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Stereotype Behaviors and Adaptive Social Skills in Children with Autism Spectrum Disorder: Parental and Professional Perspective

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Abstract

Children with autism spectrum disorder (ASD) show restricted and repetitive behaviors persistently, including stereotypic behaviors. Stereotypic behaviors include irregular pattern movements (repetitive jumping, body spinning, hand flapping, and vigorous finger movement) and uncontrolled talking (vocal steaming/hamming). These problems create great hurdles for children in developing adaptive social skills and learning engagement, thus making them isolated. By using the qualitative method, the study aimed to explore the viewpoints of Pakistani parents and professionals regarding stereotypic behavior and its effects on adaptive social skills among children with ASD. Six participants (three parents and three teachers of children with ASD) were selected by using purposive sampling to explore their experiences about stereotype behaviors closely associated with ASD children. Semi-structured interviews were conducted and recorded through online meetings (by using Zoom Meet and Google Meet) and face-to-face meetings. The meeting duration was 35-60 minutes depending on the availability of the participants. Reflexive thematic analysis was used to identify key themes and sub-theme trends in order to explore the parents and teachers perspectives. The findings of this study indicated that the stereotypic behaviors among ASD children displayed negative effects causing problems in social contexts. Moreover, these children were found to have deficits in learning participation, and difficulties in social etiquette, leaving them isolated. The findings also indicated that stereotypical behaviors required target intervention and community awareness about the rights of ASD children. The results showed that stereotypical behaviors stem from sensory needs which should be fulfilled accordingly using sensory-based interventions that may be helpful in engaging and developing attentive behavior of such children in various social contexts. Further research should be conducted with mixed-method approach to provide targeted intervention that may help decrease stereotypical behaviors.

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Additionally, a larger sample size in qualitative studies is advised to reach saturation effectively.

Keywords: adaptive social skills, ASD, stereotypy behaviors

Introduction

Autism Spectrum Disorder (ASD) is the term used to describe individuals with determined deficits in social integration and functional communication, across multiple contexts, as well as restricted, repetitive patterns of behaviors, interests, or activities (American Psychiatric Association [APA], [2013](#)). Restricted and repetitive behaviors are considered as central features of autism spectrum disorder (ASD), and research studies in these behaviors are limited, as compared to that of predicting social communication deficits (Berry et al., [2018](#)). Restricted and repetitive behaviors include a wide range, such as stereotypies, compulsions, rituals, monotony, self-injurious behavior and restricted interests (Jasim & Perry, [2023](#)).

Stereotypical behaviors can be considered as the sub-part of restricted and repetitive behavior (McCarty & Brumback, [2021](#)). Stereotypies are repetitive, rhythmic, and purposeless movements or vocalizations that are common in people with autism spectrum disorder (ASD) and other neurodevelopmental disorders (Hervas, [2021](#); Rapp & Lanovaz, [2016](#)). In Kanners ([1943](#)) initial description of 11 autistic children, repetitive and restricted patterns of behavior, interests, and activities have been regarded as essential to autism disorder. In his original case studies, Kanner discussed a variety of body and object stereotypies, such as spinning, jumping, and other rhythmic movements of the body (Lyons & Fitzgerald, [2007](#)).

Stereotypy behaviors refer to structural and functional-behaviors (Rapp & Vollmer, [2005](#)) that are further divided into two major types: vocal stereotype, and motor stereotype (Leaf et al., [2022](#); Rapp & Lanovaz, [2016](#)). Motor stereotypy behaviors refer to hand flapping, finger flicking, hair twirling, body rocking, body spinning, repetitive jumping, and head butting (Hervas, [2021](#); Katherine, [2018](#); McLaughlin & Fleury, [2020](#)). Vocal stereotypy behaviors refer to non-contextual or non-functional speech, which includes singing, babbling, repetitive grunting, squealing, and phrases unrelated to the situation at hand (Gajić et al., [2022](#); Hervas, [2021](#); Mantzoros et al., [2022](#)). Children with ASD might engage with stereotypy behavior due to function-based demands, but mostly it is due to structured

and nonsocial reinforcement (Querim et al., [2013](#); Rapp & Lanovaz, [2016](#)). Structure-based stereotypy behaviors need targeted intervention (Berry et al., [2018](#); Cooper et al., [2020](#)). Research studies indicate that stereotypy behaviors interfere with the development of adaptive social skills (Hajri et al., [2022](#); Jones et al., [1990](#)), such as taking turns, initiating conversations, understanding social cues, and also lead to disturbed sleep patterns (Hunter et al., [2022](#)). Children with ASD who engage in more stereotypical behaviors may have difficulty attending to social cues, which can make it harder for them to learn social skills, making them isolated from the environment (Rapp & Lanovaz, [2016](#)). Research studies justify that a higher level of engagement in stereotypic behaviors makes the child isolated, and affects their adaptive behaviors, adaptive social skills, executive functions, and making them engage in self-injurious behaviors (Bodfish et al., [1995](#); Miniarikova et al., [2023](#); Richman et al., [2013](#)).

