

ORIGINAL ARTICLE

Knowledge on Autism Spectrum Disorder among Preschool Teachers in Selected Schools

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ABSTRACT

Introduction: Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder. Lately, prevalence of ASD is increasing alarmingly. There is a need of adequate knowledge of ASD among preschool teachers as they are expected to play a crucial role in early detection. The objective of the study was to assess the knowledge of ASD among preschool teachers of selected schools of Budhanilakantha.

Method: A descriptive cross-sectional study was conducted using total enumeration method among 105 preschool teachers of Budhanilakantha-10. The study was conducted from 2080-9-15 to 2080-9-29. Data analysis and interpretation were done using inferential statistics and presented in tabulated form

Result: More than half (54.3%) of preschool teachers had inadequate knowledge, while less than half (45.7%) of the population had adequate knowledge regarding ASD. Level of knowledge of respondents was found significantly associated with type of school ($p=0.038$), training ($p = 0.028$) and exposed to autistic child ($p<0.001$).

Conclusion: The level of knowledge on ASD among Preschool teachers of Budhanilakantha municipality was inadequate. The level of knowledge was influenced by exposure, training and type of school. Therefore, training, inservice education, workshops and seminars regarding ASD are suggested to teachers to identify and assist in proper management of autism.

Key words: Autism Spectrum Disorder; Knowledge; Preschool teachers

INTRODUCTION

Autism Spectrum Disorder (ASD) is a lifelong disorder characterized by having persistent difficulty with social communication, limited interests, and repetitive behavior; these behaviors differ among individuals with autism due to which, the degree of disability varies.¹ The term "spectrum" refers to the variety of ways that ASD symptoms arise and express itself, as well as the skills and functional levels of those who have it. Before the age of 3 years autism begins and its symptoms last throughout the lifespan, occasionally become better with age.² World Health Organization (WHO) estimates that 1 in 100 children have been diagnosed with ASD. The DSM-5 states that males are four times more likely than females to have ASD. Girls with ASD typically exhibit fewer odd behaviors and have a lower likelihood of receiving an ASD diagnosis³. The prevalence of ASD in Asia is 0.36%, 0.51% in East Asia (China, Korea, India), 0.35% in West Asia (Bangladesh, Lebanon, Iran, Israeli) and 0.31% in South Asia (Nepal, Sri Lanka)⁴. National Census of Nepal reported that 4886 people were found to have diagnosed with ASD out of total sample 6,47,774, which is 0.8% of the sample population. Doctors are reporting unusually high number of cases with virtual autism after COVID-19 due to the excessive screen time on various gadgets before the age of 2 years⁵. The early markers of autism is suggested to be emerged during first two years of life and reliable diagnosis can be made at the age of 24 months to promotes the early identification. Early identification helps in better outcomes⁶. When children are viewed along with their peers, the differences in communication, socialization, and repetitive behaviors become more noticeable among children with ASD⁷. Therefore, preschool teachers can play

critical role in early identification of children with ASD⁸. Hence, teachers' lack of knowledge leads to a inability in identifying ASD in educational settings which causes delay in diagnosis. Delay in diagnosis prevents autistic children from receiving early interventions which may result in other mental conditions such as anger, frustration, anxiety and depression. The lack of research regarding knowledge on autism among preschool teachers provides opportunity for the researcher to explore in this field.

METHODS

Descriptive cross sectional study design was used to assess the knowledge of ASD among the preschool teachers.

Setting: The study was conducted at Budhanilakantha municipality. There were total 13 wards from which ward no. 10 was selected purposively. Ward 10 had total area of 0.89 sq km. There were total 25 schools, 22 private schools and 3 government schools registered with the municipality (Budhanilakantha Municipality Office).

Population: During the study period, the total number of preschool teachers was 105 which was obtained by visiting each school. Preschool teachers were selected as target group as they play crucial role in identifying ASD early and assist in proper management of children with ASD. Total enumeration method was used for selection of participants. All the school teachers who were teaching in the preschool level students of the selected schools were included in the study.

Research Instrumentation

A self-developed structured questionnaire was used for the data collection which was developed after reviewing various literature on the knowledge of autism among the preschool

teachers. Research instrument consisted following two parts:

Part I: Questions related to influencing variables. It consisted total seven questions.

Part II: Questions related to Autism Spectrum Disorder. The questions consisted of knowledge on general information about the autism, its risk factor, sign and symptoms, diagnosis and the management. A total of 20 questions were used in which; 4 were Yes/No questions, 11 were multiple choice questions and 5 were multiple response questions. All the options in multiple response questions were correct answers.

