



Research Article

Knowledge on Autism Spectrum Disorder in School Teachers at Government School of Pokhara

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ABSTRACT

This research is entitled “Knowledge on Autism Spectrum Disorders in School Teacher at Government School of Pokhara”. The aim of the study is to assess the level of knowledge on Autism Spectrum Disorders (ASD) among school teachers of selected government schools and find out the association between selected demographic variables and level of knowledge on ASD. A descriptive cross sectional research design was used in eight government schools in Pokhara. A sample size of 114 was selected by complete enumeration sampling technique and data was collected through self-administrated structured questionnaire. Data was analyzed and interpreted using descriptive statistical methods such as frequency, percentage, mean and standard deviation. Chi square test was used to find out association between selected background variables and level of knowledge. The study revealed that 46.5 percent had medium level of knowledge, 43.9 percent had low level of knowledge and only few 9.6 percent had high level of knowledge. The mean score of teacher’s knowledge on ASD was 19.8772 ± 5.0188 and range was 12-34. There was no statistically significant association between selected background variables and level of knowledge on ASD ($P > 0.05$). The finding of the study concluded that less than ten percent of the respondent had high level of knowledge on ASD which means lack of knowledge on ASD among school teachers. Only one teacher had training

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on ASD. So, there is a need of formal training and awareness program on ASD to teachers for early identification of autistic problems and to enhance the children's condition. This will help teachers to disseminate knowledge on ASD in communities as they are 'broadcasting agents' of social changes and development.

Keywords: Autism, autism spectrum disorder, government school, knowledge, Pokhara, school teacher

INTRODUCTION

Autism spectrum disorders (ASD) are diverse group of conditions, they are characterized by some degree of difficulty in social interaction and communication. Childhood psychiatric illnesses and developmental problems are common. Autism is one of the problems which goes undetected and unsupported leading to various degrees of disabilities and stresses in patient / person and the immediate family members. ASD affects one out of hundred children, and an autism diagnosis is four times more likely in boys than girls (World Health Organization [WHO],2021). Autism is a global phenomenon. An estimated 1-2 percent of children worldwide have ASD, which means there are nearly 52 million autistic individuals across the globe (Baxter et al.,2015). According to Centre for Disease Control (CDC's 2020), prevalence of ASD is 1 in 44 children and it occurs in all races, ethnicities and socio-economic groups. Study in South Korea reported a prevalence of 2.6 percent (Autism Care Nepal Society, 2021). A systematic review in six Asian Countries showed prevalence of ASD 14.8 per 10,000 children.

The first community-based study carried out in India on the prevalence of autism among 1-10 years age reported a prevalence of 15/10,000 children (Hossain et al., 2017). According to BMC Psychiatric (2017), the study of South Asia showed autism prevalence of 0.09 percent in India, 1.07 percent in Sri-Lanka, which means that 1 in 93 children had ASD in the South Asian Regions. In a survey conducted in Vietnam autism prevalence was found to be 0.75 percent (Deweedt, 2019). The prevalence of ASD in China was 8.3 per 10,000 which is likely underrated. It also shows that 81.6 percent of the children diagnosed with ASD had below 40 IQ (Jin et al., 2018). Evidence-based psychosocial interventions can improve communication and social skills, with a positive impact on the well-being and quality of life of people with autism and their caregivers (WHO, 2021). Timely evaluation and identification of ASD among young children continue to be important public health goals because evidence helps early treatment and services for ASD with improved outcomes (CDC, 2020). There has been no

similar study conducted in Nepal. It is estimated that 300,000 children are living with autism in Nepal, among them 60,000 to 90,000 are severely affected (Autism Care Nepal Society, 2021).

