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Understanding the Social Interaction and Communication Skills in Autistic Children

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Abstract: ***ASD (autism spectrum disorder) presents with social emotional difficulties for individuals who interpret and successfully communicate social signals. This paper reviews the effect of peer influence on social communication and interaction abilities in the children with autism. The paper reviews the available literature and offers intervention strategies that can better the social interaction status of the children. Research points to the fact that there are gender difference patterns in the social communication skills of ASD children, suggesting therefore the need for gender-sensitivity in their understanding and care. The research supports the need for personalized therapeutic strategies and care services. This allows for progressive social and communication advancements for children with autism spectrum disorder. On the other hand, the study also acknowledges several limitations, so that, proper diagnostic tools along with other approaches such as longitudinal studies should be considered for a better understanding of social interaction in ASD.***
Keywords: Autism spectrum disorder, peer influence, social interaction, communication skills

I. INTRODUCTION

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder which can manifest itself from kindergarten to school age. It is very possible that such behavior will persist into adulthood.
ASD is a multifaceted disease that involves defects in the organization of brain development.
It comes in the shape of different social and communication issues, and the degree of severity may vary from one to the other.
Besides meeting the other characteristics of autism, those also include the patterns of activity and behavior which are for instance difficulty to change one activity to another, seeking details, and unusual reaction towards sensations. The abilities and requirements of autistic people are likely to vary and these can evolve along with time.
Some of these individuals with autism may be able to live on their own; but others may experience more severe forms of the disorder and would require constant attention from a carer for their lifetime.

A. ASD (Autism Spectrum Disorder) High Prevalence Cases.

An article entitled “An Indian view on autism spectrum disorder (ASD) prevalence in India” was published in the Neurology Journal of India in 2019 and showed a wide range of prevalence rate of ASD in Indian children, which ranged between 0.15% and 1.01%. Accordingly, this study was conducted in neighborhoods immediately neighboring the proposed site, therefore, the size of the sampled population was small. The causes of partiality for ASD data in India is the absence of internal data on the ranges of this disability since it is impossible to for any of these reasons including insufficient awareness, stigma, limited screening and diagnostic services mostly at the rural level. Just like the families whose children are having ASD bear the dead weight of the huge economic burden of the ASD diagnostics and rehabilitation, the cost of educational services and lost wages are more than what they can afford. Intervention services are provided less in semi-urban and rural areas across India than in cities. Hence, the lack of staff is inevitable. The social bias, together with the low awareness, a lot of times constitute a major problem in the early diagnosis process and the proper intervention response is delayed. Moreover, there are issues concerning very poor services such as the passage of studies, vocational training, employment, and independent living. The household duty of care toward the child who acquire ASD early on is such a draining process which not only take emotional, financial and physical taxes. India made some positive policy steps first promoting enactment of RPWD Act in 2016 where the children with disabilities can attend schools but steps reported are not adequate reminded by the experts as there are major gaps gaps in various area of interventions of ASD in India such as early detection and intervention, education, employment, and public health policies.
The priority is not given of completing a dataset of prevalence data and furthermore the knowledge of local languages and culture does not seem to be considered in designing research and screening programs.

1) *Factors Contributing to Interaction and Communication Skills.*

a) *Social Interaction Challenges:* The problem of communication is often experienced by those who have ASD. They could completely avoid conversations, fail to keep eye contacts and not know how to understand the aspects of nonverbal communication like facial expression and body language.

b) *Sensory Sensitivities:* The large proportion of people with ASD are super duper sensitive to sounds, lights, textures, and more. Such sensitivities may hamper social inclination by reducing their chances of engaging in social activities on an equal social footing.

c) *Cognitive Differences:* Because of ASD's influence on a cognitive process, the learners explore different ways of social cues comprehension and interpretation. Nevertheless, it will not be any easier for few of them to meet social rules and appropriate behaviors.

d) *Restricted Interests and Repetitive Behaviors:* They are distinct people who are some times obsessed with their jobs which they do at the expense of their humanity and freedom of expression. These jobs involve incessant and mindless repetition with polysyndeton and tautology. The lack of adjustment to the new things may lead these patients to become stubborn and try to be in control of everything, which often results in problems in the social life. A large amount of time being on the Internet and all social media may cause one to sort of drop out from people around and be unable to perceive emotional reactions. Furthermore, some people may seem boring and an obnoxious person to others.

e) *Co-occurring Conditions:* Furthermore, there can be such comorbid conditions as intellectual disability, ADHD, anxiety and social difficulties bringing into picture those children who may seem to have communication disorders and learning difficulties.

