

Effectiveness of Educational Intervention on Knowledge about Autism Spectrum Disorder among Primary School Teachers

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ABSTRACT

Introduction: Teacher's knowledge on Autism Spectrum Disorder can play a key role in early identification of child with autism. This study aimed to find out the effectiveness of educational intervention on knowledge about autism spectrum disorder among primary school teachers.

Methods: A pre-experimental one group pretest-posttest research design was used among 131 primary school teachers from selected private school of Pokhara Metropolitan City by using probability multi-stage random sampling technique. Validated pretested structured self-administered questionnaire was administered before and after educational intervention and collected data were analyzed using descriptive and inferential statistics (Paired t- test and chi square test) in SPSS Version 16 for window.

Results: The findings of the study revealed that before educational intervention 60.8 percent teachers had inadequate knowledge level and 39.7 percent had moderate level of knowledge about autism spectrum disorders. Following the educational intervention knowledge level was increased where 79.4 percent had adequate knowledge and 20.6 percent had moderate level of knowledge about autism spectrum disorder. The mean knowledge scores before and after intervention were 19.48 ± 3.837 and 32.83 ± 2.96 respectively. Alternative hypothesis was accepted as the knowledge of teachers was significantly increased after the intervention.

Conclusions: The study concludes that knowledge of teachers has increased after intervention hence educational intervention on autism spectrum disorder is effective. Therefore, it is advised to school's authority to place greater focus on education initiatives in order to raise the level of understanding regarding autism spectrum disorder among teachers.

Keywords: Autism Spectrum Disorder, Educational Intervention, Effectiveness, Primary school teachers

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INTRODUCTION

Autism Spectrum Disorder (ASD) is a diverse group of conditions related to development of brain characterized by persistent challenges with social communication, restricted interests, and repetitive behavior.^{1,2} Some individuals with autism can live independently whereas, some might have significant difficulties and need care and support for the rest of their lives.¹

With this increasing ratio of ASD worldwide and in Nepal, Government of Nepal have

addressed autism as a distinct form of disability and to meet their educational need Inclusive Education Policy has been amended in 2016.³ Despite this policy, inclusive education in schools remains a challenge. A study done in Nepal shows Nepalese teachers especially in integrated schools are not prepared to teach children with ASD in their classroom.⁴ This is supported by a study done in elementary schools of U.S which shows teachers in general education setting are not competent enough to work with students with ASD. They lack training and necessary resources to develop

an inclusive education environment.⁵

Several studies show that autism is in increasing trend among children and most of the school teachers are unaware of the condition. A Study done to assess knowledge about autism among primary school teachers in India shows that most (78%) of the participant seems to have poor level of knowledge where only 22 % had good knowledge level on autism spectrum disorder.⁶ With this study many other studies has also reflected the need of education for teachers with more emphasis on autism. Therefore, it can be considered that there is lack of knowledge and awareness about ASD among teachers and provision of training, workshops, or educational program might be beneficial to teachers in earlier identification of child with autism.

A cross sectional study done among preschool teachers in Saudi Arabia shows, among 164 preschool teachers 74.4% of teachers had a low awareness level on autism.⁷ A survey study done among 177 primary teachers of both urban and rural school from Nigeria shows that over 50% of urban teachers and almost 70% of rural teachers had low or moderate understanding of ASD.⁸

Similarly a survey study done in Nepal regarding Perspectives of Teachers on ASD revealed that not only among individual and society but also in academic people like educators and government officials there is lack of knowledge and understanding about autism.⁹ Another study done between special and integrated school teachers of Kathmandu valley shows that Nepalese teachers particularly those in integrated schools lack necessary skills to instruct students with ASD in the classroom and have suggested to provide more training, seminar and workshop for teachers.⁴

To the best of researcher's knowledge, there has been very little study^{3,4,9,10} conducted in Nepal on ASD. On top of that there is minimal interventional studies^{11,12,13,14} done among

teachers on ASD and numerous studies have emphasized for providing additional education and training programs on ASD for teachers. Therefore, this study aimed to assess the effectiveness of educational intervention on knowledge about autism spectrum disorders among primary school teachers of selected private schools of Pokhara Metropolitan City.

