ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE, DEPARTMENT OF PSYCHIATRY, CLINICAL PSYCHOLOGY PROGRAM

ADAPTATION AND PILOT TESTING OF THE AMHARIC GLOBAL OPEN-ACCESS SCREENING AND DIAGNOSTIC TOOL FOR AUTISM IN ADDIS ABABA, ETHIOPIA: A FEASIBILITY STUDY

BY: NARDOS TEKLEMARIAM

A THESIS SUBMITTED TO THE DEPARTMENT OF PSYCHIATRY, SCHOOL OF MEDICINE, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS MASTER'S DEGREE IN CLINICAL PSYCHOLOGY

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II. ACRONYMS

- **ASD- Autism Spectrum Disorder**
- **DD- Developmental Disorders**
- **HICs- High Income Countries**
- **LMICs- Low and Middle-Income Countries**
- **NDD- Neurodevelopmental Disorders**
- **OSSDx- Global Open Access Screening and Diagnostic Tool for Autism**
- **OSSDx ST - Global Open Access Screening and Diagnostic Tool for Autism Screening Tool**

Examination board approval form

Addis Ababa University

College of Health Sciences

School of Medicine

Department of Psychiatry

Thesis title: ADAPTATION AND PILOT TESTING OF THE AMHARIC GLOBAL OPEN-ACCESS SCREENING AND DIAGNOSTIC TOOL FOR AUTISM IN ADDIS ABABA, ETHIOPIA: A FEASIBILITY STUDY

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III. ABSTRACT

Background: Autism Spectrum Disorder **(**ASD) is a neuro-developmental disorder characterized by difficulties with socio-communicative functioning and restricted and repetitive behaviors. There is limited data available regarding the prevalence of ASD in low and middle-income countries (LMICs), one of the reasons for the limitation being the scarcity of translated, validated, and culturally adapted screening and diagnostic tools. The Global Open Access Screening and Diagnostic Tool for Autism (OSSDx) is an autism screening and diagnostic tool that is currently under development. It is a tool being developed for a target population of children aged 2-9 years, living in Africa.

Objective: The study aimed to culturally adapt the OSSDx into the Amharic language and pilot it in selected private hospitals and facilities.

Methods: The original OSSDx was translated and culturally adapted into the Amharic language through expert consultation. The adapted OSSDx tool was then piloted on 6 experts and 17 caregivers/parents of children with ASD diagnosis and suspected developmental disorders at the selected private hospitals and facilities using mixed mixed-methods design. The quantitative data were collected using a yes/no checklist, which was completed by both the parents/caregivers and experts. Cognitive interviews were also conducted with all the participants to gather more information regarding the clarity, cultural relevance, and acceptability of the adapted tool.

Result: The findings from this pilot study show that the adapted OSSDx demonstrates an acceptable face and content validity. Although some items were noted as difficult to understand, the quantitative feedback from parents/caregivers showed a high level of agreement on the tool's relevance and clarity. While evaluations from experts also highlighted a need for improvements, they have observed adequate construct coverage. Cognitive interviews further endorsed these findings. Overall, the adapted version of the OSSDx was considered applicable with a few revisions suggested before a large-scale implementation.

Implication: The adapted Amharic OSSDx can assist in screening at-risk children earlier and help in establishing a clearer referral pathway for diagnosis.

Chapter One

INTRODUCTION

1.1. Background of the study

Autism spectrum disorder (ASD) is considered a neuro-developmental disorder as it is related to the neurological changes that usually begin in prenatal or early postnatal life. It is known to modify the typical patterns of a child's development, resulting in lasting signs and symptoms that become apparent in the early developmental stages and have long-term consequences. It is marked by impaired social communication and repetitive and restricted behaviors. Although autism was conceived to be a strictly defined set of behaviors in the past, it is now recognized as a spectrum ranging from mild to severe.(1)

ASD is believed to be influenced by both genetic and environmental factors that affect the developing brain (2). Due to greater exposure to risk factors like infections and brain trauma, children living in LMICs face a higher risk of neuro-developmental disorders. Despite the significant burden of NDDs, including ASD, there seems to be limited global data on their prevalence. This is partially due to the lack of culturally appropriate tools for identification and diagnosis.(3) According to a systematic review and meta-analysis conducted from 2008 to 2021, the prevalence of ASD in the world was found to be 0.6%, with the highest prevalence in Australia at 1.7% and with the lowest in Asia at 0.4%, America, and Africa at 1%, and 0.5% in Europe(4). Another review on global autism prevalence was done in 2022 and found a median rate of 1 in 100 children, with wide variation across regions.(5)

Diagnosing ASD is said to be challenging as healthcare professionals depend mostly on the developmental history of the child, the responses they get from the parents and caregivers regarding questions related to ASD behaviors, and even direct observations done by the physician(1). Clinical evaluation usually starts with a developmental screening at the general pediatrics clinic, followed by a definitive diagnosis and an extensive neuropsychological evaluation done by a specialist. In addition, children with ASD are also

assessed for other co-morbid conditions (2). There is limited data available on the prevalence of ASD in low and middle-income countries (LMICs). There is limited data available on the prevalence of ASD in low and middle-income countries (LMICs). It is very crucial for screening and diagnostic tests to be translated and validated for different cultural groups and made easily accessible, especially in LMICs (6)

While using screening tools has gained wider acceptance and is leading to better and improved outcomes, the adaptation of existing tools, especially in the LMIC, has become a common method. In a systematic review examining the cultural adaptation and feasibility of screening ASD in non-English speaking countries, it was concluded that the knowledge on cultural adaptation for ASD screening tools is limited and lacks sufficient documentation to determine the levels of adaptation, whether it is in terms of process or content, and to confirm their adequacy(7).

. In Ethiopia, the existing diagnostic and education service for children with ASD is limited and primarily accessible in the capital city, with insufficient provisions in the rural areas of the country. Several concerns are also raised regarding the lack of culturally and contextually appropriate screening and diagnostic instruments (8).

The Global Open Access Screening and Diagnostic Tool for Autism (OSSDx) is an autism screening and diagnostic tool that is currently under development. It is a tool that is being developed with a target population of children between the ages of 2-9 years, living in Africa. Since it is being developed for LMICs, it is open access, making it more easily accessible and affordable. Although it is still under development, the screening tool has been completed and is on test runs in some countries in Africa.

1.2. Statement of the problem

Most research done on autism is mainly focused towards high-income Western countries, resulting in a significant gap in culturally appropriate tools in most of the LMICs (9) while several tools could be used in the LMICs, those interventions are either inaccessible or expensive; in addition, they lack cultural adaptation. Validated, standardized, and globally accessible tools are critical for screening and diagnosing ASD and related NDD. While this requires validating existing tools and ensuring they are culturally appropriate, affordable, and acceptable, potential biases like differences in language, cultural expectations, and literacy levels must be attentively evaluated. (10)

Most of the delays in diagnosis and treatment in LMICs are more likely to result from limited resources rather than country-specific factors. Thus, it is important to improve the services for children with autism and develop culturally relevant and low-cost programs that include creating locally appropriate screening and diagnostic tools. (11)

Early screening and diagnosis are ideal for developing tailored interventions, which makes creating low-to-no-cost screening and diagnostic tools that respect the cultural context essential. In LMICs, one of the major priorities includes adopting or developing culturally appropriate, easily accessible interventions and investing in tools for early identification.(12)

Most of the autism services in Ethiopia are located primarily in Addis Ababa, which makes accessibility in rural areas scarce. There is an urgent need for contextual and culturally appropriate screening and diagnostic tools, as the use of standardized instruments is scarce due to a lack of resources, adaptations, and translations, even when the English versions are available.(8)

1.3. RATIONALE OF THE STUDY

Having a culturally adapted and validated screening tool for ASD is essential for early diagnosis, especially in countries like Ethiopia, where most of the diagnostic and screening tools either lack a proper adaptation or are not accessible/ affordable. Most LMICs, including Ethiopia, face a significant challenge related to the diagnosis and treatment of ASD.

The Amharic Global Open Access Screening and Diagnostic Tool for Autism (OSSDx) has the potential to fill this gap by providing a simple, effective, and culturally appropriate screening tool. However, before it can be widely used in Amharic-speaking populations, it is essential to evaluate its feasibility, clarity, ease of use, and acceptability to ensure it is practical and effective for health care providers and parents/caregivers.

1.4. LITERATURE REVIEW

1.4.1 Overview of ASD

Autism spectrum disorder (ASD), which was previously known as Pervasive Developmental Disorders, is a developmental and neurological disorder marked by persistent deficits in social communication and social interaction across multiple contexts. It affects how people interact and communicate with others, and how they learn and behave. The presence of restricted, repetitive patterns of behaviors, activities, or interests is required to make the diagnosis of ASD. while it can be diagnosed at any age of life, it is considered a developmental disorder because the symptoms typically start to be noticed within the first two years of life.(13)

Some of its common indicators include if the child does not engage in babbling, pointing or using gestures to communicate by the age of 1, if the child has not uttered a single word by 16 months, if the child is not able to put two words together to form simple phrases by the age of 2, if they don't react or turn when their names are called, if they avoid or struggle to maintain eye contacts during conversations/interactions, if they are usually interested or show intense attachment to a specific toy or item and if the child occasionally appears like they have difficulty hearing(14).

