic child	68(16.5%)	123(29.9%)	58(14.1%)	110(26.7)	53(12.9%)	3.10±1.1
Autistic children are too impaired to benefit from the activities of a normal school.	93(22.6%)	181(44%)	60(14.6%)	58(14.1%)	19(4.6%)	3.66±1.1
School with both normal and autistic children enhance the learning experience of normal children	51(12.3%)	85(20.6%)	70(17.1%)	170(41.5%)	34(8.3%)	3.12 ±1.2
If I had the choice, I would teach in a school in which there were no autistic children	88(21.3%)	165(40%)	82(19.9%)	48(11.6%)	30(7.3%)	3.56±1.1
A good teacher can do a lot to help an autistic child	32(7.8%)	14(3.4%)	47(11.4%)	170(41.3%)	149(36.2%)	3.95 ±1.1
Autistic children cannot socialize well enough to profit from contact with normal children	94(22.9%)	187(45.5%)	70(17%)	40(9.7%)	20(4.9%)	3.72±1.0
It is unfair to ask teachers to accept autistic children into their school.	91(22.1%)	163(39.7%)	81(19.7%)	48(11.7%)	28(6.8%)	3.59±1.1

5.6. Determinant of participant's Attitude about autism spectrum disorder

The strength of the variable was assessed using a bivariate binary logistic regression model. In the univariate logistic regression analysis, age, frequency of meeting autistic children, work experience, source of participants' knowledge about autism from surrounding people, previous experience with special need students, and knowledge about ASD showed a significant association with attitude toward inclusion at a p-value below the 0.25 level of significance. However, in the multivariate binary logistic regression analysis, after accounting for other variables, only the odds ratio for the source of knowledge about autism from surrounding people was found to be significant at a p-value below 0.05.

Accordingly after adjusting for other covariates, teachers whose source of knowledge about ASD did not come from surrounding people were 2.5 times more likely to have a positive attitude (AOR = 2.5, 95% CI = 1-6).

Table 7. Determinate of Attitude of teachers towards including student with ASD in the class room

Variables	Attitude		COR (95%CI)	AOR (95%CI)	P value
	Positive Attitude	Negative Attitude			
Age					0.34
20-25	52	13	1.4(0.6-3.5)	1.7(0.2-15)	0.6
26-30	89	35	0.9(0.4-1.9)	1.2(0.1-9.1)	0.8
31-40	136	30	1.6(0.7-3.4)	3(0.4-21)	0.2
>40	36	13	1	1	
How often do you meet an autistic child					0.1
Sometimes	79	18	1.7(0.8-3.5)	2(0.8-5.1)	0.1
Weekly	24	4	2.3(0.7-7.6)	3(0.6-13)	0.1
Daily	51	20	1	1	
Work experience					0.7
1 to 10 years	160	56	0.2(0.05-	0	0.9

			0.9)		
11 to 20 years	85	19	0.3(0.07-1.6)	0	0.9
21 to 30 years	25	2	1	1	
Source of knowledge surrounding people					
Yes	40	236	1	1	
No	53	78	0.4(0.2-0.71)	2.5(1-6)	0.04
Previous experience of children with special need child					
Yes	143	35	1		
No	172	58	2.2(1.4-3.3)	0.6(0.2-1.6)	0.37
Knowledge					
Adequate knowledge	125	22	1	1	
Inadequate knowledge	195	71	0.4(0.2 - 0.8)	0.3(0.1-1.0)	0.057

6. Discussion

The findings of the present study indicate that participants had a relatively low level of knowledge, with only 35.6% achieving an "Adequate" knowledge score. This is concerning, especially considering the current prevalence of ASD. In comparison to similar studies conducted in South Africa, where a higher proportion (80%) of participants demonstrated better knowledge about ASD, the results suggest a notable disparity in knowledge levels between the two regions[25]. On average participants responded 50% of total scores obtainable which is lower than results from Nigeria where participants correctly answered 67.9% of total scores obtainable[27]. A higher proportion of nurses (54.35%) working in governmental hospitals in Addis Ababa demonstrated good knowledge about ASD compared to the teachers in this study[28].

Similar to the study participants in South Africa, this study showed a higher proficiency in recognizing ASD symptoms (68%), but their understanding of the etiology, nature of the disease, and treatment of ASD was relatively limited (15% and 22% respectively)[25]. It is important to note that possessing adequate knowledge about the nature and treatment of ASD is crucial for teachers, as it enables them to provide appropriate advice to parents and recommend timely specialist intervention for their children.

The findings of the study indicate several factors that were positively associated with possessing adequate knowledge about autism. These factors include older age, teaching from 1st to 6th grade, obtaining information about autism from social media, and having experience with special needs students.

Specifically, teachers who taught in the 1st to 6th grade had 2.4 times higher knowledge compared to teachers who taught in the 7th and 8th grade (2.4; 95% CI: 1.2-4.5).

This difference in knowledge levels may be attributed to 72% of the special need students are attending lower grades of 1 to 4 (and 28% enrolling grades 5 to 8), which indicates that many special need students are not progressing through the education system and that there is a high dropout and repetition rate within this group of students[6] so 1st to 6th grade teachers' greater exposure to a larger number of special needs students, particularly those with more severe forms of autism. some students may

drop out or repeat grades before reaching the 7th and 8th grade

The finding that participants who did not acquire their knowledge from social media had a 60% lower chance of having adequate knowledge (AOR = 0.4, 95% CI = 0.2-0.8) suggests that obtaining information about autism from social media platforms may have a positive impact on teachers' knowledge levels.