METHODS

This was a pre-experimental one group pretest-posttest study conducted among 131 primary school teachers from selected private schools of Pokhara Metropolitan City. Among them 25 teachers were from Prativa Secondary School, 44 teachers from Kumidini Secondary School, 27 teachers from Bhaskar Memorial School and 35 teachers from Diamond Secondary School. The study sample was selected using complete enumeration sampling technique. In first stage, total ward of Pokhara Metropolitan City was listed which was 33 in numbers and among them 4 wards were selected randomly through lottery method. In second stage, from each selected ward one school was selected randomly using lottery method. And from each school the teachers teaching from Nursery to Grade 5 was selected by complete enumeration method.

Structured self-administered questionnaire prepared by researcher herself was used to collect data for the study. The questionnaire consisted of two parts. Part 1 included questions related to socio-demographic variables of primary school teachers of selected private schools of Pokhara Metropolitan City. Part 2 included questions related to knowledge on Autism Spectrum Disorder. It consisted of 23 items. The total score for 23 items was 40 where each correct response carried a score of one (1) and every incorrect or unanswered item was accorded zero (0). The total score was obtained by summing up all the correct response. The score was categorized as adequate knowledge (>75%), moderate knowledge (51%- 75%) and inadequate knowledge ($\leq 50\%$).¹¹ Educational

intervention package regarding knowledge on autism spectrum disorder among primary school teachers was developed by researcher herself based on literature review. Then it was checked by subject specialist and research advisor. The educational package on knowledge regarding autism spectrum disorder consisted of information on meaning, incidence, causes, risk factor, diagnosis, clinical features and management of autism spectrum disorder, facts, and myths about ASD.

The study was conducted after administrative approval from the research committee of Pokhara Nursing Campus and ethical approval from Institutional Review Committee of Tribhuvan University (TU), Institute of Medicine (IOM). A written request letter from Pokhara Nursing Campus was submitted to administration of each selected school and formal permission for conducting research was taken from principals of each selected schools. Prior to the data collection informed written consent was taken voluntarily from each teacher after clarification of objectives and purpose of the study. Anonymity of the respondents were maintained by giving code number to each questionnaire and confidentiality of the information was assured by not disclosing the information with others and by using the information only for research purpose. The duration of data collection was from 17th September 2023 to 14th October 2023. It consisted of pre intervention phase, intervention phase and post intervention phase.

Pre intervention phase included pretest which was started by collecting data from two school in single day. It was done by distributing structured self-administered pretested questionnaire to the teachers where each teacher took about 20 minutes to fill the questionnaire. Instructions on answering the questionnaire were given and doubts were clarified throughout the process. Immediately after the completion of pretest, intervention phase was started where

educational package on ASD was administered to the teachers by researcher herself. The educational intervention was a single session of 40 minute that was given to two schools in a single day, with remaining two schools being covered following next day. To make the educational program effective, a variety of teaching and learning methods were employed including lecture method, discussions, audio-video aids, power point and booklets. After the completion of session educational booklet were distributed to each teacher involved in the study. In Post intervention phase posttest was conducted which was done after four weeks of educational intervention by using same structured questionnaire like the way pretest was done. Researcher managed to collect posttest data among two schools in single day and on next day data were collected from remaining two schools. During the period of study there was no problem encountered and participants has shown mutual co-operation throughout the study.

The obtained data were coded and entered in Epi Data version 3.1 and exported to Statistical Package for Social Science (SPSS) version 16 for further analysis. The data were analyzed using descriptive statistics (mean, frequency, percentage, and standard deviation) for description of variables. Normality of total pretest and posttest score were checked using Shapiro-Wilk test and data were normally distributed i.e. 0.088 (pretest score) and 0.054 (posttest score) so, paired t-test was applied to measure the difference in total pretest and posttest score.

RESULTS

The mean age of teacher was 30.59(±6.683) years. In relation to gender, 93.9% of the teachers were female whereas 6.1% of teachers were male. Likewise, 71.8% teachers were married and 28.2% were unmarried. Similarly, most (87.8%) of teachers followed Hindu religion and more than half (52.7%) belonged to Brahmin and Chhetri ethnicity. Regarding

education level and teaching experiences nearly half of the teachers (48.9%) had a qualification of bachelor degree and 49.6% had a teaching experience of 1-5 years (Table 1).