2) *The Assessment of Social and Communicative Skills.*

a) *Observational Assessment:* Clinicians and educators carefully follow how people interact with each other in class, clubs etc. they pay attention to eye cues, reciprocity, response and engagement.

b) *Standardized Tests:* All the evaluation methods, including the SCQ and the ADOS, will be employed in order to evaluate the social communication skills and pinpoint the weaknesses.

c) *Parent and Teacher Reports:* Parents, caregivers and teachers who people spend a lot of time with can be approached for asking questions hence the ability to evaluate social behavior of individuals is provided.

3) *Strategies for Communication and Social Interactions Improvement*

a) *Social Skills Training:* Specific interventions concentrate on instruction giving a hand in essential social skills that one has to learn in order to communicate adequately, for instance, taking turns correctly, being a good listener and emotion understanding. Role-playing and modeling are the fundamental methods for such cases.

b) *Visual Supports:* Social strategies (for example, social stories, visual schedules, or social scripts) lead an autistic person to distinguish socially acceptable behavior and respond to it.

c) *Peer-Mediated Interventions:* Bridging in with friends outside of the autistic community helps autistic individuals' social learning. Peer guides can symbolize positive examples and inspire.

d) *Speech and Language Therapy:* Therapists develop skills they use to teach articulation, listening, receptive language, pragmatic language, and social conversation skills.

e) *Individualized Approaches:* Keeping in mind that each person diagnosed with ASD is different and needs special accommodation approaches are the best. These may be the social clubs, interest-based groups as well as an active participation in the community life.

II. THEORETICAL FRAMEWORK

1) Theory of Mind (ToM): In the 1980s, Simon Baron-Cohen and associates introduced the Theory of Mind, a psychological framework. It describes the capacity to see one's own and other people's mental states beliefs, intents, wants, emotions, knowledge, etc., and to recognize that other people may have views, desires, and perspectives that are different from one's own. People with a strong theory of mind can anticipate and interpret the acts of others by recognizing that other people's ideas, feelings, and beliefs impact their conduct. People with Autism Spectrum Disorder (ASD) frequently have theory of mind difficulties. Their inability to comprehend and anticipate the intentions, feelings, and ideas of others may make it difficult for them to engage socially and to see things from other people's perspectives or to be empathic. For instance, in a discussion, a someone with ASD might find it difficult to discern when someone is being sarcastic or to comprehend the viewpoint of another person.

2) Weak Central Coherence (WCC): Weak Central Coherence is a cognitive theory suggested by Uta Frith. It implies that people with Autism Spectrum Disorder prefer to focus on minutiae rather than recognizing the larger context or gestalt of a situation. In other words, they may struggle to combine knowledge from several sources into a logical whole. While neurotypical people prioritize global processing, or viewing the overall picture, those with ASD may excel at local processing, which focuses on aspects or details. This cognitive style can appear in a variety of ways, including problems interpreting metaphorical language, identifying faces, and comprehending social signs. For example, a person with ASD may thrive in tasks that demand attention to detail, such as assembling elaborate puzzles, yet struggle with tasks that requires understanding the context.
3) Executive Dysfunction Theory: According to Executive Dysfunction Theory, people with Autism Spectrum Disorder (ASD) struggle with executive functioning, which involves cognitive processes such as planning, inhibition, flexibility, working memory, and goal-directed behavior. Executive functions are required for adaptive, goal-oriented behavior and play an important role in social communication. People with ASD may struggle with these executive processes, resulting in issues controlling their behavior, changing their attention, planning and organizing their activities, and adjusting to social circumstances. For example, individuals may struggle to transition between tasks, regulate their emotions in response to social signals, or initiate and maintain discussions.
4) Social Communicational Deficit Theory: The Socio-Communicational Deficit Theory focuses on difficulties in social interaction and communication in persons with Autism Spectrum Disorder (ASD). According to this idea, people with ASD may difficulty with different areas of social communication, such as comprehending nonverbal clues (such as facial expressions and body language), starting and continuing conversations, and building and maintaining relationships. These impairments in social communication can lead to social isolation, misreading of social circumstances, and difficulty making meaningful connections with people. Socio-communicational difficulties are frequently one of the first indicators of ASD and are considered key characteristics of the illness.
5) According to Henry and Kamila Markram's Intense World Theory, people with autism spectrum disorder are more sensitive to stimuli in their environment in all modalities—taste, smell, touch, sound, and sight. This hypothesis states that people with ASD have brains that are hyper-reactive to sensory information, which results in a vivid and overpowering impression of the outside world. Individuals diagnosed with Autism Spectrum Disorder (ASD) may display behaviors in response to this sensory overload, such as stimming—repetitive movements—avoidance of specific situations, or seeking out sensory input through particular activities. People may find it difficult to focus on social cues and filter out unnecessary sensory input as a result of this acute sensory experience, which can affect many aspects of functioning, including social interaction and communication.