On the other hand, unlike findings from other studies[9] the finding that receiving formal education or training did not show any significance in relation to knowledge about autism raises concerns about the effectiveness of current teaching materials and guidelines.

The superior performance of teachers with hands-on experience in working with special needs students, which was found to be 40% higher (AOR = 0.6, 95% CI = 0.2-0.8), is consistent with the findings of a study conducted in Singapore. The study in Singapore also reported that teachers with prior work experience with children with special needs had higher knowledge about ASD (OR = 1.716 CI 1.128 - 2.610)[32]. This suggests that direct, in-person interactions with special needs children may enhance teachers' overall comprehension of child development, enabling them to more effectively discern distinctions between typically developing children and those with special needs and that practical experience is a more effective means of imparting knowledge about autism to teachers, compared to formal education and training programs[9].

It was found that having a positive attitude towards inclusion was associated with an 80% higher chance of having adequate knowledge. This is consistent with studies conducted in China[33] where the Pearson equation indicated significant positive relationships between the knowledge and attitude scores ($r=0.175$). This could be because Comprehensive knowledge of ASD enhances teachers' understanding, confidence, experience, skills, and resources in working with students with ASD, leading to a more positive attitude towards them[34]. Teachers with adequate knowledge are likely to be more aware of effective teaching strategies, such as the preference for visual inputs over auditory inputs among autistic children. Moreover, they are more inclined to view these children as capable of learning and, consequently, are more comfortable having them integrated into their classrooms.

Concerning teacher attitudes towards inclusive education, the overall mean score obtained was 3.34 ± 0.49 , indicating a slightly positive attitude among teachers. The majority of teachers (70%) displayed a positive attitude, which is encouraging considering Ethiopia's current Master Plan for Special Needs Education/Inclusive Education[6]. Similar findings were observed in comparable studies conducted in Nigeria and Indonesia [27, 35]. Teachers in Nigeria had scored 74.5% of the total obtainable scores similar to this 71% of the teachers in Indonesia had good attitudes towards autistic students in inclusive primary schools, while 29% had very good attitudes.

The study found that the only determinant factor significantly associated with an attitude of inclusive education about autism was the source of knowledge from surrounding people. Teachers who did not rely on surrounding people as their source of knowledge about autism were 2.5 times more likely to have positive Attitude (OR = 2.5, CI 1-6). This finding raises questions about the community's understanding of autism.

Unlike previous studies[10], the this study did not find any significant associations between gender, teaching experience, or training and teachers' attitudes toward inclusive education. This finding suggests that other factors than these may play a more influential role in shaping teachers' attitudes towards inclusive education in the context of this setup. Further research may be necessary to explore additional variables that could potentially explain the variation in attitudes observed among teachers.

7. Conclusion

The findings of the present study indicate a concerning inadequacy in the knowledge of preschool and primary teachers regarding ASD. Approximately 65% of the participants demonstrated a lack of knowledge in this area. In contrast, a significant majority (77%) of the participants exhibited fairly favorable attitude towards inclusive education. It is important to note that the scores obtained in the knowledge assessment and attitude sections of the study were not comparable. Although teachers displayed a generally positive attitude towards ASD, their knowledge about the disorder was found to be insufficient. This highlights the need for increased emphasis on educational interventions aimed at enhancing knowledge and improving attitudes towards ASD further. Such interventions are crucial for promoting the appropriate identification and education of children with autism.

8. Strengths and Limitations of the Study

8.1 Strengths

Two notable strengths of this study are evident. Firstly, it addresses a significant research gap by being the first to assess the knowledge and attitude of preschool and primary teachers in Addis Ababa. Secondly, the study strengthens its findings by including data from over 17 schools, enhancing the generalizability of the results.

8.2 Limitations

The cross-sectional method employed in this study has a limitation. The sample size could have been increased with design effect to increase the strength of the finding. Another limitation pertains to the wording of the knowledge assessment questionnaire.

The possibility of leading or suggestive wording in the questionnaire could have influenced participants to provide responses that align with the expected correct answers. Regarding the reliability of the attitude section, the Cronbach's Alpha coefficient of .659 suggests a moderate to high level of internal consistency. While this indicates a reasonable reliability of the items in measuring the construct of interest, it is important to note that this coefficient is lower than that of the original questionnaire used. Additionally, a limitation of the study is the lack of comparison of findings between different schools. Each school may have a different inclusive culture, which could potentially influence the knowledge and attitudes of teachers towards ASD. It is crucial to acknowledge and address these limitations in future studies to enhance the validity and reliability of the research findings.