The major affected areas in people with autism are behaviors, communication, and cognition. They often have difficulties in understanding reciprocal verbal or nonverbal communication. When it comes to communication, children with ASD often have difficulties in using speech or gestures to interact with others, which is mainly due to their inability to characterize speech. Their communication abilities vary across the spectrum. While some may have better comprehension than expression, others may be able to form complete sentences, but their communication would often be using repetitive words or phrases. The other affected area is cognition. Around 75% of those with autism often experience some degree of cognitive underdevelopment. Some children with ASD may show exceptional abilities in several areas, like music and visual-spatial skills, while some might struggle with intuition and abstract thinking.(15)

Early detection and diagnosis are an important step as they lead to early interventions, which could have a positive impact on the cognitive, language, and social-emotional functioning of children with autism.(16)

1.4.2. Screening and Diagnostic Tools of ASD

Screening tools are divided into two levels 1 and 2 tests. Level 1 screening tools are used for the general children's population to detect those who are at risk of developmental and/or ASD concerns, while level 2 screening tools are usually administered to those who are already identified as at risk of ASD. The perfect example for a level 1 screening tool is the M-CHAT-R/F, and the STAT and RITA-T are the most commonly used level 2 screening tools.(17)

Screening and Diagnostic tools for ASD involve various stakeholders such as parents, children, caregivers, clinicians, psychologists, and other healthcare professionals who participate in filling out or administering the tests, calculating the scores, explaining or interpreting the results, and sometimes managing referrals. Screening tools vary depending on their targeted population, the screening methods, the number of items they consist of, the amount of time they require, and their performance. Some of the screening tests available for infants and children include

- CHAT (Checklist for Autism in Toddlers) is an 8–15 minute questionnaire with 14 items for 18-24 months toddlers

- M-CHAT & M-CHAT-RF (Modified Checklist for Autism in Toddlers & With Follow Up) is a 10-10 minutes questionnaire with 23 items for 16–30 months toddlers

- Q-CHAT (Quantitative Checklist for Autism in Toddlers) is a 15-20 minute questionnaire with 25 items for 18 to 24 months toddlers

- Q-CHAT-10 is a 5-10 minute questionnaire with 10 items for 19 to 24-month-old toddlers (10-item version of Q-CHAT)

➢ CAST (Childhood Asperger Syndrome Test) is a 15-25 minute questionnaire with 37 items for 5 to 11 years old children

➢ DBD-ES (Developmental Checklist-Early Screen) is a 10-15 minute questionnaire with 17 items for 18 to 48 months toddlers

➢ ESAT (Early Screening for Autistic Traits) is a 10-15 minute questionnaire with 14 items for 16 to 30 months toddlers

➢ PDDST-II (Pervasive Developmental Disorders Screening Test-Second Edition) is a 10-20-minute questionnaire with 22 items for 18 to 48 months toddlers

➢ FYI (The First Year Inventory) is a 20-35-minute questionnaire with 63 items for 12-month-olds

➢ ASIEP-3 (autism screening Instrument for Educational Planning - Third Edition) includes a questionnaire and activities with 47 items for 2-13 years old toddlers and children

➢ STAT (Screening Tool for Autism in Toddlers and Young Children) is a 15 to 20-minute play activity with 12 items for 24 to 36-month toddlers

➢ ABC (Autism Behavior Checklist) is a 20-30-minute questionnaire with 57 items for 3-14 years of children

According to a comprehensive review done on 37 autism screening tools, none of them were found to have excelled across all the parameters assessed, which include their evaluation, administration, targeted audience, the scoring methods, available alternative versions, and performance. Some showed promising sensitivity and specificity, like ASIEP, which tends to be more time-consuming. And while CHAT was quick to administer, it is not freely available and has low sensitivity. It was also noted that while M-CHAT and Q-CHAT are not comprehensive in their targeted population, they appeared to be most appropriate for 16 to 36-month-old infants due to their strong sensitivity and specificity. (18)

Another review done on screening tools used for identifying ASD and DD included a total of 99 screening tools. They identified 59 tools that were used to screen for more general DD, while the remaining 40 tools were intended to screen for ASD. 35 of the screening tools used to identify DD were developed specifically for LMIC/non-Western settings, and the remaining 24 tools used for more general DD originated from HIC. They identified that only six ASD screening tools were developed specifically for LMIC/non-Western settings, while the majority of ASD screening tools were developed in and for HIC.(19)

1.4.3. ASD in Africa

Although there are recent concerns related to the prevalence of ASD, there is a lack of accurate and reliable prevalence estimations in developing countries. A narrative review done by Aderinto et al. (2023) on the current knowledge of autism in Africa indicated that while the prevalence of ASD in Africa is relatively comparable with others, the treatment and diagnosis are hindered by several challenges including a shortage of specialized healthcare professionals, limited resources, lack of significant awareness and understanding of ASD and cultural stigma surrounding mental health and developmental disorders.(21)

The families and caregivers of those with ASD often face several challenges, like stigma and limited access to support services. The paper also strongly emphasized the need for more research necessary for developing effective and culturally appropriate interventions. Underdiagnoses and misdiagnoses were found to be common in many African countries, and a lack of culturally appropriate interventions was identified as one of the reasons. Developing and testing culturally relevant interventions was identified as a critical step to improve the current state of accessibility, acceptability, and effectiveness of autism care in Africa(20). In a report done in 2014, it was found that the majority of the studies on autism done in Africa are from South Africa and Nigeria. The scarcity of research from other African countries was due to various factors like a lack of awareness, limited resources, and infrastructure. The current gap in the development and validation of

standardized screening and diagnostic tools that are tailored to the African context has also been highlighted. (21)

Similarly, in a review of the published literature on ASD in sub-Saharan Africa, it was reported that the data available on ASD is extremely limited compared to other parts of the world. The review was able to identify only one population-level study, which focused on documenting the prevalence of ASD in Africa, but they could not find any case-control studies focusing on examining a comprehensive range of potential risk factors for ASD in Africa. Overall, the review highlighted the scarcity of evidence needed to inform an effective intervention for children with ASD in sub-Saharan Africa. (22)

1.4.4. ASD in LMICs

LMICs represent a diverse group in different geographies and cultures and are classified based on their income levels. Yet despite these differences, they appear to have consistent key trends in ASD identification (parental concerns and age of diagnosis). In LMICs, language delay is the most common initial symptom of ASD that is reported by parents (11). There is limited data available on the developmental status of young children living in LMICs, although most children are said to reside in those countries. (17)

The use of reliable tools to asses ASD and other underdevelopment disorders is often lacking in these countries. The most substantial change in the process of adapting these tools was replacing self-administration with face-to-face interviews.(19) When administering screening or diagnostic tools for developmental concerns in LMICs, it is important to evaluate the tools carefully. Although screening should ideally be conducted at two levels, it will require significant changes in health care systems to be able to be implemented at LMICs.(23,24)

Chapter Two

RESEARCH QUESTIONS

- How well can the original English version of the Global Open Access Screening and Diagnostic tool for Autism (OSSDx) be culturally adapted and translated into the Amharic language to ensure clarity, acceptability, and relevance?

- Is the Amharic version of the OSSDx tool feasible to administer in a clinical setting to Amharic-speaking parents/caregivers of children with ASD and suspected developmental delay in Addis Ababa hospitals and facilities?

- Is the adapted version of the OSSDx culturally appropriate and acceptable to parents/caregivers and experts in Addis Ababa hospitals and facilities?

Chapter Three

RESEARCH OBJECTIVES

3.1. General Objectives

◆ To adapt the Global Open Access Screening and Diagnostic Tools for Autism (OSSDx) into the Amharic language and pilot it at the selected private hospitals and facilities.

3.2. Specific Objectives

◆ To translate and culturally adapt the OSSDx into the Amharic language.

◆ To pilot test the Amharic OSSDx on caregivers of children with ASD and suspected developmental delay using cognitive interviewing at selected private hospitals and facilities.

◆ To assess other psychometric properties (face and content validity) of the Amharic version of the OSSDx.

Chapter Four

RESEARCH METHODS AND MATERIALS

4.1 Study Design

This research used a convergent parallel mixed method. In a convergent approach, the researcher collects and analyzes both quantitative and qualitative data during the same phase of the research and then merges the two sets of results to create a comprehensive interpretation(25). The study included the translation and cultural adaptation process and pilot testing. A pilot study is useful in verifying whether the adopted tool is aligned with the cultural context and maintains its psychometric properties (26).

4.2 Study Period

The study was conducted from April to June 2025.

4.3 Study Setting and Population

The study was conducted in Addis Ababa, Ethiopia. For the first part (translation and cultural adaptation part), the research team worked with professionals who have linguistic, technical, and cultural expertise.

The pilot was conducted at selected private hospitals and facilities, which include Allstar Psychological Service, Nehemiah Autism Center, Sitota Psychiatry and Rehabilitation Center, and Champions Academy. Sitota Psychiatry and Rehabilitation Center is a private psychiatric center established 14 years ago. It offers high-quality treatment for individuals of all ages, including therapy for children. Allstar is a private center offering a range of treatments, including specialized therapeutic services, comprehensive assessments, and diagnostic testing for children and adults. Champions Academy is an inclusive school for children with special needs, and Nehemiah Autism Center is a non-profit organization founded in 2011. It offers treatment for children with autism.

The adapted questionnaire was filled out by parents/caregivers from the above settings who have children with a diagnosis of ASD and those with suspected developmental delay, who are between the ages of 2 and 9.

4.4Eligibility Criteria

4.4.1 Inclusion Criteria

➔ Children aged 2 to 9 years.

➔ Children with a diagnosis of ASD or who are reported to have developmental-related concerns.

➔ Children who came with their primary caregiver.

➔ The primary caregiver is fluent in Amharic.

➔ The primary caregiver is willing to participate in the study.

➔ Experts fluent in both English and Amharic (for bilingual experts)

➔ Experts with professional experience related to ASD, child development, or related fields.

4.4.2. Exclusion Criteria

➔ The child presents with an urgent medical need, where the caregiver cannot spend time completing the questionnaire.

➔ The caregiver has a significant condition that impairs effective communication (severe cognitive impairments, intellectual disabilities, or sensory impairment).

➔ Experts with less than a year of experience.

4.5. Sampling Technique and Size

A purposive sampling technique was implemented to gather preliminary data for the study, with an overall sample size of 30 participants: 17 parents/caregivers, 7 bilingual experts, and 6 subject experts. The small sample size is sufficient for this study, as it will be a pilot study focusing on assessing feasibility and gathering preliminary data on psychometric properties.

4.6. Translation Process

The translation process of the original OSSDx from English to Amharic was conducted following the recommended procedures.(27) At the initial stage, the OSSDx screening tool was translated from English to Amharic by two translators, one who is an expert in the subject matter and the other a language expert, both of whose native language is Amharic.

Afterwards, the translated version was evaluated through a panel meeting and reached a consensus among translators and mental health and psychometric experts. The key objective of the meeting was to identify issues in semantic and conceptual equivalence, resolve translation ambiguities and culturally inappropriate terminology, ensure clarity and comprehension for the target population, and prepare the final version for pilot testing. Throughout the process, problematic items were noted, differences were discussed, and seriously disputed items were addressed and changed.