A total of 20 questions from part II were marked to identify level of knowledge in which score '1' was given for correct response and score '0' was given for incorrect response. The mean score was obtained as '20' and the level of knowledge was categorized as follows:

Adequate knowledge \geq mean score

Inadequate knowledge $<$ mean score

Validity: Content validity of the instrument in terms of adequacy and the appropriateness of the contents were ascertained through reviewing the literature, consulting with research guide and experts and consulting with respective teachers. The tools were developed on the basis of objectives of study. The instrumentation was developed in English language.

Pre-testing : Pre-testing of the instrument in 10% of the study population (11) was done at Little Steps School to increase the reliability of the instrument which helped to check the clarity, sequencing, and feasibility while administering the instrument.

Ethical Consideration:

Data was collected after obtaining administrative approval from Institutional Review Committee (IRC) of Manmohan Memorial Institute of Health science (MMIHS) and Schools of Budhanilakantha municipality which were purposively selected. Ethical principle was considered throughout the research process with explanation of objectives before data collection. Informed consent was taken before data collection from each participant. Participants were well informed about their choice to withdraw at any point of data collection if they were not interested. Anonymity and confidentiality of participants and information collected was maintained.

Data Collection Procedure

At first, administrative approval was taken from IRC of MMIHS and then request letter was sent from MMIHS to municipality office and ward-10 office of Budhanilakantha. List of schools was obtained from municipality office. Out of total 25 schools, currently 21 schools were running the session and the list of preschool teachers were collected through the school principals by visiting the school. Preschool teachers were greeted, introduction was done and the purpose of the study were explained. Informed consent was obtained in written form from each participants before

data collection. Data collection was done through self administered questionnaire by using the self- developed structured questionnaire. Data collection was done within 20 minutes from each participants in the presence of researcher to avoid data contamination. The data collection was done within 2 week of duration from 2080-9-15 to 2080-9-29.

Data Analysis Procedure

After data collection, the data was checked thoroughly for its completeness and accuracy. Obtained data was compiled, classified, coded and entered into the Statistical Package for Social Sciences (SPSS) version 23 by the researcher for further analysis. Data was analyzed on the basis of research objectives. Findings were interpreted by using descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (Chi square and Fisher exact test). The findings of the study were presented in the tabular form.

RESULTS

The table 1 represents that less than half (47.6%) of the respondents correctly answered the meaning of Autism Spectrum Disorder and 18.1% responded ASD as a psychiatric illness. Most (80.0%) of the respondents correctly responded difficulty in communication as characteristic feature of ASD, and 75.2% of respondents answered that ASD occurs more among males. Almost all (92.4%) of the respondents did not agreed on the statement that all the autistic children show similar behavior.

Table 1: Respondents' Knowledge on General Information of ASD n=105

Variables	Number	Percent
Understand by autism		
Autism is neuro- developmental disorder. #	50	47.6
Autism is a mental illness.	19	18.1
Autism is a disease.	12	11.4
Autism is a psychological problem.	24	22.9
Characteristic feature of autism		
Inability to speak	14	13.3
Inability to hear	4	3.8
Difficulty in communication #	84	80.0
Inability to see	3	2.9
Autism occurs		
Only in males	8	7.6
Only in females	-	-
More in males but also occur in females #	79	75.2
More in females but also in males	18	17.2
All the autistic children show same behavior		
Yes	8	7.6
No #	97	92.4

Table 2: Respondents’ Knowledge on Risk Factors and Poor Parenting on ASD

Variables	Number	Percent
Possible risk factors of autism **		
Genetic factors	55	52.4
Complication during pregnancy	54	51.4
Baby do not cry immediately after birth	19	18.1
Having a sibling with autism	14	13.3
Being born to elderly parents	31	29.5
Poor parenting cause autism		
Yes	34	32.4
No #	71	67.6

Above table (2) represents that more than half (52.4%) of the respondents correctly answered genetic factors as the risk of autism while only 13.3% respondents answered having a sibling with autism as a risk factor of autism. Less than one third (32.4%) of the respondents agreed that poor parenting causes autism.

Table 3: Respondents’ Knowledge on Signs and Symptoms and Preference of ASD

Variables	Number	Percent
Signs and symptoms of autism typically appear		
Early childhood #	83	79.0
Late childhood	18	17.2
Adolescence	4	3.8
Adulthood	0	0.0
Signs and symptoms of autism **		
Avoid eye contact with others	77	74.0
Inability to make and sustain peer relationships	42	40.4
Inappropriate responses to verbal and non-verbal cues	38	36.5
Lack of empathy	16	15.4
Repetition of sounds or words meaninglessly	45	43.3
Autistic children prefer		
New circumstances	30	28.6
Same routines #	31	29.5
Frequent changes	12	11.4
No specific preference	32	30.5

Above table 3, represents that most (79.0%) of the respondents correctly answered that signs and symptoms of ASD typically appear during early childhood. Majority (74.0%) of the respondents answered that autistic children avoid eye contact with others while only 15.4% answered that autistic children have lack of empathy. More than quarter (29.5%) of the respondents correctly answered that autistic children prefer same routines.