9. Recommendations

1. For preschool and primary school teachers: It is crucial for teachers to enhance their knowledge about ASD, as they often play a significant role in identifying the disorder and providing education to autistic children.
2. For schools, Ministry of Health (MOH), and Ministry of Education (MOE): The research findings can serve as a valuable indicator for schools, MOH, and MOE to develop guidelines, curricula, and training programs aimed at improving teachers' knowledge and attitudes towards inclusive education. In addition, the researcher suggests exploring ways to integrate social media platforms into educational programs to enhance knowledge acquisition and engagement among learners and promote hands-on experience with special needs students as the findings of this research suggest these methods are associated with having adequate knowledge.
3. For researchers: Future studies should address the limitations identified in this study to provide a more comprehensive understanding of the problem. Researchers can design interventions or educational programs to test their effectiveness in improving teachers' knowledge and attitudes towards ASD and inclusive education. By conducting follow-up studies, researchers can assess the impact of these interventions and identify areas for further improvement. In addition, it is important to assess knowledge and attitude of ASD at the community level.

10 . REFERENCE

1. Association, A.P., *Diagnostic and Statistical Manual of Mental Disorders, DSM-5*. 5th ed. 2013: American Psychiatric Publishing.
2. Rogge, N. and J. Janssen, *The Economic Costs of Autism Spectrum Disorder: A Literature Review*. J Autism Dev Disord, 2019. **49**(7): p. 2873-2900.
3. Miller, L.E., et al., *Preschool predictors of school-age academic achievement in autism spectrum disorder*. Clin Neuropsychol, 2017. **31**(2): p. 382-403.
4. Van Herwegen, J.A., M.; Palikara *Views of professionals about the educational needs of children with neurodevelopmental disorders*. Res. Dev. Disabil., 2019. **91**(103422).
5. *Interventions for Teachers to Develop Social Capital*. Networked by Design, ed. S.A.Y.a.K.J. Baker-Doyle. 2018.
6. education, M.o., *A Master Plan for Special Needs Education/Inclusive Education in Ethiopia 2016-2025*, F.D.R.o.E.M.o. Education, Editor. 2016.
7. Beghin, H., *The Benefits of Inclusion for Students on the Autism Spectrum*. BU Journal of Graduate Studies in Education, , 2021. **13**(2).
8. Anglim, J., P. Prendeville, and W. Kinsella, *The self-efficacy of primary teachers in supporting the inclusion of children with autism spectrum disorder*. Educational Psychology in Practice, 2017. **34**(1): p. 73-88.
9. Gómez-Marí, I., P. Sanz-Cervera, and R. Tárraga-Mínguez, *Teachers' Knowledge Regarding Autism Spectrum Disorder (ASD): A Systematic Review*. Sustainability, 2021. **13**(9).
10. Gómez-Marí, I., P. Sanz-Cervera, and R. Tárraga-Mínguez, *Teachers' Attitudes toward Autism Spectrum Disorder: A Systematic Review*. Education Sciences, 2022. **12**(2).
11. Fuller, E.A., Kaiser, A.P. , *The Effects of Early Intervention on Social Communication Outcomes for Children with Autism Spectrum Disorder: A Meta-analysis*. J Autism Dev Disord 2020. **50**.
12. Fleury, V.P., et al., *Addressing the Academic Needs of Adolescents With Autism Spectrum Disorder in Secondary Education*. Remedial and Special Education, 2014. **35**(2): p. 68-79.
13. Murray, J., *Practical Teaching Strategies for Students with Autism Spectrum Disorder*. BU Journal of Graduate Studies in Education, 2015. **7**(2).
14. Low, H.M., et al., *A grassroots investigation of ASD knowledge and stigma among teachers in Luang Prabang, Lao PDR*. Research in Autism Spectrum Disorders, 2021. **80**.
15. Huang, A.X., M. Jia, and J.J. Wheeler, *Children with autism in the People's Republic of China: diagnosis, legal issues, and educational services*. J Autism Dev Disord, 2013. **43**(9): p. 1991-2001.
16. Salari, N., et al., *The global prevalence of autism spectrum disorder: a comprehensive systematic review and meta-analysis*. Ital J Pediatr, 2022. **48**(1): p. 112.
17. Rochelle P. Walensky, M., MPH, Director and M. Debra Houry, MPH, Chief Medical Officer

and Deputy Director for Program and Science Rebecca Bunnell, PhD, MEd, Director, Office of Science, *Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years* —

Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2020. Centers for Disease Control and Prevention, March 24, 2023. **72**(2).

18. Kakooza-Mwesige, A., et al., *Adaptation of the "ten questions" to screen for autism and other neurodevelopmental disorders in Uganda*. *Autism*, 2013. **18**(4): p. 447-457.

19. Ndeti2, D.M.V.M.I.G.A.T.D.M., *A population-based survey of autistic traits in Kenyan adolescents and young adults*

South African Journal of Psychiatry, 2022.

20. Zeleke, W.A., M. Chitiyo, and T.L. Hughes, *Autism service providers report: Behavioral and educational interventions used in Ethiopia*. *International Journal of School & Educational Psychology*, 2017. **6**(3): p. 176-187.

21. Wang, J., et al., *Autism awareness and attitudes towards treatment in caregivers of children aged 3-6 years in Harbin, China*. *Soc Psychiatry Psychiatr Epidemiol*, 2012. **47**(8): p. 1301-8.

22. Edward, G., *TEACHERS' KNOWLEDGE AND PERCEIVED CHALLENGES OF TEACHING CHILDREN WITH AUTISM IN TANZANIAN REGULAR PRIMARY SCHOOLS*. *International Journal of Academic Research and Reflection*, 2015. **3**(5).