4.7. Data Collection, Processing, and Analysis

The OSSDx was translated into Amharic following the necessary steps described above. The data was then collected by administering the translated version of OSSDx to parents/caregivers and experts in a consistent manner. The pilot testing was carried out by the researcher after the participant was offered the informed consent form, the researcher's aim was explained, and consent to participate was obtained. The interview was conducted in a room provided by the hospital or facility, and the interview was recorded. The voice recordings were labeled and locked and would be permanently deleted after the researcher reviews them for any supplementary information.

The time taken to complete the tool and any challenges encountered were noted. Additional notes were also taken by the researcher administering the tool to asses if the tool can be administered by anyone or if it requires a certain educational level. Feedbacks from the parents/caregivers and experts on the tool's clarity, ease of use, and acceptability were collected using a short checklist to assess the face validity of the tool, and a descriptive statistical approach was taken to summarize the data.

4.7.1. Cognitive Interview

The cognitive interview was conducted with all of the participants. During the cognitive interviewing, both thinking aloud and verbal probing were implemented using general probes. Although it included a few pre-planned probes, most of the cognitive interview was conducted using spontaneous probes. The questions focused on how the parent/caregiver came to give a specific answer, what the specific question means to them, and how they would word it.(28,29)

Some of the probs include

- Why did you choose to answer that?
- Is there anything you think should be added to the questions or anything to be corrected?
- What word would you use to ask that question?
- Who would you recommend this questionnaire to?

4.8. Measures

4.8.1. Socio-demographic

To collect data on the socio-demographic status (age, sex, education level) of the parents/caregivers and children, a structured checklist was developed and implemented.

4.8.2. Feedback Checklist for Experts and Parents/Caregivers

A checklist was developed to gather feedback from experts and parents/caregivers on the clarity, ease of use, and acceptability of the Amharic Global Open Access Screening and Diagnostic Tool for Autism.

4.8.3. OSSDx ST

The Global Open Access Screening and Diagnostic Tool for Autism (OSSDx) is an autism screening and diagnostic tool that is currently under development. It is a tool that is being developed with a target population of children between the ages of 2-9 living in African countries. It was developed for parents/caregivers to fill out on their own, but if the parent/caregiver does not have enough literacy knowledge, the physician administering the questionnaire can read the questions to the parents/caregivers and fill out their answers.

The screening questionnaire consists of 26 yes or no questions (13 of the questions include an option of “Ever” to address behaviors that were present in the past but not for the past 3 months), focusing on the major domains impacted in ASD (communication, relationships, behaviors, and social interests). the questions are divided into two domains (1, social communication and relationships; 2, Behaviors, routines, and interests). Afterwards, the answers (Yes, No, or Ever) will be added in a combined score for sections A and B, following the number given in each box.

4.9. Ethical Considerations

Ethical approval was obtained from the Psychiatry department, College of Health Sciences of Addis Ababa University, and the selected private hospitals and facilities. Participants in the research were asked for written informed consent and were also informed of the study's purpose, methodology, possible risks and benefits, and their ability to withdraw at any time. They were guaranteed the confidentiality of their data.

Chapter Five

MAIN FINDINGS

5.1. Participants' sociodemographic characteristics

This study included a total of 30 participants: 17 parents/caregivers of children between the ages of 2-9 with ASD diagnosis or suspected developmental disorder, 7 experts for panel review during the translation process, and 6 experts to review the tool for content validity. Among the parents/caregivers, 14 (82%) of the participants were Female. The mean age of the participants was 33.94 years, with an age range of 20 – 45. 12% (2) of the participants have only learned up to grade 9, while the majority(5) of the participants are degree holders.

Most of the participants(88%) are married, and 16 (94%) of the participants reside in Addis Ababa. 41%(7) of the participants are housewives, while 35%(6) are currently employed. Out of the 17 participants, 11 of the parents/caregivers have children who were already diagnosed with ASD, while the remaining 6 do not have an official diagnosis yet. The participants had children aged from 8 to 2 years and a mean age of 5 years. 5 of the children were female, while 12 of them were male.

A panel of seven experts was involved in evaluating the accuracy and quality of the translated version of the OSSDx. The panel consisted of 3 males and 4 females who are bilingual experts with years of experience in child and adolescent psychiatry, psychometrics, clinical and counseling psychology, and child development.

Another group of experts were also invited to review the translated version of the OSSDx and asses the content validity of the tool. It consisted of 6 experts(2 females and 4 males) from various fields of profession. Among the reviewing experts, 4 are bachelor's degree holders with an average of 4.25 years of experience, while the remaining 2 experts are master's degree holders with each having around 3 years of experience.

5.2. Translation process

Throughout the discussion, experts looked at each item carefully and came to an agreement after a careful analysis. Most of the changes made throughout the meeting include:

- Linguistic Equivalence:- Certain terms had no direct equivalents. E.g., 'obsessions', 'emphatic gestures'
- Cultural Relevance:- Some of the questions and examples were modified to use culturally appropriate and relevant wordings.
- Gender Sensitivity:- The original language was neutral, but it was changed to use gendered terms such as 'he' or 'she' for all items.

During the adaptation process, several items were revised to ensure cultural relevance, conceptual clarity, and inclusivity. Below are selected examples that illustrate the rationale behind specific modifications:

Item 9

Original:" frown when confused or glare at you when they are angry"

Revised Translation: ግራ መጋባት ወይም ሲናደዱ መኮሳተር

Rationale: it was difficult to find an exact word for "frowning when confused" in Amharic, as being confused" ግራ መጋባት " is used to describe the emotion, and "glaring when angry" is not a commonly used expression, especially for children in Ethiopia, so it was revised to "ሲናደዱ መኮሳተር" a word similar to frowning when angry.

Item 10

Original: emphatic gestures, swimming, using their hands as emotional beats

Revised Translation: የሌሎችን ስሜቶችን መረዳቱን/መረዳቷን የሚያሳዩ ምልክቶችን, መሰናበት, ሌሎች ህጻናት ሲያለቅሱ ሄዶ እምባቸውን መጥረግ

Rationale: The word emphatic gestures was changed into a more descriptive word "የሌሎችን ስሜቶችን መረዳቱን/መረዳቷን የሚያሳዩ ምልክቶችን, " as we couldn't find a specific word, the word swimming was replaced with a word describing the action of farewell "መሰናበት", the phrase

“ using their hands as emotional beats “ was replaced with a gesture describing of the child wiping the tears of other children” ሌሎች ህጻናት ሲያለቅሱ ሄዶ እምባቸውን መጥረግ”

Item 13

Original: For example, do they ask personal questions or make personal comments at awkward times, not understand personal space, or be overly affectionate with strangers?

Revised Translation: ከማያውቁት ሰው ጋር ያልተገባ ቅርርብ መኖር

Rationale: The example on the item seemed to be culturally irrelevant and linguistically inequivalent, as it is common for children under the age of 6 or 7 to ask personal questions or make personal comments and misunderstand personal space. So, through discussion, it was concluded to try to make the example age-specific if possible and to leave it as a question to be assessed during the cognitive interview.

Item 14

Original: Play a variety of pretend games with other children in such a way that you can tell that they each understand what the other is pretending.

Revised Translation: ከሌሎች ልጆች ጋር የተለያዩ የማስመሰል ጨዋታዎችን ይጫወታል/ትጫወላለች? እርሶ ልጆ ጨዋታው እንደገባው በሚረዱበት መልኩ?

Rationale: The question on the item was difficult to translate into a one-sentence question, so it was divided into two questions, with the first asking if the child plays pretend games and a follow-up question asking if the parent can understand if the child understood the roles others are playing in the game.

Item 23

Original: obsessions, bicycle wheels, or vacuum cleaner

Revised Translation: ለነገሮች ልዩ ቁርኝት ወይም ዝምድና, የቤት ውስጥ እቃዎች እንደ ድስት/ሰሃን ባሉ ነገሮች

Rationale: The word “obsession” was found to be difficult to translate to Amharic; as a result, words describing the action were used. The examples on the item were not found to be culturally relevant, so it was changed to items found commonly within any household, like plates or pots.

Item 24

Original: unusual in their intensity

Revised Translation: ድርጊቱን የሚያደርግበት/የምታደርግበት ልክ ወይም በድርጊቱ የሚያጠፋው/የምታጥፋው ጊዜ ያልተለመደ

Rationale: to fully capture the intended meaning behind the phrase" unusual in their intensity," a descriptive phrase was used in the translated version by trying to describe its uniqueness by amount and time spent.

5.3. Face validity

To assess face validity, 17 participants(parents/caregivers) completed a yes/no checklist after reviewing the translated version of the OSSDx. The participants were first asked to fill out the adapted OSSDx and afterwards the yes/no checklist. The cognitive interview was conducted during and after filling out the checklist.

The checklist consisted of 3 main domains: clarity of the tool, acceptability, and ease of use. Each domain contained 3 questions. During interview 2 of the participants were not literate; as a result, the checklist was completed with the assistance of the researcher. Below is a table consisting of the questions with the number of participants who answered yes/no, respectively.

Domain	Questions	Yes(n)	No(n)
Clarity of the tool	1. Were the instructions easy to follow?	17	0
	2, Did you understand all the questions without needing additional explanation?	13	4
	3, Were any words or phrases confusing or unclear?	2	15
Acceptability	1, Did the tool feel relevant to your child's behavior and development?	16	1

	2, Were there any questions that made you uncomfortable or emotional?	5	12
	3, Would you recommend this tool to other parents?	16	1
Ease of Use	1, How easy was it to answer the questions?	11(very easy)	6(easy)
	2, Did it take too long to complete?	3	14
	3, Would you be able to complete it on your own without help?	14	3

Key Findings

From the gathered information, all of the participants(100%) reported having found the instructions easy to follow. The results from the cognitive interview also showed a general agreement that the instructions of the questionnaire were found to be clear and easy to follow. For example, one participant stated that she did not have any difficulty in completing the questionnaire as the instructions were clear and she could follow them easily.

> *P01 " …. the questions and instructions were very easy to follow. And the examples made it clearer."*

Among the participants, 76% reported that they were able to understand the questions without needing further explanations, with the reason being that all the behaviors and symptoms listed were what they had been seeing in their children, and the examples also made it much simpler to understand.

While 24% of the participants needed additional explanations. On the contrary, another parent mentioned that although the questions were clear, some of them might need further explanation in order to be on the same page as the physician.