Table 1 : Socio-demographic Characteristics of Teachers (n=131)

Characteristics	Number	Percent
Age in years		
20-29	62	47.2
30-39	53	40.5
40-49	15	11.5
≥50	1	0.8
Mean age ±SD(30.59±6.683)		
Gender		
Female	123	93.9
Male	8	6.1
Religion		
Hindu	115	87.8
Buddhist	8	6.1
Christian	6	4.6
Muslim	2	1.5
Ethnicity		

Brahmin/Chhetri	69	52.7
Janjati	45	34.4
Dalit	15	11.5
Madhesi	1	0.8
Muslim	1	0.8
Marital status		
Married	94	71.8
Unmarried	37	28.2
Educational level		
Bachelor level	64	48.9
Intermediate level	39	29.8
Master level	24	18.3
Above Master level	4	3.1
Teaching experience (Years)		
<1	10	7.6
1-5	65	49.6
6-10	30	22.9
>10	26	19.8

Regarding teachers' level of knowledge about ASD, the knowledge level was increased adequately after educational intervention. The details of teachers' level of knowledge about ASD before and after educational intervention are shown in Table 2.

Table 2 : Teachers' Level of knowledge about ASD Before and After Educational Intervention (n=131)

Knowledge level	Intervention	
	Before No. (%)	After No. (%)
Inadequate (≤50%)	79 (60.3)	-
Moderate (51%-75%)	52 (39.7)	27 (20.6)
Adequate (>75%)	-	104 (79.4)
Minimum score	6	28
Maximum Score	26	39

Possible Score:0-40

The educational intervention was highly effective on teachers' knowledge as evidenced by high

significant difference in total score of knowledge with regard to posttest at p value <0.001 (Table 3).

Table 3 : Comparison of Teachers' Level of Knowledge about ASD Before and After Educational Intervention (n=131)

Knowledge	Mean \pm SD	Mean Difference	t-value	p-value
Before educational intervention	19.488 \pm 3.837	13.343	38.577	$<0.001^*$
After educational intervention	32.832 \pm 2.961			

*Paired t-test, * Significant at $p < 0.05$ level*

DISCUSSION

The finding of present study highlighted that before educational intervention the knowledge of primary school teachers regarding ASD was insufficient where, 60.8% of teachers had inadequate knowledge, 39.7% had moderate knowledge and none of the teachers had adequate knowledge on ASD. Consistency to this findings a study done in Bangalore showed that 63.3% participants had inadequate level of knowledge and 36.7% had moderate level of knowledge.¹² The findings were similar with other studies conducted in India, Bangalore, Saudi Arabia which revealed that teachers had poor knowledge regarding ASD.^{7,11,13} However, previous study conducted in Pakistan shows that majority (71.2%) of teachers had some knowledge about autism.¹⁵ The discrepancies in the result may be due to variation in study setting and research methodology.

Current study findings concluded that knowledge of teachers was increased after the administration of educational intervention. The result showed majority (79.4%) had adequate level of knowledge and 20.6% had moderate level of knowledge after the educational intervention. In relation to this findings, the study done in Bangalore showed that 83.3% preschooler teachers had moderate and 16.67% had adequate level of knowledge after administration of self-instructional module

on Autism.¹¹ Similarly, another interventional study done among primary teachers of rural school of Bangalore also showed the effectiveness of intervention where 66.7% of teachers after intervention had adequate level of knowledge and 33.3% had moderate level of knowledge.¹²

In present study the mean score of the teacher's knowledge after educational intervention was 32.83 \pm 2.961 which was higher than the mean score of teacher's knowledge before educational intervention (19.48 \pm 3.837). Further, paired t- test was done which showed the significant association between teachers knowledge before and after educational intervention at p value < 0.001 , exhibiting that the educational intervention was highly effective on teacher's knowledge. This findings was consistency with the study done in Iraq which showed highly effectiveness of educational intervention ($p=0.001$) with highest posttest mean 28.56 in compare to pretest mean which was 7.0.¹⁴ Similar, to this finding another study done in Bangalore showed that posttest mean percentage of teachers were higher with 66.77% in compare to mean percentage of pretest mean percentage which was 47.22%.¹¹

CONCLUSIONS

The increase in post-test scores on autism spectrum disorder (ASD) knowledge compared

to pre-test scores confirms that educational interventions positively impact primary school teachers' understanding of ASD. Therefore, regular workshops, lectures, or training sessions can be conducted by school authorities to enhance teachers' knowledge.

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