23. Zeleke, W.A., T.L. Hughes, and G. Kanyongo, *Assessing the Effectiveness of Professional Development Training on Autism and Culturally Responsive Practice for Educators and Practitioners in Ethiopia*. *Front Psychiatry*, 2020. **11**: p. 583674.

24. BIRHANU, B., *The Lived Experiences of Mothers Raising Children Diagnosed with Autism Spectrum Disorder in Ethiopia: Perceptions and Challenges*. University of Stavanger, Norway, 2020.

25. Hutton, N.K., C. Mitchell, and M. van der Riet, *Assessing an isiZulu questionnaire with educators in primary schools in Pietermaritzburg to establish a baseline of knowledge of Autism Spectrum Disorder*. *BMC Pediatr*, 2016. **16**(1): p. 185.

26. Edward, G., *TEACHERS' KNOWLEDGE AND PERCEIVED CHALLENGES OF TEACHING CHILDREN WITH AUTISM IN TANZANIAN REGULAR PRIMARY SCHOOLS*. *International Journal of Academic Research and Reflection*, 2015. **3**.

27. Uwaoluetan2, O.N.A.a.O., *Primary School Teachers' Knowledge of Autism Spectrum Disorders and Their Attitudes Towards Inclusive Education*. *Journal of Teaching and Teacher Education*, 2022. **10**(1).

28. Tasew, S., H. Mekonnen, and A.T. Goshu, *Knowledge of childhood autism among nurses working in governmental hospitals of Addis Ababa, Ethiopia*. *SAGE Open Med*, 2021. **9**: p. 20503121211049121.

29. Ashley J. Harrison1, L.P.B.N.C.N.M.L.P.J.M.C., *Development and Psychometric Evaluation of the Autism Stigma and Knowledge Questionnaire (ASK-Q)*. *J Autism Dev Disord*, 2017.

30. Cullen, J.P., Gregory, J.L., & Noto, L.A, *The teacher attitudes toward inclusion scale (TATIS) technical report*. 2010, Appalachian state university , University of bridgeport Savannah, Georgia.
31. Olley, J.G., et al., *The Autism Attitude Scale for Teachers*. Exceptional Children, 2016. **47**(5): p. 371-372.
32. Lian, W.B., et al., *Pre-school teachers' knowledge, attitudes and practices on childhood developmental and behavioural disorders in Singapore*. J Paediatr Child Health, 2008. **44**(4): p. 187-94.
33. Minghui Lua, Y.Z., Xiaomeng Chenc,*; Jiawei Chenb, Wanting Heb, Feifan Pangb, *Knowledge, attitude and professional self-efficacy of Chinese mainstream primary school teachers regarding children with autism spectrum disorder*. Research in Autism Spectrum Disorders, 2020. **72**.
34. Walter Chung¹, S.E.-S., and Ruth B. Palmer Stephanie Chung David DeLambo Weihe Huang, *An Examination of In-Service Teacher Attitudes Toward Students with Autism Spectrum Disorder*. Current Issues in Education 2015. **18**(2).
35. Indina Tarjiah, I.R., *Attitude of Class Teachers to Students with Autism in Inclusive Education Primary Schools*. Journal of ICSAR, January 2019. **3**(1).

11. Appendix

11.1 Questionary My name is _____. I am working as data collector in the research Conducted by Dr. Mizan Tsegaye who is conducting this research for the partial fulfillment of a specialty in pediatrics and child health in st Paul hospital millennium medical college. We are trying to assess Knowledge and attitude of public preschool teachers in Addis Ababa regarding autism spectrum disorder. You will participate if you give me consent after you have understood the following information sheet

Purpose: The purpose of this study is to assess the knowledge and attitude of public preschool teachers in Addis Ababa regarding autism spectrum disorder.

Risk/ Discomfort: By participating in this research project, you may scarify about 30 minutes to read and answer the questionnaire. We hope you will participate in the study for the sake of the Benefit of the research result. I am Sure there is no risk in participating in this research project.

Benefits there may not be direct benefit to you but your Participation is likely to help us in assessment of knowledge and attitude of public preschool teachers in Addis Ababa regarding autism spectrum disorder ultimately.

Confidentiality: The information collect from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. In addition, it will not be revealed to anyone except the principal investigator.

Right to refuse or withdraw: You have full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. If you have additional questions about the study, please contact the principal investigator Dr Mizan Tsegaye principal investigator Tel: +251-944-26-87-25

Part I: socio demographic characteristics

Instruction – Please fill your answer in the blank space provided and select your answer from the choices by circling the corresponding letter or number.

