Journal of Child Language Acquisition and Development – JCLAD
Vol: 10 Issue: 4 653-661, 2022
ISSN: 2148-1997

Assessing pragmatic abilities in children with Autism Spectrum Disorders

Mudra Dudwadkar[1]
Bhavani Venkatachalam[2]
Yasha Chheda[3]
Vrushali Shinde[4]
Ankita Kale[5]
Brajesh Priyadarshi[6]
All India Institute of Speech and Hearing

Received : 17.06.2022
Accepted : 20.11.2022
Published : 30.12.2022

Abstract

The aim of the study was to explore pragmatic skills in children with Autism Spectrum Disorder (ASD). Six children with ASD between ages 3 to 8 years were chosen as the participants. A pragmatic tool developed at the All India Institute of Speech and Hearing (AIISH), Mysore as part of a dissertation was administered. Pragmatics is a critical part of communication and is related to social skills, learning, and literacy skills in children with autism. Several advanced and intermediate pragmatic skills like turn taking and joint attention were found to be affected in these children. The current study highlights the need to enhance pragmatic skills in children with ASD as a component of communication, alongside language content and form.

Keywords: Pragmatics, Assessment, Autism Spectrum Disorder, Communication, Language

1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that interferes in one's social communication or pragmatics, expressive communication especially verbal communication (Thabtah & Peebles, 2019). The domain concerned with the usage of the language across various social situations that allows an accurate understanding of the speaker's intention is called Pragmatics of language (Gleason & Berko, 2007). It requires the complex coordination of different skills like cognitive, social and linguistic skills (Toe, Mood, Most, Walker, & Tucci, 2020).

[1] Mudra Dudwadkar is a Master's student at the All India Institute of Speech and hearing. A passionate speech-language pathologist with research interests in the area of language pathology, adult language disorders and communication. Corresponding Author slpmudra@gmail.com

[2] Bhavani V is a Master's student at the All India Institute of Speech and hearing. An avid reader and a poet with a research inclination towards AAC and communication)

[3] Yasha Chheda is a Master's student at the All India Institute of Speech and hearing. A dedicated researcher and learner with her areas of interest being language pathology, feeding and dysphagia)

[4] Vrushali Shinde is a Master's student at the All India Institute of Speech and hearing with an interest in the areas of phonology and child language.

[5] Ankita Kale is a Master's student at the All India Institute of Speech and hearing with an interest in the areas of language pathology and AAC.

[6] Dr. Brajesh Priyadarshi is an Associate Professor in Linguistics. His research projects focus upon areas of language acquisition, applied linguistics and clinical linguistics. He has been actively involved in developing language assessment and therapeutic tools.

Children with ASD often have difficulties in social communication or pragmatics of language (Whyte & Nelson, 2015).Communication breakdowns occur frequently as a result of inadequate pragmatic skills. These skills also affect peer acceptance, perceptions of social competence in everyday interactions and self- esteem adversely (Turkstra et al., 2017; Whyte & Nelson, 2015).

The assessment of pragmatic skills is essential in identifying children who need extra mediation in the area of pragmatics. It is difficult in general; it is a socially driven behaviour and involves assessing a child in interaction with a peer or an adult and these observations are difficult to make in a clinical setting(Toe et al., 2020). Pragmatic deficits like turn taking, engaging in and initiation of conversation, comprehension of irony, metaphor, maxims and so on are difficult to measure on traditional tests as they focus mainly on linguistic structure and meaning instead of pragmatics of language (Bishop, 1998; Adams, 2002; Anderson et al.,2007.) This could be because of several reasons. Firstly, the testing procedure is rigid and formal; hence, it fails to acknowledge the adjustments to changing situations and circumstances (Adams, 2002). Secondly, children with pragmatic deficits perform better in a structured environment, like a formal test as compared to a naturalistic situation (Bishop & Adams, 1989).

1.1. Aim

The aim of the present study was to explore the different pragmatic skills present in the communication of children with ASD.

2. Methodology

The methodology of the research should be detailed very clearly referring to relevant theories.

