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Prevailing Catatonia Features Among Children with Autism Spectrum Disorder

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Abstract & Indexing

Abstract

This study aimed to investigate the prevalence of catatonia features among children with Autism Spectrum Disorder (ASD) in Faisalabad's special education institutes. A quantitative, descriptive survey design was adopted. A 30-item questionnaire, based on DSM-5 criteria for catatonia, was developed and administered to 34 special education teachers selected through convenience sampling. The target population included teachers working directly with children diagnosed with ASD. Catatonia was identified through the presence of at least three symptoms such as catalepsy, waxy flexibility, stupor, mutism, negativism, agitation, posturing, stereotypy, mannerisms, grimacing, echolalia, and echopraxia. Researchers obtained formal permission from school administrations and introduced the study objectives to participating teachers. Each teacher was asked to observe and assess one specific student with ASD using the questionnaire. After one week of observation, completed questionnaires were collected for analysis. Only teachers who had spent considerable time with the students were included in the study to ensure reliable observations. Data were analyzed using descriptive statistics. The results revealed that negativism and mutism were the most frequently observed catatonic features among students with ASD. Agitation, waxy flexibility, and posturing were observed at moderate levels. Echolalia, stupor, and stereotypy were less common, while mannerisms, echopraxia, grimacing, and catalepsy appeared rarely. The findings indicate that while a wide range of catatonia symptoms can be present in children with ASD, certain features—particularly negativism, mutism, agitation, and waxy flexibility—are more prominent.

Keywords:

Autism Spectrum Disorder, Catatonia, Special Education, DSM-5, Catatonic Features, Mutism, Negativism, Descriptive Survey.

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INTRODUCTION

Autism Spectrum Disorder (ASD) is early onset neurodevelopmental disorder which is typified by limited and repetitive behavioral patterns as well as ongoing deficiencies in social communication (American Psychiatric Association, 2013). It is becoming more well acknowledged that ASD is also linked to issues with motor function (Gowen & Hamilton, 2013) and sensory processing (Kern et al., 2006).

Catatonia is an illness that interferes with brain function, which affects how a person perceives and responds to their environment. Catatonia patients frequently don't react to their environment or may react in strange ways. The most noticeable symptoms of this illness include odd behavior, bizarre motions or absence of movement, and impaired communication. Since its naming and description by German psychiatrist Karl Kahlbaum in 1874, catatonia has been investigated by researchers, yet it is still mostly undiagnosed. This is partly due to the misconception that catatonia exclusively happened in individuals with schizophrenia until the last few decades. Disagreement within psychiatry on the number of criteria and which criteria are necessary to identify catatonia presents further difficulties for diagnosis. Furthermore, agitation and mutism are two catatonic symptoms that can coexist with other illnesses (Cleveland Clinic, 2024).

Catatonia in its most severe form, as "malignant or lethal" catatonia, can result in severe complications such as pneumonia, decubitus ulcers, thrombosis, malnourishment, dehydration, rhabdomyolysis, and consistent mortality rates (Benarous et al., 2018). Catatonia is also described as a "marked decrease in reactivity to the environment" (APA, 2013). According to Cornic et al. (2009), catatonia is the most severe mental illness since it raises the probability of dying young, especially by suicide, by 60 times. Psychotic, emotional, and neurodevelopmental issues, as well as physical medical diseases, can all cause catatonia (Traverso et al., 2021). A recent surge in publishing trends on the subject indicates that there is a growing body of literature reporting on the connection between autism spectrum disorder (ASD) and catatonia (Moore et al., 2021). According to Dhossche et al. (2010), "autistic catatonia" is characterized by "freezing when carrying out actions, resistance to prompting, slow voluntary motor movements, and stopping in the course of movement."

From 3.3 incidences of pervasive developmental disorders per 10,000 children in the 1980s, the prevalence of ASD has increased dramatically. According to Yeargin-Allsopp et al. (2003), there were 3.4 instances of autism for every 1000 children in 1996. The Centers for Disease Control and Prevention (CDC) recently estimated that 1 in 59 children in the United States had autism, based on an analysis of 2014 medical records and, where available, educational records of 8-year-old children from 11 monitoring sites (Baio et al., 2020). The Autism and Developmental Disabilities Monitoring (ADDM) Network used data from 2012 to estimate that 1 in 68 children were affected (Christensen et al., 2016).

With the addition of the categories "unspecified catatonia," "catatonia associated with another mental disorder," and "catatonic disorder due to another medical condition," the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) fifth edition began to acknowledge catatonia as a separate entity (APA, 2013). The DSM-5 states that three or more of the twelve psychomotor core symptoms—which include agitation, unusual motor activity, and reduced motor activity—must be present in order to diagnose catatonia. The scientific community's relative ignorance and lack of acknowledgment of the illness over the years may be due to the range of seemingly contradictory clinical symptoms (Traverso et al., 2021).

The symptoms of autistic catatonia might vary from day to day and manifest as mild, moderate, or severe. The most severe kind affects the stability of the person's autonomic system, which can impair breathing, swallowing, digestion, metabolism (which affects body weight), heart rate, blood pressure, body temperature, urine and feces (causing incontinence),

and breathing. Complete immobility is another alternative, when all previously learned self-help abilities and everyday life tasks must be performed by others. People who have previously displayed some linguistic abilities may also go silent. Due to a reduction in food and drink consumption, the person runs the danger of losing a significant amount of weight and becoming dehydrated. Hospitalization is necessary because to the high risk of substantial medical morbidity and death associated with this severe manifestation of catatonia-like worsening in ASD (Shah & Wing, 2006).

