

Pragmatic Skills during Mother-Child Interaction in Children with Autism

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ABSTRACT

Children with autism spectrum disorders (ASDs) show delay in the onset of their language development and frequently demonstrate impairments of various subcomponents of language. The use of language (pragmatics) as a social condition refers to the use of social context and to the identification of the speaker's intentions, desires and communication strategies. From a pragmatic view, wh-questions typically ask for information which is desired, but not known, by the speaker. This paper aims to study pragmatic skills; Questioning, Answering questions, and adding information to the topic, in typically developing Kannada speaking children and children with Autism with Language age (comprehension and expression) of 2-4 years respectively. Participants were divided into two groups; group A- typically developing children and group B: children with Autism. The current study utilized a mother-child semi instructed play task to study the pragmatic skills. One hour audio-video sample of mother-child interaction was recorded. The data was analysed for frequency of pragmatic skills used during the course of interaction with his/her communicative partner (i.e., mother). The study findings showed that the frequency of use of pragmatic skills studies were significantly less in children with ASD in comparison with Language age matched typically developing children.

Key words: Pragmatic skills, Kannada speaking typically developing children, children with Autism, mother-child interaction

INTRODUCTION

Early language is typically characterised by a combination of gestures, vocalisations, and simple phonetic forms, these acts are social in nature and are interpreted by adults as communicative in intent, leading to descriptions of children as "pragmatically precocious".⁽¹⁾ Pragmatic language behaviours emerge during the prelinguistic phase of language development. Verbal pragmatic deficits include failures in using structured language with its inherent apparatus as a tool in dialog context. On the other hand, nonverbal pragmatic deficits include lack of ability to infer thoughts, inability to interpret facial expressions, body postures, gestures, and

prosody, and failure to understand communicative subtleties that govern social behavior.⁽²⁾

In the 5th revised version of DSM-V the 'pervasive developmental disorder' diagnosis category has been replaced by the 'autism spectrum disorder', which is considered a unified disorder with a common group of symptoms (social communication and stereotypes or repeated interests or routines).⁽³⁾ A core characteristic of children on the autism spectrum is lack of the ability to understand other people's thoughts, feelings and communicative intentions, as well as a weakness to put themselves into the other person's place.⁽⁴⁻⁶⁾

Question asking behavior often takes the form of requesting information such as who?, what?, when?, where?, why?, or which? Typical language developers' question-asking behaviour is noted very early in life. (7) Pragmatically, wh-questions serve several communicative functions, these questions (who or what) are used by 2 to 3 year old children for information-seeking purposes. (8) Earlier studies have reported that children with ASDs show delays in both production and comprehension of Wh-questions. (9-10) Some researchers have reported that children with ASD have particular difficulties with wh-questions because these are complex grammatical structures. (11) While others have proposed that the deficit in wh-question production witnessed in children with ASD is more related to pragmatics rather than grammar. (9)

The pervasive problem of a lack of self-initiated verbal interaction tends to persist for children with autism, which extremely limits their social and verbal learning opportunities. (12) Reported that independent of a child with ASD's cognitive and communicative level, the number of initiated questions and question forms appear to be limited and may continue throughout life. (5& 9) During structured and free play sessions, verbal children with ASD requested less information compared to their typically developing peers and used fewer wh-questions during natural interactions. (13) Reported that intervention to improve social question initiations can assist children with autism to improve learning language, joining play opportunities, and participating in collaborative play with peers.

(14) Children's pragmatic competence is developed and refined through participation in family, peer, and educational interactions, which serve as a means and motivation for skilful and strategic language use. In child pragmatics, adult-child and children's peer interactions are viewed as distinct interactional and developmental sites. Adults generally support children's conversational

participation by providing a model and scaffolding children's competent and equal conversational performance. Peer interactions reveal children's pragmatic abilities in unaided conversational situations. (15) The assessment of pragmatic development is necessary to understanding a child's competence in language use. Assessing these skills is challenging because pragmatics and social communication assessments should take place in "natural contexts where these skills can be directly observed in real time". There is a need for assessments of pragmatics and social communication that are contextualized, as well as reliable, valid, and evidenced based. (16)

NEED

To sum up, the ability to question and answering questions, adding information to existing topic is an essential pragmatic behavior that influences the conversational roles played by speakers and listeners. The contexts (e.g., play, conversations with others, recounting past events, explaining something, listening to others) in which communication takes place must be considered in any pragmatics and social communication assessment process. (17) This assesses one to directly observe children in real-life contexts, and that can document changes in language across communication partners and contexts. The quality of parent-child interaction plays a crucial role in child development. A longitudinal study on the influence of parental care on the development of children points out that while the quality of the interaction with the mother contributes to linguistic development, the quality of the interaction with the father contributes more to motor development. (18) Another study indicates that the fathers' language tends to be more instructive and intrusive, while the mothers' language tends to be more permissive and supportive. (19) Thus the present study aimed to investigate pragmatic skills (initiation and response) in children with Autism in natural contexts using

mother-child interaction method. In this study the mother served as the child's playmate and conversational partner. Though the contributions from fathers are well acknowledged, they were not studied here.

