

## Research Article

# Knowledge regarding childhood autism among Montessori teachers in Biratnagar, Nepal

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### ABSTRACT

**Background & Objectives:** Autism is one of the neurodevelopmental diseases that have been included under the umbrella term autism spectrum disorder (ASD). Early diagnosis of the child is possible only when people who are directly involved with the child are aware about autism. The aim of study was to assess knowledge about childhood autism among Montessori teachers.

**Materials and Methods:** Descriptive cross-sectional study was conducted May 1st to May

15th, 2019, using face to face interview in Biratnagar Metropolitan city. Total List of Montessori schools was obtained along with the teachers one week prior to data collection. There was total 17 Montessori schools according to information provided by education section of metropolitan office. There was total 144 Montessori teachers and complete enumeration was carried out, and total of 132 Montessori teachers were participants for the study. Response rate was (91.6%). We used pearsons chi square test and binary logistic regression analysis to assess knowledge about childhood autism among Montessori teachers in Biratnagar Metropolitan City. All data were coded, entered, and then analyzed using the Statistical Package for Social Sciences (SPSS; Chicago, IL, USA) program, version 20.

**Results:** Among 132 Montessori teachers 31.8% (42) had adequate level of knowledge, 43.9% (58) had moderately adequate and 24.2% (32) had inadequate level of knowledge. Level of knowledge was significantly associated with Montessori training (0.035), training related to autism (<0.01), prior contact (<0.001).

**Conclusions:** There was inadequacy of knowledge about Autism among Montessori teachers. As in present day most of the parents are working so

they tend to send their children to Montessori from very early age expecting better care. Hence Montessori teachers need to have knowledge about various developmental disorders that occur among children in which autism is among one of them.

**Keywords:** Autism, Biratnagar, Montessori, teacher

## INTRODUCTION

Autism is one of the neurodevelopmental disorders included under the umbrella term autism spectrum disorder (ASD) [1]. ASD is characterized by impaired social interaction, communication and language difficulties, and restricted, repetitive patterns of behavior and interests [2]. The exact cause of ASD is unknown; however, according to the National Institute of Neurological Disorders and Stroke (NINDS), both genetic and environmental factors may contribute to its development [3]. Globally, approximately 1 in 160 children is affected by autism [4]. ASD occurs worldwide, regardless of race, culture, or socioeconomic status. According to the CDC, autism is more common in boys than in girls, with a male-to-female ratio of 4:1. Studies from Asia, Europe, and North America report an average prevalence of 1–2% [5]. In Nepal, it is estimated that there are about 250,000–300,000 persons with autism (PWAs), among whom 60,000–90,000 are severely affected [6].

Symptoms of autism generally appear within the first two to three years of life, and there is no definitive cure. However, early diagnosis and supportive therapeutic interventions can help improve outcomes [7]. Early identification enhances a child's overall development and supports independent

living. This is possible when caregivers and individuals closely involved with the child are aware of autism. In many families, both parents are working, and children are often placed in daycare centers such as Montessori schools. Parents expect these institutions to provide quality care and early education through trained personnel. Therefore, it is essential for caregivers and teachers to have adequate knowledge of autism to facilitate early detection and intervention.

Awareness among Montessori teachers is crucial for early diagnosis and timely intervention. In non-Western countries like Nepal, autism is often under-recognized, leading to limited research, particularly regarding caregivers' knowledge. Hence, this study aimed to assess the level of knowledge regarding childhood autism among Montessori teachers in Biratnagar Metropolitan City.

## MATERIALS AND METHODS

A descriptive cross-sectional study was conducted from May 1 to May 15, 2019, using face-to-face interviews in Biratnagar Metropolitan City. A complete list of Montessori schools and their teachers was obtained from the Metropolitan Education Section one week prior to data collection. According to the records, there were 17 Montessori schools with a total of 144 teachers. A complete enumeration method was applied, and 132 teachers participated in the study, yielding a response rate of 91.6%.