A variety of psychomotor disorders, such as catalepsy, waxy flexibility, stupor, mutism, negativism, agitation, posturing, stereotypes, mannerisms, grimacing, echolalia, and echopraxia, are associated with catatonia, a complicated neuropsychiatric condition. A number of illnesses, such as psychotic, affective, and neurodevelopmental diseases including autism spectrum disorder (ASD), can cause catatonia. ASD is a neurodevelopmental disease marked by recurring behaviors, sensory sensitivity, limited interests, and ongoing deficiencies in social interaction and communication. Stressors in life, such as intense anxiety or threat, interpersonal conflict, tragic occurrences, or the aftermath of a major loss, can cause catatonia. The connection between ASD and catatonia is becoming more well acknowledged, and people with ASD may be especially susceptible to the detrimental effects of stresses. It can be challenging to distinguish between ASD and catatonia due to their shared characteristics, which frequently leads to a missing or delayed diagnosis. In ASD, catatonia is still a major clinical concern since it is hard to detect and can cause crippling problems for people who have it. Since catatonia is curable, early detection is essential to achieving the optimum result. We describe a complicated and exceptional case of a 15-year-old kid who had a history of serious bullying and mental health decline, and who now showed signs of severe cognitive and functional loss. A diagnosis of underlying ASD, anxiety, and trauma resulted from the diagnostic puzzle this patient presented (Nadeem et al., 2024).

A research assessed the functioning and minor catatonia tendencies of teenagers with autism spectrum disorders (ASD). 48 patients, ages 12–18 (13.77 ± 2.01), were included in the sample (11 females and 37 males). The Global Assessment Scale was used to evaluate the functional impairment, while the DSM-5 catatonia criteria and Bush-Francis Catatonia Rating Scale (BCRS) were used to evaluate catatonia. Parents completed the Repetitive Behavior Scale-Revised (RBS-R) and the Revised Child Anxiety and Depression Scale-Parent version (RCADS-PV). According to the BCRS, catatonia was found in 18 out of 48 individuals (37.5%), and in 16 cases (35.4%) based on the DSM-5 criteria. Two diagnostic instruments were found to be significantly correlated ($p < 0.001$). According to BCRS, two individuals (12.5%) in the group with modest functional impairment exhibited catatonia, whereas 16 cases (50%) in the group with more decreased functionality had catatonia ($p = 0.011$). Catatonia was associated with major depressive disorder subscale scores of RCADS-PV and stereotypical movements (RBS-R) ($p < 0.05$). The results point to a possible link between functioning and catatonia, as well as a greater prevalence of catatonia in ASD. To emphasize the existence and progression of catatonia starting in the early years of ASD, more study is necessary (Yurumez et al., 2024).

People with autism spectrum disorders (ASDs) may exhibit catatonic traits. The symptoms of ASD and catatonia can often be similar. The study's review offered proof that individuals with ASD had catatonic traits. Following the PROSPERO protocol, MOOSE standards, and PRISMA guidelines, a systematic literature search was carried out utilizing the Web of Science database from the beginning until July 10, 2021. A total of twelve papers containing data on ASD and catatonia were examined. Meta-analyses evaluating the presence of catatonia in ASD were performed using data from a subgroup. Twelve research totaling 969 participants were included in the systematic review; seven of these studies were utilized in the meta-analysis. 21.25 (7.5) years old was the average age. Only children and adolescents were

included in two research (16.6%). Between 70 and 100 percent were men. According to our meta-analysis, catatonia affects 10.4% (5.8–18.0 95% CI) of people with ASD. Catatonia in ASD participants was frequently accompanied by motor abnormalities. There were no variations in comorbidity. ASD with catatonic symptoms has been treated with a variety of medications, such as electroconvulsive therapy (ECT), benzodiazepines, and antipsychotics. According to the systematic review's findings, ECT may be useful in treating catatonic symptoms. People with ASD may exhibit various aspects of catatonia, and there are reports of core catatonia symptoms in ASD. To comprehend the connection between catatonia and ASD and how therapy affects catatonic symptoms, longitudinal and longer-term research is necessary (Vaquerizo-Serrano et al., 2022).

REVIEW LITERATURE

Catatonia-like characteristics are part of the clinical picture of autism spectrum disorders. A research looked at how some people experience a dramatic aggravation of the catatonic characteristics of autism illnesses during adolescence or the early stages of adulthood. Information about 506 referrals to a specialty clinic for autism spectrum disorders was gathered from parents or other caregivers using a semi-structured interview schedule. People with severe exacerbations of catatonic symptoms were contrasted with a group of referrals of the same age who did not exhibit this kind of decline in behavior and skills. A significant aggravation of catatonic characteristics was present in 17% of referrals from patients who were 15 years of age or older. Prior to the commencement of the behavior change, they were far more likely than the comparison group to have experienced apathy in social situations and degraded speaking. A later symptom of autism spectrum disorders, catatonia significantly increases the caregiving strain. To determine etiology, neuropathology, and early indicators of susceptibility, more study is required (Wing & Shah, 2000).

Karl Ludwig Kahlbaum originally described catatonia in 1874, when it was found to coexist with various physical and mental illnesses. Nevertheless, the illness was mistakenly categorized as a kind of schizophrenia in the eighteenth century. This misclassification continued until significant revisions were made in 2013 with the release of the DSM-5. Disrupted gamma-aminobutyric acid has been suggested as the underlying pathophysiological mechanism, despite the fact that the etiology is unclear. Three clinical domains can be used to identify key symptoms: behavioral, verbal, and motor. The only known effective therapies are electroconvulsive therapy and benzodiazepines. According to Ghaziuddin et al. (2021), prompt identification and treatment can have significant and occasionally life-saving effects.