Based on epidemiological studies conducted over the past fifty years, the prevalence of ASDs appears to be increasing around the world. Nepalese government has addressed this problem by stating ASD as a distinct category of disability and launch of the special education policy in 2017. Problems related to ASD have been interlinked with mental disability. So, it can be said that there is a void of knowledge and awareness about ASD in Nepal (Jung & Shrestha, 2018). In presence of intellectual disabilities and impaired functioning seen in many individuals with ASD, early intervention has shown to have notable benefits, including enhanced communication skills, behavioral improvements, social interaction, improved functioning and quality of life for the affected individuals and refined outcomes (Devescovi et al., 2016). A study conducted in awareness of Autism Spectrum Disorder among 164 pre-school teachers in Qassim region, Saudi Arabia which shows that 74.4% teacher have poor knowledge and 25.6% have good knowledge (Alobaid & Almogbel, 2022). A cross sectional study conducted on ASD knowledge and stigma among 154 teachers from 20 pre-schools and primary schools, Luang Prabang, Lao PDR, among 154 school teachers reported that 39.4 percent of them had adequate level of knowledge on diagnosis of ASD, few 10.6 percent had adequate level of knowledge on etiology and only 14.4 percent had adequate knowledge on treatment of ASD (Low et al., 2021). A study conducted on teacher knowledge and opinion toward children with ASD in 4 primary school in Jeddah, Saudi Arabia among 79 school teachers knowledge showed that 82.3 percent had poor level of knowledge, 15.2 percent have satisfactory level of knowledge and 2.5 percent good level of knowledge (Khali et al., 2020). A study conducted on knowledge of ASD among pre-school teachers in various segregated school of Taiz city, Yemen among 300 pre-school teachers disclosed that pre-school teachers had lower level of knowledge about ASD (Tareh et al., 2019). Similar study conducted among 248 school teachers in Badaya city of Saudi Arabia found that 48.7 percent of teacher had knowledge about autism (Alharbi et al., 2019). Descriptive cross-sectional study conducted on knowledge regarding autism among the primary school teachers in Birgunj, Nepal revealed that among 63 school teachers, 42.9 percent had good knowledge, 36.5 percent had average knowledge and 20.6 percent had low knowledge on ASD (Rai et al., 2018).

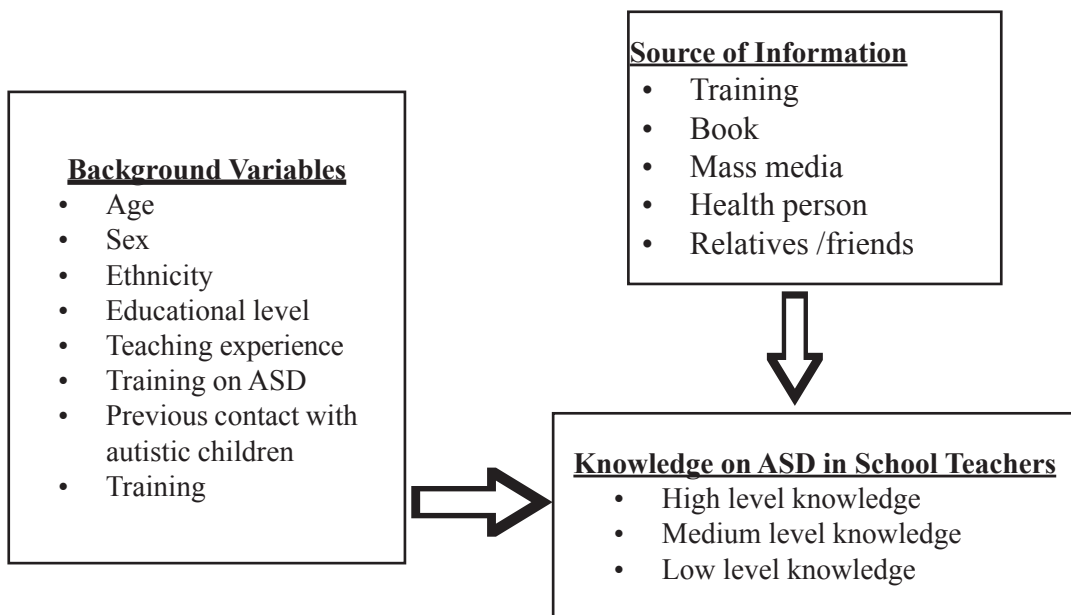
In Nepal, the lack of knowledge and understanding exists not just among the individuals and society but amidst educators and government officers. This could be mainly due to deeply

rooted superstitions, social dogma and misconception (Shrestha, 2019). Teacher’s knowledge on ASD is critical as they are the knowledge broadcaster and advocates of social change for better education and social support systems at the policy level in low and middle-income country (Themane & Thobejane, 2019). Children spend a lot of time with their teachers. The teachers can study the nature and behavior of the children at school and aware their students and give proper counselling to their parents.

The conceptual framework shows that different independent variables like age, sex, ethnicity, education level, teaching experience, training on ASD, previous contact with ASD children, source of information directly and indirectly affects the dependent variables i.e., knowledge on ASD.

Figure 1

Conceptual Framework of Education among School Teachers regarding Autism Spectrum Disorder.