2.1. Participants

For this study, participants with ASD were selected from the All India Institute of speech and hearing (AIISH), Mysore. Six children with ASD between ages 3 to 8 years were profiled and their case studies were made. The Indian Scale for Assessment of Autism (ISAA) was used to determine the severity of autism. This tool was administered by the certified Psychologist and Speech-Language Pathologist jointly which diagnosed children as No Autism, Mild Autism, Moderate autism and severe autism. Out of these participants, three were of mild severity and three were of moderate severity. Participants with any other neuro-developmental disorders were excluded from the study, neither did any participant had sensory deficits like hearing or visual impairment. The study followed all the ethical guidelines given by All India Institute of Speech and Hearing and informed consent was obtained from all the caregivers of the children assessed in the study.

2.2. Data collection and processing

The researchers gathered the case history and background information of the participants. The data was collected through an interview and observation of the child in free play and general interaction with the primary caregiver. This was done in 2–3 sessions at the clinic. In the absence of new

standardised tool, the language age was determined using the translated version of Receptive and Expressive Emergent Language Skills (Bzoch & League, 1991) and a pragmatic tool, which was developed at AIISH as a part of a dissertation, was administered. This tool is divided into three levels- Beginner, Intermediate & Advanced. Each level has 20 questions, each question was given a score of 0, 0.5 or 1 depending on the ability to perform the particular skill (as informed by the caregiver); where 0 indicated an inability to perform the skill, 0.5 indicated inconsistent ability to perform the skill and 1 indicated consistent ability to perform the skill. These questions were answered by the primary caregiver of the child. The sum of the scores of each level gives us a total score.

2.3. Data analysis

The data was analyzed qualitatively and represented in terms of percentages as it was a series of case studies.

3. Findings

In the six case scenarios considered for this particular study, the following are the results obtained.

Intentional communication using gestures/pulling caregiver towards desired object and attention-seeking through cry or vocalizations were present in 100% of the participants. Quieting responses to speech, brief eye gaze and finding comfort by establishing physical proximity with caregivers were found in 83.33% of the participants and were emerging in 16.66% of participants. Eye tracking, imperative pointing, requesting for object required skills were present in 66.66% of participants. Alerting response to sight & sound follows caregiver with eyes and imperative pointing were emerging in 16.66% of the participants. Awareness of unfamiliar situations, fixed eye gaze, response to name call, eye contact during play were present in 50% of the participants. Awareness of unfamiliar situations, response to name call, eye contact during play were emerging in 50% of the participants. Joint attention for objects at close distance was present in 33.33% and was emerging in 66.66% of participants. Joint action, indicating negation, usage of two words/gesture combinations, eye contact during communication were present in 33.33% of participants. Joint action, indicating negation, eye contact during communication were emerging in 33.33% of participants. Usage of true words/gestures for requesting, turn taking during play/rhymes were present in 16.66% of participants.

Table 1
Profiling of pragmatic skills in children with ASD

Sr. No.	**SKILLS**	**Consistent (%)**	**Inconsistent (%)**	**Absent (%)**
BEGINNER				
1	Alerting response to sight, sound. Follows caregiver with eyes	66.66	16.66	16.66
2	Quietens in response to speech	83.33	16.66	
3	Preference for child directed speech	50.00		50.00
4	Awareness of unfamiliar situations	50	50	
5	brief eye gaze	83.33	16.66	
6	fixed eye gaze	50	16.66	33.33
7	response to name call	50	50	
8	Joint attention for object at close distance	33.33	66.66	
9	finding comfort by establishing physical proximity with caregivers	83.33	16.66	
10	eye contact during play	50	50	
11	Intentional communication	100		
12	attention seeking through cry or vocalizations	100		
13	Imperative pointing	66.66	16.66	16.66
14	Usage of true words/gestures for requesting	16.66	66.66	16.66
15	Turn taking during play/rhymes	16.66	16.66	66.66
16	Initiating interaction and waiting for response		50	50