> *P07 “.... it's not that the questions were confusing on their own, it's just that I wanted to be clear if what I understood is the same as what you are trying to ask.”*

When asked if any questions were confusing and unclear, 88% of the participants answered no, while 12% reported that they indeed found some of the questions confusing. One of the parents stated that he chose to answer yes to some of the questions, like #13,#23, and #24 were a bit confusing and needed more clarification.

94% of the participants reported that they found the questions relevant to their child's development and behavior. 6% of the participants mentioned that although the questions looked quite relevant, they reported that they did not have many questions related to their child.

> *P10 “.... the questions listed here look good and seem appropriate, but there are not many questions related to my child because my child has only speech delay, so I don't think it's relevant to my child's behaviour.”*

Among the participants, 30% found some of the questions to be distracting and uncomfortable. They stated that reading these questions reminded them of their children, and it made them feel uncomfortable. Out of the 5 participants, three of them reported that although they don't find the questions on the tool offensive, it was a reminder that their children are living with autism. The remaining two participants reported that the questions were like a reminder of the past when she thought the child's behaviours were common with every child, and that they would grow out of it as they grow up.

> *P06 “...reading the questions, some of them are behaviours that I used to see a lot a few years back, and I used to think that they were normal behaviours that every child has, and I thought he would stop them when he grows up. Due to that believe I didn't*

get him treated earlier. Remembering those things now makes me a bit uncomfortable."

On the contrary, 70% of the participants stated that they were very comfortable answering the questions and they did not find them distressing at all.

Among the participants, 94% stated that they would recommend the questionnaire to other parents because they found it to be very helpful and relevant. Most of the participants mentioned that besides its intended use, they also found it to be helpful to gain more insight into their children's behaviors.

P04 "... I found the questions more useful because besides it being helpful in the clinics, it helped me to notice and pick up on my son's behaviour more."

65% of the participants reported having found it to be very easy to answer. While the remaining 35% stated that it was not hard, it was not very easy either. They reported that a few questions required re-reading, and most of the questions also require full concentration because they might be interpreted or understood in the wrong way.

P04 "...some of the questions need you to take a pause and think before answering. For example #13, I need to take time and remember if my child does this, and what things would be considered inappropriate. I also need to make sure that my son hasn't shown that behaviour during the times I am not around, as I work a full-time job and won't be around the whole day."

A few of the participants(18%) noted that the questionnaire was time-consuming. They reported that they needed time to understand the questions correctly and suggested that it would be more accurate and beneficial if the parents got to take it home and fill it out before bringing it to their next appointment. The participants stated that most parents/caregivers might not notice some of the behaviors listed in the questionnaire, so taking it home might help them take more notice and fill out the questionnaire more accurately.

P06 "... I spend most of my time at work, so I might not know some of the behaviours asked here. it could take me a while to remember if the child has ever had this behaviour or not. And on top of that, having to complete this in a short time to get to my other appointments might lead me to choose an option that might look pleasing. What I am trying to say is that parents might need to take their time to complete the questionnaire."

The majority of the participants(82%) reported that they could complete the tool independently. the remaining 18% reported that although they could have completed the tool independently, they would need someone to read and explain the questionnaire for them, as Amharic was not their first language.

When asked for overall observation and suggestion, some of the participants suggested adding an option of "partially " besides the options of "yes", "no", and "never", as most of the symptoms they notice in their children vary in frequency.

P03 "... from the behaviours listed within the questions, my daughter does some of them more often, while the others only once in a while. For example, for the question on #22, I have only seen her distressed once, so it's conflicting whether I should answer 'yes' or 'no'."

Another participant also mentioned that some of the examples given in the questions might create confusion, as they were things that not everyone within that age range could do.

P08 "... for example, the example on question #14 lists types of games that my child has never played before, she is only 2 and 10 months, so I am not sure how to answer the question. Maybe changing the game type to something more relevant to her might help, like playing with a ball or playing with toys."

The possibility of adding additional behaviors and examples was also suggested as an alternative. A few participants reported that although most of the common behaviours and symptoms are included within the questionnaire, there are still some that are missing, and

adding them might help in making the tool stronger. As an example, behaviors like wanting everything to be as they want or say were mentioned.

Furthermore, the integration of additional examples was suggested as a solution to some of the confusion encountered while completing the questionnaire. Some participants explained that most of the examples, especially the games listed, are not usually played by all the children within the given age range. As a result, adding simpler games such as playing with a ball or toys was proposed.

These data support the tool's general acceptability and face validity, while also suggesting and highlighting points for improvement.

Another important factor noted by the researcher was the time it took for the participants to fill out the tool.

Participants ID	Time Taken (minutes)	Notable comments
P01	13	Found all the items clear and easy to understand
P02	7	Found it easy because all the behaviors are seen in their child
P03	11	Suggested the addition of a choice ”partially” to get the correct intensity
P04	8	Stated that the tool might be difficult for parents filling for the first time
P05	9	Struggled with items 13 and 23 and asked for clarification on what the question was asking

P06	8	Found all items clear
P07	11	Struggled with items 13, 23, and 24 and asked for extra explanation
P08	15	Took extra time re-reading the questions and asked for an explanation for item 13
P09	13	No confusion; completed without difficulty
P10	8	Completed independently without assistance
P11	14	Found the examples helpful and detailed
P12	13	Filled the questionnaire with the assistance of the researcher due to language difficulty(Amharic was not the mother language)
P13	19	Filled the questionnaire with the assistance of the researcher, guardian of the child
P14	10	Found the tool relatable and useful
P15	12	Understood all items; completed without assistance
P16	4	Quick completion; found it easy and clear to understand
P17	6	Found the tool relatable

The above table summarizes the time taken by 17 participants to complete the Amharic OSSDx. On average, participants completed the questionnaire in 10.65 minutes (SD=3.72), with individual completion times ranging from 4 to 19 minutes.

From the data gathered, most of the participants struggled with understanding items 13 and 23. The question on Item 13 tries to ask whether the child does or says things that are

socially inappropriate or insensitive. Most participants reported confusion and asked what type of things the researcher was referring to when asking the questions. One participant reported that various things could be considered inappropriate/insensitive when it comes to children.

> *P08 "... These things are usually different for each family. For example, my daughter does not show this kind of behavior, but I see that kind of behavior in other children who are completely normal. What I am trying to say is that this kind of behaviour varies in every child. If the child is not disciplined at home, he might behave inappropriately outside. But that won't have anything to do with autism. Plus, the age of the child also varies. So maybe adding a detailed example while considering the possibility of the child doing it or considering the age would make this much easier."*

Another item that required additional explanation was item 23. Participants reported that the words "ልዩ ቁርኝት ወይም ዝምድና ", which were words used to describe obsession and unusual interest, were confusing. Participants mentioned that those words were not commonly used in day-to-day life, as they would describe those behaviors in detail by the actions involved, rather than using one word to describe them. The participants stated that a physician being available to describe would be a much better solution, as they couldn't come up with an alternative wording.

5.4. Content validity

Experts completed a yes/no checklist after reviewing the adopted questionnaire. The checklist included 3 domains: clarity of the tool, acceptability, and ease of use.

Domain	Questions	Yes(n)	No(n)
Clarity	1, Are the questions easy to understand for both professionals and caregivers?	6	0
	2, Are the instructions clear and easy to follow?	6	0

	3, Are there any terms that may be confusing or need further explanation?	3	3
Acceptability	1, Do you think caregivers will feel comfortable using this tool?	6	0
	2, Does the tool align with local cultural norms and beliefs about child development?	6	0
	3, Are there any concerns about caregiver resistance or emotional distress when answering certain questions?	1	5
Ease of use	1, Is the tool easy to administer in a clinical or community setting?	6	0
	2, Does the tool require additional training for professionals to use effectively?	1	5

Key Findings

All of the experts reported that they found the questionnaire easy to understand for both professionals and parents/caregivers and that the instructions were clear and easy to follow. they also reported that the questions align with the norms and beliefs of the local culture.

Most of the experts stated that most of the questions are quite similar to what they ask during clinical assessments, and the way those symptoms are worded and phrased makes them easy for others to understand. They also mentioned that the examples make it easier and simpler to understand.

Half of the participating experts suggested that some terms may be confusing and might need further explanation. The experts raised that issues like Amharic not being the mother

tongue for some parents can cause confusion and would need a physician to explain to them, as the result might not be accurate.

17% of the experts report the likelihood of caregiver resistance or emotional distress. They reported that some parents don't accept the possibility of their child being diagnosed with ASD, so they might deny some of the symptoms, believing that most of their child's behaviors are the same as other children. One expert noted that from her experience, some parents don't have the possibility of ASD in their mind when they come, so she would sometimes encounter parents stating that their child doesn't exhibit some of the behaviors, and would even get upset for being asked.

Among the participating experts, 17% suggest the need for additional training for the professional helping the parent fill out the questionnaires. They reported that even though they might not need a special course or training, physicians must have sufficient knowledge of ASD and how to handle parents and caregivers.

Chapter Six

DISCUSSION

The adaptation of the OSSDx into Amharic for use in clinical settings as an ASD screening tool for children between the ages of 2-9 was undertaken through a structured feasibility study with the focus on evaluating both the content and face validity. The aim of this pilot study was not only to translate and adapt the OSSDx but also to harness the potential of mixed methods for developing comprehensive and nuanced understandings about the feasibility before proceeding towards a full psychometric validation. Using a convergent parallel mixed-methods approach, this study collected both qualitative and quantitative data at the same time to have a better understanding of how parents/caregivers and experts assess the tools' acceptability and fitness within the local language and culture.(30)

The quantitative data were gathered from 17 parents/caregivers who rated the adapted version of the OSSDx using a yes/no checklist across domains such as clarity, acceptability, and ease of use. The findings from the quantitative data gathered, the majority of the participants rated the tool as clear, relevant, acceptable, and easy to use. For example, over 88% of the participants found the tool clear in terms of instructions and overall understanding, while the remaining 12% noted difficulty in clearly understanding it without explanation and encountering confusing phrases. Similarly, 86% of the participants reported that the tool is acceptable in terms of relevance or comfort, and over 77% suggested that the tool was easy to use.