A self-designed semi-structured questionnaire was used to collect socio-demographic information. Ethical approval was obtained from the CMC Institutional Review Committee (Ref: CMC-IRC/075/076-

140). Pre-testing of the questionnaire was conducted in a similar setting outside the study area to ensure validity and reliability. Data were coded, entered, and analysed using the Statistical Package for Social Sciences (SPSS), version 20. Pearson’s chi-square test and binary logistic regression analysis were applied to assess the knowledge of childhood autism among Montessori teachers in Biratnagar Metropolitan City.

**RESULTS**

**Table 1: Knowledge about autism among Montessori teachers (n=132)**

Level of knowledge	Frequency	Percentage (%)
Inadequate	32	24.24
Moderately adequate	58	43.94
Adequate	42	31.82

Median=17, IQR=10, Max=26, Min=0

The table 1 shows the correct responses of the participants regarding the autism related questions in the questionnaires. The table shows that there is inadequacy of knowledge regarding cause, diagnosis, symptom, management of autism among the participants.

The table 2 shows that there is no significant association between socio- demographic variables and knowledge level of the participants.

Table 3 shows that the knowledge level of the participants was significantly associated with the Montessori training. The table also shows that the knowledge level was highly significantly associated with training related to Autism and prior contact with autistic

**Table 2: Association of level of Knowledge with some independent socio- demographic variables of the participants (n=132)**

Independent variables	Inadequate knowledge	Moderately adequate knowledge	Adequate knowledge	χ <sup>2</sup>	P-value
<b>Age</b>					
20-25	10 (23.8%)	17 (40.5%)	15 (35.7%)		
25-30	11 (22.9%)	20 (41.7%)	17 (35.4%)		
30-35	7 (31.8%)	9 (40.9%)	6 (27.3%)	5.453	0.708
35-40	2 (13.3%)	9 (60.0%)	4 (26.7%)		
40-45	2 (40%)	3 (60%)	0 (0%)		
<b>Ethnicity</b>					
Brahmin/Chetri	25 (26.6%)	37 (39.4%)	32 (34%)	2.811	0.245
Others	7 (18.4%)	21 (55.3%)	10 (26.3%)		
<b>Religion</b>					
Hindu	31 (25.6%)	50 (41.3%)	40 (33.1%)	4.101	0.129
Non -Hindu	1 (9.1%)	8 (72.7%)	2 (18.2%)		

**Table no 3: Association of level of knowledge with educational and teaching profile of the participants(n=132)**

Independent variables	Inadequate knowledge	Moderately adequate knowledge	Adequate knowledge	Chi square	P-value
Education level					
Below Bachelor	16(26.7%)	27 (45%)	17 (28.3%)	0.715	0.7
Bachelor	16(22.2%)	31(43.1%)	25 (34.7%)		
Teaching experience					
Less than two years	10 (26.3%)	20 (52.6%)	8 (21.1%)		
Two to five years	11 (22%)	19 (38%)	20 (40%)	3.678	0.451
More than five years	11 (25%)	19 (43.2%)	14 (31.8%)		
Montessori training					
Received	22 (21.8%)	41 (40.6%)	38 (37.6%)		
Not received	10 (32.3%)	17 (54.8%)	4 (12.9%)	6.725	0.035*
Training related to Autism					
Received	0	10 (43.5%)	13 (56.5%)		0.02##
Not received	32 (29.4%)	48 (44%)	29 (26.6%)		
Prior contact					
Yes	8 (15.4%)	17 (32.7%)	27 (51.9%)	16.147	<0.001*
No	24 (30%)	41 (51.2%)	15 (18.8%)		

\*\* denotes significant association (By applying Pearson chi-square test at 5% level of significance)

## Fisher exact test p-value

children.