17	Joint action	33.33	33.33	33.33
18	Indicating negation	33.33	33.33	33.33
19	requesting for object required	66.66		33.33
20	usage of two words/gesture combinations	33.33	16.66	50
INTERMEDIATE				
21	Eye contact during communication	33.33	33.33	33.33
22	Social greetings		50	50
23	Usage of Wh questions			100
24	Eye contact during conversation		50	50
25	Waits for turn during play		50	50
27	Answering wh questions		16.66	83.33
30	Usage of eye contact to signal turn during play		16.66	83.33
31	Verbal turn taking		16.66	83.33
32	Usage of sentences to express denial/dislike		16.66	83.33
39	Usage of Proxemics, Kinemics		16.66	83.33

4. Discussion

A person's effective functioning in his own community depends on pragmatic language skills because it is an amalgamation of social and language skills. It requires both of them which are central features of ASD (Volden & Phillips, 2010).

Toddlers with ASD are alert to and aware of new sounds in the environment. They also orient themselves towards it most of the time (Adamson, Bakeman, Suma, & Robins, 2019). In contrast to some previous investigations by Klin et al (Zwaigenbaum et al., 2007) which stated that children with ASD showed lesser attention to Child Directed Speech (CDS) as compared to age-matched typically developing peers, the current study

showed that 50% of children with ASD showed preference towards CDS (Watson, Roberts, Baranek, Mandulak, & Dalton, 2012).

Individuals with autism show limited ability to give eye contact and focus lesser on the faces of communicative partners (Bar-Haim, Shulman, Lamy, & Reuveni, 2006). Children with autism have been found to respond less to name call during early life (Hatch et al., 2020). Studies indicate Children with ASD have poor joint attention skills during parent-child interactions (Adamson et al., 2019). Some studies indicate that children with autism make minimal eye contact during play activities whereas some other studies indicate that children with autism make more eye contact, shifting gaze between play materials and their partner's face during play. In individuals with ASD, limited intentionality is considered to be a core deficit in their communication (Maljaars, Noens, Jansen, Scholte, & van Berckelaer-Onnes, 2011). Experimental studies showed that children and adolescents with autism have severe difficulties in producing and in comprehending the declarative, but not the imperative pointing (Baron-Cohen, 1988). Difficulties in initiating a conversation (Baron-Cohen, 1988) and in responding to others' initiations (Stone & Caro-Martinez, 1990) also have been reported. Speakers with ASD appear to have difficulty taking turns appropriately in a conversation (Botting & Conti-Ramsden, 2003).

Children with autism have been seen to make lesser initiations to interact during conversations, comment lesser, take lesser conversational turns and respond less to others during conversations (Jones et al., 2017), Difficulties in initiating a conversation (Baron-Cohen, 1988) and in responding to others' initiations(Stone & Caro-Martinez, 1990) also have been reported. Once engaged in a conversation, speakers with ASD appear to have difficulty taking turns appropriately (Botting & Conti-Ramsden, n.d.).

Deviant patterns of eye contact behaviour are found in individuals with autism, who suffer from severe social and communicative deficits. Eye contact and modulation of gaze behaviour have been found to be difficult areas for individuals with ASD (Toth, Munson, Meltzoff, & Dawson, 2006). Children with ASD, on the other hand, often rely on memorizing items in specific formats rather than analyzing questions into components and abstracting contextual cues from wh- questions (Goodwin, Fein, & Naigles, 2015).Studies indicate Children with ASD have affected turn-taking abilities along with a lesser tolerance for waiting for turn during conversations (Cardillo, Mammarella, Demurie, Giofrè, & Roeyers, 2020)

Children with ASD have been found to have difficulty with 'wh' questions having words like 'what', 'where', 'who' (Daar, Negrelli, & Dixon, 2015). Avoidance of eye contact and difficulty with eye contact during early life have been observed to indicate Autism Spectrum Disorder. These deficits have also been observed to persist through life (Trevisan, Roberts, Lin, & Birmingham, 2017). Studies have shown a positive relation between turn taking and joint attention skills in children (toddlers) with autism (Trevisan et al., 2017).