To complement the quantitative findings, cognitive interviews were conducted with the participants by implementing both thinking aloud and verbal probing. The cognitive interviews included both planned and spontaneous probes, such as the challenges they faced while completing tasks or how they interpreted specific questions. during the cognitive interview, participants were asked about their overall understanding of the tool and were asked to explain their thoughts while filling out the checklist. The qualitative insights provided detailed information, especially on the reasons behind their choices on the checklist. For instance, although most of the participants reported that the tool was

easy and clear to understand, around 12% stated that the tool might require further explanation, the reason being that they might interpret the question asked differently from what the physician is trying to ask. For example, when asked whether the child responds to their name, some caregivers understood this in terms of discipline or obedience rather than as an indicator of social-communication skills. The participants reported that this kind of misunderstanding might lead to less accuracy in the results. The cognitive interview also provided more clarification on questions raised during the expert meeting for the translation process.

The expert review further supported these observations. six subject experts evaluated the tool using a similar checklist focusing on the validity of the tool's contents. The quantitative findings of the expert review showed a close similarity with the findings from the responses of the parents/caregivers. For instance, 94% of experts reported that the adapted version of the OSSDx appears to be acceptable and easy to use, and 83% suggested that the tool has clear instructions and questions. The remaining 17% stated that some of the terms might be confusing for parents/caregivers and might need further explanation. They suggested that the tool would have better accuracy if it were implemented by an expert or professional in the subject matter.

During the translation process, questions 13, 14, 23, and 24 were raised as questions that might raise confusion and misunderstanding for parents/caregivers and were included during the cognitive interview as planned probes. 4 of the participants expressed confusion over the meaning behind question number 13 and asked for further explanation. Similarly, question number 23 has also raised some confusion, and participants required further clarification. Besides the two questions mentioned above, participants were able to answer the remaining questions. The majority of the participants finished the questionnaire within 8 to 13 minutes, indicating that the tool is generally quick to administer. However, items 13 and 23 were frequently reported as requiring extra time or clarification, aligning with the results from both quantitative and qualitative findings.

Overall majority of the participants stated that the tool appeared to be easy to use and was clear and acceptable to the local culture and beliefs. The results gathered from both

content and face validity indicate that the Amharic version of the OSSDx appears to be a high and contextual face valid. However, it is still in need of an additional revision and further validation before use.

While many screening tools for autism are increasingly used in various contexts, most studies limit the cultural adaptation to basic translations without addressing the cultural constructs or psychometric properties. This lack of deeper, comprehensive adaptation leads to concerns surrounding the feasibility and effectiveness of these tools in non-English speaking contexts. Even though the reviewed studies had shown that basic screening is practical, a long-term integration into standard practice remains unsupported. These findings affirm the urgent need for better formal adaptation procedures and refined feasibility assessments to avoid ineffective implementations (7)

The findings in this study show that while the adapted OSSDx was overall perceived as relevant and understandable, a considerable number of participants highlighted difficulties in comprehending certain items, Which indicates a possibility of having important implications since having a high face validity is not only crucial for guaranteeing the quality of the collected data but also the overall experience of the respondents. If a questionnaire appears more relevant and meaningful to participants, it is more likely to generate accurate and thoughtful responses.(31) In this study, content and face validity were critical initial steps in evaluating the adapted questionnaire. Expert reviews helped ensure that the key constructs were adequately translated into Amharic, confirming its conceptual relevance and content validity of the tool, though minor concerns regarding clarity were raised. Following this, Caregiver feedback during cognitive interviews provided insight into face validity, confirming that most items were interpreted as intended. The face validity assessments revealed that while most participants found the tool understandable and relevant, some struggled with certain terms and item clarity. This reinforces the importance of establishing content validity first to ensure theoretical alignment and then refining the instrument through face validity to enhance clarity, cultural relevance, and participant engagement before full-scale data collection.(32)

Chapter Seven

Strengths and Limitations

Strengths of the Study

The most prominent strength of this study is its use of a convergent mixed methods design that allowed the study to not rely solely on numerical ratings but rather include and capture the experiences, personal interpretations, and understandings of the participants through cognitive interviews. The integration of these two findings through triangulation strengthened the interpretive validity of the study and provided a more dimensional and richer understanding of the tool's performance.

In addition, the use of cognitive interviews serves as a methodological strength by itself. By giving the participants an option to voice their thoughts as they fill out the questionnaire, the study was able to look for and get deeper information on the language clarity, emotional impact, and cultural relevance that could have gone unnoticed through a structured checklist.

Furthermore, the study adapted the tool with attention to local language and cultural context, which makes it more likely to be acceptable and practical for parents and caregivers.

Limitations of the Study

Despite its strengths, this pilot study also has several limitations that must be acknowledged. To begin with, the researcher has taken note of the small sample size, although it is acceptable for a pilot study, it limits the statistical generalizability of the results. having a larger and more diverse sample is essential in the subsequent phases to ensure that the adapted OSSDx performs consistently across different contexts and subgroups. In addition, the experts' review assessed the tool as a whole rather than evaluating each item individually, making it impossible to calculate item-level content validity index(I-CVI).

Another limitation is associated with the sampling strategy and potential selection bias. Participants were selected primarily from private hospitals and facilities, which may have left out parents/caregivers from lower socioeconomic backgrounds or those without access to private healthcare services. This limitation is further intensified by the fact that most of the parents/caregivers who participated had children who were already diagnosed with ASD, which means that their responses may differ from those of parents/caregivers who are unfamiliar with the diagnostic process. The lack of a formal pretest before the main data gathering might also form a methodological gap.

Finally, this study focused mainly on evaluating the face and content validity of the tool, leaving out the remaining psychometric properties like construct validity, reliability, and internal consistency unexplored.

Chapter Eight

Conclusion

The main objective of this study was to adapt the OSSDx into Amharic and pilot it at selected hospitals and facilities. This study aimed to adapt and asses the face and content validity of the OSSDx which is intended to be used as a screening tool for ASD for children between the age of 2-9. Using a mixed-methods design, the study was able to integrate quantitative feedback from a structured yes/no checklist and qualitative data from cognitive interviews from both parents/caregivers and experts. This approach provided a complete picture of how well the tool worked in terms of clarity, relevance, cultural fit, and emotional impact.

The findings showed that most parents/caregivers found the adapted OSSDx relevant to their experiences, clear in overall structure, and not excessively burdensome in terms of time or complexity, easy to follow, and acceptable. Experts also agreed that the tool covered the necessary domains of construct. The results overall indicate that the tool demonstrates encouraging preliminary indicators of face and content validity.

However, the study also surfaced important limitations. Some parents/caregivers had reported coming across some difficulties understanding certain terms. Experts, meanwhile, expressed that although some parents will be able to fill out the questionnaire, most parents might require the guidance of a physician who is knowledgeable about the subject. The data from the cognitive interviews helped explain why certain questions were difficult or confusing. This part of the study showed that some words were unfamiliar, and a few caused confusion. These insights were critical because they showed that even if most participants answered “Yes” to basic questions about clarity or relevance, there were still important details that needed improvement.

Overall, this study confirmed that the tool is promising but also needs revision. while it is suitable for continued development and future validation, the issues identified must be addressed to make the questionnaire easier to understand and effective across diverse populations.

Recommendation

Based on the findings of this study, several necessary recommendations are suggested to help guide the next steps in adapting and validating the OSSDx.

- The results from the pilot study indicate that several items of the tool contain difficult or abstract phrasings unfamiliar to some caregivers. The researcher recommends that the wordings and phrasings of these items should be revised by using a simpler and socially understandable everyday language without losing its intended meaning. additionally, it is recommended to consider including a brief introduction or explanation in the questionnaire to prepare participants for content that might make them sensitive or uncomfortable.
- After the necessary revisions are made, it is recommended to conduct a full psychometric validation study using a larger and more diverse sample. Including participants with and without prior diagnoses would provide a more representative understanding of how the tool is interpreted by different subgroups. Assessing additional properties of the tool, such as the Internal consistency, its test-retest reliability, the construct and criterion-related validity.
- Including participants from different regions, education levels, and socioeconomic backgrounds, and recruiting caregivers from both public and private health or education settings, makes the findings more applicable and avoids bias from only one group.
- In future assessments of face and content validity, it is recommended to consider using a Likert-type scale, which will allow more nuanced feedback about the clarity, relevance, and difficulty of each item.
- Maintaining the expert and parent/caregiver involvement throughout future developments is also highly recommended.

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APPENDIXES

Annex I

Informed Consent

My name is Nardos Teklemariam. I am a second-year clinical psychology trainee at Addis Ababa University. I am conducting research titled “Adaptation and Pilot testing of The Amharic Global Open Access Screening and Diagnostic tool for Autism (OSSDx): Feasibility study”. You are invited to participate in a research study that aims to adopt the Global Open Access screening and diagnostic tool into the Amharic language.

Purpose of the Study: The purpose of this study is to ensure that the screening tool is culturally relevant and accurate for use in Ethiopia, specifically for children between the age of 2-9. By participating in this study, you could contribute to the adoption of an ASD screening tool, which will be very helpful in the identification and early treatment of ASD.

Procedures: If you agree to participate, you will be asked to complete the OSSDx in Amharic. This will involve responding to a series of questions about your child’s behavior, The questionnaire will take approximately 20-30 minutes to complete. After completing the questionnaire, a checklist will be provided regarding the questionnaire, and the researcher will voice record to gather any supplementary information, which will be permanently deleted afterwards.

Voluntary Participation

If you are eligible for this research, you will be asked for your consent to participate in this study. Your participation in this research is on a voluntary basis. You have the right to refuse participation in the study. You can also withdraw from the study at any point during the data collection period. If you decide not to participate, there will be no negative consequences to you.

Risk and Benefits of Participation: There are no known risks associated with participating in this study. There are also no direct benefits to participating in this study. However, your participation may contribute to the development of a culturally adapted tool for screening ASD in Ethiopia. This could help improve the accuracy of ASD diagnosis and potentially lead to better outcomes in early identification and diagnosis for children in the community.

Confidentiality: All information collected in this study will be kept confidential. Your name will not be used in any reports or publications. Only the principal investigator and the research team will have access to your data.

Right to Withdraw: You have the right to withdraw from this study at any time without penalty. If you decide to withdraw, you can simply stop participating and no further data will be collected from you.

If you would like to get more information about the study or have any concerns, please contact the primary investigator

Nardos Teklemariam:- +251 930897832

Email- nardime766@gmail.com

Addis Ababa University, Department of Psychiatry Clinical Psychology Program, +251-118962052

If you are willing to participate in the study, you will be given a copy of the information sheet and you will be asked to sign an informed consent form.