III. REVIEW OF LITERATURE

Cresswell, L., Hinch, R., Cage, E., (2019) aimed to synthesize qualitative findings on the experiences of autistic adolescents concerning peer relationships. The findings, derived from a qualitative synthesis, provided deep insights into various aspects of peer relationships for autistic adolescents, including the nature of friendship, the desire for and actual experiences of having friends, the challenges encountered in peer relationships, and strategies for overcoming these challenges.

Zhao, M., and Chen, S. (2018) investigated on the success of a physical exercise program in creating mastery and involvement of kids with autism spectrum imposed (ASD). The data showed the children in the experimental group had favorable growth in social skills and interactions based on statistics results for different competency items namely communication, cooperation, social interaction, and self-control with maori perspective in $p < 0.005$.

Yoon, C. D., et al (2018) analysed the connection between the look behaviors and the social skills communication in young autistic children through carrying out data on eye-tracking as the measure of gaze and the behavioral assessment on social skill. The finding indicate that more social care and focusing better on fixation as it is in case of the neurotypical children are related to better social communication skills.

Watkins, L., et al (2017) aimed at showing research-backed methods for treating children with autism spectrum disorder (ASD) who have trouble with social communication. In order to improve social communication outcomes for children with ASD throughout different developmental stages, the study effectively identified 24 intervention techniques. Aside from highlighting the value of evidence-based procedures in enhancing social communication in ASD, the authors also argued for more study to hone these strategies.

Christon, L. M., & Myers, B. J. (2020) the study focused on identifying factors influencing the delivery of family-centered care to youth with autism spectrum disorder among pediatric professionals from different disciplines, using the theory of planned behavior. The results indicated that attitudes and perceived behavioral control were significant predictors of self-reported family-centered care practices, while subjective norms did not have a predictive impact.

Zhao, H., et al(2018) the study concentrated on enhancing communication and cooperation in children with autism spectrum disorder. Children engaged in interactive games using hand gestures to move virtual objects, promoting natural communication through voice and gaze-based interactions. Positive feedback was received from 12 children with ASD and 12 typically developing peers in the feasibility study.

Silveira-Zaldivar, T., Özerk, G., & Özerk, K., (2020) the study focused on the important area of social skills development in children with autism, highlighting the negative impact of social skill deficiencies on different life areas and the urgent requirement for successful interventions. It offered a thorough analysis of social development theories, the concepts of social competence, social skills, and adaptive skills, and explored evidence-supported strategies designed to enhance social skills in children with autism.

Grossard, C., et al, (2017) a review was conducted on serious games for teaching social interactions and emotions to individuals with ASD, analyzing game principles, clinical validation, playability, and design. The review identified 31 serious games, showing a rise in publications and the potential of serious games to enhance various skills in different settings. Nonetheless, it highlighted deficiencies in clinical validation, game design details, and suitability for low-functioning individuals with ASD.

Bottema-Beutel, K., (2017) aimed to critique and extend existing research on social interaction in autism, emphasizing the process of interaction itself rather than individual cognitive operations. It proposed a nuanced understanding of autism, highlighting the complexities and competencies in social interactions, and suggested implications for both theoretical understanding and intervention practices.

Morrison, K. E., et. al (2020) aimed to evaluate how social cognition, social skills, and social motivation predict real-world social interaction outcomes in autistic and non-autistic adults. Results showed limited connections between autistic adults' performance in these areas and their social interaction outcomes, though normative social skills were somewhat predictive of interaction quality, especially in terms of awkwardness perceptions.

McFadden, B., et al (2014) aimed to assess the impact of a peer network recess intervention package (PNRI) on the reciprocal social communication behavior of children with autism and their typically developing peers during recess. Results showed notable improvements in social communication among focus children and their peers, along with the transfer of skills to regular recess periods.