Although few cases have been documented outside of the usual age range, catatonia in ASD usually manifests between the ages of 15 and 20, with an average age of around 18 years. Indeed, studies by a number of medical and psychiatric specialists show that pediatric catatonia is becoming more well recognized (Dhossche, 2014). Although many experts think this figure may be greater, a small number of studies indicate that 12–18% of adolescents and young people with ASD have catatonia (Shah, 2016).

The present understanding of catatonia as it manifests in severe mental illness and, less commonly, in connection with developmental abnormalities is examined in relation to the phenomena of catatonic-like states in individuals with autism spectrum disorders. A summary of the research on catatonic-like states in individuals with autism spectrum disorders is presented, and it is proposed that these states are not directly analogous to the current understanding of catatonia. The phenomenology of "autistic catatonia" as well as potential etiological and sustaining mechanisms are described. In addition to discussing the consequences for daily management, a case study that investigates this phenomena from a cognitive neuropsychological standpoint is offered.

There is discussion of the work's significance for clinical practice and research (Hare & Malone, 2004).

Catatonia can manifest in a variety of ways in people with ASD. Catatonia's core symptoms have been linked to ASD. Both diseases are characterized by motor irregularities, mannerisms, and stereotypies. Clinically speaking, early intervention and therapy may be more challenging due to the neurological overlap between ASD and catatonia. In order to examine the link between catatonia and ASD as well as the response to antipsychotics and benzodiazepines in both catatonia with and without ASD, longitudinal studies are necessary (Vaquerizo-Serrano et al., 2022).

Motor phenomena, emotional symptoms, and cognitive-behavioral abnormalities are the hallmarks of catatonia, a clinical illness that was initially identified by Kalhaum in 1874 (Hirjak et al., 2022). The most severe and acute types of catatonia may involve varying phases of excitement and nonsensical actions, including waxy flexibility, maintenance of postures (catalepsy), lack of movement (akinesia), and lack of speech (mutism). People may have trouble starting motions, and they may need verbal and physical assistance to finish sluggish gross motor actions (Breen & Hare, 2017).

Catatonia, which may be particularly difficult to detect and treat, may be more common among people with neurodevelopmental impairments (NDDs). Stereotypes and other behaviors linked to NDD may share symptoms with catatonia. In order to address symptom overlap and incorporate extreme behaviors seen in individuals with NDDs, including serious self-harm, the diagnosis of catatonia may need to be modified. Trauma and certain genetic variations, such as those that interfere with the SHANK3 gene, may be risk factors for catatonia in people with NDDs. Comorbidity between neurodevelopmental disorders and catatonia may be partially explained by shared etiologic characteristics, such as neuroimmune dysfunction and excitatory/ inhibitory imbalance. More accurate diagnosis and successful treatments could be possible with new strategies that make use of genetic testing and neuroimmunologic examination (Moore et al., 2022).

A psychomotor syndrome, catatonia is characterized by certain clusters of motor, behavioral, and verbal characteristics. Even though it can be fatal, particularly if it is malignant and manifests with autonomic dysfunction and other health issues, it is curable if caught early enough. For a long time, catatonia was thought to be a sign of schizophrenia, which made diagnosis and treatment more difficult. We now know that catatonia may occur in the setting of several conditions, such as neurodevelopmental, affective, and psychotic disorders, thanks to increased awareness and research on the topic. The identification and definition of catatonia in neurodevelopmental disorders, like autism spectrum disorder (ASD), where the differential diagnosis presents significant difficulties due to the significant overlap of signs and symptoms between the conditions, have attracted renewed attention in recent years. We describe the complicated clinical history of a 15-year-old child with High Functioning ASD who developed significant catatonic symptoms and psychotic symptoms simultaneously. This case raises numerous concerns regarding the relationship and distinction of these illnesses (Traverso et al., 2021).

Although they are often reported after the fact, some people with ASD display antecedent catatonia-like behaviors years before they acquire autistic catatonia. Social passivity, a history of sluggish mobility, and a slowness in initiating and responding are some of these factors. These traits are "red flags" that call for closer monitoring and continuous evaluation, even if they do not by themselves indicate a future concomitant diagnosis of catatonia. Because the development of autistic catatonia is a slow deterioration of the individual’s abilities, it behooves clinicians who are knowledgeable in early signs of catatonia-like symptoms to conduct a clinical observation and screening. To lessen the chance of

catatonic symptoms getting worse, these early measures will assist direct intervention and timely referrals (DeJong et al., 2014).

Over a 12-year period, Wachtel (2019) details his treatment with 22 patients with ASD and catatonia, 16 of whom were boys and 6 of whom were females, ages 8 to 26. Electroconvulsive therapy (ECT) was administered to all patients after benzodiazepines at doses ranging from 1 to 27 mg daily were used ineffectively to treat all but one of them. A total of 16 to 688 ECT sessions were received, with the mean age at which ECT was initiated being 15.6 years old. In terms of reducing catatonic symptoms, including treatment-resistant self-harm that is incapacitating, ECT provided significant benefits to patients. Agitation, stereotypy, posturing, negativism, mutism, stupor, and grimacing were the most frequently seen catatonic symptoms; each patient had two to eight catatonic symptoms. Another indication of catatonia was suggested to be comorbid, persistent, recurrent SIB. No effect in terms of catatonic symptom reduction (N = 7, 31.8%), partial catatonic symptom reduction (N = 9, 40.9%), drowsiness (N = 3, 13.6%), and behavioral deterioration (N = 2, 9.1%) were among the reasons given for stopping benzodiazepine treatment (Wachtel, 2019). In his lengthy experience treating catatonic autism, Dhossche (2019) evaluates ECT and notes that in its malignant form, catatonia manifests as fever and autonomic dysfunction, turning into an acute, possibly fatal condition. He does, however, add that it is a curable ailment that requires early identification and treatment, with electroconvulsive therapy serving as the last resort and benzodiazepines as the first line of treatment (Withane & Dhossche, 2018).