Table 4 represents that more than half (59.0%) of the respondents correctly answered that commonly observed motor movement of autistic children is hand flapping while only 23.8 % correctly answered spinning. Majority (71.8%)

of the respondents agreed that children with autism have special abilities. Majority(61.0%) of the respondents correctly answered inability to make friends as common feature of autistic children at preschool level.

Table 4: Respondents’ Knowledge on Diagnosis of ASD

Variables	Number	Percent
Age the reliable diagnosis of autism can be made		
Before 6 months	16	15.2
6 - 17 months	30	28.6
18 - 24 months #	29	27.6
Only after 24 months	30	28.6
Commonly used method for diagnosis of autism		
Blood tests	6	5.7
Behavioral observation and assessment #	82	78.1
Genetic tests	6	5.7
Brain imaging (MRI, CT Scan)	11	10.5
Crucial role of preschool teachers in identifying students with autism		
Conducting medical assessments	2	1.9
Observing behavior and identifying concerns #	87	82.9
Administering psychological tests	7	6.7
Providing treatment plans	9	8.5

Above table 4 represents that more than quarter (27.6%) of the respondents correctly answered that the age of reliable diagnosis of ASD is 18-24 months. Most (78.1%) of the respondents correctly answered behavioral observation and assessment as commonly used method for diagnosis of autism while, only (8.6%) of the respondents answered providing treatment plans as crucial role of preschool teachers in identifying students with autism.

Table 5: Respondents’ Knowledge on Management of ASD

Variables	Number	Percent
Autism cured through medicine		
Yes	34	32.4
No #	71	67.6
Most effective intervention for autism		
Speech therapy	32	30.5
Behavioral intervention #	64	61.0
Special diets	3	2.9
Hearing aids	6	5.7
Preschool teachers do to support children with autism in classroom **		
Use clear and precise language	40	38.1
Positive reinforcement	45	42.9
Use visual cues (symbols and pictures)	63	60.0
Provide individualized support	61	58.1
Provide consistent routine	9	8.6

Table 5 represents that majority (67.6%) of the respondents

disagreed that autism can be cured through medicine. Majority (61.0%) of the respondents correctly answered that behavioral intervention is most effective for autism. Majority (60.0%) of the respondents correctly answered preschool teachers can use visual cues to support children with autism in classroom while only (8.6%) responded that they can provide consistent routines to support children with autism in classroom.

Table 6: Respondents’ Knowledge on Best Environment and Organization that Works for ASD

Variables	Number	Percent
Best environment for autistic children		
Special education school #	76	72.4
Inclusive school	9	8.6
Integrated school	11	10.5
Home school	9	8.6
Organization works for autistic children in Nepal		
National Autism Association	48	45.7
Nepal Autism School	23	21.9
Autism Care Nepal Society #	32	30.5
Autism Speaks	2	1.9

Above table 6 represents that majority (72.4%) of the respondents answered that special education school provides the best environment for autistic children. More than quarter (30.5%) of the respondents correctly answered Autism Care Nepal Society is the organization that works for autistic children in Nepal.

Table 7: Respondents’ Sources of Information on ASD

Source of information about autism **	Number	Percent
Media-TV/ Radio	61	58.1
Seminar	4	3.8
Friends	47	44.8
Workshop	13	12.4
Health worker	15	14.3
Internet	51	48.6
School Exposure	7	6.7

Above table represents that more than half (58.1%) of the respondents gained information about Autism Spectrum Disorder through mass media while less than half (44.8%) gained information from friend and only (3.8%) from seminar.

Table 8: Respondents’ Level of Knowledge on ASD

Level of Knowledge	Number	Percent
Inadequate Knowledge (<20)	57	54.3
Adequate Knowledge (≥20)	48	45.7
Mean± SD= 20±5		
Total	105	100

Above table shows the respondents’ level of knowledge on Autism Spectrum Disorder among preschool teachers. The Respondents’ level of knowledge was categorized on the basis of the mean score (20.00). Among 105 population, more than half (54.3%) of preschool teachers had inadequate knowledge on ASD while less than half (45.7%) of the population had adequate knowledge on ASD.

