Social Sciences and Humans Review
Available online at https://www.asjp.cerist.dz/en/PresentationRevue/65

ISSN: 1112-685X
EISSN: 2588-2236

Vol : 18 / Issue: 02 /December 2025
PP : 09 - 30

A Study into the Semiotic Language of Autistic Children in Pakistan

دراسة في اللغة السيميائية للأطفال المصابين بالتوحد في باكستان

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Received: 14/05/2025 Accepted :19/12/2025 Published :27/12/2025

Abstract:

Autism Spectrum Disorder (ASD) is a neuro-developmental problem among children. Children suffering from ASD face difficulties in expressing themselves. Semiosis is the paradigm of sign and its related aspects, which is a challenge among children with autism, as such children may try semiotic tasks but fail to do them properly. Apart from neurological issues, psychological, medical, and social constraints are other factors that deteriorate their semiotic learning capabilities. This develops a comparatively high number of non-verbal modes of communication, such as body gestures, facial expressions, and visual instead of verbal ones. In this study, we have presented a semiotic analysis of autistic children. We have also highlighted issues and challenges faced by parents in this regard in terms of behaviors, educational needs, and social context.

Keywords : Autism Spectrum Disorder (ASD), Facial Expressions, Pakistan, Non-verbal Communication, Semiosis, Verbal Communication, Visual Communication.

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الملخص:

اضطراب طيف التوحد (ASD) هو مشكلة عصبية-نمائية لدى الأطفال. يواجه الأطفال المصابون بالتوحد صعوبات في التعبير عن أنفسهم. السيميائية هي دراسة العلامات والجوانب المرتبطة بها، وهي تمثل تحديًا للأطفال المصابين بالتوحد، حيث قد يحاولون أداء مهام سيميائية ولكنهم يفشلون في إتمامها بشكل صحيح. إلى جانب المشكلات العصبية، فإن العوامل النفسية والطبية والاجتماعية تمثل عوائق أخرى تؤثر على قدراتهم في التعلم السيميائي. يؤدي ذلك إلى تطور عدد كبير نسبيًا من أساليب التواصل غير اللفظية مثل الإيماءات الجسدية، وتعابير الوجه، والتواصل البصري بدلاً من اللفظي. في هذه الدراسة، نقدم تحليلًا سيميائيًا للأطفال المصابين بالتوحد، كما نسلط الضوء على المشكلات والتحديات التي يواجهها الآباء في هذا السياق، من حيث السلوكيات، والاحتياجات التعليمية، والسياق الاجتماعي.

الكلمات المفتاحية: اضطراب طيف التوحد (ASD)، باكستان، تعابير الوجه، التواصل غير اللفظي، السيميائية، التواصل اللفظي، التواصل البصري.

1. Introduction

It is believed that children gain knowledge about performing certain tasks earlier than their understanding of what they are doing. This implies the precedence of implicit understanding rather than the explicit one. (Paolucci, 2019). The communicative development among children is associated with parent/child relationships, as well as social and situational awareness. The problem of communicative disorder among children with Autism Spectrum Disorder (ASD) is mainly characterized by a lack of speech and the presence of other nonverbal gestures known as stimming, such as repetitive hand flapping, rocking, or clapping (Balestro, 2012; Nolan, 2015). The definition of ASD remains an unsolved question. One may consider it a behavior or an inadequate attitude of human interaction, or a neurobiological disorder. Nowadays, psychologists treat it as a neuro-developmental problem. Unlike normal humans who develop interactional behaviors from non-verbal to verbal mode with age, autistic children lag in this development, even though some of their other evolving processes are accelerated (Hoxha, 2021).

1.1. Behavior of An Autistic Child

An autistic child displays an atypical attitude as compared to other children of the same age. He/she likes to perform certain tasks in

repetition for a longer duration, such as playing with his/her favorite toy. Such a child does not like to maintain eye contact if contacted (Hoxha, 2021; Maier-Höfer, 2016). He/she seems to have created a confined universe of his/her own without any social interaction and may fail to comprehend the objects around him/her.

1.2. Interactive Communication among ASD Individuals

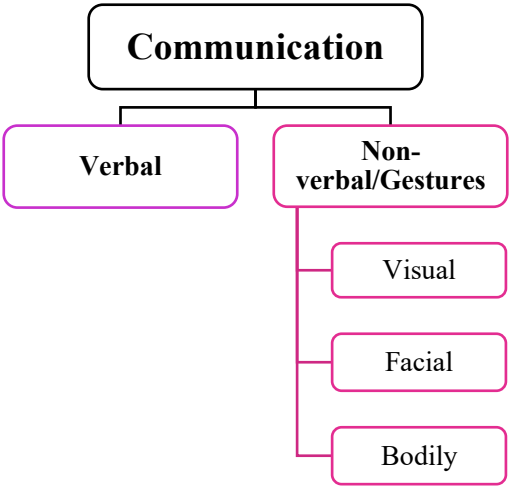
Both verbal and non-verbal communication are the basis of interpersonal communication in general. This is the result of our conscious or unconscious inter- or intra-communicational patterns, which are the basis of semiosis (Hoxha, 2021; 2015). These communication patterns are due to our progressive and evolved cognitive phases, or may be a result of our emotionally generated responses in interpersonal communications. The development process of these patterns varies among individuals as each has its cognitive cycle, social and interactional stereotypes, and other issues. Normal humans are distinguished by their ability to express emotions, which they have automatically developed. This paradigm gains importance when dealing with individuals suffering from ASD, as they require additional support to develop communicational patterns. Their stereotyped actions and manners make it difficult to generalize semiotic behavior unless psychologically analyzed (Hoxha, 2021; 2015).

Autistic children may have diverse strengths. One of these is strong receptive language ability, which exemplifies their understanding of complex language. Second is the ability to pay attention to detail, which may help read and understand written instructions. Strong analytical thinking is another strength that enables them to understand complex language structures. Apart from these strengths, autistic children face certain challenges. They face problems in dealing with expressive languages, including both verbal and non-verbal forms of communication. They usually fail to initiate conversation, use proper volume and tone, and understand social cues.