Blume, J., et al (2020) aimed on exploring how nonverbal communication behaviors affect the connection between early spoken language and later language outcomes in children with ASD. It identified notable associations between early language development and social communication behaviors like gaze shifts, speech-gesture coordination, behavior regulation, and joint attention.

Watkins, L., et al (2015) examined the roles, features and efficiency of peer-mediated social interaction interventions for autistic students in inclusive environment. The studies found out that PMI was effective in applying social interaction improvement particularly in case of individuals with ASD, the consequences involving transferability, continuity and social acceptance were consequently positive.

Qualls, L. R., & Corbett, B. A., (2017) conducted a study to understand how ADOS Social Communication scale is used in children with ASD while they play. Through the use of linear regression analysis we found Verbal IQ or ADOS Restrictive and Repetitive Behaviours scale to be the main influence on reciprocal communication.

Hanley, M., et al (2014) studied how attention reacts in social settings as well as the relationship between the society-cognitive skills of children with autism. While data from children with both typical morphosyntactic development and specific language impairment will be compared. Finally, we discovered that autistic kids do not pay that much attention to faces, and mouth area is of the least interest to them during social talks. Fewer gazes at faces is connected to the basic social abilities featured in autism and may clarify some of the different social attention patterns.

Ohara, R., et al (2019) focused on researching the relationship between motor behavior and social development in children with autism spectrum disorder (ASD) through a systematic review. Eventually, it was revealed that there was a considerably high likelihood of the association between social and motor skills as 12 out of 16 of the reviewed studies reported correlation of these abilities.

Cummins, C., Pellicano, E., Crane, L., (2020) studied to look into the self-perception of autistic adults on communication faculties, demands, and the relevance of speech and language therapy (SLT) in this aspect. The findings demonstrated the complicated perspectives of different respondents that focused on communication, by indicating the influence of both internal and external factors behind communication problems. Additionally, it was found that the need for individualized assistance and community reorganization were comparable to difficulties in communication and those issues affect just about any spheres of life.

Zampella, C. J., et al (2014) aimed at analyzing the verbal and motor aspects of interpersonal synchrony in children with autism and those without the disorder. Autistic kids where observed to have a total lack of inter personal synchrony in all the approaches they take. The ASD members in the group and neurotypical children were asked to deliver the given dialogue emphasizing on the analysis of the responses which were mainly micro-expressions. Micro-movements and verbal synchrony between the two groups were also taken into consideration.

Carruthers, S., et al (2020) aimed to systematically review randomized controlled trials of early social communication interventions for young children with autism to explore generalization and its measurement. It found that eight out of nine reviewed studies demonstrated successful generalization of targeted social communication skills across different people, settings, or activities, challenging the widely reported generalization difficulties associated with autism.

Scassellati, B., et al (2018) aimed to examine the desire for social interaction in children with autism spectrum disorders (ASD) using both explicit (self-report) and implicit (Face Turn Approach–Avoidance Task) measures. Findings indicated that children with ASD displayed a lower explicit desire for social interaction compared to typically developing children but showed a stronger implicit general approach tendency towards both social and non-social stimuli.

IV. METHODOLOGICAL FRAMEWORK

1) *Aim:* To understand the social interaction and communication skills in children with autism.
2) *Objective:* To examine their capacity to strike up conversations, react to people, and utilize speech as a means of self-expression or sociability.
3) *Hypothesis:* H1: Autistic children attending an autism school exhibit distinct social communication challenges compared to their neurotypical peers, impacting their interactions and participation in the school environment.
4) *Sampling Technique:* Convenience sampling was used, selecting participants based on accessibility and availability within the autism school.
5) *Sample Size:* The study will aim to recruit a sample size of 30 individuals aged 10 to 15 years to explore the impact of the development of social interaction and communication skills in autistic children within this specific age group.
6) *Tools Used:* The respective is the tools used in the conduction of the research. Social Communication Questionnaire: This tool was developed by Michael Rutter, Ann Le Couteur, and Catherine Lord in 2003. It consists of 40 items that assess social communication and interaction. Each item is scored as either "0" (not at all true) or "1" (somewhat or definitely true) based on the parent's observations. Higher scores indicate a greater likelihood of social communication difficulties associated with autism. The SCQ demonstrates good internal consistency with a Cronbach's alpha typically exceeding 0.80, and test-retest reliability is satisfactory.