Statement of the problem

Autism spectrum disorder is prevailing across the world which requires to be given special attention for its rehabilitation and adjustment in the society. It has also been reported that some individuals with autism spectrum disorders show catatonia features which highly affects the routine life of this community. Keeping in view the magnitude of this crucial topic, present study aimed to determine the perception of teachers about prevailing catatonia features among the children with autism disorders.

Objectives of the study

The study aimed to explore the following objective:

1. To assess the perception of teachers about prevailing catatonia features among the children with autism disorders.

METHODOLOGY

The study aimed to explore the perception of teachers about the prevailing catatonia features among the students with Autism Spectrum Disorder in district Faisalabad, Pakistan. The research methodology incorporates the nature, design, sampling, instrumentation and data analysis as given below:

Nature of research

The study was descriptive and quantitative in nature. It used survey research design to approach the study participants for the data collection.

Population of the research

All the special education teachers dealing with Autism Spectrum Disorder in the special educational institutes of district Faisalabad comprised of the study population.

Sampling of the research

A sample of 34 special education teachers of students with autism spectrum disorder was selected for the study, teaching in various Special Education Schools of district Faisalabad.

Sampling technique

Convenient sampling technique was applied to for the selection of the special education teachers currently teaching the students with autism spectrum disorder.

Instrument of the study

A self-made questionnaire was framed to explore the prevailing catatonia features among the students with autism spectrum disorder. Diagnostic and Statistical Manual for Mental Disorder (Version-5) was used to prepare the questionnaire for study. Following DSM-5 criteria was used for this purpose:

Catatonia is characterized by the presence of at least three of the following symptoms: catalepsy, waxy flexibility, stupor, mutism, negativism, agitation, posturing, stereotypy, mannerisms, grimacing, echolalia, and echopraxia. Following coding has been used in the questionnaire:

- A1-Agitation
- C1-Catalepsy
- E1-Echolalia
- E2-Echopraxia
- G1-Grimacing
- M1-Mannerisms
- M2-Mutism
- N1-Negativism
- P1-Posturing
- S1-Stereotypy
- S2-Stupor
- W1-Waxy flexibility

Following options were used in the instrument of the study to be marked by the respondents:

- Most Frequently-MF - 5
- Somewhat frequently-SF -4
- Occasionally –O -3
- Rarely-R -2
- Not at all-NAA -1

The demographic attributes of the participants included the gender, age, experience, qualification and institute.

Validation and reliability of instrument

The questionnaire was validated with the help of field experts of the special education and keeping in view the DSM-5 criteria of the catatonia features. The reliability index was also determined to ensure the suitability of the instrument with the study.

Data Collection

Researchers visited various special education schools dealing with individuals with autism spectrum disorder and got the permission for the data collection from the school management. Researchers met with the teachers and shared their study objectives and nature of questions regarding the catatonia features of the students with autism spectrum disorder. Teachers were requested to fill the questionnaire with respect to only one student with autism spectrum disorder within a week after observing the features of catatonia among them. The questionnaires were distributed one by one and collected back the filled questionnaire after a week.

Data Analysis

The data was analyzed through descriptive statistics using the SPSS-V26 i.e. frequency, percentage, mean and standard deviation.

RESULTS

Table 1

Demography of respondents

Variables	F (N=34)	%
Gender		
Male	0	0
Female	34	100
Age		
16-25 Years	20	58.8
26-35 Years	14	41.2
Experience		
1-10 Years	34	100
11-20 Years	0	0
Qualification		
B.A/B.Ed	15	44.1
M.Ed/Masters	6	17.6
M.Phil	13	38.2
Ph.D	0	0

Note: f=frequency, %=percentage, N=Number, B.A=Bachelor of Arts, B.Ed=Bachelor of Education, M.Ed=Masters in Education, M.Phil=Master of Philosophy, Ph.D=Philosophy of Doctorate

The demographic profile of the research participants (N=34) reveals that all respondents were female (100%), with no male participants included in the sample. In terms of age, the majority (58.8%) fell within the 16–25 years age group, while the remaining 41.2% were between 26–35 years, indicating a relatively young participant base. All participants had between 1 to 10 years of professional experience, suggesting that they were in the early stages of their careers. Regarding educational qualifications, 44.1% held a B.A or B.Ed degree, 17.6% had completed an M.Ed or Master's degree, and 38.2% possessed an M.Phil qualification. Notably, none of the participants had attained a Ph.D.

Table 2

A1-Agitation characteristics

Agitation characteristics	MF *f(%)*	SF *f(%)*	O *f(%)*	R *f(%)*	NAA *f(%)*	M	S.D
1.Feels extremely restless.	10 29.4%	12 35.3%	7 20.6%	3 8.8%	2 5.9%	3.74	1.163
2.Shows verbal aggression i.e. shouting, screaming etc.	11 32.4%	12 35.3%	7 20.6%	3 8.8%	1 2.9%	3.85	1.077
3.Shows physical aggression i.e. hitting, kicking, biting, biting, self-injury.	9 26.5%	11 32.4%	6 17.6%	1 2.9%	7 20.6%	3.41	1.459

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on agitation characteristics among children with Autism Spectrum Disorder (ASD) indicate notable behavioral patterns. A considerable proportion of children were reported to feel extremely restless, with 29.4% identified as "Moderately Frequent (MF)" and 35.3% as "Sometimes Frequent (SF)," resulting in a mean score of 3.74 (SD = 1.163). Verbal aggression, such as shouting or screaming, was observed slightly more frequently, with 32.4%

in the MF category and 35.3% in SF, yielding the highest mean score among the three behaviors at 3.85 (SD = 1.077). Physical aggression, including actions like hitting, kicking, biting, or self-injury, was less frequent but still present, with 26.5% rated as MF and 32.4% as SF, and a mean score of 3.41 (SD = 1.459). Notably, a small percentage showed rare or no aggressive behaviors, particularly in the case of physical aggression, where 20.6% were marked as "Not at All Applicable (NAA)." Overall, verbal and physical agitation appeared to be prominent features of catatonia in children with ASD, with verbal aggression being the most prevalent.