Researchers are of the view that one problem of social interaction among ASD children is due to an insufficiency of motivation. The brains

of these children fail to comprehend rewards/motivations, which is a main stimulus in social interaction, thus they feel socially rejected. This has caused a change in the research paradigm, as it was previously thought that cognitive disabilities should be given more attention (Paolucci, 2019). Even though non-verbal communication is common in children with different problems, such as autism spectrum disorder (ASD), deafness, aphasia, motor speech disorders, and other neurological syndromes or neurodevelopmental disorders. The situation varies, but all of these have one thing in common, i.e., the absence of linguistics involving words instead of non-verbal forms of communication such as facial expressions, gestures, and others (Silva, 2024; Paquet, 2016).

Fig.1. Communication patterns in autistic children. Source: Silva (2024) and Isroyati, Laksono, and Mintowati (2025).



Research work on verbal/non-verbal communication has accentuated that children start using multimodal features of language from a very early age. Multimodal communication features both oral and movement elements. (Silva, 2024). The development of multimodal communication depends on social interactions, characterizing social and situational factors. It is therefore suggested that analysis of semiotic

process development should consider social interactions and speech data together (Silva, 2024).

1.3. Semiosis Among Autistic Children

Semiosis is the concept of sign and its related dynamics (Kõvamees, 2024). Accomplishing the semiotic communication process is an issue for children suffering from Autism Spectrum Disorders (ASD). This may be because some semiotic messages are not processed completely or explicitly. Such children may show an attempt to accomplish semiotic tasks with complete semantic units but are unable to do so completely due to neurotypical communicational abilities. Psychological and medical processes fail to communicate messages as ASD children's interactions with others are at their minimum, as they are unable to comprehend the social environment around them and remain in their apparent social domain. Additionally, their cognitive and interpersonal attitude hinders the articulation of general narrative patterns. This may cause semiotic communication issues for these children. ASD children have devised a semiotic communication mechanism to register their complaints and requests. Their passionate behavior also generates a unique style of communication pattern, which needs to be analyzed in terms of the language paradigm (Hoxha, 2021).

The framework of semiotic processes tends to rely on a narrative process visualized through repetitive actions of autistic children, which in turn results in a psychologically developed social context. The development of this social context may be suitable for an autistic child in his way, but may seem to be unsuitable or meaningless for others. An autistic child demonstrates this social context with his communicational efforts: a basis of semiotic process acquired with his expressing emotions or with his response to the environment around him. The social context expressed in terms of symptoms is the result of a lack of normal sensory integration. The slow sensory integration causes despair in autistic children, evident in their behavior, and if not properly directed, will result in suppressed feelings. As such, children are in the phase of physiological growth, and suppressed emotions may deteriorate this

growth (Hoxha, 2015). There are some challenges in specifying the semiotic behavior in ASD children as the semiotic process is not explicitly fulfilled, so we try to focus on general behavior. Any meaningful message transfer is improper and may have a unique style that may be manifested through transformations of semiotic notions (Hoxha, 2021).

1.4. Problem Statement

Here we have tried to present our concept of semiotic analysis in a bi-directional manner related to autistic children's behavior. These are communicational, psychological, and empirical concepts in a normal social environment (Hoxha, 2021). For these reasons, this paper aims to highlight issues and problems of children with ASD generally and of Pakistani children specifically. This study is an attempt to present physiological semiotic functions methodically. Semantic identities in these children are the result of their typical repetitions producing self-indigenized narrative structures. Moreover, the English/Urdu language barrier creates an additional psychological environment in Pakistan. We will analyze these self-indigenized semiotic behaviors and will try to formulate a recognizable framework in terms of social interactions to tackle these issues (Hoxha, 2021).

1.5. Research Questions

We have conducted a survey focusing on 1) general autistic behavior, 2) semiotic behavior of expressions, and 3) challenges of language barriers, aiming to answer the following questions:

- How do children with Autism express their needs and wants, and what strategies can parents and caregivers use to support their communication?
- How do children with a literal understanding of language (e.g., homophones, words with multiple meanings) process and comprehend complex language, and what strategies can be used to support their language development?

- What roles do nonverbal cues (e.g., facial expressions, bodily gestures) play in children's communication, and how can parents and caregivers use these cues to better understand and support their child's needs?

1.6. Research Objectives

Based on this survey, a generalized semiotic behavior is conceptualized in terms of Pakistani society. It is still an elementary study, but we hope to draw a methodological pattern for possible future research work. In our view, this study will be beneficial in formulating a framework to create a meaningful interactional environment in our society.

1.7. Theoretical Framework

This study uses the Collaborative Learning and Regulation Model (CLRM), whose components are Social Constructive Theory (SCT), Zone of Proximal Development (ZPD), and Self-Regulation Theory.

1.7.1. Components

- Social Constructivist Theory (SCT):
  - Learners construct knowledge through social interactions and experiences
  - Learning is an active, constructive process
- Zone of Proximal Development (ZPD):
  - Learners have a range of knowledge and skills they can access with guidance
  - ZPD is the gap between what learners can do independently and what they can do with support
- Self-Regulation (SR) Theory:
  - Learners regulate their learning processes, including motivation, attention, and emotion
  - Self-regulation strategies include goal setting, self-monitoring, and self-evaluation.

1.7.2. How these components interact:

- **SCT informs ZPD**: Social interactions and experiences shape the learner's ZPD, as they learn from others and construct knowledge together.
- **ZPD informs SR**: The learner's ZPD influences their self-regulation strategies, as they set goals and monitor progress within their range of knowledge and skills.
- **SR informs SCT**: Self-regulation strategies, such as self-monitoring and self-evaluation, help learners construct knowledge and understand their learning processes.