7) *Result*

Figure1

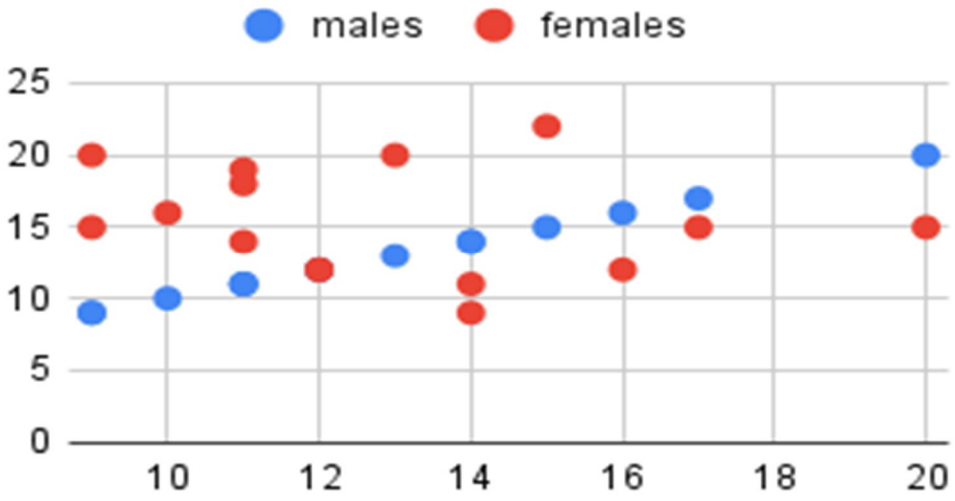

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Table 1: t-Test: Two-Sample Assuming Equal Variances

	females	*males*
Mean	15.33333333	12.93333333
Variance	14.52380952	9.638095238
Observations	15	15
Pooled Variance	12.08095238	
Hypothesized Mean Difference	0	
df	28	
t Stat	1.890998948	
P(T<=t) one-tail	0.03450645797	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	0.06901291594	
t Critical two-tail	2.048407115	

The table presents the results of a two-sample t-test assuming equal variances conducted to compare the means of two groups, females and males, on a certain variable, where the hypothesized mean difference is set to zero. The mean score for females is 15.33, while for males it is 12.93. The variance within the females group is 14.52, and within the males group is 9.64. Both groups consist of 15 observations each. The pooled variance, which combines the variances of both groups, is calculated to be 12.08. Female participants had higher mean scores than male participants, indicating a higher degree of social communication issues.

V. DISCUSSION

The main aim of this work was to improve social interactive and communication skills in children with autism spectrum disorder (ASD) using Social Communication Questionnaire (SCQ) for evaluation. Autism spectrum disorder (ASD) is a very complex neurological condition characterized by problems with social skills and communication. People with ASD usually find it difficult to begin the conversation, keep eye contact, and read the nonverbal language signs therefore it is hard for them to succeed in social situations. The research concentrates on the problem of autistic children communication in social settings manifested in their inability to take part in conversations, as well as to use speech for self-expression or sociability.

Social communication abilities differences in genders of children with ASD were one of the factors investigated in the study. The SCQ, a tool created by Michael Rutter, Ann Le Couteur, and Catherine Lord was used to conduct the initial assessment. This 40-item questionnaire is designed to assess various social communication and interaction areas. Higher marks mean a higher possibility of problems with social communication which are related to autism. Each product is rated according to the feedback from the parents. A comprehensive analysis of social communication challenges experienced by children with ASD could be achieved through applying the SCQ.

These study findings contribute to this accumulating pool of knowledge on social skills and communication abilities in childhood autism. Gender in general exacts a great impact on the social communication skills, as shown by the difference in symptoms and their degree in the previous studies among boys and girls with ASD. According to favorable works done by Zhao & Chen (2018) and Cresswell et al. (2019), gender should be considered as a factor during analysis of social experiences and needs of individuals with ASD.

The principle of this research expects that autistic students in autism schools have a hard time with special social communication compared to neurotypical students, which may affect how they still participate and talk in class. The result from the two-sample t-test that has made a difference at the 0.05 significance level is that there is a significant effect of gender ($t = 1.891$, $p < 0.05$) on the social communication abilities in children with ASD. The data from the SCQ revealed that women had higher scores on average than men, which could mean that, to some extent, they struggle more with social interactions.