Studies have evaluated other areas of pragmatics such as extra-linguistic and para-linguistic pragmatic skills (Angeleri, 2016) and documentation of frequency of us of skills and analysis of same in different contexts (Baird &

Norbury, 2016). The tool used in the current study has limitations in ability to assess these areas.

The present study is a pilot study where only six participants were recruited for it. The authors wish to extend the study and recruit more participants for better generalizability. Also, a longitudinal study should be conducted wherein the pragmatic abilities of children with ASD, who are attending therapy, should be monitored.

5. Conclusion

Pragmatic language is a critical part of communication and is related to social skills, learning, and literacy skills in children with autism. Improvement of deficits in communication and social competency can also enhance a child's self-image and sense of belonging in a family and a peer group. When children are diagnosed with ASD, improving their pragmatic language and social interaction are important components of their therapy program. We conclude this article with a recommendation for healthcare professionals to monitor pragmatic developmental milestones in ASD children, to refer them for pragmatic assessments, and to collaborate with researchers to develop valid, reliable tools that adequately capture the pragmatic strengths and weaknesses of ASD children. The study highlights the need to teach children with ASD pragmatic skills as a component of communication, alongside language content and form.

Acknowledgments

The authors would like to extend their heartfelt gratitude to the Director, AIISH, Mysore, the participants of the study and their caregivers.

References

Adams, C. (2002). Practitioner review: The assessment of language pragmatics. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *43*(8), 973–987. doi:10.1111/1469-7610.00226

Adamson, L. B., Bakeman, R., Suma, K., & Robins, D. L. (2019). An expanded view of joint attention: Skill, engagement, and language in typical development and autism. *Child Development*, 90(1), e1–e18. doi:10.1111/cdev.12973

Anderson, D. K., Lord, C., Risi, S., DiLavore, P. S., Shulman, C., Thurm, A., . . . and Pickles, A. (2007). Patterns of growth in verbal abilities among children with autism spectrum disorder. *Journal of Consulting and Clinical Psychology*, 75(4), 594–604. doi:10.1037/0022-006X.75.4.594

Angeleri, R., Gabbatore, I., Bosco, F. M., Sacco, K., & Colle, L. (2016). Pragmatic abilities in children and adolescents with autism spectrum disorder: A study with the ABaCo battery. *Minerva Psichiatrica*, 57(3), 93–103.

Baird, G., & Norbury, C. F. (2016). Social (pragmatic) communication disorders and autism spectrum disorder. *Archives of Disease in Childhood*, 101(8), 745–751. doi:10.1136/archdischild-2014-306944

Bar-Haim, Y., Shulman, C., Lamy, D., & Reuveni, A. (2006). Attention to eyes and mouth in high-functioning children with autism. *Journal of Autism and Developmental Disorders*, 36(1), 131–137. doi:10.1007/s10803-005-0046-1

Baron-Cohen, S. (1988). Social and pragmatic deficits in autism: Cognitive or affective? *Journal of Autism and Developmental Disorders*, 18(3), 379–402. doi:10.1007/BF02212194

Bishop, D. V. (1998). Development of the Children's Communication Checklist (CCC): A method for assessing qualitative aspects of communicative impairment in children. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 39(6), 879–891

Bzoch, K. R., & League, R. (1991). Receptive-expressive emergent language scale. Pro-ed.

Cardillo, R., Mammarella, I. C., Demurie, E., Giofrè, D., & Roeyers, H. (2021). Pragmatic language in children and adolescents with autism spectrum disorder: Do theory of mind and executive functions have a mediating role? *Autism Research*, 14(5), 932–945. doi:10.1002/aur.2423

Daar, J. H., Negrelli, S., & Dixon, M. R. (2015). Derived emergence of WH question-answers in children with autism. *Research in Autism Spectrum Disorders*, 19, 59–71. doi:10.1016/j.rasd.2015.06.004

Gleason, J. B., & Ratner, N. B. (2007). *The development of language*. London: Pearson.