The agitation is a common characteristic of catatonia among children with Autism Spectrum Disorder (ASD), with verbal aggression being the most frequently observed behavior, followed by restlessness and physical aggression. While a majority of children displayed moderate to occasional signs of agitation, the presence of higher mean scores for verbal and physical aggression indicates a need for targeted behavioral interventions. Additionally, the variation in responses, particularly the significant proportion showing minimal or no physical aggression, highlights the heterogeneity in the expression of agitation within this population.

Table 3

C1-Catalepsy characteristics

Catalepsy characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Shows fixed posture and less sensitivity to pain.	7 20.6%	9 26.5%	11 32.4%	4 11.8%	3 8.8%	3.38	1.206
2.Loss of mobility regardless of external stimulus.	3 8.8%	12 35.3%	9 26.5%	7 20.6%	3 8.8%	3.15	1.132
3.Limbs not move even after the external stimulus.	2 5.9%	7 20.6%	9 26.5%	8 23.5%	8 23.5%	2.62	1.231

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on catalepsy characteristics among children with Autism Spectrum Disorder (ASD) reveal varying degrees of severity across different symptoms. The most frequently observed feature was a fixed posture with reduced sensitivity to pain, with 20.6% of children rated as "Moderately Frequent (MF)" and 26.5% as "Sometimes Frequent (SF)," resulting in the highest mean score of 3.38 (SD = 1.206). Loss of mobility regardless of external stimuli was also reported, with 35.3% in the SF category and a mean score of 3.15 (SD = 1.132). The least frequent symptom was the immobility of limbs even after external stimulation, with only 5.9% rated as MF and 20.6% as SF, and a lower mean score of 2.62 (SD = 1.231). Notably, a significant portion of participants showed rare or no occurrence of these features, particularly in limb immobility, where 23.5% were marked as "Not at All Applicable (NAA)." These findings suggest that while cataleptic symptoms are present in children with ASD, their intensity and frequency vary, with postural rigidity and reduced pain sensitivity being more prominent than complete limb immobility. It showed that cataleptic features are present to varying extents among children with Autism Spectrum Disorder (ASD), with some symptoms appearing more prominently than others. Fixed posture and reduced sensitivity to pain emerged as the most common cataleptic trait, suggesting it may be a more defining or recognizable characteristic in this population. Loss of mobility in the absence of external stimuli was also observed but to a slightly lesser extent. In contrast, immobility of limbs even after stimulation was the least frequent and least severe, with a notable proportion of children showing no such

behavior at all. Overall, the results highlight that while cataleptic symptoms are part of the behavioral profile of some children with ASD, these symptoms are not uniformly experienced and tend to vary significantly in both frequency and severity.

Table 4

E1-Echolalia characteristics

Echolalia characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child imitates the words of others.	12 35.3%	9 26.5%	9 26.5%	1 2.9%	3 8.8%	3.76	1.232
2.Child repeats the sounds as heard from others.	8 23.5%	10 29.4%	7 20.6%	6 17.6%	3 8.8%	3.41	1.232

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on echolalia characteristics among children with Autism Spectrum Disorder (ASD) indicate that imitation of language is a relatively common behavior. A significant proportion of children (35.3%) were reported to "Moderately Frequently (MF)" imitate the words of others, and 26.5% did so "Sometimes Frequently (SF)," resulting in a high mean score of 3.76 (SD = 1.232). Similarly, 23.5% of children moderately frequently repeated sounds they heard from others, while 29.4% did so sometimes frequently, leading to a slightly lower mean score of 3.41 (SD = 1.232).

It was noted echolalia is a prominent and commonly observed communicative feature among children with Autism Spectrum Disorder (ASD), with verbal imitation of others' words being more frequent than the repetition of sounds. The relatively high mean scores, especially for word imitation, indicate that many children exhibit this behavior at moderate to occasional frequencies. However, the variation in responses also suggests that the intensity and occurrence of echolalic behaviors differ from child to child. Overall, these results highlight the need to consider echolalia as a significant aspect of communication patterns in children with ASD, which may have implications for both diagnosis and intervention strategies.

Table 5

E2-Echopraxia characteristics

Echopraxia characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child copies the physical actions of other people.	6 17.6%	13 38.2%	9 26.5%	3 8.8%	3 8.8%	3.47	1.161
2. Child imitates the facial expression of others.	9 26.5%	7 20.6%	10 29.4%	7 20.6%	1 2.9%	3.47	1.187
3.Child mimics the gestures of other people.	2 5.9%	8 23.5%	14 41.2%	5 14.7%	5 14.7%	2.91	1.111

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on echopraxia characteristics among children with Autism Spectrum Disorder (ASD) reveal moderate levels of imitative behaviors related to physical actions, facial expressions, and gestures. A notable proportion of children were observed copying the physical

actions of others, with 17.6% rated as "Moderately Frequent (MF)" and 38.2% as "Sometimes Frequent (SF)," leading to a mean score of 3.47 (SD = 1.161). Similarly, 26.5% moderately frequently and 20.6% sometimes frequently imitated facial expressions, also resulting in a mean score of 3.47 (SD = 1.187). In contrast, the imitation of gestures was less frequent, with a lower mean score of 2.91 (SD = 1.111) and 41.2% of children observed only occasionally performing such behavior. Overall, these findings suggest that while echopraxia is present in children with ASD—especially in the form of mimicking actions and facial expressions—the frequency of gesture imitation is relatively lower, reflecting variability in how different forms of imitation manifest within this population.