Annex II

Informed Consent Form

I have read and received information and understood the information provided about the research, procedure, risks, benefits and that participating in the research will not affect me. I am informed that the researcher will ensure my confidentiality. I consent to participate voluntarily in the research “Adaptation and Pilot testing of The Amharic Global Open Access Screening and Diagnostic tool Autism Screening Tool(OSSDx): Feasibility Study”

Participant's Signature _____ Date _____

Annex III

Socio-demographic Information

Date: _____

Thank you for agreeing to participate in this study.

Demographic Information: For parents or primary caregivers

- **Age: _____**
- **Gender:**

  ☐ Male **☐ Female**

- **Place of Residence:**

  ☐ Addis Ababa **Other:_____**

- **Religion:**

  ☐ Orthodox **☐ Muslim** **☐ No religion**

  ☐ Protestant **☐ Catholic** **Other: _____**
- **Educational Level:**

  ☐ No formal education **☐ Secondary school** **☐ Degree**

  ☐ Primary school **☐ Diploma** **☐ Master's/PhD**
- **Marital Status:**

  ☐ Single **☐ Married** **☐ Divorced** **☐ Widowed**

- **Employment Status:**

  ☐ Employed **☐ Self-employed** **☐ Retired**

  ☐ Unemployed **☐ Student** **Other: _____**

B. Demographic Information: For child

- **Age: _____**
- **Gender:**

☐ Male **☐ Female**

- **Educational Level:**

☐ Preschool/Nursery **☐ Homeschooled**

☐ Primary (Grades 1–4) **☐ Not in school yet**

Sociodemographic Checklist for Experts

Please fill out the following information:

1. **Age:** _____

2. **Gender:**

☐ Male ☐Female

3. **Highest Educational Qualification:**

☐ Bachelor's Degree ☐ Ph.D./Doctorate

☐ Master's Degree ☐ Other: _____

4. **Field of Expertise:** _____

5. **Current Job Title/Role:** _____

6. **Years of Professional Experience:** _____ years

7. **Work Setting:**

☐ Government ☐ Academic Institution

☐ NGO ☐ Other: _____

☐ Private Practice

8. **Have you worked with caregivers/parents before?**

☐ Yes ☐ No

9. **Have you been involved in tool development or evaluation before?**

☐ Yes ☐ No

በመረጃ የተደገፈ የስምምነት ቅጽ

መረጃውን አንብቤ ተረድቼ ተቀብያለሁ እናም ስለ ምርምሩ ፣ሂደቱ ፣አደጋው ፣ጥቅሞቹ እና በምርምሩ ውስጥ መሳተፌ ምንም አይነት ጉዳት እንደማይደርስብኝ አንብቤ ተረድቻለሁ። በመጠይቁ ተመራማሪዎቹ ሚስጥራዊነቱን እንደሚጠብቁልኝ ተነግሮኛል። በምርምሩ ላይ በፈቃደኝነት ለመሳተፍ ተስማምቻለሁ::

የተሳታፊ ፊርማ_____ ቀን _____

ቀን_____

በዚህ ጥናት ለመሳተፍ ፍቃድኛ ስለሆኑ እናመሰግናለን !

ሀ. ግላዊ መረጃ (ለቤተሰብ ወይም ለአሳዳጊ)

- እድሜ: _____
- ጾታ:

ወንድ ☐ ሴት ☐

- የሚኖሩበት አካባቢ:

☐ አዲስ አበባ ☐ ጎንደር ሌላ: _____

☐ ባህር ዳር ☐ ሀረር

- ሀይማኖት:

☐ ኦርቶዶክስ ☐ ሙስሊም ☐ ሃይማኖት የለኝም

☐ ፕሮቴስታንት ☐ ካቶሊክ ሌላ: _____

- የትምህርት ደረጃ:

☐ አልተማሩም ☐ ከፍተኛ ትምህርት ☐ ዲግሪ

☐ መጀመሪያ ደረጃ ☐ ዲፕሎማ ☐ ማስተርስ/ዶክቴሬት

- የትዳር ሁኔታ:

☐ ያላገባ/ች ☐ የፈታ/ች

☐ ያገባ/ች ☐ ባል/ሚስት ሞተ/ች

- የስራ ሁኔታ:

☐ በሥራ ላይ ☐ የራሴ ሥራ ☐ እረፍት ያደረግ/ች

☐ አልሠራም/የቤት እመቤት ☐ ተማሪ ሌላ: _____

ለ. ግላዊ መረጃ (የልጅ – ከ2 እስከ 9 ዓመት)

- እድሜ: _____
- ጾታ:

☐ ወንድ ☐ ሴት

- የትምህርት ደረጃ:

☐ መዋለ ህፃናት ትምህርት

☐ መጀመሪያ ደረጃ (ከፍል 1–4)

☐ በቤት የሚማሩ

☐ አልገቡም

☐ ሌላ: _____

Annex IV

Feedback Checklist for Experts and Parents/Caregivers

A. Checklist for Experts

1. Clarity of the Tool

- ✓ Are the questions easy to understand for both professionals and caregivers? (Yes/No)
- ✓ Are the instructions clear and easy to follow? (Yes/No)
- ✓ Are there any terms that may be confusing or need further explanation? (Yes/No)
- ✓ If yes, which terms need clarification? _____

2. Acceptability

- ✓ Do you think caregivers will feel comfortable using this tool? (Yes/No)
- ✓ Does the tool align with local cultural norms and beliefs about child development? (Yes/No)
- ✓ Are there any concerns about caregiver resistance or emotional distress when answering certain questions? (Yes/No)
- ✓ If yes, what changes would make it more acceptable? _____

3. Ease of Use

- ✓ Is the tool easy to administer in a clinical or community setting? (Yes/No)
- ✓ Does the tool require additional training for professionals to use effectively? (Yes/No)
- ✓ Is the scoring system simple and easy to interpret? (Yes/No)
- ✓ If no, what improvements can be made? _____

B. Checklist for Caregivers/Parents

1. Clarity of the Tool

- ✓ Were the instructions easy to understand? (Yes/No)
- ✓ Did you understand all the questions without needing additional explanation? (Yes/No)
- ✓ Were any words or phrases confusing or unclear? (Yes/No)

If yes, which ones? _____

2. Acceptability

- ✓ Did the tool feel relevant to your child's behavior and development? (Yes/No)
- ✓ Were there any questions that made you uncomfortable or emotional? (Yes/No)
- ✓ Would you recommend this tool to other parents? (Yes/No)
- ✓ If no, what improvements would make it more acceptable? _____

3. Ease of Use

- ✓ How easy was it to answer the questions? (Very Easy / Somehow Easy / Difficult)
- ✓ Did it take too long to complete? (Yes/No)
- ✓ Would you be able to complete it on your own without help? (Yes/No)
- ✓ If no, what made it difficult? _____

Amharic Version of Feedback checklist for Parents/Caregivers

ለወላጅ/አሳዳጊ

1. የመሳሪያ ግልጽነት

- ✓ መመሪያውን ለመረዳት ቀላል ነበረ? (አዎ / አይ)
- ✓ ተጨማሪ ማብራሪያ ሳይሹ ሁሉንም ጥያቄዎች ተረድተዋል? (አዎ / አይ)
- ✓ ግራ የሚያጋቡ ወይም ግልጽ ያልሆኑ ነገሮች ነበሩ? (አዎ / አይ)
- ✓ አዎ ከሆነ, የትኞቹ ናቸው? _____

2. ተቀባይነት

- ✓ መሣሪያው ከልጅዎ ባህሪ እና እድገት ጋር የሚገናኝ ነው ? (አዎ / አይ)
- ✓ ምቾት እንዳይሰማዎት ወይም ስሜታዊ የሚያደርጉ ጥያቄዎች አሉ? (አዎ / አይ)
- ✓ ይህንን መሣሪያ ለሌሎች ወላጆች ይመከራሉ ? (አዎ / አይ)
- ✓ አይ ከሆነ, የበለጠ ተቀባይነት እንዲኖረው ምን ማሻሻያ ያስፈልገዋል? _____

3. የአጠቃቀም ቀላልነት

- ✓ ለጥያቄዎቹ መልስ ለመስጠት ቀላል ነበር? (በጣም ቀላል / በተወሰነ ቀላል / ከባድ)
- ✓ ለማጠናቀቅ በጣም ረጅም ጊዜ ወስዷል? (አዎ / አይ)
- ✓ ያለ እገዛ በእራስዎ ማጠናቀቅ ትችል/ይ ነበር? (አዎ / አይ)
- ✓ አይ ከሆነ, አስቸጋሪ እንዲሆን ያደረገው ምንድን ነው? _____

ለባለሞያዎች የተዘጋጀ ማረጋገጫ ዝርዝር

1. የመሣሪያው ግልጽነት

✓ ጥያቄዎቹ ለባለሞያዎችና ለእንክብካቤ ሰጪዎች/ወላጆች ለመረዳት ቀላል ናቸው? (አዎ/አይ)

✓ መመሪያዎቹ ግልጽና ለመከተል ቀላል ናቸው? (አዎ/አይ)

✓ ሊያምታቱ የሚችሉ ወይም ተጨማሪ ማብራሪያ የሚፈልጉ ቃላት አሉ? (አዎ/አይ)

✓ አዎን ከሆነ፣ የማብራሪያ የሚፈልጉት ቃላት የትኞቹ ናቸው? _____

2. ተቀባይነት

✓ እንክብካቤ ሰጪዎች/ወላጆች ይህን መሣሪያ ሲጠቀሙ/ሲሞሉ ምቾት ይሰማቸዋል? (አዎ/አይ)

✓ ይህ መሣሪያ ከአካባቢው ባህልና እምነቶች ዉስጥ ካለ የልጅ እድገት አስተሳሰብ ጋር ይስማማል ? (አዎ/አይ)

✓ እንክብካቤ ሰጪዎች/ወላጆች ላይ አንዳንድ ጥያቄዎች ሲጠየቁ የመቃወም ወይም ደስተኛ ያለመሆን ስሜት ሊኖራቸው ይችላል? (አዎ/አይ)

✓ አዎን ከሆነ፣ ምን ዓይነት ለውጦች እንዲቀበሉ ያደርጋሉ? _____

3. ቀላልነት

✓ ይህ መሣሪያ በክሊኒክ ወይም በማህበራዊ ማዕከል ለመፈጸም ቀላል ነው? (አዎ/አይ)

✓ ባለሞያዎች ይህን መሣሪያ በትክክል እንዲጠቀሙ ተጨማሪ ሥልጠና ያስፈልጋል? (አዎ/አይ)

✓ ምን ዓይነት ማሻሻያ ሊደረግ ይችላል? _____

Annex V

OSSDx Global Open Access Screening and Diagnostic Tools for Autism Screening Questionnaire

We are going to ask you some questions about your child's communication, relationships, behaviors, routines and social interests. There are 26 questions - please answer each question with YES – if the behavior referred to in the question has been present during the past three months, NO – if the behavior referred to in the question has never been present and EVER – if the behavior referred to in the question was present in the past but has not been seen in the past three months.