1.8. Key Implications for Teaching and Learning

- **Collaborative learning**: Encourage social interactions and experiences that facilitate knowledge construction.
- **Scaffolding**: Provide temporary support and guidance to help learners access their ZPD.
- **Self-regulation strategies**: Teach learners to set goals, monitor progress, and evaluate their learning.
- **Dynamic assessment**: Continuously assess learners' ZPD and adjust instruction to meet their changing needs.

By integrating SCT, ZPD, and SR Theory, the CLRM model highlights the importance of collaborative learning, scaffolding, and self-regulation strategies in supporting the autistic child's construction of knowledge and development of skills.

In Pakistan, Autism spectrum disorder is considered Taboo. A few years ago, children suffering from ASD were supposed to be under spiritual or demonic spells. Parents and family members did not accept those children and used to hide from others. Due to the absence of social interactions and a lack of family support, autistic children suffer a miserable life. There was hardly any person who could understand their needs. This problem is aggravated in the case of their educational needs. There were hardly any educational institutes available, and those were too in big cities. In recent times social and educational awareness has

improved the situation a little now people are starting to accept that Autism is a neuropsychological development Al disorder such children are considered Special children there are some clinics and Educational institutions in Suncity these are initial steps in this record how are a lot has to be done awareness program for parents family members and Society have to be organized clinical and education staff is related to understand the requirements of autistic children.

2. Research Methodology

For the above-mentioned scenarios, we were of the view that a symmetric analysis of autistic children is required. A survey was conducted in different cities through a questionnaire that was distributed among parents or guardians. The aim was to analyze behavior in terms of verbal and non-verbal communication. There are reports of work carried out in other countries, but in our opinion, this is the first study in Pakistan. Table 1 below shows the research mechanism and information about the research participants:

Table 1. Research Mechanism and Participants' Information. Source: The table has been generated by the authors based on participants' demographics.

Research mechanism	
Research method	Mixed methods (both qualitative and quantitative)
Population	11 Participants' case study
Participant	years old with Autism

2.1.Research Ethics

A consent form was filled out by the caretaker. The parents were also provided with the information sheet regarding the research work.

3. Results and Discussion

Our focus was to analyze semiotic behavior in verbal and non-verbal forms. It has been observed that autistic children face problems communicating properly. Their speech patterns were not clear, causing issues for other person to grasp their language. These children had a

minimal literal understanding of words and their multiple meanings. We tried to identify the non-verbal form of communication patterns. Also, our focus was on issues faced by parents while dealing not only with autistic children but also with the people around them. The majority of people around autistic children are unable to completely understand their language, as a lot of them do not speak clearly. This was evident from Figs 2 and 3. Although 50% of children were found to speak clearly in our survey, in our opinion, this ratio was quite low compared to that of normal children.

Fig.2. Can people around you understand the language of your child? Source: Authors' generated figure.

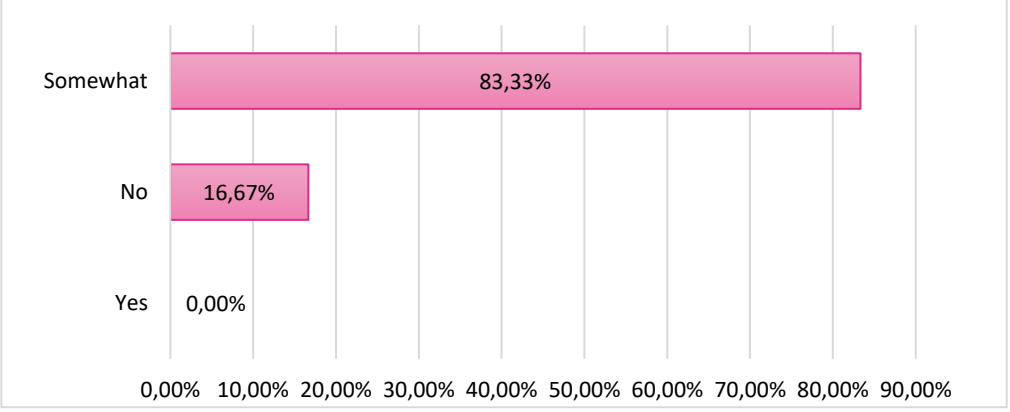
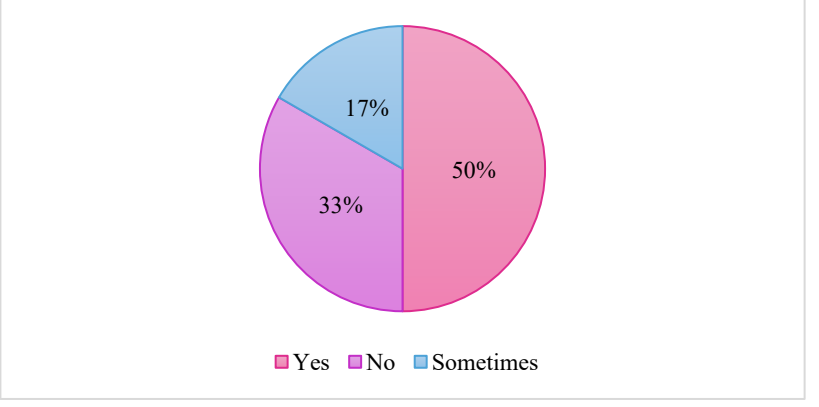
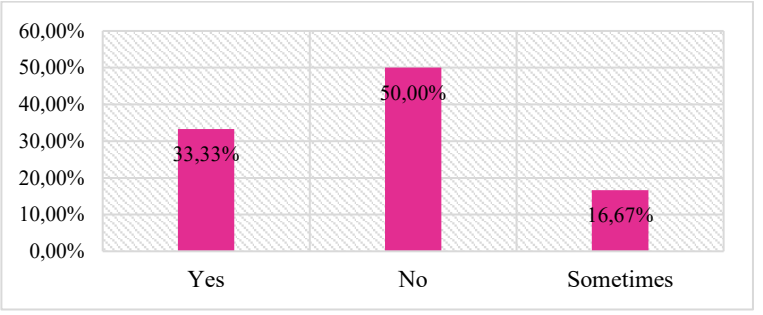