Summing up, this research plays the role in showing the need to examine social communication features in the children with autism spectrum disorder, mostly dealing with possible gender differences. The measurement of SCQ revealed the individual peculiarities in processing of social interactions for the autistic children. Future research has to keep discovering gender-specific status of social communication functions in neurodevelopmental disorders of autism spectrum, coming up with psychological treatments and support system for better social functioning of people with ASD.

VI. IMPLICATIONS

This outcome is such that it has the useful significance for the theoretical knowledge of the autism spectrum disorder (ASD) and also for the development of the appropriate methods that are aimed to assist children improve. The discovery of some gender differences in the social communication abilities of ASD kids signals clearly how critical it is to bear in mind variations among individuals in this population. Understanding the effects that gender plays in formation, and severity of symptoms can be used for producing therapies that are specially constructed in such a way that they can encounter the needs of the persons with autism, regardless of their gender. Also, such a discovery contributes to the provision of a more comprehensible and accommodating student education service as well as an appropriate support service in medical and other contexts.

Additionally, the Social Communication Questionnaire (SCQ) is a valuable evaluation tool that provides crucial information about the sort of difficulties autistic children might experience when it is their turn to interact with other people. The SCQ can be taken as an example of an organized assessment that evaluates many areas of communication that is social for example eye contact, conversation initiating and nonverbal cue interpretation. This SCQ, therefore, present a more all-encompassing structure for comprehending the intricacies of social communication challenges in Autism Spectrum Disorder (ASD). This means thus to draw attention of a clinician or a researcher to the fact that the use of proven evaluation tools in a clinical setting is absolutely crucial to guarantee a truly accurate diagnosis and focused intervention planning.

Finally, the creation of strategy to gender-sensitize people who will run the development programs of social communication shows the significant difference of the social communication scores of boys and girls with autism spectrum disorder in the statistic. In a view of obtaining better accomplishment of autistic people, treatment should be personalized and integrate differentiations of gender related symptomatology and social communication styles in particulars. Autism being a complex and diverse condition has been the focus of this research and this draws attention to the need for the promotion of a more complex perspective of autism that is respectful to the diversity of experiences within autistic community. The overall results show that the most effective strategies and approaches combine variations based on the individuals and their context and are used to better kids' social wellbeing and communication gift when suffering from Autism Spectrum Disorder (ASD).

VII. SUMMARY

The research in a quite mysterious field of communicative, social skill, and gender differences in autism spectrum disorder (ASD) of children. The study utilizes Social Communication Questionnaire (SCQ) as a diagnostic tool in determining gcopy such individuals who expressed worse social communication difficulties were mostly male. This illustrates that-the gender-sensitive methods-are necessary in terms of knowing and assisting people with ASD in the ways they need. The results directly illustrate the importance of the customized psychotherapies and support services as they consider the individual differences and are proud of the information which is prerequisite for the improvement of the social well-being and communication skills in the children who have ASD. The research facilitates a fusion of theoretical and practical outlook of ASD through a warm atmosphere brought about by well-trained and thoughtful staff, therefore, showing the way of amalgamating multiple approaches to achieve good results.

VIII. CONCLUSION

To conclude, this study examined how well kids with autism spectrum disorder (ASD) connect with others and communicate, using the Social Communication Questionnaire (SCQ) as a diagnostic instrument. ASD affects a person's capacity to successfully navigate social circumstances by posing significant communication and social interaction obstacles. This study illuminates the complex symptom expressions in this population by looking at gender variations in social communication skills among kids with ASD.

The results showed that there were notable differences between the genders in terms of social communication abilities; female participants had mean SCQ scores that were higher than those of male participants. This emphasizes how crucial it is to take individual differences—including gender—into account when figuring out the demands and social experiences of people with ASD. The use of the SCQ highlighted the need for specialized treatments and support services by shedding light on the unique communication difficulties that autistic children encounter in social situations.