Table 8. Socio demographic characteristics questions

No.	Question	Response	Skip
101	Respondent's age	_____ (in years)	
102	Marital status	1. Married 2. Single 3. Widowed 4. Divorced	
103	Sub cities	1. Arada 2. Gulile 3. Addis Ketema	
104	Education status	1. Certificate 2. Diploma 3. Degree 4. Masters 5. Others	
105	Monthly income of the household	_____ in Ethiopian Birr	
106	Experience in Years	_____ Years	

Table 9 Questions related to experience, training and source of information about ASD

No.	Question	Response	Skip
201	Have you come across autistic child during your work experience as teacher?	1. Yes 2. No	
202	Have you had any form of formal teaching, learning or training session on autism	1. Yes 2. No	

	spectrum disorders?		
203	Do you know a child with autism?	1. Yes 2. No	
204	If the answer to the above question is yes how frequently do you meet this child	1. Daily 2. Weekly 3. Monthly 4. Sometimes 5. Never	
205	What is your Source of information about ASD?	1. Formal education 2. Books 3. Social media 4. TV and Radio 5. Surrounding People	
206	Have you had Training on early childhood development?	1. Yes 2. No	
207	Have had teaching experience In a special need or inclusive classroom?	1. Yes 2. No	
208	Have you had Previous experience of children with special need?	1. Yes 2. No	

Part III: Knowledge related questions about autism spectrum disorder

Instruction - Choose the correct answer by circling the corresponding letter if you don't understand the questions, please mark Skip

Table 10. Knowledge related questions about ASD

No.	Question	Response	Skip
301	Many children with autism have difficulty using everyday language to communicate their needs	1. Yes 2. No 3. Don't know	
302	Many children with autism get upset if their routine is changed	1. Yes 2. No 3. Don't know	
303	The number of diagnosed cases of autism has increased over the past 10 years	1. Yes 2. No 3. Don't know	
304	Many children with autism repeatedly spin objects or flap their arms	1. Yes 2. No 3. Don't know	
305	A lot of children with autism have problems with being aggressive or hyperactive	1. Yes 2. No 3. Don't know	
306	Autism is a result of curse or evil eye put upon/inflicted on the family	1. Yes 2. No 3. Don't know	
307	Autism is due to cold, rejecting parents	1. Yes 2. No 3. Don't know	
308	Vaccinations cause autism	1. Yes 2. No	

		3. Don't know	
309	Autism is preventable	1. Yes 2. No 3. Don't know	
310	Autism occurs more commonly among higher socioeconomic and educational level	1. Yes 2. No 3. Don't know	
311	We now have treatment that can cure autism	1. Yes 2. No 3. Don't know	
312	Children with autism cannot learn any social skill	1. Yes 2. No 3. Don't know	
313	Autism exists only in childhood	1. Yes 2. No 3. Don't know	
314	With proper treatment, most children diagnosed with autism eventually outgrow the disorder	1. Yes 2. No 3. Don't know	
315	Many times, children with autism get excessively focused on one thing	1. Yes 2. No 3. Don't know	
316	Children with autism do not enjoy the presence of others.	1. Yes 2. No 3. Don't know	
317	Autism is something that is very rare	1. Yes 2. No 3. Don't know	
318	Traumatic experiences very early in life can cause autism	1. yes 2. no 3. don't know	
319	Many children with autism have trouble tolerating loud	1. Yes	

	noises or certain types of touch	2. No 3. Don't know	
--	----------------------------------	------------------------	--

Part IV: Attitude related questions about childhood autism spectrum disorder

Instruction - Please use the below measuring scales to respond to the following questions measuring attitude of teachers regarding inclusive education. if you don't understand the questions, please mark Skip

1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree

Table 11. Attitude based question about ASD

	Attitude related questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	skip
401	Only teachers with extensive special education training can help an autistic child						
402	Mealtime behaviors of autistic children are disruptive and negatively influence the behavior of children around them.						
403	School with both normal and autistic children enhance the learning experience of normal children						

404	Normal children and autistic children should be taught in separate schools.						
405	Autistic children can learn from a good teacher						
406	Regular school are too advanced for autistic children						
407	I would not want the children in my class to have to put up with autistic school mates						
408	Teachers not specifically trained in special education should not be expected to deal with an autistic child						
409	Autistic children are too impaired to benefit from the activities of a normal school.						
410	School with both normal and autistic children enhance the learning experience of normal children						
411	If I had the choice, I would teach in a school in which there were no autistic children						
412	A good teacher can do a lot to help an autistic child						
413	Autistic children cannot socialize well enough to profit from contact with normal children						
414	It is unfair to ask teachers to accept autistic children into their school.						