Fig.3. Does he/she speak clearly? Source: This figure has been generated by the authors based on the responses



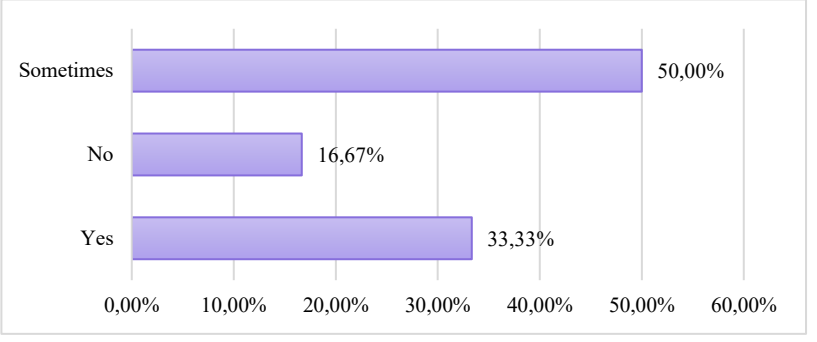
As evident from our survey, a large number of autistic children did not have clear speech, so they were found using other forms of communication. We asked the parents how they understood the problems of these children. Do they depend on body gestures? In response, as presented in Fig. 4, 50% of the parents said that they don't depend on body gestures, whereas 33% voted in favor of this. We were of the view that this was because parents usually recognize the problems through facial expressions or other forms of non-verbal communication patterns.

Fig. 4. Do you depend on body gestures to identify the issue? Source: The authors' generated figure.



Our study also showed that anxiety caused by the environment around these children makes them more expressive. This is depicted in Fig. 5.

Fig.5. Does anxiety make him/her more expressive? Note: The figure is generated by the authors.



Due to non-coherent communication and a lack of social interaction, language building becomes one of the major concerns. According to data in Fig. 6, 83% of these children were found with no literal understanding of homophones, or words with multiple meanings. This may indicate that autistic children devise their vocabulary, but our survey shows that this was rarely the case, as indicated in Fig. 7. We feel that a lack of social interaction and a lack of dedicated education make them go into their shells, thereby depriving any language-building skills.

Fig.6. Your child has a literal understanding of homophones, words with multiple meanings, etc. Source: The authors' created figure

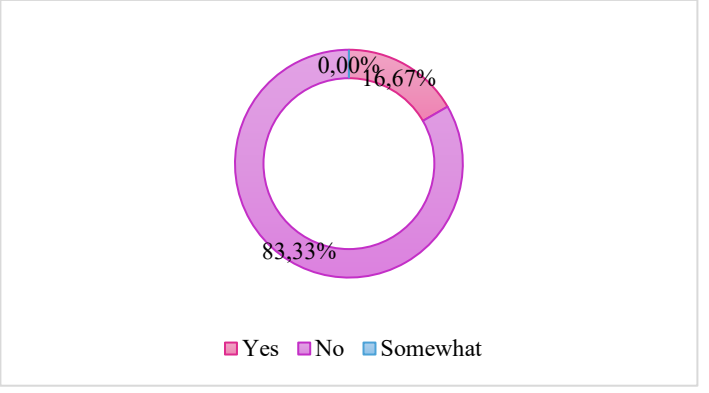
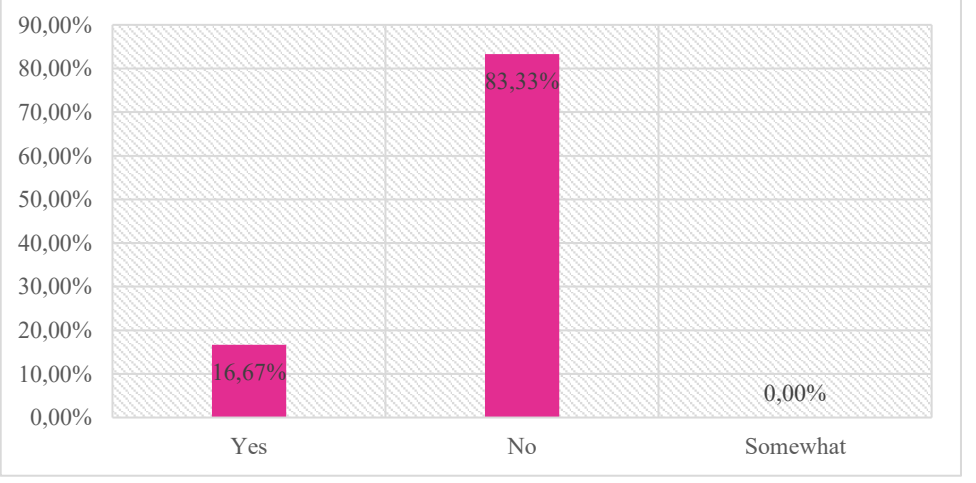


Fig.7. Has he/she devised his/her vocabulary? Source: The authors' created figure.



In Pakistan, the traditional education system uses Urdu as a medium. Trends have shifted in favor of English medium schools, but a mix of English/Urdu is commonly used. Education for autistic children has not gained attention in the past, and it has only become available in recent times. Most of these schools also use a mix of English/Urdu modes. Our survey results, as depicted in Fig. 8, show that 33% of children face problems with the English/Urdu barrier, whereas 66% are not disturbed by this. In our opinion, this was due to the use of a mix of English/Urdu medium. Deficiency of educational facilities hardly develops their learning capabilities, as evident from one of our routine life examples in Fig. 9. The Majority of these children could not tell what time it is.

