

Awareness on Attention Deficit Hyperactivity Disorder among Primary School Teachers of Public Schools in KathmanduPoojan Sharma¹, Pragya Kunwar¹¹Department of Nursing, Manmohan Memorial Institute of Health Sciences, Kathmandu**ABSTRACT**

Introduction: Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood mental health disorders. It causes impairment in the child's key life activities, for instance, social relations, academic, family and vocational functioning, furthermore, adherence to social regulations, norms and laws. Teachers can play a valuable informant in regard to diagnosis on ADHD as they are in regular contact with children. The objective of this study was to identify level of awareness and associated factors of awareness on ADHD among primary school teachers of public schools in Kathmandu.

Methods: Descriptive cross sectional research design was used. Out of 274 primary level schools in Kathmandu, 14 schools were selected by lottery method. Cluster random sampling technique was used. All the available primary teachers from selected schools were included in the study. Knowledge of Attention Deficit Disorder Scale (KADDS) was used to collect data. The total sample size was 130. SPSS version 20 was used for data analysis. Bivariate and multivariate logistic regression analysis was used to find out the association between awareness on ADHD and selected study variables.

Results: Among 130 school teachers, more than half (50.8%) had low level of awareness. In multivariate logistic regression analysis, the educational level was significantly associated with awareness on ADHD. However, in bivariate analysis the teachers' age and duration of teaching were also significantly associated with the awareness on ADHD.

Conclusion: More than half of primary level school teachers of public schools had low level of awareness on ADHD. Education level of the teachers was associated with level of awareness. Hence, the teachers need to be encouraged to pursue higher level education.

Keywords: ADHD, Awareness, School teachers

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.¹ It is one of the most common childhood mental disorder, characterized by repetitive inattention, impulsivity and hyperactivity which cause difficulty in socialization and school performance.² ADHD is common in age group between 6 and 17 years; however it can also be seen in 2 to 5 years of age. The most common age group is 6 to 11 years.³ It is estimated that ADHD affects 2-18% of school children.⁴ Incidence ranges from 5.9 to 7.1%.⁵ Teachers are the important source of information concerning referral and diagnosis of the disorder. In addition, teachers play a major role in creating an environment that is helpful to children with ADHD in academic, social and emotional balance.⁶ However there is no provision of formal teachers training on ADHD in government schools in Nepal neither they get orientation session on this disorder. Objective of the study was to identify the level of awareness on ADHD among the primary school teachers and to measure the association

between level of awareness and selected demographic variables.

METHODS

Descriptive cross-sectional study design was used for this study. The study was carried out between June 2018 to December 2018. The study population was all the primary level school teachers (1 to 5 grades) of public schools of Kathmandu district. In total, 272 schools have primary classes (1 to 5 grades) in Kathmandu.⁷ Out of 272 schools, we selected 14 public schools to cover calculated sample size. The numbers of teachers in a school was ranged between 8 and 12. Cluster random sampling technique was used for selecting the schools. All the teachers who were available at the time of data collection from the selected schools were included in the study (cluster census). The calculated sample size was 78. The sample size was calculated from the population proportion 94.6%

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of a previous study.⁸ Fisher formula was used to calculate the sample size with 5% allowable error. In addition to it, 10% non-response rate was calculated and added to the sample as the self-administered questionnaire was used for data collection. After adding the non-response rate, the sample size was 86. The sample size 86 was multiplied by 1.5 as a design effect since cluster sampling technique was used. After that, the sample size was 129. In 14 schools, self-administered questionnaire were distributed to 133 teachers (all). Among them, one teacher did not return the questionnaire and two teacher's questionnaire were discarded due to inconsistent information. Finally, 130 teachers were included in the study as a sample.

Modified Knowledge of Attention Deficit Disorder Scale (KADDS) was used for identifying the teachers' level of awareness. The KADDS is a 36-item rating scale⁹ designed to measure teachers' knowledge and misperceptions of Attention-Deficit Hyperactivity Disorder. The internal consistency of English version tool was ranged between 0.82 and 0.89 in educational professionals of different country.¹⁰ Items in KADDS scale are related to general information, symptoms/diagnosis and treatment of ADHD. Modified KADDS tool in English language was administered for data collection. Cronbach's alpha was calculated from the pre-test data to ensure internal consistency of study tool. Cronbach's alpha was 0.81 for the scale as a whole, which indicates adequate internal consistency.¹² Pre-test of the tool was done among 13 primary level public school teachers in Kathmandu. Ethical approval was taken from Institutional Review Board of Manmohan Memorial Institute of Health Sciences (Ref. No. 75/52). Written permission was taken from each school and written informed consent from each participant was taken before data collection. Self administered questionnaire were provided to the teachers and filled up questionnaire were collected in the same day. The teacher's name was not mentioned in the questionnaire to maintain the anonymity in data collection. The data were entered, coded and analyzed by using Statistical Package for Social Sciences (SPSS) Version 20. The level of awareness was categorized as high level (total score above mean) and low level (total score below or equal to mean). One correct answer was given one score. Incorrect answer and "don't know" response provided no score at all. Bivariate and multivariate logistic regression analysis was used for finding the association between awareness on ADHD and selected study variables. Muticollinearity was checked. There was no collinearity problems as shown by Variance Inflation Factors (VIF was less than 3). Hosmer and Lemeshow goodness of fit test was done to ensure the model was fit.