DATA AND METHODS

Descriptive cross-sectional research design was used for the study as the researcher collected primary sources of data from 114 school teachers at a single point in time. Pokhara, a Metropolitan City, densely populated and second big city in Nepal in terms of population,

will undoubtedly have a considerable number of children with autism and these children are likely to attend public schools. As far as the knowledge of researcher, very few studies were conducted on knowledge on ASD in school teachers in Pokhara. So, researcher was interested on this topic. As government school students represent 75% of the total school students of Nepal, these would be institutions where more children with autism would be there together with ordinary children. Children with ASD are more likely to get enrolled in government schools as it puts significant burden to financially non affluent family to enroll them in private schools. Eight renowned government schools were purposively selected out of 205 government schools of Pokhara Metropolitan City from 7 different wards by researcher's convenience. It would have been better if more schools were included and random sampling or other methods were used but due to time, resource and man power constraints, it was limited to few.

ASD is difficult to diagnose as doctors observe child's developmental history and behavior for its diagnosis. 1 in 19 children in Asia are diagnosed with ASD which is an alarming issue. Characteristics of ASD in children can be detected at an early age (12-18 months) but are not diagnosed until they reach adolescence, which deprives them from the early help they need (CDC's, 2020). As teachers are the second guardian of every children, they spend a lot of time with their teachers. The teachers can study the nature and behavior of the children at school and help in early diagnosis of autistic children. So, researcher selected the basic level school teachers who taught from play group to grade five. Purposive complete enumeration was used for this study. All the basic level school teachers, who taught from play group to grade five children were considered as respondents, who were willing to participate in the study and who had given written consent were included.

Self-administered structured questionnaire in paper pencil format was used for data collection. The research questions were divided into two parts. Part I – Questions related to background variables. This part included 9-questions related to background information of the school teachers which included age, sex, marital status, education level, teaching experience, training on ASD, previous contact with ASD children and source of information.

Part II - Questions related to knowledge on autism spectrum disorder: This part consisted of 20 questions regarding level of knowledge on ASD which consisted 38 correct responses. It comprised 9 multiple choice questions ,6 yes/no questions and 4 multiple response questions. Every question carried score '1' for correct response and '0' for incorrect response. For multiple response questions, score '1' was given for each correct response and '0' for no response. The content validity of the instrument was maintained with extensive literature review, consultation

with advisors and subject experts. The research tool was developed in English language and translated into Nepali language consulting language expert.

Pre- testing of instrument was conducted among 10 percent (11) of total study population. Testing was done in primary school teachers of Kalika Secondary School Pokhara-11 Kahun Kaski, before finalizing the instrument to identify the accuracy, adequacy and completeness. Once the proposal was approved by Pokhara Nursing Campus research committee, permission was taken from higher authority of campus and eight selected government schools in Pokhara. The respondents were explained about the objective, importance and method of research study before data collection. Verbal and written informed consents were taken from all the participants and also explained that participants to this study was voluntary and can withdraw from the study at any time if they want. It took approximately 20-25 minutes to fill up the questionnaire. Data collection was done from the 2078/10/02 to 2078/10/15.

After collecting data, all collected data were checked and organized for the accuracy and completeness on the spot. The entered data were edited, organized, coded and entered into Statistical Package for Social Science (SPSS) version 16.0. Obtained data were analyzed based on descriptive statistical method (frequency, percentage, mean, standard deviation) and inferential statistics (chi-square) was used to find out the association between level of knowledge on autism spectrum disorder with selected background variable. The finding of the study was presented in tabular forms.

RESULTS AND DISCUSSION

Table 1, reveals that 43 percent of respondents were age group more than 40 years with mean \pm SD (38.71 ± 8.71 years). Among them, 77.2 percent of the respondents were female and more than half of the respondents (66.7%) had higher secondary level education. Most of the respondents (93.9%) were married and 51 percent of respondents had work experience less than 10 years. Most of the respondents (99.1%) didn't have training on ASD and only (0.9%) respondents had training on ASD and 60.5 percent of the respondents had seen a case of ASD somewhere (neighborhood, home, hospital and school) while 23 percent of respondents had seen ASD in children at schools. More than half respondents (65%) had got information about autism spectrum disorder (ASD).