Fig.8. Do you think the English/Urdu barrier is hampering him/her?
Source: The figure has been generated by the authors

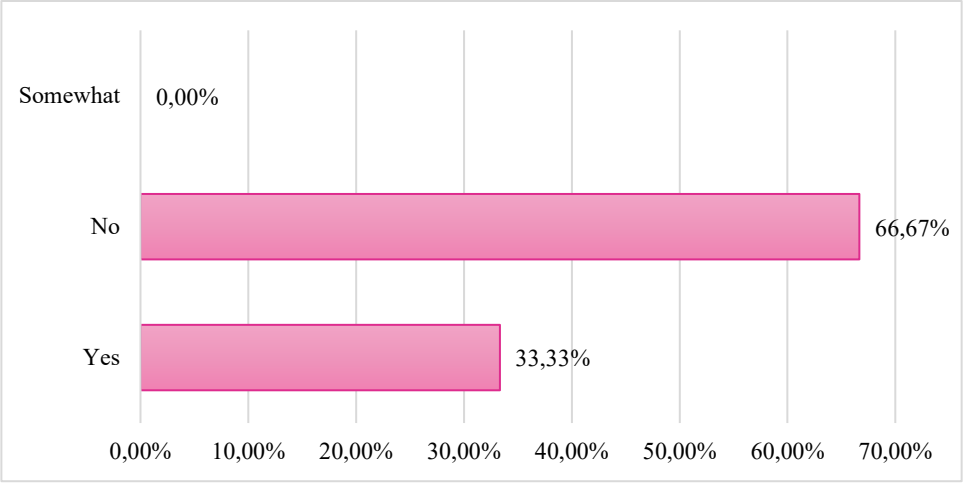


Fig.9. How does he/she know that time is passing? (check all that apply). Source: The authors' generated figure based on the responses collected.

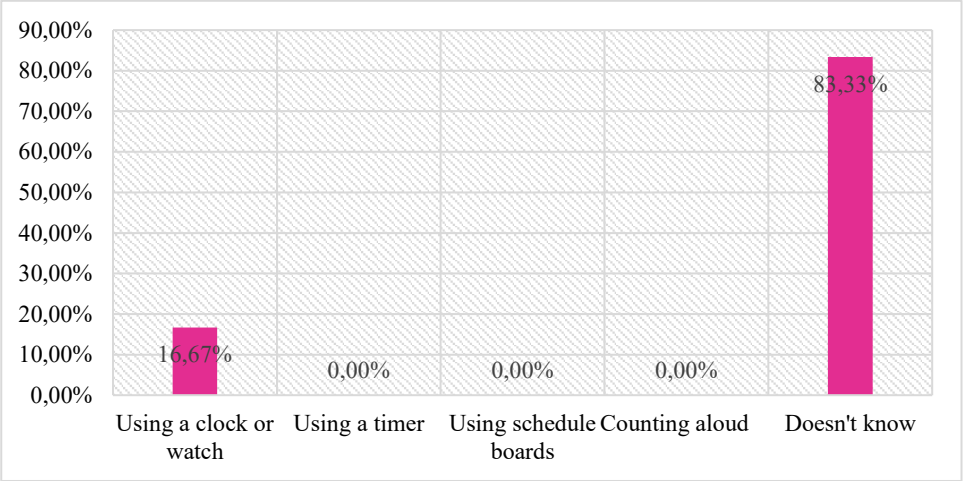
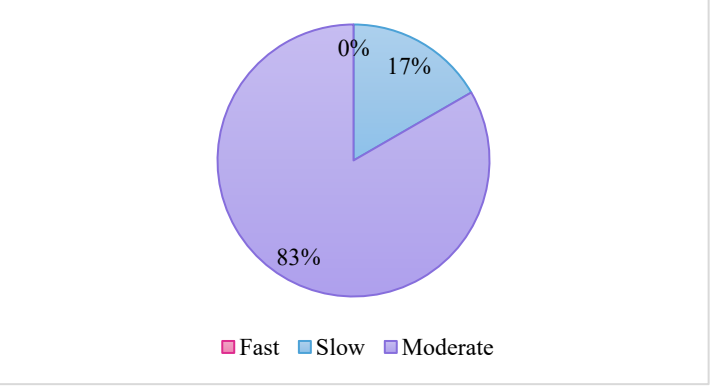


Fig. 10 shows that 83% of these children had a moderate style of communication and 17% had a slow style of communication. There were no children with fast communication. These numbers are quite in contrast to normal children observed in routine life. This is due to the slow development of communication-building skills among children with ASD.

Fig.10. How do you classify his/her style of communication? Source: Authors-generated figure based on participants' data.



Results in Fig. 11 – Fig. 13 are related to semiotic behavior patterns of autistic children in their day-to-day lives. These results show that these children use non-verbal communication while expressing their needs or their pain. Non-verbal modes used are facial expressions, making sounds, pointing/gesturing, use of a communication device, hitting or hurting others, hitting or hurting themselves, and crying. These children learn new information with nonverbal modes most of the time, including the use of pictures or symbols, listening to stories, the use of communication devices, and sign language.

Fig.11. How does he/she like to communicate needs/wants? (check all that apply). Source: Figure has been created by the authors based on the participants' responses.

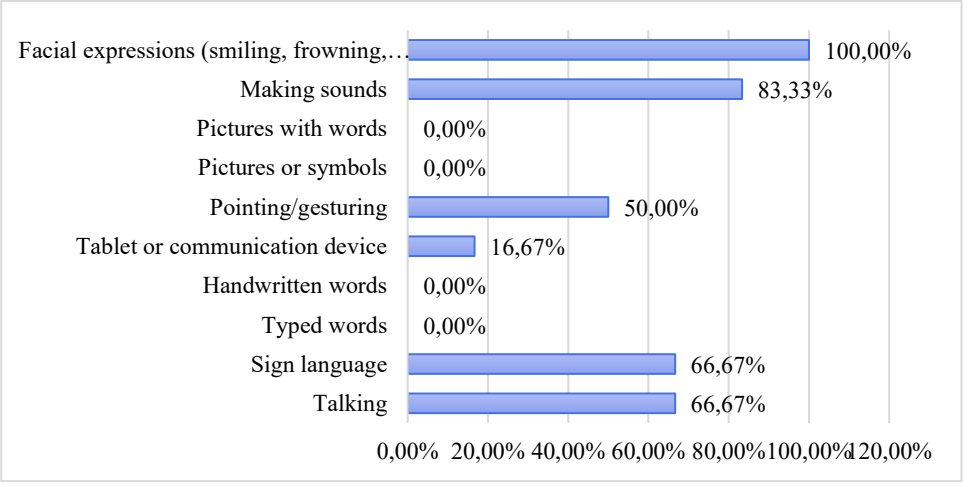


Fig.12. How does he/she let others know if he/she is in pain? (check all that apply). Source: The authors'-created figure based on participants' responses