RESULTS

Table 1: Socio-Demographic Characteristics of Respondents

| n = 130 | | |
|---|-----------|----------------|
| Variables | Frequency | Percentage (%) |
| Age in years | | |
| 20-30 | 15 | 11.5 |
| 31-40 | 30 | 23.1 |
| 41-50 | 68 | 52.3 |
| 51-60 | 17 | 13.1 |
| Mean±SD=42.88± 8.32 | | |
| Sex | | |
| Male | 24 | 18.5 |
| Female | 106 | 81.5 |
| Ethnicity | | |
| Janajati | 37 | 28.5 |
| Madhesi/Muslim | 2 | 1.5 |
| Brahmin/Chhetri | 91 | 70 |
| Educational level | | |
| Intermediate level | 48 | 36.9 |
| Bachelor level | 45 | 34.6 |
| Master level and above | 37 | 28.5 |
| Years of teaching | | |
| 0-15 years | 38 | 29.2 |
| 16-30 years | 80 | 61.5 |
| 31-45 years | 12 | 9.2 |
| Mean ± sd= 20.8± 8.4 | | |
| Training received on ADHD | | |
| Yes | 4 | 3.1 |
| No | 126 | 96.9 |
| Previous exposure to child with ADHD | | |
| Yes | 94 | 72.3 |
| No | 36 | 27.7 |

Table 1 shows, more than half (52.3%) of the teachers were of age group 41 to 50 years. Most of the teachers (81.5%) were female. The teachers having bachelor degree were in highest number (34.6%). The most of the teachers (96.9%) had not received the training related to ADHD.

Table 2: Awareness on General Information related to ADHD

| Statements | *CA | Responses | | |
|---|-----|---------------|-----------|------------|
| | | Frequency (%) | | |
| | | Correct | Incorrect | Don't know |
| ADHD is neurodevelopment psychiatric disorder | T | 91(70.3) | 16(12.3) | 23 (17.7) |
| Most common in first degree biological relatives. | T | 89(68.5) | 13(10) | 28 (21.5) |
| Possible for an adult to be diagnosed with ADHD. | T | 108 (83.1) | 8 (6.2) | 14 (10.8) |
| In school age children, the prevalence of ADHD in males and females is equivalent. | F | 17(13.1) | 100(76.9) | 13(10) |
| Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments. | T | 91 (70) | 23 (17.7) | 16 (12.3) |
| A diagnosis of ADHD by itself makes a child eligible for placement in special education | F | 28 (21.5) | 94 (72.3) | 8(6.2) |
| The majority of ADHD children evidence some degree of poor school performance in the elementary school years. | T | 74 (56.9) | 46 (35.4) | 10 (7.7) |
| ADHD children generally experience more problems in novel situations than in familiar situations. | F | 17 (13.1) | 98 (75.4) | 15 (11.5) |
| There are specific physical features which can be identified by medical doctors (e.g. pediatrician) in making a definitive diagnosis of ADHD. | F | 24(18.5) | 76(58.5) | 30(23.1) |

*CA: correct answer

Table 2 depicts that (83.1%) of teachers had knowledge about the occurrence of ADHD among adults. Out of 130 teachers, (21.5%) did not know about the chances of having ADHD is more common in the first degree biological relatives. Majority of the teachers (76.9%) did not know about the variation in prevalence of ADHD among males and female.