Objectives of the study

1. To study the pragmatic skills in 2-4 year old typically developing Kannada speaking children in the context of mother-child interactions.
2. To study the pragmatic skills in language age matched Kannada speaking children with Autism in the context of mother-child interactions.
3. To compare the pragmatic skills across the two groups in the context of mother-child interactions.

METHOD

Research Design

A standard group comparison design was used. The group with Autism was compared with language age matched typically developing children in the context of mother-child interactions.

Participants

Group I: Reference Group: Ten mother-child (male) pairs participated in this study. All participants were from native Kannada speaking families.

Inclusion criteria for reference group:

1. Children in the age range of 2-4 years.
2. Children with age adequate Speech-Language and social skills.
3. Children with no features of autism (M-CHAT was used to rule out presence of Autistic features in typically developing children).
4. Children with normal hearing ability (based on audiological screening).

Exclusion criteria for reference group:

Children with the history of visual impairment, hearing loss, ear discharge, seizures and other developmental disabilities (based on parental reports)

Group II: Clinical Group: Ten mother-child (male) pairs participated in this study. All participants were from native Kannada speaking families.

Inclusion criteria for clinical group:

1. Children with language age and social age of 2-4 years.
2. Children with Autism (children who had received a diagnosis of Autistic disorder from qualified Speech-language pathologists and Psychologists based on routine screening tests / diagnostic tests / and on clinical observation and profiling)
3. Children with normal hearing ability (based on audiological screening).

Table-1: Demographic details of children with Autism and language age

Sl.No	Gender	Chronological age (years)	Language age (years)		Social age (years)	Therapy duration
			Receptive	Expressive		
1	M	3.8	2.4	2	2	8 months
2	M	3.10	2.4	2	2	8 months
3	M	4.6	3.6	3	2.6	1 year
4	M	4.2	3	2.3	2.6	1 year
5	M	4.5	2.6	2	2	1.6 years
6	M	4.7	3	2.6	2.8	1.6 years
7	M	5.2	3.6	3.2	3.2	1.6 years
8	M	5.5	3.10	3.2	3.8	2 years
9	M	6	4	3.6	3.2	2 years
10	M	6.2	4	3.6	3.6	2 years

Materials: Toys and activities suitable for children in the selected age range were included based on guidelines from 'Toy kit for children with developmental disabilities'.⁽²⁰⁾ The toys included were

flash cards, picture books, building blocks, noise makers, toy vehicles / animals / fruits / common objects, ball, and doll. The same sets of toys were provided for both the groups.

Procedure: An informed consent in writing was obtained from all the mothers of children in both the group. Each participant of the two groups (reference group and clinical group) was seen first for a developmental evaluation by interviewing the mothers using Receptive-Expressive Emergent Language Scale (REELS),⁽²¹⁾ Comprehensive Language Assessment Tool for Children,⁽²²⁾ Vineland Social Maturity Scale (VSMS), Indian adaptation,⁽²³⁾ Sessions of semi instructed mother-child interactions served as the media through which the pragmatic skills were assessed. This testing method was used to create environment that promotes conversational social interaction between mother and child rather than merely a stimulus-response format. In this study the mother served as the child's playmate and conversational partner. Though the contributions from fathers are well acknowledged, they were not studied here.

Before the recording participants were familiarized with the clinical settings. The investigator built rapport with mother-child to help overcome shyness/fear if any. Mother and children were instructed to play and interact with each other as they would normally do at home using as many of the toys and materials provided to them. The participants were also instructed to ignore the presence of investigator and camera. The audio-video recording was done using a Sony (DCR-DVD703E) digital video camera recorder. The video camera was handled by the investigator. Recording was done at home environment. The recording was done on the matted floor in order to create a nontesting environment for the child, to minimize test anxiety and to maximize naturalistic social interaction, during the time of recording. The recording was done in a quiet room with limited distraction. No restrictions were given regarding play or position of the participants in the room. During the time of recording except the investigator and mother-child pair, no other person was entertained. An hour's audio-video recording of mother-

child interaction was collected in 3 – 4 sittings for 20-15 minute duration within a week. Based on the temperament of the child, adequate rest periods were given between the recordings. At the end of each session, children were provided with tangible reinforcement.