IX. LIMITATIONS

1) *Cross-sectional Design:* The study's cross-sectional approach has limitations in terms of establishing causal linkages and capturing developmental trajectories across time. A longitudinal approach would offer a more thorough understanding of these changes. Social communication abilities in children with ASD may vary throughout different developmental stages. Furthermore, by using a single evaluation point, the study may have missed changes in social communication abilities or the efficiency of therapies over time.
2) *School Setting:* As the study focused exclusively on students attending autistic schools, it's possible that the findings won't apply to students in other educational settings or students getting various kinds of therapies. It's possible that the special qualities and supports offered by autistic schools have an impact on social communication results and aren't typical of all children with ASD.
3) *Limited Scope of Analysis:* Although the study concentrates on social communication skills, it does not thoroughly address other domains of functioning, such as sensory sensitivity, executive functioning deficiencies, or theory of mind impairments, that may have an impact on social interaction in children with ASD. Taking into account a variety of elements that lead to social communication issues would be a more comprehensive approach to understanding social interaction in ASD.

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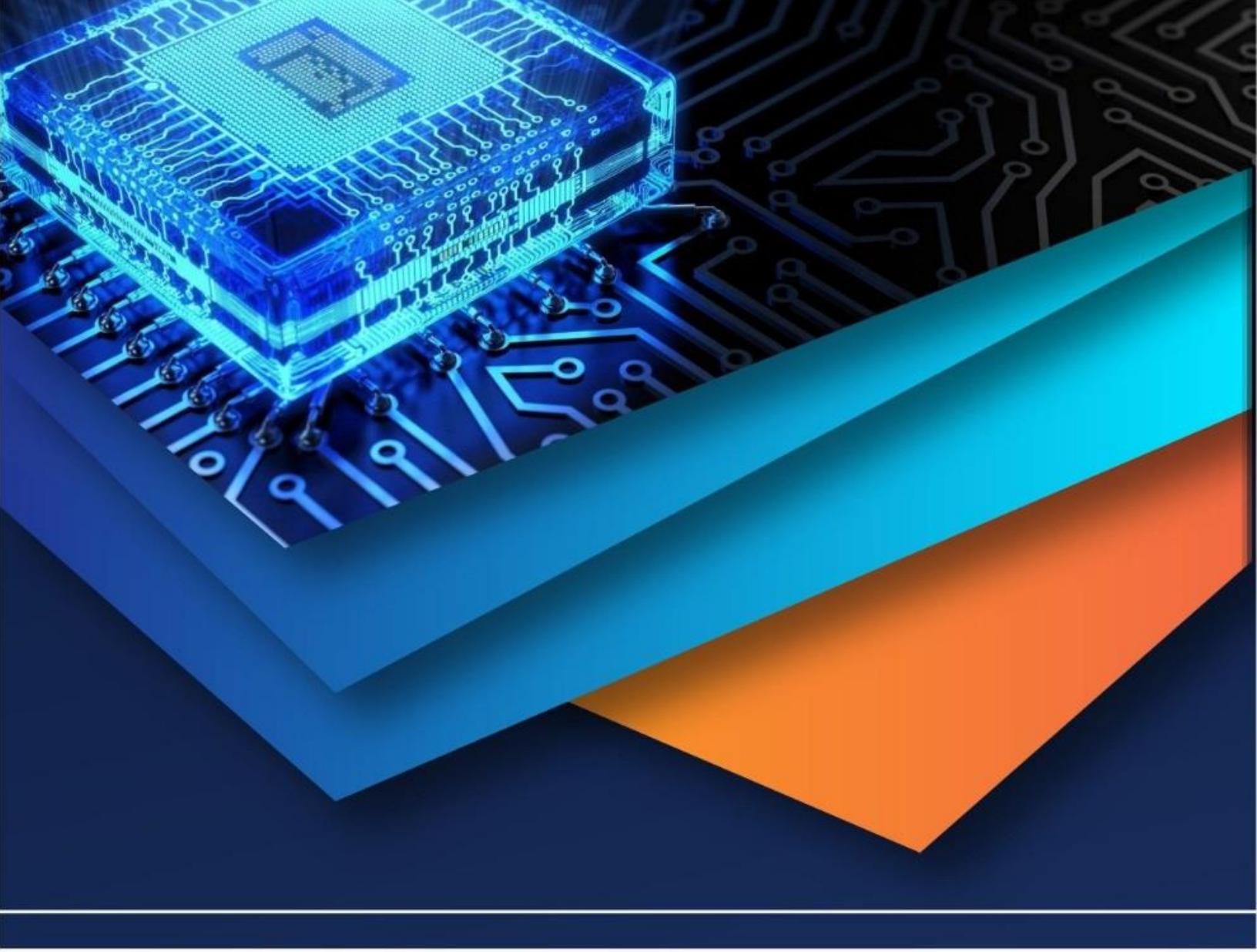

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