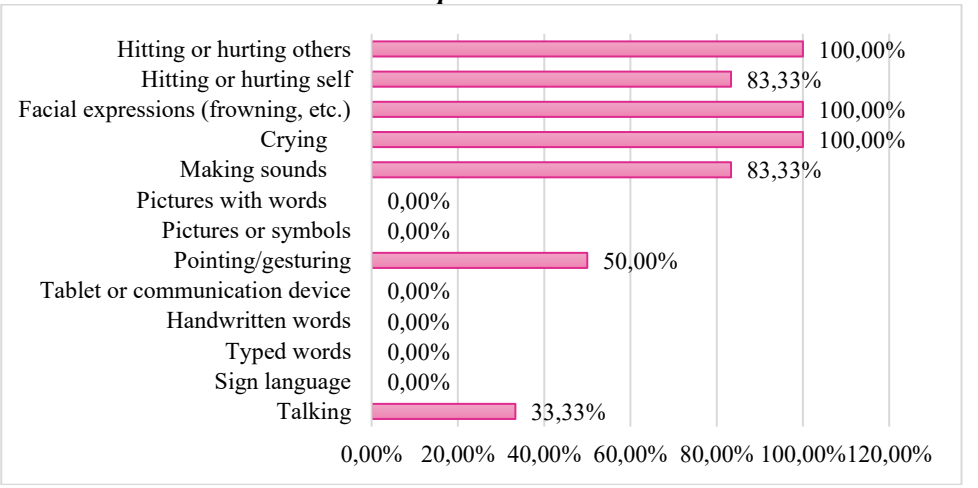
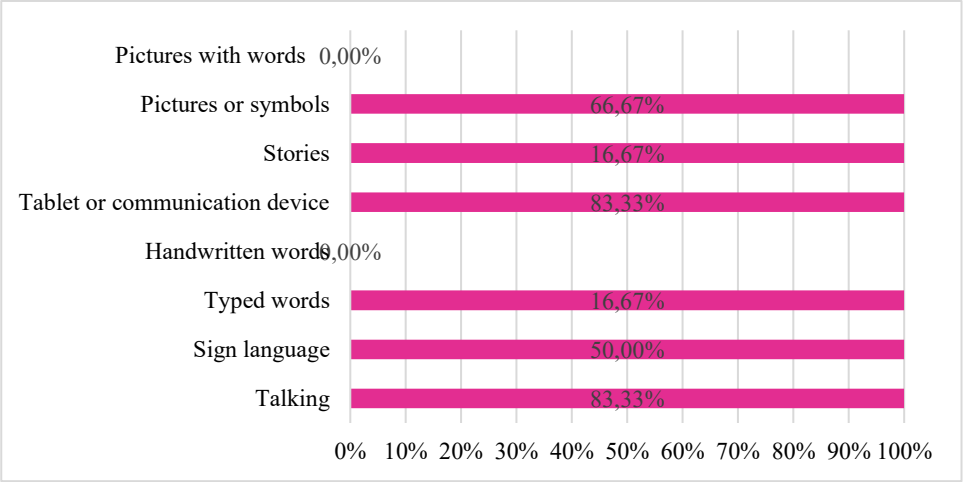


Fig. 13. How does he/she learn new information or instructions? (check all that apply). Source: Authors-generated figure based on collected data.



Learning capabilities are developed with sounds, textures, and touching. However, our results show that these children were more sensitive to these forms as expressed in Fig. 14. A majority of autistic children (80%) become upset with certain actions are phrases as depicted in Fig. 15. We are at an early stage of the survey so we are not sure about

these actions are phrases, but we would like to find out more about this in our future studies.

Fig.14. *Is he/she sensitive to? Source: The figure has been created by the authors from participants' responses.*

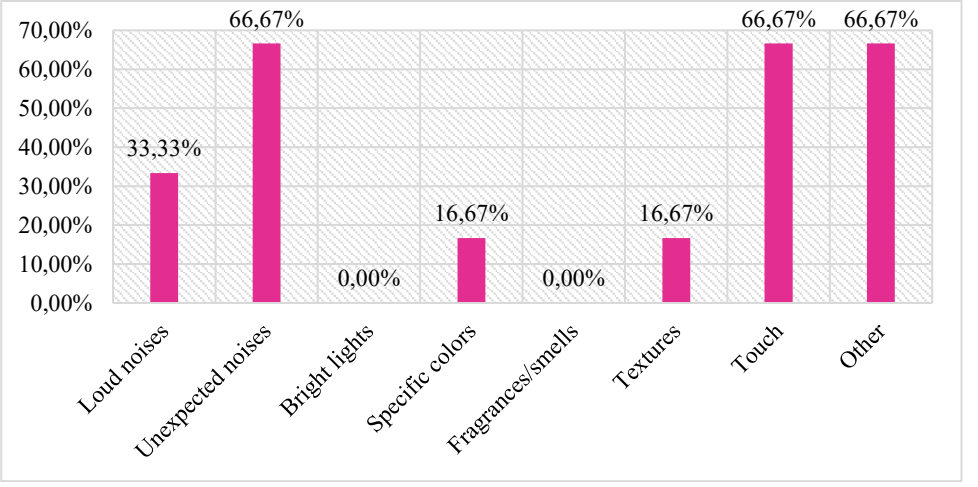


Fig.15. Are there any words, phrases, or actions that will upset him/her? Source: The figure has been created by the authors.