Table 1

Background Information of Respondents (n=114)

Variables	Number	Percent
Age (complete in year)		
<39	62	54.4
≥40	52	45.6
Mean age ±SD (38.71 ± 8.711)		
(Minimum age =20, Maximum age =54)		
Sex		
Female	88	77.2
Male	26	22.8
Religion		
Hindu	107	93.9
Buddhism	6	5.3
Christian	1	0.9
Ethnicity		
Brahmin/Chettri	87	76.3
Janajati	23	20.2
Dalit	4	3.5
Education Level		
Secondary Level	38	33.3
Higher secondary Level	76	66.7
Marital status		
Married	107	93.9
Unmarried	7	6.1
Work experience (In Year)		
<15	59	51.8
≥15	55	48.2
Training on ASD	1	0.9
ASD case seen	69	60.5
Place seen (n=69)		
School	27	23.7
Neighbor	23	20.2
Hospital	15	13.2
Home	4	3.5
Source of information*		
Mass Media (News, Television, Film, internet)	77	67.5
Relatives /Friends	18	15.8
Book	15	13.2

Variables	Number	Percent
Health Person	14	12.3
Training	1	0.9

Multiple Response

Table 2, illustrates that most of the respondents (98.2%) had knowledge on meaning of ASD and only few (8.8%) of respondents said male are more prone to ASD. Among them 39.5 percent of the respondents reported children who have siblings with ASD had greater risk of ASD. Majority of the respondents (79.8%) had knowledge on causes of ASD with respect to clinical features of ASD, 54.4 percent of the respondents reported that ASD manifested in an aloof manner. Majority of the respondents (89.2%) reported that ASD could be diagnosed by observing behavioral and developmental milestones and most of the respondents (92.1%) had reported that behavior therapy is the treatment method of ASD. More than half (60.5%) respondents said that equal participation of parents and teachers were needed to modify the child’s behavior and only few (12.3%) respondents reported that prior notification of the event is necessary for child with ASD. With respect to teaching methods, 72 percent respondents believed that using visual clues was effective and 18.4 percent of respondent’s reported calling his/her name was effective. Regarding the consequence of delay diagnosis of ASD, half of the respondent (50.9%) said that it could lead to less effective treatment/ therapy of ASD and only 22.8 percent of the respondents reported that the high-risk activity could lead ASD child to death.

Table 2

Knowledge on Autism Spectrum Disorders (n=114)

Responses	Number	Percent
Developmental disorder, impairment in social interaction, communication and repeated behavior is meaning of ASD	102	98.2
ASD more communally affects male children	10	8.8
Child who has sibling had higher risk of ASD	45	39.5
Multiple factors, genetics and environment factors cases of ASD	91	79.8
Clinical feature of ASD*		
Aloof manner	62	54.4
Don’t Response to his /her name	52	45.6
Inappropriately laughing and crying	46	40.4
Inappropriate attachment to objects	48	42.1
Lack of eye contact and facial expression	42	36.8
Extreme restlessness, hyperactivity or extreme passive	20	17.5

Responses	Number	Percent
Diagnosis and treatment of ASD		
ASD can be diagnosed by observing behaviors and developmental milestone	102	89.5
Behavior therapy is the treatment method of ASD	112	98.2
Management of ASD children *		
Equal participation of parents and teacher to modify child behaviors	69	60.5
Involvement in child interest	68	59.6
Provide reward system for good attitudes, behaviors and complete tasks	62	54.5
Provide structured environment with appropriate routine	59	51.8
Prior notification to child about new events or tasks	14	12.3
Teaching method of ASD children *		
Use visual cues (symbol and picture)	72	63.2
Communication of child though he/she is playing alone	61	53.5
Communicate the child using short and easy words	53	46.5
Provide additional time to complete tasks	45	39.5
Set realistic goals and expectation	38	33.3
Call child his/her name	21	18.4
Consequence of Delay diagnosis of ASD*		
Less effective treatment therapy	58	50.9
Mental health impairment	52	45.6
Sensory impairment	52	45.6
Social isolation	42	36.8
Death due to high-risk activity	26	22.8

Multiple Response

Table 3, represents general knowledge on ASD, most of the respondents (98.2%) knew that ASD is not a communicable disease. Only 31.6 percent of the respondents had idea about ASD diagnosis commonly on first three years of birth. 31.6 percent of respondents believed that all autistic children have low IQ level. More than half (61.4%) reported, they will be referring to hospital setting when ASD is suspected in a child and 36 percent of the respondents said that autism can be cured by medicine. Majority of the respondents 83.3 percent knew about the organization Autism Care Nepal Society, which helps and supports ASD children.