The echopraxia is a noticeable feature but variably expressed behavior among children with Autism Spectrum Disorder (ASD). Physical actions and facial expressions are more frequently imitated than gestures, suggesting that some forms of nonverbal imitation are more naturally exhibited than others. The comparable mean scores for copying actions and facial expressions highlight these as more prominent aspects of echopraxia, whereas the lower frequency and mean score for gesture imitation point to its relatively reduced occurrence. Overall, the results emphasize that echopraxia is present in children with ASD, but its expression differs depending on the type of imitative behavior, underlining the need for individualized observation and support in behavioral assessments and interventions.

Table 6

G1-Grimacing characteristics

Grimacing characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child shows tense facial expression.	5 14.7%	5 14.7%	14 41.2%	7 20.6%	3 8.8%	3.06	1.153
2.Child shows repetitive inappropriate facial contractions for happiness or anger.	6 17.6%	12 35.3%	10 29.4%	3 8.8%	3 8.8%	3.44	1.160

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The table presents grimacing characteristics observed among children with Autism Spectrum Disorder (ASD), highlighting variations in facial expressions. The first behavior, "Child shows tense facial expression," was reported as follows: 14.7% of respondents observed it most frequently (MF), 14.7% saw it sometimes frequently (SF), 41.2% noted it occasionally (O), 20.6% reported it rarely (R), and 8.8% indicated it was not at all applicable (NAA), with a mean score of 3.06 (SD = 1.153). The second behavior, "Child shows repetitive inappropriate facial contractions for happiness or anger," was more prevalent: 17.6% (MF), 35.3% (SF), 29.4% (O), 8.8% (R), and 8.8% (NAA), with a higher mean of 3.44 (SD = 1.160). These findings suggest that atypical facial grimacing—ranging from tension to incongruent emotional expressions—is observable in a subset of children with ASD, though frequency and intensity vary. The higher mean for inappropriate contractions implies this may be a more distinct feature compared to general facial tension. Further research could explore whether these behaviors correlate with sensory or emotional regulation challenges in ASD.

Table 7

M1-Mannerisms characteristics

Mannerisms characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Frequently pulls elders by hand.	5 14.7%	10 29.4%	7 20.6%	6 17.6%	6 17.6%	3.06	1.347
2.Repeatedly flaps the hands.	12 35.3%	9 26.5%	4 11.8%	4 11.8%	5 14.7%	3.56	1.460
3.Rocks the body again and again.	5 14.7%	16 47.1%	7 20.6%	1 2.9%	5 14.7%	3.44	1.236
4.Shows tip toe walking.	10 29.4%	12 35.3%	5 14.7%	2 5.9%	5 14.7%	3.59	1.373

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on mannerism characteristics among children with Autism Spectrum Disorder (ASD) indicate that repetitive and physical behaviors are relatively common. A significant portion of children were observed flapping their hands, with 35.3% rated as "Moderately Frequent (MF)" and 26.5% as "Sometimes Frequent (SF)," leading to a mean score of 3.56 (SD = 1.460). Similarly, tiptoe walking was observed in 29.4% of children as MF and 35.3% as SF, yielding a mean score of 3.59 (SD = 1.373). Body rocking was also reported in 47.1% of children as SF, with a mean score of 3.44 (SD = 1.236). In contrast, pulling elders by hand was less frequent, with 14.7% rated as MF and 29.4% as SF, resulting in a lower mean score of 3.06 (SD = 1.347). It indicated that physical mannerisms such as hand flapping, tiptoe walking, and body rocking are relatively common and frequently observed in children with Autism Spectrum Disorder (ASD), with moderate to occasional occurrences of these behaviors. The relatively high mean scores for hand flapping and tiptoe walking suggest these are more prominent mannerisms in this population. Body rocking, while also frequent, was observed somewhat less often than the others. In contrast, the behavior of pulling elders by hand is less prevalent, with a lower frequency and mean score, suggesting it is not as significant or widespread a mannerism. Overall, these results highlight that repetitive physical behaviors are a defining feature of mannerisms in children with ASD, though the intensity and type of behavior may vary.

Table 8

M2-Mutism characteristics

Mutism characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child is unable to speak in social situations.	10 29.4%	14 41.2%	4 11.8%	4 11.8%	2 5.9%	3.76	1.182
2.Child is unable to talk to some persons.	7 20.6%	15 44.1%	6 17.6%	5 14.7%	1 2.9%	3.65	1.070

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on mutism characteristics among children with Autism Spectrum Disorder (ASD) reveal that social communication challenges, particularly in speaking, are relatively common. A significant portion of children (29.4%) were observed as "Moderately Frequent (MF)" in being unable to speak in social situations, with 41.2% rated as "Sometimes Frequent (SF)," resulting in a mean score of 3.76 (SD = 1.182). Similarly, 20.6% of children were reported to have difficulty talking to some individuals (MF), with 44.1% categorized as SF,

yielding a slightly lower mean score of 3.65 (SD = 1.070). These findings suggest that mutism, especially in specific social contexts, is a prevalent characteristic among children with ASD, with the inability to speak in social situations being the most commonly observed form of mutism. It showed that mutism, particularly in social situations, is a common challenge among children with Autism Spectrum Disorder (ASD). The data suggest that a significant number of children experience difficulty speaking in social contexts, with a higher frequency observed for being unable to speak in social situations compared to speaking to specific individuals. The moderate to occasional frequency of these behaviors underscores the impact of social communication difficulties in ASD. These results highlight the need for targeted interventions to address mutism and enhance social communication skills in children with ASD, focusing particularly on facilitating speech in social interactions.