A systematic review of 37 studies reported that the prevalence of stereotypic behaviors in children with ASD and developmental disabilities had a median prevalence of 51.8%, ranging from 21.9% to 97.5%. Furthermore, the study exposed that ASD sufferers had the highest reported prevalence (i.e., 88 percent) for a variety of diagnoses (Chebli et al., [2016](#)). The prevalence of vocal stereotypy behaviors in ASD is about 85% (Wang et al., [2020](#)). However, this estimate may vary depending on the definition and measurement of vocal stereotypies, in addition to the characteristics of ASD. Termine et al. ([2021](#)) reported in his study that lower or higher rates of vocal stereotypies measured in ASD range from 12% to 100%. Péter et al. ([2017](#)) conducted a review article on the pathophysiology of motor stereotypies in ASD & other disorders, and estimated the prevalence of motor stereotypies in ASD to be about 85%, based on a sample of 1,380 children and adolescents.

The relationship between adaptive social skill deficits and the management of stereotypy in children with autism spectrum disorder (ASD) is a complex and multifaceted issue (Jones et al., [1990](#)). According to the DSM-5 TR, children with ASD exhibit deficits in social integration, and social communication, along with having restricted and repetitive behaviors. These deficits in adaptive social skills are a core diagnostic feature. When children with ASD primarily engage in structural behavior patterns, they are isolated and unable to interact with peers, and other social environments.

Individuals who possess adaptive social skills can interact with others in a variety of social contexts appropriately and effectively (Gerhardt & Crimmins, [2013](#)). These abilities include self-control, assertiveness, empathy, functional communication, perspective-taking, and problem-solving. Adaptive social skills are essential for achieving personal and professional goals as well as building and maintaining relationships (Merrell & Gimpel, [2014](#); Rosello et al., [2020](#)). Practical practices indicate that children with ASD have deficits in adaptive social skills, which are one of the core features of the disorder (APA, 2013). Adaptive social deficiencies can manifest as difficulty understanding social cues, expressing emotions, starting and maintaining conversations, sharing interests, making friends, and coping with social problems (Hirota & King, [2023](#); Mundy et al., [1986](#)). The level and nature of deficits in adaptive social skills may vary depending on the individuals age, cognitive skills, severity of autism symptoms, diagnosis, and environmental resources (Cooper et al., [2020](#); Hirota & King, [2023](#)). The association between deficits in adaptive social skills, and coping with stereotypical behaviors among children with ASD is a complex and multifaceted issue (Jones et al., [1990](#)). When such children engage in structural stereotypy behaviors, they get isolated, and are unable to interact with their peers and other social environments (Rapp & Lanovaz, [2016](#); Tereshko et al., [2021](#)).

This research aims to explore how stereotypical behaviors (motor stereotype and vocal stereotype) negatively affect children's social adjustment and social growth. Children with ASD normally engage in stereotypical behaviors which may hinder opportunities for social interaction and learning, as well as cause disapproving reactions from other social settings. This study, collected information from both parents and teachers of children with ASD, to get a full picture of how stereotypical behaviors affect adaptive social skills. The frequency and types of stereotypical behaviors, as well as the children's social abilities and difficulties, were evaluated using semi-structured qualitative interviews.

Methodology

Study Design

The study uses qualitative method based on critical realisms ontology and epistemology (Spencer et al., [2014](#); Stutchbury, [2022](#)), which assumes that while each person has a unique experience of reality, reality has

objective, enduring characteristics that are independent of human perception. Critical realism allows for a nuanced understanding of individual experiences, while also acknowledging the existence of objective realities that shape these experiences (Lawani, [2021](#); Stutchbury, [2022](#)). In-depth qualitative interviews are an appropriate way to gain access to individual narratives, which reflect empirical differences based on participant experiences (Mills & Gay, [2019](#)). For this purpose, semi-structured interviews were used to collect parents and teachers views on the experiences of children with ASD.