Table 3

Knowledge on General Information of ASD *n= 114*

Response	Numbers	Percent
ASD is not communicable disease	112	98.2
ASD is commonly diagnosed in first three years of life	36	31.6
All autistic child have not low IQ level	78	68.4
Autistic child can't use sign language to signal their need/ requirement	34	29.8
Communication impairment in ASD children causes difficult to understand and speak language	61	53.5
Autistic children like sameness in everyday routine and are not interested in change of environment	71	62.3
If ASD is suspected in children, advise to meet doctors will be given	70	61.4
Medicine cannot cure ASD	73	64
Treatment method of autism is different in individual children	105	92.1
Autism Care Nepal Society is the organization which help and support ASD children	95	83.3

Table 4

Knowledge Level on Autism Spectrum Disorder *n= 114*

Level of Knowledge	Numbers	Percent
High Level knowledge (> 70%)	11	9.6
Medium Level knowledge (50% -70%)	53	46.5
Low Level of Knowledge (<50%)	50	43.9
Mean + SD	19.877 + 5.018	

Minimum score 12

References (Gómez-Marí et al., 2021)

Maximum Score 34

Table 4 reveals that 46.5 percent had medium level of knowledge on ASD and only few (9.6%) had higher level of knowledge on ASD and the mean score was 19.8772 (SD ± 5.0188).

Table 5
Association Between Level of Knowledge and Background Variables n=114

Variables	Level of knowledge			χ^2	P Value
	Low No. (%)	Medium No. (%)	High No.(%)		
Age(in year)					
<39	24 (38.7)	32 (51.6)	6(9.7)	1.589	0.452
≥39	26 (50.0)	21(40.4)	5(9.6)		
Sex					
Male	9 (34.6)	16 (61.5)	1(3.8)	3.472	0.176
Female	41(46.6)	37(42.0)	10 (11.4)		
Education					
Secondary level	19 (50)	17 (44.7)	2(5.3)	1.779	0.411b
Higher secondary level	31(40)	36(47.4)	9(11)		
Work Experience	25(42.4)	31(52.5)	3(5.1)	3.754	0.153b
<15 years					
≥15 years	25(45.5)	22(40)	8(14.5)		
ASD Case seen					
Yes	29(42)	32 (46.4)	3 (6.7)	0.853	0.653b
No	21 (46.7)	21 (46.7)	8(11.6)		

χ^2 Pearson’s Chi Square Test, b Likelihood ratio, *p* values significant at <0.05 level

Table 5 depicts that there is no significance association between level of knowledge and selected background variables (Age, Sex, Education Level, Work experience and ASD child seen) ($P > 0.05$). While analyzing the test, it was found that there was no significant association between the education level of the teachers and knowledge regarding ASD. Irrespective of their academic qualification, their knowledge regarding ASD was narrow. Also, it was found that, their working experience also didn’t had any association on their knowledge regarding ASD. So, teachers training and workshop regarding ASD and child health would generate awareness and help in early diagnosis.

The study was designed to find out the existing knowledge on ASD among the selected government school teachers in Pokhara. The present study revealed the mean age of respondents as 38.71±8. 711. This study showed that majority of the respondents (77.2%) were female which is similar to other study conducted in Nepal which was 71.4 percentage. Similar study was done in Iceland where majority of the respondents (89.5 %) were also female (Rai et al., 2018, Bjornson et al., 2019). Regarding training on ASD, in this study,

most of the respondents (99.1%) did not have any training on ASD and very few (0.9%) of the respondents had received training. This finding is similar to another study conducted in Nepal, where most of the respondents (96.2%) lacked training and a mere (3.2%) were trained. (Rai et al., 2018). This finding also supported the study conducted in Tanzania in which majority of the respondent (76%) reported that they were untrained (Rai et al., 2018; Taresh et al., 2016). The findings highlighted that 46.5 percent of respondents had medium level of knowledge, only minority (9.6 %) of respondents had high level of knowledge and 43.9 percent had poor level of the knowledge on ASD. Similar study conducted in Karachi; Pakistan showed that 47.9 percent of participants responded correctly. (Arif et al., 2013).

This finding also consolidated the study conducted by Khalil et al. (2020) in Saudi Arabia where majority of the respondent (82.3%) had poor knowledge, 15.2 percent had satisfactory knowledge and 2.5 percent had good knowledge. This finding contradicted the research conducted by Rai et al. (2018) in Nepal, which revealed 42.9 percent had good knowledge, 36.5 percent had average knowledge and 20.6 percent had low level of knowledge. Similarly, it contradicted the study conducted by Young et al. (2017) in Ireland, that represents majority of the respondents (71.18%) answered correctly in the knowledge and understanding questionnaire related to ASD.