11.2 Translated questionnaire to Amharic

የሪሰርች ተሳታፊ መረጃ የመጠይቅ ልዩ ቁጥር

እኔ ስሜ የሆነ ግለሰብ መረጃ የማሰባሰብ ስራን የምሰራ ሲሆን መረጃውንም

የምሰበስበው ዶ/ር ሚዛን ፀሃዬ በ ቅዱስ ጳውሎስ ሆስፒታል ሚሊኒየም ኮሌጅ ለምታጠናው የህጻናት ህክምና እና ጤና

ስፔሻሊቲ ትምህርት በዶ/ር ሚዛን ፀሃዬ ተዘጋጅቶ እየተሰራ የሚገኘውን ሪሰርች በቀጥታ ለማገዝ ሲባል ነው።

ምላሹን የሚሰጠው ግለሰብ ወይም ተሳታፊ ከታች በዝርዝር የተቀመጡ ጉዳዮችን ተረድቶ እና አስቦ ፍቃድኝነቱን ካሳወቀ

በኋላ ወደ ዋናዎቹ አሰሳ (ሰርቬይ) መጠይቆች እናልፋለን።

የሪሰርቹ አላማ፡ በአጠቃላይ የጥናቱ አላማ በአዲስ አበባ ከተማ የብዙሃን ትምህርት ቤት መምህራን ስለ ኦቲዝም

ያላቸውን ጠቅላላ እውቀት እና አመለካከት መገምገም ነው።

ስለ ስጋት/ ምችት ማጣት፡ በዚህ የጥናት ፕሮጀክት ላይ በመሳተፍዎ ምክንያት ከ ግማሽ ሰአት ያላነሰ ጊዜዎን ጥያቄ

ለማንበብ እና ምላሽ ለመስጠት መስዋት ያደርጋሉ። ይሄንንም በማድረግዎ ሪሰርቹ ለሚያመጣቸው የተጠና ውጤቶች

ላይ ቀጥተኛ ተሳትፎ ይኖርዎታል። ይሄንንም እውን ለማድረግ ሲባል የተሳትፎ ፍላጎት እንዲኖርዎት እየጠየቅንዎት

በተሳትፎዎት ምክንያት የሚመጣ ምንም አይነት በቀጥታም ሆነ በተዘዋዋሪ የሚደርስብዎት ምችት ማጣት እና ስጋት

የለም።

ጥቅሞች፡ ጥናቱ ቀጥተኛ የሆነ ለተሳታፊው የሚጠቅመው ጥቅም ባይኖርም የእርስዎ ተሳትፎ የጥናቱን ዋና አላማ

የብዙሃን ትምህርት ቤት መምህራንን ስለ ኦቲዝም ያላቸውን ጠቅላላ እውቀት እና አመለካከት በትክክል እንዲገመገም

ትልቁን ሚና ይጫወታል።

ሚስጥርን ስለመጠበቅ፡ በዚህ ጥናት የሚሰበሰቡ ማንኛውም መረጃዎች፣ የመጠይቅ መልሶች እና የመላሹ (የተሳታፊው)

የግል መረጃዎች ሚስጥራቸው የተጠበቁ ናቸው። እንዲሁም መላሹ (ተሳታፊው) የሚሞላቸውም ሆነ የሚመልሳቸው

መልሶች በግለሰቡ ስም ሳይሆን በቁጥር መለያ ተደርጎባቸው የሚቀመጡ በመሆናቸው የግለሰቡ ማንነት በሚስጥር የተያዘ

ይሆናል።

መብቶች፡ በሪሰርች ፕሮጀክቱ ላይ በቀጥታም ሆነ በተዘዋዋሪ ያለመሳተፍ መብትዎ የተጠበቀ ነው። በመጠይቁ ውስጥ

ያሉትን ጥያቄዎች በከፊልም ሆነ በቁጥር ያለመመለስ መብትዎ የተጠበቀ ነው። ለተጨማሪ ጥያቄዎች የጥናቱን ዋና አጥኝ

ዶ/ር ሚዛን ፀሃዬን በ +251-944-26-87-25 ማግኘት ይቻላል።

ክፍል አንድ፡ ስነ-ማህበረሰብ ባህሪያት መጠይቆች

እባክዎን ከመጠይቆቹ ትይዩ አቅጣጫ የሚገኙ አማራጭ መልሶችን በመምረጥ መልስዎን በተዘጋጀው ባዶ ቦታ ላይ አስቀምጡ፡፡ ጥያቄው ግልፅ ካልሆነልዎት የይለፈኝ የሚለው ባዶ ቦታ ላይ ምልክት በማድረግ ጥጠቄውን ይለፉት፡፡

Table 12. translated questionnaire related socioeconomic demographic factor

ተ/ቁ	ጥያቄ	መልስ	ይለፈኝ
101	እድሜ	_____	
102	የጋብቻ ሁኔታ	ያገባ/ች ያላገባ/ች የፈታ/ች የትዳር አጋሩን በሞት ያጣ/ች	
103	ክፍለ ከተማ	አራዳ ክፍለ ከተማ ጉለሌ ክፍለ ከተማ አዲስ ከተማ ክፍለ ከተማ	
104	የትምህርት ደረጃ	ሰርተፍኬት ዲፕሎማ ዲግሪ ማስተርስ ሌሎች	
105	አጠቃላይ ወርሃዊ ገቢ	_____ በብር	
106	የስራ ልምድ	_____	
107	በይትኛው የክፍል ድረጃ ያስተምራሉ	ቅድመ መጀመርያ ደረጃ ከ1ኛ እስከ 6ኛ ክፍል 7ኛ እና 8ኛ ክፍል	

ክፍል ሁለት፡ የስራ ልምድ፣ ስልጠና እና የኦቲዝም የመረጃ ምንጮችን በሚመለከት

እባክዎን ከመጠይቆቹ ትይዩ አቅጣጫ የሚገኙ አማራጭ መልሶችን በመምረጥ መልስዎን በተዘጋጀው ባዶ ቦታ ላይ

አስቀምጡ።፡፡ ጥያቄው ግልፅ ካልሆነልዎት የይለፈኝ የሚለው ባዶ ቦታ ላይ ምልክት በማድረግ ጥጠቄውን ይለፉት።፡፡

Table 13. Translated questionnaire related to experience, training and source of knowledge about ASD.