## DISCUSSION

In this study, the majority of participating teachers were aged 25–30 years, with a median age of 28 years, reflecting a relatively young teaching workforce. Over three-quarters reported having Montessori training, although training specific to autism spectrum disorder (ASD) was limited. More than half

had completed a bachelor's degree, and fewer than half had prior contact with autistic children. These demographic characteristics are consistent with other regional studies of early childhood educators, although the prevalence of autism-specific training in this sample was higher compared to some previous reports. A study conducted in Pune in 2013 found that none of the pre-school teachers had received autism-related training and less than 17% had prior contact with

autistic children [8]. Similarly, only a small fraction of teachers in Karachi reported formal training in autism [9]. The low representation of ASD-specific training across contexts underscores a common gap in teacher preparation globally, despite increasing ASD prevalence and the need for inclusive educational practices. These gaps in training have been highlighted in broader reviews showing that teachers' autism knowledge is generally limited and linked to training exposure [10].

Regarding knowledge levels, nearly half of the teachers demonstrated a moderately adequate understanding of autism, while less than one-third reached the threshold for adequate knowledge. A considerable proportion still displayed inadequate knowledge. These findings align with broader literature indicating that general education teachers often have limited conceptual understanding of ASD, especially in mainstream settings without targeted professional development [10]. Compared with earlier studies in Tamil Nadu (2018) and Pune (2013), where inadequate or poor knowledge was dominant, the present study suggests a modest improvement in overall awareness [6]. This trend may reflect a gradual increase in autism visibility and informal awareness through media and peer learning, yet formal competency remains deficient. Indeed, teachers have identified training as a crucial route for improving their ability to identify and support students with developmental disorders.

The association analyses revealed no statistically significant link between teachers' educational status and their level of knowledge about autism in this study. In contrast, research from China reported a

significant association between educational background and autism knowledge among preschool teachers. This discrepancy may be due to differences in teacher preparation systems, curricula, or the breadth of exposure to disability education content. However, supporting the broader literature, this study found that general training, autism-specific training, and prior contact with autistic children were significantly associated with higher knowledge levels. These associations are consistent with systematic reviews that show prior experience and specific training enhance teachers' conceptual understanding, confidence, and inclusive practices [10].

Importantly, the present findings also align with studies indicating that teacher training interventions can produce measurable improvements. For instance, structured educational modules have been shown to significantly increase preschool teachers' ability to identify autism symptoms and enhance their knowledge and belief in effective practices [11]. Likewise, research on professional development programs highlights how targeted training can shift teaching practices toward more inclusive and supportive environments [12]. These collective findings support that, while general awareness may be growing, formal capacity building through systematic training remains essential to bridge gaps in autism understanding and promote evidence-based educational strategies.

Despite moderately adequate general knowledge among many participants, the persistence of inadequate levels in a notable subset highlights an ongoing need for structured teacher training and professional development. International studies reinforce that, without such training, teachers often

lack confidence and feel unprepared to support students with ASD effectively [10]. Moreover, evidence from broader educational research suggests that improving teacher competency in ASD not only enhances accurate identification but also contributes to more positive attitudes toward inclusion and greater teaching self-efficacy [13].

The present study underscores a mixed but generally improving landscape of teacher knowledge regarding autism, tempered by persisting gaps. Strengthening pre-service and in-service training programs particularly those that include direct contact with autistic individuals and practical teaching strategy crucial for fostering inclusion and better educational outcomes. Future research should explore longitudinal impacts of training on classroom practices and student outcomes, as well as the integration of autism education into teacher training curricula.

## CONCLUSIONS

The study concluded inadequate knowledge of autism among Montessori teachers. As many parents are working and enrol their children in Montessori at an early age, teachers are expected to support children's overall growth and development. Therefore, teachers should be equipped with adequate knowledge of developmental disorders, including autism. Regular training and refresher programs are recommended, along with periodic parent-teacher meetings to address children's developmental and behavioural concerns.

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