Table 8: Association between Level of Knowledge on ASD and Selected Variables

Variables	Level of Knowledge		χ ² - value	p - value
	Inadequate (%)	Adequate(%)		
Age				
≤ 34	30 (54.5)	25 (45.5)	0.003	0.955
> 34	27 (54.0)	23 (46.0)		
Gender				
Male	1 (50.0)	1 (50.0)	0.015	1.000
Female	56 (54.4)	47 (45.6)		
Type of school				
Montessori	12 (38.7)	19 (61.3)	4.300	0.038*
General school	45 (60.8)	29 (39.2)		
Educational qualification ##				
Undergraduate	55 (55.6)	44 (44.4)	1.126	0.409
Master	2 (33.3)	4 (66.7)		
Received any training on autism ##				
Yes	1 (14.3)	6 (85.7)	4.836	0.028*
No	56 (57.1)	42 (42.9)		
Teaching experience				
≤ 7years	32 (52.2)	27 (45.8)	0.000	0.991
> 7years	25 (54.3)	21 (45.7)		
Exposed to the child with autism				
Yes	17 (34.7)	32 (65.3)	14.211	<0.001*
No	40 (71.4)	16 (28.6)		

##Fisher Exact Test *Significant

Note: P value is obtained from Pearson’s Chi-square; denotes P significant at ≤ 0.05

Above table illustrates that there is association between the level of knowledge on ASD with selected variables. Level of knowledge of respondents was found significantly associated with type of school (p = 0.038) , training (p = 0.028) and exposure (<0.001) .

DISCUSSION

In current study, less than half (47.6%) of the preschool teachers correctly answered ASD is a neuro-developmental disorder which was similar to the study conducted in Saudi Arabia, in which (37.2%) of preschool teachers gave the same response¹ However, less than quarter (18.1%) of the respondents still believe ASD as a mental illness which was nearly similar to the study conducted in Bayelsa state, Nigeria where (18.2%) respondents believe ASD as a mental illness⁹. In regard to general information of ASD, most (75.2%) of the respondents correctly answered that prevalence of ASD is more among males in this study. This finding was contradictory with the study conducted in Oman among 164 school teachers in which only 17.1% of the respondents answered autism affects more males than females¹⁰. The reason may be due to the difference in time period of research study and sample size. This study revealed that more than half (52.4%) of the respondents answered genetics factors as the possible risk factor of ASD. In contradictory, the study conducted in Jeddah

among 79 primary school teachers showed that only 39.2 % answered genetic factor as major risk factor of ASD¹¹. This may be due to the difference in sample size in the study. In regard to sign and symptoms, most (74%) of the respondents answered avoid of eye contact as the sign of autism which was nearly similar with the study conducted in Turkey in which response rate was 77%¹². In this study, more than quarter (29.5%) of the respondents correctly answered autistic children prefer same routines. This finding was in contrast with the study conducted among 240 school teachers in Pakistan in which (45.83%) of the respondents answered autistic children are resistant to change¹³. This may be due to the variation in sample size, setting and population group. In regard to diagnosis of ASD, more than quarter (28.4%) of the respondents answered that autism can be diagnosed only after 24 months in this study. This finding was nearly similar to the study conducted in Western Kenya in which (30.2%) of the respondents gave the same response¹⁴. Concerning the management of ASD, majority (61.0%) of the respondents correctly answered behavioral intervention as the most effective intervention for ASD. This finding was supported by the study conducted in Birjung, Nepal in which (64.0%) gave the same response¹⁵. The study revealed inadequate knowledge among more than half (54.3%) of the respondents. This finding was similar with the study conducted in Birjung, Parsa which revealed less than half (42.9%) of the respondents had good knowledge on ASD¹⁵. The study revealed that the respondent's level of knowledge was significantly associated with the previous exposure to the autistic children ($p = <0.001$) which was similar to the study conducted among preschool teachers in Quassim, Saudi Arabia ($p = 0.016$)¹. Similarly, there was found significant association between the level of knowledge and training received on autism ($p = 0.028$) which was contrast to the study conducted in Saudi Arabia among primary school teachers ($p = 0.229$)¹¹. This may be due to the difference in population group and sample size. In regard to the type of school, there was found significant association with level of education ($p = 0.038$) which was similar to the study conducted among preschool teachers in China ($p = 0.023$)¹⁶. Regarding the source of information, more than half (58.1%) of the respondents gained information through mass media which was in contrast with the study conducted among primary school teachers in Bayelsa, Nigeria in which only 27.3% respondents got the information through mass media⁹. This may be due to the difference in time period of the study conducted.

CONCLUSION

The study concluded that there is inadequate knowledge regarding Autism Spectrum Disorder in preschool teachers of Budhanilakantha municipality. As teachers in interaction with students since very early therefore there must be appropriate training programs, seminars and workshop for teachers on autistics management, diagnosis, and pointing out autistic children and teaching them according to their need and mentality.

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AUTHOR CONTRIBUTIONS

Rhinu Shrestha, assisted in data management, and literature review, and review the manuscript, supervised the study, contributed to study design and data interpretation, and critically revised the manuscript, and approved the final version for publication. All authors approved the final manuscript. Conflict of interest.

Swikriti Dhakal designed the study, assisted in data collection and drafted manuscript, contributed to methodology and data interpretation.

CONFLICT OF INTEREST

The authors declare no competing interests

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