ተ/ቁ	ጥያቄ	መልስ
	ኦቲዝም ሲባል ስምተው ያውቃሉ	አዎ አይ
201	በመምህርነት በቆዩበት የስራ ቆይታዎ ኦቲዝም ያለበት/ባት ልጅ (ተማሪ) አጋጥመዎት ያውቃል?	አዎ አጋጥሞኝ ያውቃል አጋጥሞኝ አያውቅም
202	ኦቲዝምን በሚመለከት ማንኛውም መደበኛ ሆነ መደበኛ ያልሆነ ትምህርት ወይም ስልጠና ወስደው ያውቃሉ?	አዎ አውቃለሁ አላውቅም
203	ኦቲዝም ያለበት/ባት ታዳጊ በቅርብ ያውቃሉ?	አዎ አውቃለሁ አላውቅም
204	ቀድሞ ለተነሳው ጥያቄ መልስዎ << አውቃለሁ >> ከሆነ በምን ያህል ግዜያት ታዳጊውን ያገኙታል?	በየቀኑ በየሳምንቱ በየወሩ አንዳንድ ግዜ አላገኘውም
205	ሰለ ኦቲዝም መረጃዎችን ከየት ከየት ያገኛሉ?	ከመደበኛ ትምህርት ከመፅሃፍት ከማህበራዊ ሚዲያዎች ከቴሌቪዥን እና ራዲዮ ከአካባቢ ሰዎች
206	በመጅመሪያዎቹ ልጅነት አመታት ስለሚኖሩ አዕምሮአዊ አሰስተዳደግ ስልጠናዎችን ወስደው ያውቃሉ?	አዎ አውቃለሁ አላውቅም
207	ልዩ ፍላጎት ያላቸውን ተማሪዎች ወይም አካታች የትምህርት ክፍል ውስጥ አስተምረው ያውቃሉ?	አዎ እቃለሁ አላውቅም
208	ቀደም ብሎ ልዩ ፍላጎት ያላቸው ተማሪዎች ጋር ልምድ አለዎት?	አዎ አለኝ አይ የለኝም

ክፍል ሶስት፡ ከልጆች ኦቲዝም ጋር በተገናኘ ያለ እውቀትን በሚመለከት የቀረቡ መጠይቆች

እባክዎን ከመጠይቆቹ ትይዩ አቅጣጫ የሚገኙ አማራጭ መልሶችን በመምረጥ መልስዎን በተዘጋጀው ባዶ ቦታ ላይ አስቀምጡ፡፡ ጥያቄው ግልፅ ካልሆነልዎት የይለፈኝ የሚለው ባዶ ቦታ ላይ ምልክት በማድረግ ጥጠቄውን ይለፉት፡፡

Table 14. Translated questionnaire on knowledge related questions

ተ/ቁ	ጥያቄ	መልስ	ይለፈኝ
301	ኦቲዝም ያለባቸው ብዙ ልጆች የእለተዕለለት ፍላጎታቸውን በቋንቋ ለመግለጽ ይችላሉ፡፡	አዎ አይ አላውቅም	
302	ኦቲዝም ያለባቸው ብዙ ልጆች የሁል ጊዜ ልማዳቸው ከተቀየረ ይበሳጫሉ፡፡	አዎ አይ አላውቅም	
303	ኦቲዝም ያለባቸው ልጆች ቁጥር በባለፉት አስር (10) አመታት ጨምሯል፡፡	አዎ አይ አላውቅም	
304	አብዛኛው ኦቲዝም ያለባቸው ልጆች እቃዎችን ማሸከርከር ወይም እጅ እና የእጅ ማወዛወዝ ወይም መጠምዘዝ እየደጋገሙ ያደርጋሉ፡፡	አዎ አይ አላውቅም	
305	ኦቲዝም ያለባቸው ብዙ ልጆች ቅብጥብጥ እና ጠበኛ የመሆን ችግር አለባቸው	አዎ አይ አላውቅም	
306	ኦቲዝም የሚመጣው ቤተሰብ ላይ ባለ በእርግጥ እና ወይም በቡዳ ምክንያት ነው፡፡	አዎ አይ አላውቅም	
307	ኦቲዝም የሚመጣው በወላጆቻቸው በተገፉ ህፃናት ላይ ነው፡፡	አዎ አይ አላውቅም	

308	ከትባት ኦቲዝምን ሊያመጣ ይቻላል።	አዎ አይ አላውቅም	
309	ኦቲዝምን ቀድሞ መከላከል ይቻላል።	አዎ አይ አላውቅም	
310	ኦቲዝም አብዛኛውን ጊዜ የሚከሰተው በ ከፍተኛ ማህበራዊ ኢኮኖሚ እና ትምህርት ደረጃ ላይ በሚገኙ ሰዎች ላይ ነው።	አዎ አይ አላውቅም	
311	በአሁኑ ጊዜ ኦቲዝምን የሚያድን ህክምና አለ።	አዎ አይ አላውቅም	
312	ኦቲዝም ያለባቸው ልጆች የማህበራዊ ግንኙነት ችሎታዎችን ሊማሩ አይቻላቸውም።	አዎ አይ አላውቅም	
313	ኦቲዝም በልጅነት ጊዜ ብቻ የሚኖር ነው።	አዎ አይ አላውቅም	
314	ትክክለኛ የሆነ ህክምና ከተደረገላቸው ቀስበቀስ ሲያድጉ የኦቲዝሙ ይተዋቸዋል።	አዎ አይ አላውቅም	
315	ኦቲዝም ያለባቸው ልጆች ብዙ ጊዜ በአንድ ነገር ላይ ከመጠን በላይ ትኩረታቸውን ያደርጋሉ።	አዎ አይ አላውቅም	
316	ኦቲዝም ያለባቸው ልጆች ከሌሎች ሰዎች (ልጆች) ጋር መቀላቀል አያስደስታቸውም።	አዎ አይ አላውቅም	
317	ኦቲዝም ከስንት አንድ ጊዜ የሚኖር ነገር ነው።	አዎ አይ አላውቅም	
318	በልጅነት ጊዜ አካል ላይ ወይም ስነልቦና ላይ የሚደርስ አደጋ ኦቲዝምን	አዎ	