Participants

In this study, six participants were selected by using the purposive sampling technique; three parents with ASD children (ages 6 to 15 years), and three teachers who had teaching experience at private and public sector schools (working experience of 10 to 15 years). The study aimed to collect in-depth experiences of the parents and teachers about a specific phenomenon, which justifies the limited sample size as prescribed by Hiram et al. ([2023](#)) and Lakens ([2022](#)) who argue that when qualitative depth is required, the smaller sample size is justified. Those participants (parents) who were planning interventions for their children to decrease stereotypical behaviors were excluded from the study. The researcher introduced the study theme to parents and teachers, and also took their consent for interviews related to stereotype behaviors, and their perspectives about the impact of ASD on children's adaptive social skills.

Table 1 provides the demographic information about selected study participants. 3 parents (two mothers and one father) participated and the age criterion was 35 to 50. Participants of the study belonged to Faisalabad, Pakistan, and the interview was recorded in Urdu due to language restrictions. Table 2 shows that two teachers had public sector experience, and one teacher had private sector experience. The selected participants had phenomenological experience with the work of ASD children. One parent belonged to upper-class socio-economic status and the other described themselves as middle-class.

Table 1*Demographic Information of Participants (Parents)*

Sr. No.	Gender	Age	Occupation	ASD Children	Child age	Autism severity level
1	Female	43	Housewife	1	9	Mild to moderate
2	Male	40	Private job	1	8	Moderate
3	Male	42	Own business	1	6	Moderate

Table 2*Demographic Information of Participants (Teachers)*

Sr. No.	Gender	Age	Sector experience	Qualification	Working experience	Expertise
1	Female	40	Private	M.Ed. Spl. Edu.	12	ASD
2	Male	38	Public	M.Sc. psychology	10	Developmental disabilities
3	Female	45	Public	M.Phil.	15	IDD/ASD

Data Collection

Zoom (an online platform) direct meeting was used to conduct semi-structured interviews with each parent and teacher. The interview questions are listed in Table 3. The interviews were conducted in January 2024 and February 2024 based on the participants availability. The interviews were led by the author owing to his knowledge and association with ASD and special education graduates. Both English and Urdu versions were recorded, and each interview lasted anywhere from 35 to 70 minutes.

Two parents of children with neurological disorders and two teachers served as the first pilots for the interview questions. The wording of some questions was altered in response to feedback, and retrospective questions were added. Questions were developed on the base of the theoretical and empirical literature on behavioral issues, social relationships, parental experiences, and teachers' experiences.

Table 3*Interview Questions*

1. Would you be able to describe the stereotypical actions exhibited by the child with ASD?

2. In what percentage of the child's daily activities do these stereotypical behaviors take place?
 3. Have you noticed which stereotypical behavior (motor stereotype or vocal stereotype behaviors) the child engages in, and if it makes them isolated?
 4. When the stereotype behaviors are present, have you noticed any changes in the child's adaptive social skills?
 5. Can you give some examples of how the child's interactions with peers and adults have been impacted by these stereotyped behaviors?
 6. Do you think the child's stereotyped behaviors have made it more difficult for them to establish or maintain social relationships?
 7. Have you noticed any tactics or interventions that appear to lessen the negative effects that stereotyped behaviors have on social skills?
 8. Are there instances or circumstances in which the stereotyped behaviors are less noticeable or nonexistent in your experience?
 9. Do you believe that the child's stereotypical behaviors and sensory sensitivities are related?
 10. Does the child excel in any particular social skills or adaptable behaviors even in the presence of stereotyped behaviors?
 11. What kind of modification to the child's social skills do you think would be ideal to counter these stereotype behaviors?
 12. When stereotype behaviors are reduced or effectively managed, have you noticed any changes in the child's general quality of life and social skills?
-

Ethical Consideration

During the data collection phase of this study, interviews were conducted with parents of children diagnosed with autism spectrum disorder (ASD), and the teachers and school administrators who worked with them. Before conducting the interviews, ethical approval was obtained from the relevant authorities and informed consent was obtained from all participants. Participants were assured of the confidentiality and anonymity of their answers, and that their participation was voluntary.