A. SOCIAL COMMUNICATION AND RELATIONSHIPS

	yes	no	ever
1,Does [child's name] use someone's hand or other part of their body as a tool to get or use an item instead of using eye contact or words? *For example, would they put your hand on a doorknob to get you to open the door or put your hand on an object that they want?*	**1**	**0**	**1**
2,Does [child's name] initiate social interactions with other children of a similar age? *For example, do they try to get other children of a similar age to play or do things with them?*	**1**	**0**	
3,Does [child's name] respond to social interactions with other children of a similar age? *For example, do they respond when other children of a similar age try to get them to play or do things together?*	**1**	**0**	

4,Does [child's name] keep a two-way interaction going, with sounds, words or gestures? *For example, when you make a sound, do they make sounds back; or when you start a conversation, will they make conservation with you?*	**1**	**0**	
5,Does [child's name] ever spontaneously join in activities or games with others and take different roles in those activities? *For example, without being prompted, would they join in and take on different roles for example playing hide and seek, a clapping game or chasing games?*	**1**	**0**	
6,Does [child's name] appear to join in other people's enjoyment? *For example, do they share in the excitement of special occasions such as birthdays, weddings and holidays?*	**1**	**0**	
7,Does [child's name] share their own enjoyment, interests or achievement with others? *For example, would they get others to join in an activity they are enjoying, without being prompted?*	**1**	**0**	
8. Does [child's name] have the ability to tell how someone is feeling from the look on their face or the tone of their voice? *For example, if you were sad would they know without being told and respond by trying to comfort you?*	**1**	**0**	
9,Does [child's name] have a wide range of facial expressions that allow you to tell from their face how they feel? *For example, do they smile when they are happy, frown when confused or glare at you when they are angry?*	**1**	**0**	
10. Does [child's name] use descriptive, emotional or emphatic gestures? *For example, would they use their hands to describe an action such as brushing teeth or swimming, put their hands on their mouth to show surprise, or use their hands as emotional 'beats'?*	**1**	**0**	

11. Is there anything unusual in the way [child's name] uses their eye gaze? *For example, do they not look at people when you are expecting them to, look very briefly, look out of the corner of their eyes, or stare at people for too long?*	**1**	**0**	**1**
12. Does [child's name] use words or sounds and gestures together at the same time to communicate with others? *For example, would they point in the sky and say something at the same time, like "look there is a bird"?*	**1**	**0**	
13. Does [child's name] do or say things that are socially inappropriate or insensitive? *For example, do they ask personal questions or make personal comments at awkward times, not understand personal space or be overly affectionate with strangers?*	**1**	**0**	**1**
14. Does [child's name] play a variety of pretend games with other children in such a way that you can tell that they each understand what the other is pretending? *For example, do they play "house" with one person being the "caregiver" and one being the "child", or play being the "teacher" and "students" in the class, or being the "shopkeeper" and a "customer" buying things?*	**1**	**0**	
15. Is [child's name] interested in social interactions with other children of a similar age? *For example, are they interested in having them as friends or playing with them?*	**1**	**0**	
16. Does [child's name] know to change their behavior depending on the social situation they are in? *For example, do they know to be quiet while in church, not run around at the market or not take things without permission in other people's homes?*	**1**	**0**	
17. Does [child's name] have a preference for being alone and doing things on their own? *For example, would they be happy to spend a lot of time doing things by themselves or not seek others for social interactions, even when there are other children?*	**1**	**0**	**1**

B. BEHAVIOURS, ROUTINES AND INTERESTS

	Yes	No	Ever
18. Does [child's name] have unusual ways of moving their fingers, hands or whole body? *For example, do they flap their hands, flick their fingers, spin or repeatedly bounce up and down?*	1	0	1
19. Does [child's name] use objects in a repetitive or unusual way? *For example, do they show interest in parts of the objects, lining up objects, repeatedly spinning, twirling, or tapping objects?*	1	0	1
20. Does [child's name] have any unusual use of their speech or language? *For example, do they speak with unusual intonations, use unusual language, use words they made up themselves, immediately repeat phrases that they have just heard, or use exact phrases they have learned from radio, T.V. or other people?*	1	0	1
21. Does [child's name] like things to be done in a very specific order and get very upset when there are minor changes to this? *For example, do they like eating food in a specific order, dressing always in the same exact order or traveling from one place to another always by the same route?*	1	0	1
22. Does [child's name] get upset with minor changes in their environment and things around them? *For example, would they get upset when the house is painted, when furniture is moved within the house or when someone grows a beard or changes their hairstyle?*	1	0	1

23. Does [child's name] have any obsessions or interests that are unusual for their age and peer group? *For example, do they often play with unusual objects such as toilets, road signs, number plates on cars, bicycle wheels, or the vacuum cleaner?*	1	**0**	1
24. Does [child's name] have any special interests that are appropriate for their age and peer group but unusual in their intensity? *For example, do they spend an unusual amount of time learning about one thing, such as electronics, specific cars, sports or animals?*	1	**0**	1
25. Does [child's name] seem particularly interested in the sight, feel, sound, taste or smell of things or people? *For example, do they smell or touch objects or people more than usual, stare at bright lights or seek out loud noises?*	1	**0**	1
26. Does [child's name] avoid or become distressed by the sight, feel, sound, taste or smell of things or people? *For example, do they cover their ears or become upset in response to certain sounds, avoid or become upset by bright lights, avoid or become upset by certain tastes or textures of food or smells?*	1	**0**	1

The Amharic Version of the OSSDx after a panel of experts review

OSSDx ለኡቲዝም ማጣሪያ መጠይቅ

ስለልጅዎ ተግባቦት፣ ግንኙነት፣ ድርጊት፣ የዕለት ተዕለት ተግባራት/እንቅስቃሴ እና ማህበራዊ ፍላጎቶች በተመለከተ አንዳንድ ጥያቄዎችን እንጠይቅዎታለን። ። 26 ጥያቄዎች ያሉ ሲሆን በጥያቄዎቹ ውስጥ የተጠቀሱት ድርጊቶች ባለፉት ሶስት ወራት ውስጥ ከነበሩ 'አዎ' በማለት፣ ያልታዩ ወይም የሌሉ ከሆነ ደግሞ 'አይደለም' በማለት እና በጥያቄው ውስጥ የተጠቀሱት ድርጊቶች ቀደም ሲል የነበሩ ቢሆንም ባለፉት ሶስት ወራት ውስጥ ካልታዩ 'በጭራሽ' በማለት ይመልሱ ።

ሀ. ማህበራዊ ተግባቦት እና ግንኙነት

	አዎ	አይደለም	መቼም
1, _____ እቃዎችን ለማግኘት/ለመጠቀም የአይን ለአይን ግንኙነትን/ቃላትን ከመጠቀም ይልቅ የሌሎችን እጅ/ የሰውነት አካላትን ይጠቀማል/ትጠቀማለች? ለምሳሌ፡- በር ለመክፈት እጆን በበሩ እጅታ ወይም በሚፈለጉት ዕቃ ላይ ያደርጋሉን?	**1**	**0**	**1**
2,_____ ከሌሎች ተመሳሳይ ዕድሜ ካላቸው ልጆች ጋር ማህበራዊ ግንኙነቶችን ይጀምራል/ትጀምራለች? ለምሳሌ፡- ሌሎች ተመሳሳይ ዕድሜ ያላቸው ልጆች እንዲጫወቱ ለማነሳሳት ወይም ነገሮችን አብሮ ለማድረግ ይጥራሉ?	**1**	**0**	
3,_____ ከሌሎች ተመሳሳይ ዕድሜ ካላቸው ልጆች ጋር ለሚኖረው/ለሚኖራት ማህበራዊ ግንኙነት ምላሽ ይሰጣል/ትሰጣለች? ለምሳሌ፡- ሌሎች ተመሳሳይ ዕድሜ ያላቸው ልጆች እንዲጫወቱ ወይም ነገሮችን አብሮ ለማድረግ ሲሞክሩ ምላሽ ይሰጣሉን?	**1**	**0**	
4,_____ በቃላት፣ በድምጾች ወይም በምልክት የሁለትዮሽ ግንኙነቶችን ያስቀጥላል/ታስቀጥላለች? ለምሳሌ፡- እርሶ ድምጽ ሲያወጡ ድምጽ መልሰው ያሰማሉ ወይም ከእርሱ/ሷ ጋር ንግግር በሚጀምሩበት ወቅት ከእርሶ ጋር መልሰዉ ይነጋገራሉ?	**1**	**0**	
5,_____ በራሱ/ሷ ተነሳሽነት ከሌሎች ጋር በእንቅስቃሴዎች ወይም ጨዋታዎች ውስጥ ይሳተፋል/ትሳተፋለች? በእነዚያ እንቅስቃሴዎች ውስጥስ የተለያዩ ሚናዎችን ወስዶ/ዳ ያውቃል/ታውቃለች? ለምሳሌ፡- እንደ አኩኩሉ ወይም አባሮሽ አይነት ጨዋታዎች ላይ ሳይጠየቁ ተቀላቅለው የተለያዩ ሚናዎችን ይወስዳል/ትወስዳለች?	**1**	**0**	