	ሊያመጣ ይችላል፡፡	አይ አላውቅም	
319	አብዛኛው አቲዝም ያለባቸው ልጆች ድምፁ ከፍ ያለ ጫጫታ እና አንዳንድ ንክኪዎችን አይወዱም፡፡	አዎ አይ አላውቅም	

ክፍል አራት፡ ስለ ኦቲዝም በሰዎች ዘንድ ያለውን አመለካከት በሚመለከት የቀረቡ መጠይቆች

እባክዎን ከመጠይቆቹ ትይዩ አቅጣጫ የሚገኙ አማራጭ መልሶችን በመምረጥ መልስዎን በተዘጋጀው ባዶ ቦታ ላይ

አስቀምጡ፡፡ ጥያቄው ግልፅ ካልሆነልዎት የይለፈኝ የሚለው ባዶ ቦታ ላይ ምልክት በማድረግ ጥጠቄውን ይለፉት፡፡

1. በጣም አልስማማም 2. አልስማማም 3. ሃሳብ የለኝም 4. እስማማለሁ 5. በጣም እስማማለሁ

Table 15 translated questionnaire on attitude related questions about ASD

	ጥያቄ	በጣም አልስማማም	አልስማማም	ሃሳብ የለኝም	እስማማለሁ	በጣም እስማማለሁ	ይለፈኝ
401	ኦቲዝም ያለበትን ልጅ መርዳት የሚችለው ስለኦቲዝም ጥልቅ የሆነ ስልጠና የወሰደ መምህር ብቻ ነው፡፡						
402	ኦቲስት ልጆች በመመገቢያ ሰአት የሚኖራቸው ባህሪ የሚረብሽ በመሆኑ በአካባቢያቸው ያሉ ልጆች በህሪ ላይ አሉታዊ ተፅዕኖ ያሳድራል፡፡						
403	ኦቲስት የሆኑ እና ያልሆኑ ተማሪዎች በአንድ ላይ የሚማሩበት ትምህርት ቤት ኦቲስት ላልሆኑት የተሸለ የመማር አጋጣሚዎችን ይፈጥራል፡፡						
404	ኦቲስት የሆኑ እና ያልሆኑ ልጆች በተለያየ ትምህርት ቤት መማር አለባቸው፡፡						
405	ኦቲስት የሆኑ ተማሪዎች ከጥሩ መምህር የመማር ችሎታ አላቸው፡፡						
406	መደበኛ ትምህርት ቤቶች ኦቲስት ለሆኑ ተማሪዎች በጣም ይከበድባቸዋል						
407	በማስተምርበት ክፍል ውስጥ የሚማሩ ኦቲስት ያልሆኑ ተማሪዎች ኦቲስት ከሆኑት ጋር የመማር ግዴታ እንዲኖርባቸው አልፈልግም፡፡						
408	በልዩ ሁኔታ ስለ ልዩ ፍላጎት ትምህርት ስልጠና ያልተሰጣቸው መምህራን ኦቲስት ተማሪዎችን እንዲያስተምሩ ሊጠበቅባቸው አይገባም፡፡						
409	ኦቲስት ተማሪዎች ከአእምሮዊ ጉዳታቸው የተነሳ መደበኛ ትምህርት ለእነሱ ጠቀሜታ የለውም						
410	ኦቲስት የሆኑ እና ያልሆኑ ተማሪዎችን በአንድ ላይ ቀላቅለው የሚያስተምሩ ትምህርት ቤቶች ኦቲስት ለሆኑ ተማሪዎች የተሸለ የትምህርት አጋጣሚን ይፈጥራል፡፡						
411	መምረጥ ብቻል ኦቲስት ተማሪዎች የሌሉበት (የማይማሩበት) ትምህርት ቤት ባስተምር						

	እመርጣለሁ፡፡						
412	መልካም (ጥሩ) መምህር/ት ኦቲዝም ላለባቸው ልጆች ብዙ እርዳታን ማድረግ ይችላል/ትችላሉ፡፡						
413	ኦቲስት ተማሪዎች ክሌሎች ተማሪዎች ጋር ማኅበራዊ ኑሮን መፍጠር ስለማይችሉ ክሌሎች ተማሪዎች ጋር እንዲቀላቀሉ ማድረግ አይጠቅማቸውም፡፡						
414	መምህራን ኦቲስት ልጆችን በሚያስተምሩበት ትምህርት-ቤት እንዲቀበሉ ማድረግ ትክክል አይደለም፡፡						