Table 9

N1-Negativism characteristics

Negativism characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child refuses to obey the requests of adults.	12 35.3%	13 38.2%	3 8.8%	1 2.9%	5 14.7%	3.76	1.372
2.Child refuses to obey the requests of adults.	10 29.4%	12 35.3%	9 26.5%	1 2.9%	2 5.9%	3.79	1.095

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on negativism characteristics among children with Autism Spectrum Disorder (ASD) exhibited that refusal to follow requests from adults is a fairly common behavior. A notable proportion of children were observed to "Moderately Frequently (MF)" refuse to obey adult requests, with 35.3% in this category for one behavior and 29.4% for the other, both showing a high mean score (around 3.76 to 3.79). In addition, a significant portion also exhibited "Sometimes Frequent (SF)" refusal, with 38.2% and 35.3%, respectively, contributing to similar mean scores for both behaviors (around 3.76 and 3.79). It pinpointed that negativism, particularly the refusal to comply with adult requests, is a common behavior among children with Autism Spectrum Disorder (ASD). A significant proportion of children demonstrate this refusal behavior moderately or sometimes frequently, as evidenced by high mean scores for both behaviors. The results suggest that refusal to follow requests is a prominent feature of ASD, with variability in its frequency across individuals. These behaviors may require targeted interventions to address compliance and improve social interactions with adults, emphasizing the importance of managing negativism in children with ASD.

Table 10

P1-Posturing characteristics

Posturing characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child holds body in unusual position.	5 14.7%	18 52.9%	5 14.7%	1 2.9%	5 14.7%	3.50	1.237
2.Child often wraps one hand over the other hand by interlacing fingers.	6 17.6%	19 55.9%	6 17.6%	1 2.9%	2 5.9%	3.76	.987
3.Taps the hands on surfaces repeatedly.	8 23.5%	14 41.2%	7 20.6%	3 8.8%	2 5.9%	3.68	1.121

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The data on posturing characteristics among children with Autism Spectrum Disorder (ASD) revealed that certain repetitive body movements and postures are relatively common. A significant portion of children were observed holding their bodies in unusual positions, with 52.9% rated as "Sometimes Frequent (SF)" and 14.7% as "Moderately Frequent (MF)," resulting in a mean score of 3.50 (SD = 1.237). Similarly, a notable percentage of children frequently interlaced their fingers by wrapping one hand over the other, with 55.9% categorized as SF and 17.6% as MF, yielding a mean score of 3.76 (SD = 0.987). Tapping hands on surfaces repeatedly was also observed, with 23.5% rated as MF and 41.2% as SF, leading to a mean score of 3.68 (SD = 1.121). Unusual body postures, hand wrapping, and repetitive hand movements are common in children with ASD, highlighting the presence of repetitive, self-stimulatory behaviors that may vary in frequency but remain prominent within this population. These patterns of behavior point to the prevalence of repetitive, self-stimulatory motor behaviors among children with ASD. While the frequency may vary, such posturing behaviors are a consistent and prominent feature of the ASD behavioral profile. This supports the inclusion of these characteristics in both diagnosis and intervention planning for children on the spectrum.

Table 11

S1-Stereotypy characteristics

Stereotypy characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child shows repetitive abnormal non-goal directed movements.	2 5.9%	18 52.9%	12 35.3%	1 2.9%	1 2.9%	3.56	.786
2.Child aligns subjects in specific way.	6 17.6%	13 38.2%	8 23.5%	5 14.7%	2 5.9%	3.47	1.134

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The stereotypy characteristics of catatonia observed in children with Autism Spectrum Disorder (ASD) highlight distinct repetitive behaviors. More than half of the children (52.9%) exhibited repetitive, abnormal, and non-goal-directed movements somewhat frequently, with a mean score of 3.56 (SD = 0.786), indicating a high prevalence of such behaviors. Similarly, the act of aligning objects in a specific, rigid manner was somewhat frequently observed in 38.2% of children and most frequently in 17.6%, with a mean score of 3.47 (SD = 1.134). Stereotypy characteristics such as repetitive, non-goal-directed movements and rigid object alignment are prevalent features of catatonia in children with ASD. The high frequency and consistent presence of these behaviors, as reflected in their mean scores, suggest that they are significant markers of catatonic tendencies in this population. However, the variation in how often these behaviors occur among individuals highlights the need for personalized assessment and intervention strategies.

Table 12

S2-Stupor characteristics

Stupor characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Shows less response to external stimuli.	4 11.8%	14 41.2%	13 38.2%	2 5.9%	1 2.9%	3.53	.896
2.Shows less response to external stimuli.	4 11.8%	17 50.0%	9 26.5%	1 2.9%	3 8.8%	3.53	1.051

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The stupor features of catatonia observed in children with Autism Spectrum Disorder (ASD) reveal a notable reduction in responsiveness to external stimuli. In both measured items, 41.2% to 50% of children showed somewhat frequent unresponsiveness, with additional children exhibiting this behavior either most frequently (11.8%) or occasionally (26.5–38.2%). The identical mean score of 3.53 across both items, along with standard deviations of 0.896 and 1.051, reflects a moderate to high prevalence of stupor-like behavior, with some variation among individuals. These results suggest that decreased responsiveness is a common and clinically relevant feature of catatonia in ASD children.