In my study most of the respondents (98.2%) answered that ASD is a developmental disorder alike to the finding found on Rai et al. (2018) that most of the respondents (91.7%) answered. It was also reinforced by the study conducted in Turkey by Rakap et al. (2018) which also shows that 69 percent of respondents had similar opinion but contrary to the study conducted in Saudi Arabia, which reported that 44.8 percent of the respondents answered ASD as a developmental disorder (Khalil et al., 2020). In this study 8.8 percent of the respondents reported that males are more commonly affected by ASD but this finding contradicts the study conducted by Rakap et al., 2018) where majority of the respondents (88%) answered that ASD is predominant in males.

In this recent study, 31.6 percent of the respondent's reported that ASD is commonly diagnosed in first three years after birth. This report encouraged the study conducted by Rakap et al. (2018) which showed that 52 percent respondents had knowledge about ASD diagnosis. Also backed by study conducted by Arif et al. (2013) in which 41.2 percent of respondents had reported the same.

In this present research, majority of the respondents (79.8%) reported that multiple factors including genetic and environmental factors cause ASD. This outcome is alike to the

finding from study of Al-Sharbati et al. (2012) which revealed that 80% of the respondents had similar response opposite to the study conducted by Rai et al. (2018) and Khalil et al. (2020) where 38.3 percent and 39.2 percent of the respondents said genetic factors play important role respectively.

The contemporary study showed that majority of the respondents (89.5%) were aware of the autism diagnosed from behavior and developmental observation. This finding is consistent with results from study conducted by Rai et al. (2018) which states that 76.7 percent of the respondents reported that ASD is diagnosed through behavior observation. In this study most of the respondents (98.2%) reported that behavioral therapy is more effective treatment method of ASD which is consistent with the study of Khalil et al. (2020) where 84.8 percent of the respondents reported the same. Likely, study conducted by Rai et al. (2018) reveals that 65 percent of the respondents thought the same.

In this study, regarding clinical features of ASD in children, 45.6 percent of respondents said that children cannot show their response while being called by their names, 42.1 percent of respondents reported that children show inappropriate attachment to an object or thing and 36.8 percent of the respondents answered that there is lack of eye contact and facial expression in children. This outcome boosted the research conducted by Shetty & Rai. (2014) in India which tells that 30.1 percent of the respondents said that children didn't respond while calling their names, while 43 percent of respondents reported that children show an inappropriate attachment to an object or thing and 36.8 percent respondents said that there is a lack of eye contact.

In this study, 31.6 percent of the respondents believed that all ASD children have low IQ level identical to the study conducted by Rakap et al. (2018) where 52 percent of the respondents thought the same. In this survey, 36 percent of the respondents answered that ASD can be cured by medicine, similar to the study conducted in Oman, where 26.5 percent of the respondents believed same (Al-Sharbati et al., 2015) In this survey, 63.2 percent of the respondents knew that using visual clues is an effective teaching method agreed by the study conducted by Rai et al. (2018) where most of the respondents (83.3%) reported the same. But it differed from the data derived by Rapa et al. (2018) where 17.4 percent respondents reported that picture exchange communication was effective. Additionally, 39 percent of the respondents reported that children with ASD need extra time to complete assignment. This finding differed from the study conducted by Rai et al. (2018) which revealed that 85 percent of the respondents thought that ASD children need more time for it.

In this study regarding the management of child with ASD, 59.7 percent of the respondents answered that the teacher and guardian must be involved together in the interest of ASD child, 51.2 percent of respondents reported that the child needs structural environment with appropriate routine and 53.5 percent responded that the child should be supported while playing or doing other activities. Similar study conducted by (Lisak Šegota et al., 2022) which revealed that 51.7 percent thought that the teacher and guardian must be involved in interest of ASD child, while 59.1 percent considered that establishing appropriate routine is necessary and 39.7 percent were aware about turn taking.

Present study shows that there is no significant association between level of knowledge and selected demographic variables. This result is similar to the findings from the study conducted by (Khalil et al.,2020; Hutton et al.,2016), which contradicts the study conducted by (Low et al., 2021) though.

CONCLUSIONS

The study concluded that nearly half of respondents had medium level of knowledge and only few respondents had high level of knowledge on ASD. There was not any significant association between the selected background variables and the level of knowledge. The level of knowledge about ASD among school teachers is found to be low. Thus, school teachers should be provided with proper trainings on ASD, so that the children with ASD will get diagnosed earlier and managed appropriately. Also, awareness programs regarding ASD should be conducted in communities to alert people.

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