Data Analysis

The collected narrative forms of transcription were analyzed with a reflexive thematic approach (Braun & Clarke, [2019](#); Slawewski, [2018](#)). An inductive process was used to identify the patterns and themes from the

collected information. Braun and Clarke (2019) described six steps of reflexive thematic analysis including formulation of data, generation of coding, codes into themes, reviewing themes, defining, and reporting. The data transcripts in this study were examined and coded to find data that coincided with the research objectives. The data was further analyzed conceptually from the perspective of reflexive thematic analysis. Furthermore, the study considered the explicit and implicit meanings of the responding participants and conceptualized them. This was achieved by analyzing patterns, similarities, and overlapping codes, grouping them into themes. The codes that could not be categorized into specific themes were also identified simultaneously. Moreover, themes were clarified by exploring, combining, separating, and rearranging them to understand data and to organize concepts. The authors defined and named each theme and sub-theme to capture their distinctiveness and meaning, and wrote a report that presented the participants experiences and the themes, sub -themes, data extracts, and analytic process clearly and logically for the reader.

Braun and Clarke (2019) described the reflexive thematic analysis as a technique for data interpretation that is influenced by the researchers viewpoint, experience, knowledge, and worldview. It acknowledges the dynamic interaction between the researchers data and their own to develop themes based on codes.

Results

Three themes were developed on the base of a collected dataset isolation, sensory need, and social deficit. Based on the collected dataset, three key themes emerged: challenges, sensory needs, and social deficits.

Table 4

Themes and Sub-Themes Obtained from Parents' and Teachers' Experiences

Themes	Sub-themes
Challenges	Social isolation, disturbance, poor attention
Sensory needs	Sensory meltdown, hypersensitive needs, auditory sensitivity need
Social deficit	Difficulty understanding social cues, limited social interaction

Theme 1: Challenges

The collected interviews from parents and professionals dealing with children with ASD indicate that due to engagement with stereotypy behaviors, whether it is motor stereotypy behaviors or vocal stereotypy behaviors, children faced challenges in building social relationships, creating disturbance for others, and displayed poor attention in their learning environment. Two parents argued that;

Peers have no proper understanding of stereotyped behaviors which might be structural or functional. They exclude ASD children because they dont understand the meaning or purpose of their words and actions. Isolation and difficulty forming friendships may be the results of this lack of understanding.

Due to stereotyped behaviors, children with ASD engage in nonverbal activities which may interfere with the conveyance of their emotions or intentions to others. This is the major impact of this behavior (vocal stereotype and motor stereotype) leading to misunderstandings and frustration in social interactions.

Theme 2: Sensory Needs

Most of the participants of this study described and expressed their experience based on stereotyped behaviors in children with ASD, asserting that these behaviors are often closely linked to their sensory needs and sensitivities. Sometimes stereotype behaviors are triggered due to sensory needs and sensory overload. In children with ASD, sensory processing differences are common, and these can manifest in various ways, leading to stereotyped behaviors. Professionals expressed their experience of teaching ASD children as:

"Some ASD children exhibit repetitive or stereotyped behaviors as a means of obtaining sensory input. To stimulate their senses and control their sensory experiences, they might, for instance, flap their hands, rock back and forth, or spin objects"

Children with ASD engage in stereotyped behaviors as a coping mechanism when exposed to overwhelming sensory stimuli, such as bright lights, loud noises, or crowded areas. These actions can be used to self-soothe or regulate ones emotions isolating them from

social context. This is why they fail to develop adaptive social behaviours.

Theme 3: Social Deficit

One of the core features of ASD is a deficit in social skills, which refers to the back-and-forth exchange of social and emotional cues during interactions. Stereotype behaviors make it challenging for children with ASD to engage in typical social interactions. Participants asserted that these behaviors are perceived as odd or distracting by their peers, isolating the child socially, which enhances their difficulties in forming meaningful relationships. A family shares their experience as:

My child (Abdullah), due to engagement with stereotyped behaviors has difficulty making and maintaining eye contact, which is an important nonverbal cue for social communication. He is mostly busy staring at objects or focusing on specific patterns diverting his attention away from establishing eye contact with others. This type of stereotyped behavior results in a reduced ability to interpret facial expressions, share attention, and shape a relationship with his peers. In the long run, this impacts his social skill development and adaptive social skills.