Table 13

W1-Waxy Flexibility characteristics

Waxy Flexibility characteristics	**MF** *f(%)*	**SF** *f(%)*	**O** *f(%)*	**R** *f(%)*	**NAA** *f(%)*	**M**	**S.D**
1.Child initially resists then accepts to move the body.	5 14.7%	15 44.1%	8 23.5%	3 8.8%	3 8.8%	3.47	1.134
2.Child initially resists then accepts to move the body.	9 26.5%	15 44.1%	6 17.6%	3 8.8%	1 2.9%	3.82	1.029

Note: f=frequency, %=percentage, MF=Most Frequently, SF=Somewhat frequently, O=Occasionally, R=Rarely, NAA=Not at all-NAA, M=Mean, S.D=Standard Deviation

The waxy flexibility features of catatonia in children with Autism Spectrum Disorder (ASD) show a notable tendency for initial physical resistance followed by compliance when moved. In both observed items, a substantial proportion of children demonstrated this behavior somewhat frequently (44.1%), while 14.7% to 26.5% showed it most frequently. The mean scores of 3.47 and 3.82, along with standard deviations of 1.134 and 1.029, indicate a moderate to high occurrence of waxy flexibility, with some individual variation. The data showed that waxy flexibility is a prominent and clinically relevant motor symptom of catatonia in children with ASD, as evidenced by its moderate to high frequency across participants. The consistent observation of initial resistance followed by compliance in movement highlights this behavior as a key diagnostic indicator. The mean scores further support its prevalence, while the variation in responses suggests that the intensity of waxy flexibility may differ among individuals, emphasizing the need for individualized clinical assessment.

Table 14

Level of Catatonia features among the students with ASD

Code	Catatonia Features	N	M	S.D	Level
N1	Negativism	34	3.7794	1.08146	High
M2	Mutism	34	3.7059	.91385	High
A1	Agitation	34	3.6667	1.01835	Moderately High
W1	Waxy Flexibility	34	3.6471	.78363	Moderately High
P1	Posturing	34	3.6471	.89496	Moderately High
E1	Echolalia	34	3.5882	1.07640	Moderate
S2	Stupor	34	3.5294	.78760	Moderate
S1	Stereotypy	34	3.5147	.81171	Moderate
M1	Mannerism	34	3.4118	.97095	Low
E2	Echopraxia	34	3.2843	.85333	Very Low
G1	Grimacing	34	3.2500	.77117	Very Low
C1	Catalepsy	34	3.0490	.99538	Very Low

Note: N=Number, M=Mean, S.D=Standard Deviation, ASD=Autism Spectrum Disorder

Table 14 expressed the collective features of the catatonia among the students with autism spectrum disorder. It was revealed that Negativism (M=3.77, SD=1.08)) and Mutism (M=3.70, SD=0.193) catatonic features were comparatively among the students with autism spectrum disorder. Whereas agitation (M=3.66, SD=1.018), waxy flexibility (M=3.64, SD=0.783), and posturing (M=3.64, SD=0.894) appeared at a moderately high level. Echolalia (M=3.58, SD=1.076), stupor (M=3.52, SD=0.787), and stereotypy (M=3.51, SD=0.811) were moderately present, whereas mannerism (M=3.41, SD=0.971) showed a low level catatonia features among the students with autism spectrum disorder. The echopraxia (M=3.28=SD=0.853), grimacing (M=3.25, SD=0.771), and catalepsy (M=3.04, SD=0.995) were observed at very low levels.

Findings of the study

The catatonia features among the students with autism spectrum disorder were found at a moderate level. It was revealed that Negativism (M=3.77) and Mutism (M=3.70) catatonic features were comparatively among the students with autism spectrum disorder. Whereas agitation (M=3.66), waxy flexibility (M=3.64), and posturing (M=3.64) appeared at a moderately high level. Echolalia (M=3.58), stupor (M=3.52), and stereotypy (M=3.51) were moderately present, whereas mannerism (M=3.41) showed a low level catatonia features among the students with autism spectrum disorder. The echopraxia (M=3.28), grimacing (M=3.25), and catalepsy (M=3.04) were observed at very low levels.

Conclusions of the study

The negativism and mutism were the most prominent catatonic features among the students with autism spectrum disorder. Agitation, waxy flexibility, and posturing appeared at moderately high levels, while echolalia, stupor, and stereotypy were moderately present. Mannerism showed a low level, and echopraxia, grimacing, and catalepsy were observed at very low levels. Overall, some catatonic features are notably more common among students with ASD. It exhibited that some catatonic features such as negativism, mustism, agitation, waxy flexibility, and posturing are more prominent than others in students with ASD.

Recommendations of the study

The study determined catatonia features among the students with autism spectrum disorders. As per the study results, a moderate level of catatonia features have been found among the individuals with autism spectrum disorder. Therefore, teachers should keep assessing such individuals with ASD to control the catatonia issues. Special focus is needed to be given to the negativism and mutism features. Teachers dealing this community of autism spectrum disorder should be given special training about how to diagnose catatonia features and how to cope with these issues effectively.

Ethical consideration

Only the special education teachers who were presently dealing with the students with autism spectrum disorder were approached and selected to get the study data. Only willing special education teachers were made the part of study. Teachers were given necessary details about the study to ensure the complete comprehension of the research tools and objectives by the study participants. Teachers were assured that the information provided by them will be kept confidential and will only be used for the study purposes. The safety, security, self-esteem and research based rights were given special consideration.

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Financial Agency

Researchers carried out the study on own expenses. In this regard, no any other agency or organization was involved in compensating the study expenses.

Limitations of the study

The study results were taken only from limited number of special education teachers regarding students with autism spectrum disorder. Therefore, its results may only be generalizable on limited scale.

Delimitations of the study

The special education teachers were bound to provide the data regarding the catatonia features of only one student with autism spectrum disorder. Therefore, strength of the sample (special education teachers) equals to the number of students with autism regarding which data was provided. Only selected Special Education Schools were chosen for the data collection based on the ease of the researcher.

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