The present study evaluated the performance of typically developing children and children with Autism on three pragmatic skills.

- 1. Questioning:** Child asking wh questions.
- 2. Answering questions:** child's utterances that indicate answering wh questions in word, phrase and / or sentence level.
- 3. Adding information:** Child's utterances that indicate adding new information for the topic of discussion.

Coding Procedure: The recoded video samples of mothers-child interaction were subjected to frequency calculation. Frequency referred to the number of instances of initiation from mother and responses given by each child and self-initiation by each child for each pragmatic skill. The responses obtained from each child to mother's initiation of pragmatic skills was grouped into two categories namely, response and no response.

- 1. Response:** Contextually appropriate response (gestures and / or utterances) from the child that occurred to mother's initiation of pragmatic skills
- 2. No response:** Ignoring the question without answering. Responses out of topic were also grouped in "no response" category.

Judges:

Two Speech-Language Pathologists (postgraduates) served as judges for this study. The judges were familiarized with the operational definitions for the pragmatic skills used by the mothers and children. Pretraining procedures included familiarization, discussion, and clarification of the definitions of each of the pragmatic skills to be evaluated and coding procedure. After the completion of training period, the

two judges were blind to the purpose of the study. No identity was revealed about the subjects, except information on age. The audio-video recording from the cassette of the digital video camera were loaded on to a personal computer and recorded on to a Digital Video Disc (DVD) that was then analyzed. Recorded audio-video samples were shown to the judges along with the operational definitions and score sheets. Judges were allowed to see the video any number of times they wanted. Adequate time was given to the judges for frequency calculation. The samples were judged independently by two judges.

Inter-judge Reliability: Reliability coefficient alpha was calculated for each pragmatic skill and it was found to be 0.8 indicating high reliability between the judges.

RESULTS AND DISCUSSION

The present cross sectional study aimed to explore the pragmatic skills in children with Autism besides studying language age and social age matched Kannada speaking typically developing children as reference in a mother-child interactional context.

Table: 2- Mean, SD values and Mann-Whitney U test of significance between typically developing children and children with Autism for pragmatic skills

Sl. No	Pragmatic skills	Typically developing children		Children with Autism		Z value
		Mean	SD	Mean	SD	
1	Questioning	29.25	6.32	6.55	4.83	3.38
2	Answering questions	75.19	7.47	24.46	11.24	4.74
5	Adding information	68.01	11.3	.00	.00	5.15

Table 2: Show mean and SD values for pragmatic skills by typically developing children and children with Autism. The mean values were calculated for raw scores. Raw scores in the study referred to the number of times each pragmatic skill was initiated and responded. Frequency of questioning and answering questions was very less in children with Autism compared to typically developing children. Adding information to the topic of conversation was not seen in children with autism. Mann-Whitney U test results of pragmatic skills between the two groups indicated significant differences at 0.05 level of significance.

Both pragmatics and social communication skills are necessary for successful interactions with others. Wh-question acquisition is interesting because these questions tap into both the grammatical and pragmatic aspects of language. In this study Typically developing children answered for question, what?, where?, Why? Who?, when?, Which? How ? and initiated Wh-questions, what? Where? who? Why?. Children with autism were found to initiate and respond to what?

questions. Participants with ASD provided either inadequate or less specific information to questions asked. The results of this study are in support with the existing literature on the pragmatic skills deficits of questioning, answering questions and adding information in children with Autism.

Asking and answering wh-questions are a developmental milestone that sets the groundwork for language learning and vocabulary acquisition. The ability to use appropriate questions and answering questions by adding information and manage ongoing discourse is indicative of the pragmatic competence of speakers and influences the manner in which listeners perceive them. This pervasive problem of a lack of question-asking and answering in children with autism may severely limit verbal learning opportunities and present as pragmatically inappropriate during social interactions. (24)

CONCLUSION

Information about question asking and answering skills is essential in designing effective assessments, interventions and support as they may

explain the sources of communication breakdowns.. The evaluation of language profile in children with autism should be conducted in different contexts, including objective testing, interviews with caregivers, and naturalistic observation for understanding language use in children. The results of this study should be considered to be preliminary, and not yet generalizable to populations beyond the participants in this current study.

Limitations of the Study

1. This study includes limited sample size.
2. Mother-child interaction procedure only was used in exploring the pragmatic skills of children with and without ASD. Interaction with others (i.e. other than the mother) was not explored for pragmatics.
3. In the study, no attempt was made to study and control mothers personality, attitude, communication skills etc.

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