Discussion

This study aimed to explore the perspectives of teachers and parents on the impact of stereotype behaviors of ASD children on their adaptive social skills. The findings indicate that children with ASD suffer from such behaviors which harm their lives by making them unable to develop adaptive social skills. Stereotypical behaviors in children with ASD have a significant impact on their adaptive social skills (Kalvin et al., [2023](#)). These behaviors, such as repetitive motor movements and vocalizations, can interfere with the acquisition and demonstration of adaptive skills and limit the development of peer relationships (Tereshko et al., [2021](#)). Parents and professionals of children with ASD reported that such children have poor social skills due to engagement in stereotypic behaviors, making them socially absent from their environment. Stereotypic behaviors in children with ASD can have significant effects on their social skills, leading to social isolation, disturbances, and poor attentionspan (Brunetti et al., [2022a](#); Vasylieva & Drozd, [2023](#)). These repetitive and stereotyped behaviors are key features of ASD which impact the development of social and orientation

skills in affected children (Bălaș-Baconschi & Bărbulescu, [2022](#)). The findings of this study addressed that ASD children face challenges regarding understanding social contexts which make them socially isolated. Keller et al. ([2021](#)) reported that children with ASD may struggle or face challenges with understanding social contexts, intentions of others, and deeper causal links, which can contribute to social isolation and difficulties in social interactions. The study findings show that engaging in stereotypical (vocal or motor) behaviors is linked with decreased attention and concentration on work. Whenever children with ASD exhibit stereotypical behaviors, they may indeed experience challenges in attention regulation, and poor concentration, highlighting the intricate interplay between motor deficits and attentional processes (Brunetti et al., [2022b](#); McCarty & Brumback, [2021](#)). Parents of ASD children argue that stereotypic behaviors can sometimes be perceived as socially inappropriate and may lead to stigmatization, potentially interfering with skill acquisition and impeding social development. Stereotyped behavior, or behavior that conforms to a common stereotype, can cause social unrest by creating negative perceptions and reactions from others. These negative reactions can occur regardless of the specific label or category attached to the behavior (Mocănaayu, [2014](#)).

The findings of this study addressed that sometimes children with ASD engage in stereotypic behavior due to their sensory needs, sensory meltdown, and auditory sensitivity. Children with ASD often experience sensory processing disorders, characterized by difficulties in modulating sensory input (Joosten & Bundy, [2010](#)). They might be oversensitive (hypersensitive) or under-sensitive (hyposensitive) to certain sights, sounds, textures, smells, or tastes and these leads them to engage in stereotypic behaviors (Leaf et al., [2022](#)). Stereotypic and stimming behaviors can serve as a way to self-regulate and manage these sensory experiences (Cook et al., [2018](#)).

Most of the respondents reported that children with ASD who engage in stereotypic behaviors may have reduced opportunities for social interaction, which can impact the development of social skills and relationships with peers and siblings (Hervas, [2021](#)). Studies have shown a strong relationship between social skills deficits and challenging behaviors (e.g., stereotypic and repetitive) in children with ASD. Social skills have been found to significantly predict variations in challenging behaviors, underscoring the

need to address social deficits in this population. (Bălaș-Baconschi & Bărbulescu, [2022](#); Wilkins, [2010](#)). Most of the respondents asserted that children with ASD mostly engage in stereotypical motor behavior (hand flapping, repetitive jumping, head banging, and finger flicking). Research studies also indicate that although children with ASD engage in both types, however, most children engage in stereotypical motor behavior (Rapp & Lanovaz, [2016](#)).

According to DSM-5 TR (American Psychiatric Association [APA], [2013](#)) stereotypies in ASD are strongly associated with neurodevelopmental disorders, and considered core features of diagnostic. These behaviors shows specific patterns across different groups, while also showing overlapping behavioral profile. However, social stories, physical activities, social inclusion, perceptual motor activities, and applied behavior analysis (ABA) based interventions have shown promise in reducing maladaptive behaviors and improving social skills in children with ASD. Enhancing sensory and motor development early on may play a vital role in fostering social skills development in children with ASD (Akers et al., [2020](#)). This study recommends that target intervention should be applied to decrease stereotypical motor and vocal behavior among children with ASD. Further research studies should be conducted to know the in-depth intensity and severity of these behaviors and also explore separate effects of engagement in stereotypic behavior on learning and social skills. Furthermore, research studies should use a larger sample size in qualitative studies to reach saturation effectively, enhancing the depth and reliability of findings.

Conclusion

In conclusion, this study aimed to explore the teachers and parents perspectives regarding stereotypy behavior in children with ASD. The participants of the study reported that stereotypic behaviors significantly affect the adaptive social skills of children with autism spectrum disorder (ASD). Also, respondents disclosed that stereotypy behaviors create challenges in learning new skills, isolating the children from their environment. The delimitation of this study includes a limited number of participants selected for the interviews, however, the reason behind this has been aptly justified. This study recommends intervention services which should be used to decrease stereotypy behaviors and improve adaptive social skills.

Conflict of Interest

The author of the manuscript has no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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