Goodwin, A., Fein, D., & Naigles, L. (2015). The role of maternal input in the development of wh-question comprehension in autism and typical development. *Journal of Child Language*, 42(1), 32–63. doi:10.1017/S0305000913000524

Hatch, B., Iosif, A. M., Chuang, A., de la Paz, L., Ozonoff, S., & Miller, M. (2021). Longitudinal differences in response to name among infants developing ASD and risk for ADHD. *Journal of Autism and Developmental Disorders*, 51(3), 827–836. doi:10.1007/s10803-020-04369-8

Maljaars, J., Noens, I., Jansen, R., Scholte, E., & van Berckelaer-Onnes, I. (2011). Intentional communication in nonverbal and verbal low-functioning children with autism. *Journal of Communication Disorders*, 44(6), 601–614. doi:10.1016/j.jcomdis.2011.07.004

Pratt, C., Botting, N., & Conti-Ramsden, G. (2006). The characteristics and concerns of mothers of adolescents with a history of SLI. *Child Language Teaching and Therapy*, 22(2), 177–196. doi:10.1191/0265659006ct301oa

Stone, W. L., & Caro-Martinez, L. M. (1990). Naturalistic observations of spontaneous communication in autistic children. *Journal of Autism and Developmental Disorders*, 20(4), 437–453. doi:10.1007/BF02216051

Thabtah, F., & Peebles, D. (2019). Early autism screening: A comprehensive review. In International *Journal of Environmental Research and Public Health*. MDPI, 16(18). doi:10.3390/ijerph16183502

Toe, D., Mood, D., Most, T., Walker, E., & Tucci, S. (2020). The assessment of pragmatic skills in young deaf and hard of hearing children. *Pediatrics*, 146(Suppl 3), S284–S291. doi:10.1542/peds.2020-0242H

Toth, K., Munson, J., Meltzoff, A. N., & Dawson, G. (2006). Early predictors of communication development in young children with autism spectrum disorder: Joint attention, imitation, and toy play. *Journal of Autism and*

Developmental Disorders, 36(8), 993–1005. doi:10.1007/s10803-006-0137-7

Trevisan, D. A., Roberts, N., Lin, C., & Birmingham, E. (2017). How do adults and teens with self-declared autism Spectrum Disorder experience eye contact? A qualitative analysis of first-hand accounts. *PLOS ONE*, 12(11), e0188446. doi:10.1371/journal.pone.0188446

Turkstra, L. S., Clark, A., Burgess, S., Hengst, J. A., Wertheimer, J. C., & Paul, D. (2017). Pragmatic communication abilities in children and adults: Implications for rehabilitation professionals. In *Disability and Rehabilitation* (Vol. 39, Issue18, pp. 1872–1885). Taylor & Francis Ltd., 39(18), 1872–1885. doi:10.1080/09638288.2016.1212113

Volden, J., Coolican, J., Garon, N., White, J., & Bryson, S. (2009). Brief report: Pragmatic language in autism spectrum disorder: Relationships to measures of ability and disability. *Journal of Autism and Developmental Disorders*, 39(2), 388–393. doi:10.1007/s10803-008-0618-y

Watson, L. R., Roberts, J. E., Baranek, G. T., Mandulak, K. C., & Dalton, J. C. (2012). Behavioral and physiological responses to child-directed speech of children with autism spectrum disorders or typical development. *Journal of Autism and Developmental Disorders*, 42(8), 1616–1629. doi:10.1007/s10803-011-1401-z

Whyte, E. M., & Nelson, K. E. (2015). Trajectories of pragmatic and nonliteral language development in children with autism spectrum disorders. *Journal of Communication Disorders*, 54, 2–14. doi:10.1016/j.jcomdis.2015.01.001

Zwaigenbaum, L., Thurm, A., Stone, W., Baranek, G., Bryson, S., Iverson, J., Sigman, M. (2007). Studying the emergence of autism spectrum disorders in high-risk infants: Methodological and practical issues. In *Journal of Autism and Developmental Disorders* (Vol. 37, Issue 3, pp. 466–480), 37(3), 466–480. doi:10.1007/s10803-006-0179-x