6,_____ በሌሎች ሰዎች ደስታ ውስጥ ተሳትፎ ያደርጋል/ታደርጋለች? ለምሳሌ፡- እንደ ልደት፣ ሠርግ እና በዓላት ባሉ ልዩ ኢጋጣሚዎች ደስታን ይጋራሉ?	**1**	**0**	
7,_____ የራሳቸውን ደስታ፣ ፍላጎት ወይም ስኬት ለሌሎች ያካፍላል/ታካፍላለች? ለምሳሌ፡- ሳይገፋፉ/ሳይጠየቁ በሚዝናኑበት እንቅስቃሴ ውስጥ ሌሎች እንዲሳተፉ ያደርጋሉ?	**1**	**0**	
8. _____ ከሰዎች ድምጽ ወይም የፊት ገጽታ ተነስቶ/ታ የሰዎችን ስሜት መረዳት ይችላል/ትችላለች? ለምሳሌ፡- የሀዘን ስሜት በሚሰማዎት ወቅት ሳይነገረዉ/ሳይነገራት እንዳዘኑ አውቀዉ በራሱ/ሷ እርሶን ለማጽናናት ይሞክራሉ?	**1**	**0**	
9,_____ የሚሰማቸውን ከፊታቸው ላይ እንድትረዱ የሚያስችል የተለያዩ አይነት የፊት ገፅታዎች አሉት/አሏት? ለምሳሌ፡- ሲደሰቱ ፈገግ ማለት፣ ግራ መጋባት ወይም ሲናደዱ መኮሳተር	**1**	**0**	
10._____ አካላዊ መግለጫዎችን፣ ስሜቶችን የሚያስረዱ ወይም የሌሎችን ስሜቶችን መረዳቱን/መረዳቷን የሚያሳዩ ምልክቶችን ይጠቀማል/ትጠቀማለች? ለምሳሌ፣ እንደ ጥርስ መቦረሽ እና መሰናበት የመሳሰሉ ነገሮችን ለማስረዳት የእጅ እንቅስቃሴ መጠቀም፣ መደነቅን ለማሳየት እጃቸውን በአፋቸው ላይ ማድረግ ወይም ሌሎች ህጻናት ሲያለቅሱ ሄዶ እምባቸውን መጥረግ?	**1**	**0**	
11._____ የዓይን እይታዉ/ዋ ላይ ያልተለመዱ እይታዎችን/ሁኔታዎችን አስተዉለው ያዉቃሉ? ለምሳሌ፡- አይን ማየት በሚጠበቅባቸዉ ሁኔታዎች ላይ አለማየት፣ ረዘም ላለ ሰአት ሰዉ ላይ አይናቸዉን ተክለዉ ይቆያሉ፣ በአይኖቻቸው ጥግ መመልከት	**1**	**0**	**1**
12._____ ከሌሎች ጋር ለመግባባት ቃላትን/ድምፆችን እና ምልክቶችን አጣምሮ/ራ በአንድ ጊዜ ይጠቀማል/ትጠቀማለች? ለምሳሌ፡- ወደ ሰማይ እየጠቆሙ በተመሳሳይ ሰአት “ወፏን አየሃት”	**1**	**0**	
13._____ ማህበረሰባዊ ተቀባይነት የሌላቸው እና ተገቢ ያልሆኑ ነገሮችን ያደርጋሉ/ ይናገራሉ? ለምሳሌ፡-ከማያውቁት ሰው ጋር ያልተገባ ቅርርብ መኖር	**1**	**0**	**1**

14._____ ከሌሎች ልጆች ጋር የተለያዩ የማስመሰል ጨዋታዎችን ይጫወታል/ትጫወላለች? እርሶ ልጆ ጨዋታው እንደገባው በሚረዱበት መልኩ? ለምሳሌ፡- አንዳቸው "ወላጅ" እና ሌላኛው "ልጅ" እያሉ ይጫወታሉ፣ በክፍል ውስጥ "አስተማሪ" እና "ተማሪዎች" በመሆን ይጫወታሉ ፣ "ሌባ" እና "ፖሊስ" ወይም እቃቃ ይጫወታሉ?	**1**	**0**	
15._____ ከሌሎች ተመሳሳይ ዕድሜ ካላቸው ልጆች ጋር ለማህበራዊ ግንኙነት ፍላጎት አለው/አላት? ለምሳሌ፣ እነሱን ጓደኛ ማድረግ ወይም ከእነሱ ጋር መጫወት ይፈልጋሉ?	**1**	**0**	
16. _____ እንዳለበት/እንዳለችበት ሁኔታ/አካባቢ ድርጊቱን መቀየር እንዳለበት ያውቃል/ታውቃለች? ለምሳሌ፡- ቤተ ክርስቲያን ውስጥ ዝም ማለትን፣ ገበያ ውስጥ አለመሮጥን ወይም በሌሎች ሰዎች ቤት ውስጥ ያለ ፈቃድ ዕቃ አለመንካትን ያውቃል/ታውቃለች?	**1**	**0**	
17._____ ብቻውን/ዋን መሆንን እና ነገሮችን በራሱ/ሷ የማድረግን ይመርጣል/ትመርጣለች? ለምሳሌ፡- ሌሎች ልጆች ባሉበት ጊዜም እንኳ ብዙ ጊዜያቸውን ለብቻቸው በመሆን ማሳለፍ ያስደስታቸዋል ወይም ሌሎችን አለመፈለግ?	**1**	**0**	**1**

ለ. ባህሪያት፣ የእለተእለት ተግባራት እና ፍላጎቶች

	አዎ	**አይደለም**	**መቼም**
18. _____ ጣቶቹን/ቿን፣ እጆቹን/ቿን ወይም መላ ሰውነቱን/ቷን የሚያንቀሳቅስበት/የምታንቀሳቅስበት ያልተለመዱ መንገዶች አሉት? ለምሳሌ፣ እጆቻቸውን ማርገብገብ፣ ጣቶቻቸውን ማፍተልተል፣ ያሽከረክራሉ ወይም ደጋግመው ወደ ላይ እና ወደ ታች ይዘላሉ?	1	**0**	1
19._____ ዕቃዎችን ድግግሞሽ ባለው ወይም ባልተለመደ መንገድ ይጠቀማል/ጠቀማለች? ለምሳሌ፡- ዕቃዎችን በመደርደር፣ በተደጋጋሚ እቃን በማሽከርከር፣ በመጠቅለል ወይም ዕቃን መታ መታ ማድረግ ወይም በእቃ አንድ ክፍል ላይ ብቻ ያሳያሉ?	1	**0**	1

20._____ ያልተለመደ የንግግር ወይም የቋንቋ አጠቃቀም አለው/አላት? ለምሳሌ፦ ባልተለመደ የድምጽ አወጣጥ/ቃላት ይናገራሉ፣ ያልተለመደ ቋንቋ ይጠቀማሉ፣ በራሳቸው የፈጠሯቸውን ቃላት ይጠቀማሉ፣ የሰሙትን ሐረጎች ወዲያው ይደግማሉ ወይም ከሬዲዮ፣ ቲቪ ወይም ከሌሎች ሰዎች የሰሙትን ሐረጎች ሳየቀይሩ ይጠቀማሉ?	1	0	1
21._____ ነገሮች በለመደው/በለመደችው ቅደም ተከተል እንዲሆኑ ይፈልጋል/ትፈልጋለች እና በዚህ ላይ ጥቃቅን ለውጦች ሲኖሩ በጣም ይበሳጫል/ትበሳጫለች? ለምሳሌ፦ ከእንቅፋቸው ተነስተው ድርጊቶችን በለመዱት ቅደም ተከተል እንዲሆን መፈለግ፣ ሁል ጊዜ በተመሳሳይ ቅደም ተከተል መልበስ ወይም ከአንድ ቦታ ወደ ሌላ ቦታ ሁል ጊዜ በተመሳሳይ መንገድ መጓዝ ይወዳሉ?	1	0	1
22._____ በአካባቢው/ዋ እና በዙሪያው/ዋ ባሉ ጥቃቅን ለውጦች ይበሳጫል? ለምሳሌ፦ የሚጠቀሙባቸው እቃዎች ሲቀየር፣ የቤት እቃዎች ቦታቸው ሲቀየር ወይም አንድ ሰው ጢም ሲያድግ ወይም የፀጉር አሠራሩን ሲቀይር ይበሳጫሉ?	1	0	1
23._____ ከእድሜ እኩዮቹ/ቿ ያልተለመደ ለነገሮች ልዩ ቁርኝት ወይም ዝምድና አለው/አላት? ለምሳሌ፦ ብዙውን ጊዜ እንደ መጸዳጃ ቤት፣ የመንገድ ምልክቶች፣ በመኪናዎች ላይ ያሉ የቁጥር ሰሌዳዎች ወይም የቤት ውስጥ እቃዎች እንደ ድስት/ሰሃን ባሉ ነገሮች ይጠመዳሉ/ይጫወታሉ?	1	0	1
24._____ ከእድሜ እኩዮቹ/ቿ የሚጠበቅ ነገር ግን ድርጊቱን የሚያደርግበት/የምታደርግበት ልክ ወይም በድርጊቱ የሚያጠፋው/የምታጥፋው ጊዜ ያልተለመደ ልዩ ፍላጎቶች አሉት/አሏት? ለምሳሌ፦ እንደ ኤሌክትሮኒክስ፣ የተለየ የመኪና አይነት፣ ስፖርት ወይም እንስሳት ያለ አንድን ነገር በመማር ያልተለመደ/ብዙ ጊዜ ያሳልፋሉ?	1	0	1
25._____ ስለ ነገሮች ወይም ሰዎች እይታ፣ ስሜት፣ ድምጽ፣ ጣዕም ወይም ሽታ በተለየ መልኩ ፍላጎት ያለው/ያላት ይመስላል? ለምሳሌ፦ ሰዎችን ወይም እቃዎችን ከተለመደው በበለጠ ያሸታሉ ወይም ይነካሉ፣ ደማቅ መብራቶችን እያዩ ይቆያሉ ወይም ከፍተኛ ድምጽ ይፈልጋሉ?	1	0	1

26. _____ በነገሮች ወይም በሰዎች እይታ፣ ስሜት፣ ድምጽ፣ ጣዕም ወይም ጠረን ይሸሻል ወይም ይረበሻል? ለምሳሌ፡- በአንዳንድ ድምፆች ይበሳጫሉ ወይም ጆሯቸውን ይሸፍናሉ፣ በደማቅ ሙቢራቶች መረበሽ ወይም መበሳጨት፣ በአንዳንድ የምግብ ጣዕሞች ወይም ሸካራነት/ልስላሴ እንዲሁም ሽታዎች ይበሳጫሉ?	1	**0**	1