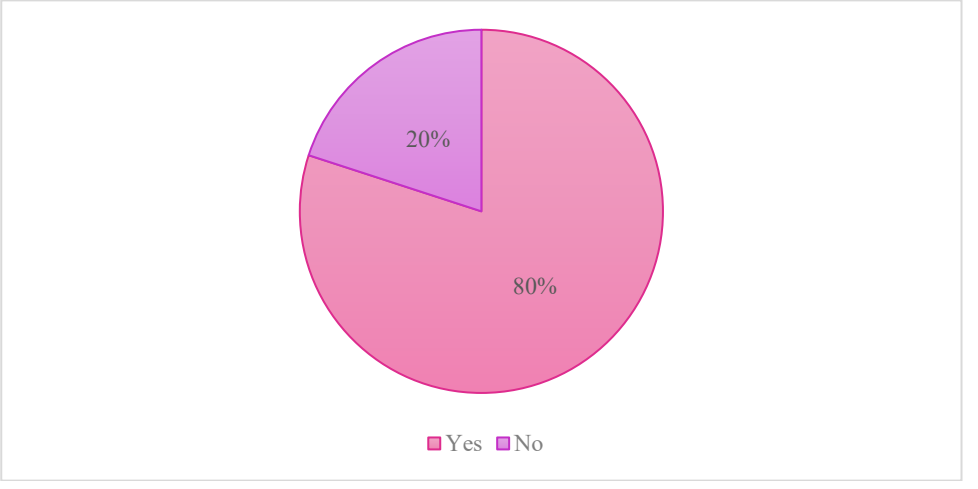
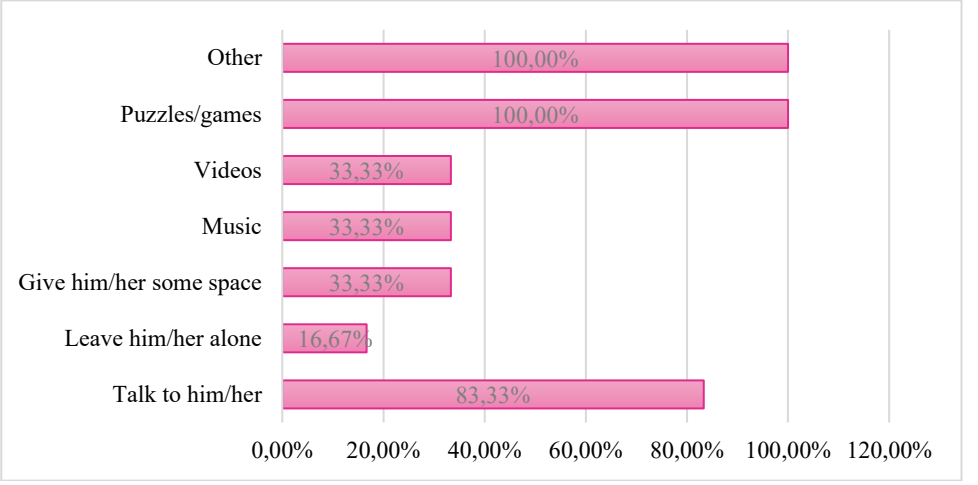


Figure 16 shows how autistic children feel comfortable when they are upset or anxious. This may not seem to be directly related to the semiotic behaviors of these children, but we are of the view that the use

of these modes will be beneficial for parents and others to develop semiotic learning tools in the future.

Fig.16. What comforts him/her when he/she gets upset or anxious? (check all that apply). Source: Authors' generated figure.



Results presented in Fig. 17 – Fig. 20 are related to issues that parents face. Every parent in our survey does not know how to act with some of their child's behavior. The majority of these parents also know the fact that other people cannot understand the language of their children. Slow development of mental abilities is also one major factor that causes these children to fail to understand what their parents want to communicate with them, as evident in Fig. 19, where 88% of parents agree with this situation. Autistic children feel uneasy in the presence of other people and fail to communicate with their parents.

Fig.17. As a parent, you don't know how to act with some of your child's behavior. Source: Authors' generated figure.

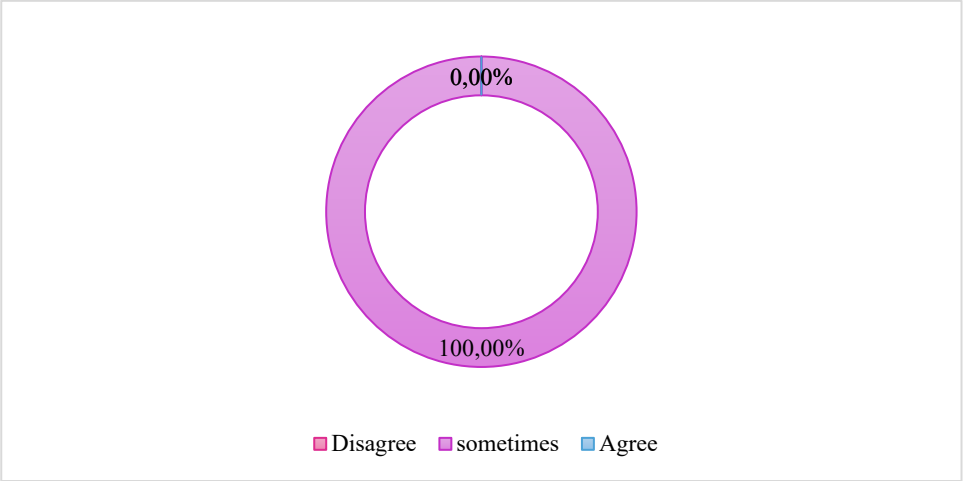


Fig.18. *As a parent, you feel that other people do not understand what your son/daughter wants to express. Source: Authors' generated figure.*

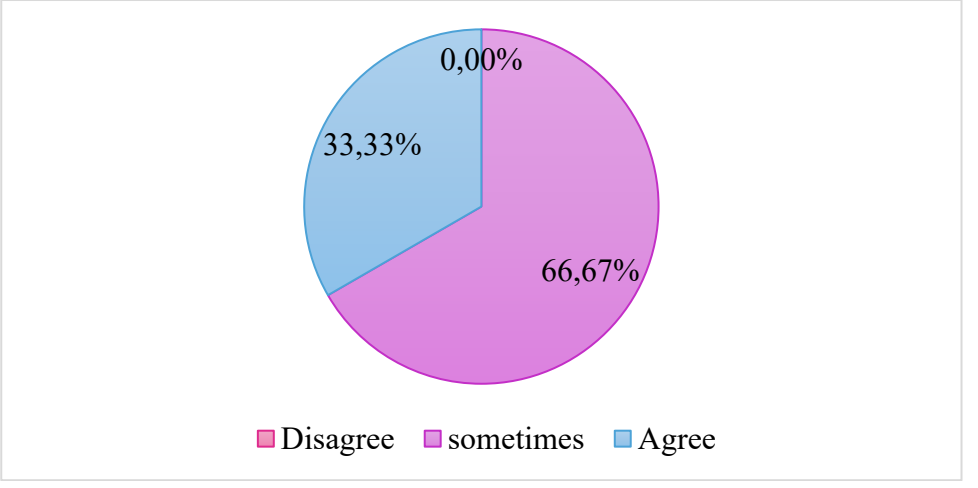


Fig.19. As a parent, you have the impression that your son/daughter doesn't understand what you say. Source: Authors' generated figure

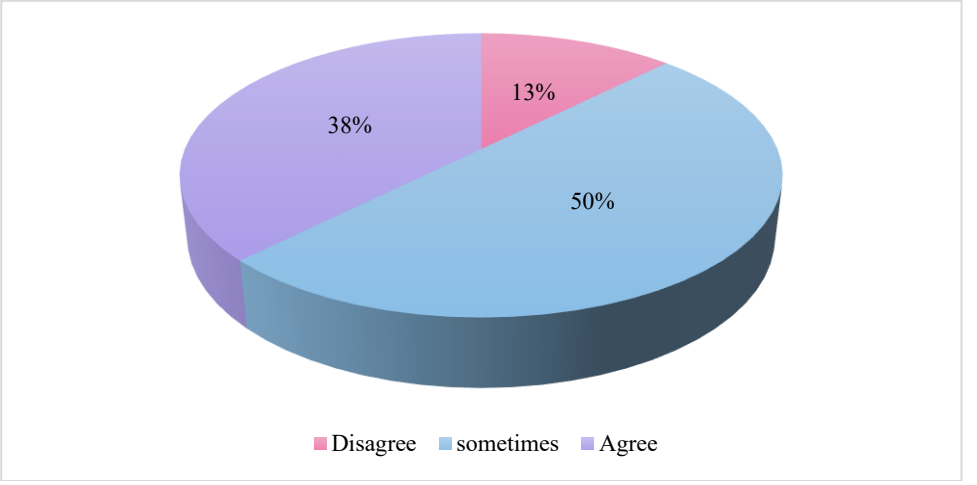
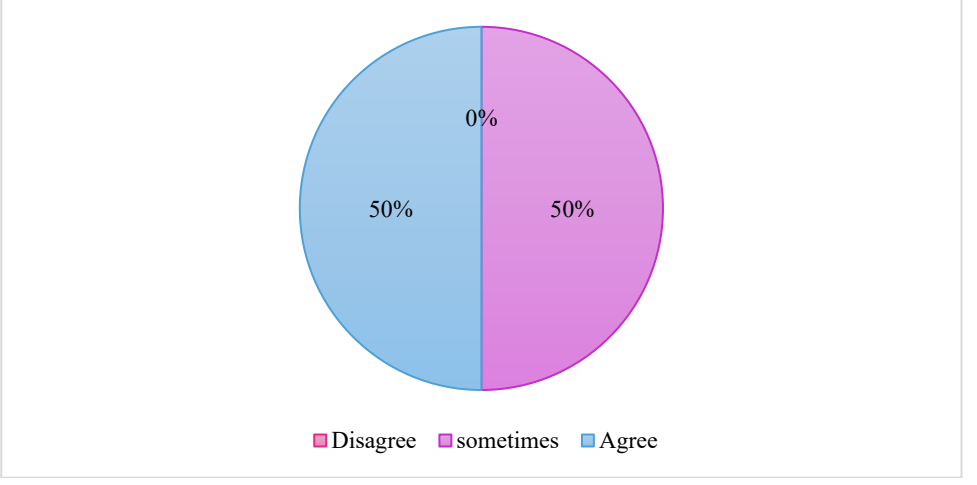


Fig.20. As a parent, you have difficulties communicating with your son/daughter when there are other people in the same room. Source: Authors' generated figure



2.1 Issues and Challenges

In our survey, we asked parents for feedback to improve the quality of our study. The purpose is to highlight issues and challenges in formulating a semiotic analysis. In response to any help required for these children, the majority of parents requested a detailed analytical study about the communicative styles of children with ASD. However, there were some exceptions in which parents were not aware of the complete scenario and felt helpless, although they were trying their best. They feel that they are unable to handle him/her during his/her frequent meltdowns. He/she starts shouting and doesn't listen to his/her parents unless his/her endless wishes are fulfilled. Some parents argued that a repetition of the given concepts may be helpful in this regard, and every parent was of the view that more awareness should be spread about the special conditions of autistic children.

1. Conclusion

The semiotic communication process is an issue for children suffering from Autism Spectrum Disorder (ASD). This may be due to psychological, medical, and social reasons. Due to some challenges in specifying the semiotic behavior, we have focused on a general behavior in this paper. We have carried out a survey to highlight the issues and problems of children with autism in Pakistan. Our study focused on modes of communication: both verbal and non-verbal, including facial and gestural. The study includes general semiotic patterns in daily life and effects related to social interactions. The need for dedicated education is also presented. We have also consulted parents about the challenges faced by them in dealing with their autistic children. Issues and challenges are highlighted with possible future directions. We are hopeful that this work will be beneficial for others to systematically analyze the semiotic behavior patterns in detail.

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