Table 3: Awareness on Signs and Symptoms of ADHD

| Statements | *CA | Responses | | |
|---|-----|---------------|-----------|------------|
| | | Frequency (%) | | |
| | | Correct | Incorrect | Don't know |
| In order to be diagnosed with ADHD, the child's symptoms must have been present before age 7. | T | 47(36.2) | 32(24.6) | 51(39.2) |
| One symptom of ADHD children is that they have been physically cruel to other people | F | 22(16.9) | 77 (59.2) | 31 (23.8) |
| ADHD children often have a history of stealing or destroying other people's things. | F | 25(19.2) | 85 (65.4) | 20(15.4) |
| Current wisdom about ADHD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/ impulsivity. | T | 108(83.1) | 12(9.2) | 10(7.7) |
| Symptoms of poor attention in children are found difficulty in listening. | T | 106(81.5) | 14(10.8) | 10(7.7) |
| ADHD children often fidget or squirm in their seats. | T | 120(92.3) | 3(2.3) | 7(5.4) |
| ADHD children often have difficulties organizing tasks and activities. | T | 101(77.7) | 21(16.2) | 8(6.2) |
| It is common for ADHD children to have an inflated sense of self esteem or grandiosity. | F | 48(36.9) | 58(44.6) | 24(18.5) |
| In order to be diagnosed as ADHD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school). | T | 79(60.8) | 28(21.5) | 23(17.7) |
| Complications seen in later adolescents are accidents, injuries, drug depression | T | 94(72.3) | 17(13.1) | 19(14.6) |

*CA: correct answer

Table 3 reveals that the most of the teachers (92.3%) knew about ADHD children often fidget with or taps hands or feet in their seat. The majority of teachers (65.4%) said ADHD children often have history of stealing other people's things. And (39.2%) teachers did not know about

the symptoms of ADHD must be present before age 7.

Table 4: Awareness on Information related to Treatment of ADHD
n=130

| Variables | *CA | Responses | | |
|--|-----|---------------|-----------|------------|
| | | Frequency (%) | | |
| | | Correct | Incorrect | Don't know |
| Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD. | F | 103(79.2) | 14(10.8) | 13(10.0) |
| Reducing dietary intake of sugar or food additives is generally effective in reducing the symptoms of ADHD. | F | 68(52.3) | 20(15.4) | 42(32.3) |
| Parent and teacher training in managing an ADHD child are generally effective when combined with medication treatment. | T | 104(80.0) | 9(6.9) | 17(13.1) |
| Individual psychotherapy is usually sufficient for the treatment of most ADHD children. | F | 7(5.4) | 106(81.5) | 17(13.1) |
| When treatment of an ADHD child is terminated, it is rare for the child's symptoms to return. | F | 30(23.1) | 54(41.5) | 46(35.4) |
| In severe cases of ADHD, medication is often used before other behavior modification techniques are attempted. | T | 37(28.5) | 31(23.8) | 62(47.7) |

CA: correct answer

Table 4 shows that the majority of teachers (80.0%) answered parent and teacher training as a treatment measure of ADHD. Majority of the teachers (81.5%) said individual psychotherapy is usually sufficient as a treatment of ADHD. In addition, less than half (47.7%) teachers did not know about using medication as a treatment measures for ADHD before other techniques of treatment in severe cases.

Fig: 1 Level of Awareness on ADHD

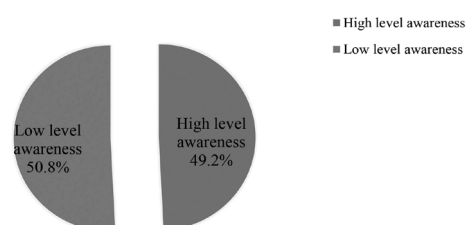


Fig. 1 illustrates that, among 130 primary level school teachers, just more than half (50.8%) had low level awareness and (49.2%) had high level awareness on ADHD.

Table 5: Bivariate Analysis between Awareness on ADHD and Socio-demographic Characteristics of Respondents

| Characteristics | High level Awareness N (%) | Low level Awareness N (%) | UOR (95%CI) | P value |
|---|-------------------------------|------------------------------|----------------|---------|
| Age group | | | | |
| 42 years | 33(62.3) | 20(37.7) | 2.5(1.19-5.02) | 0.01* |
| >42 years | 31(40.3) | 46(59.7) | | |
| Mean±sd=42.88± 8.321 | | | | |
| Sex | | | | |
| Male | 12(50) | 12(50) | | 0.93 |
| Female | | | | |
| Educational level | | | | |
| Intermediate level | 30(62.5) | 18(37.5) | | 1 |
| Bachelor level | 25(55.6) | 20(44.4) | 1.3(0.5-3) | 0.01* |
| Master level and above | 11(29.7) | 26(70.3) | 4(1.6-9.8) | |
| Years of teaching | | | | |
| 0-15 years | 25(65.8) | 13(34.2) | 3.8(0.9-15.2) | 0.04* |
| 16 to 30 years | 33(43.8) | 43(56.2) | 1.6(0.4-5.5) | |
| 31 & above years | 4(33.3) | 8(66.7) | 1 | |
| Previous experience in dealing with ADHD child | | | | |
| Yes | 50(53.2) | 44(46.8) | | 0.14 |
| No | 14(38.9) | 22(61.1) | | |

CI= Confidence Interval 1=Reference OR=odds ratio *
Significant at 95% CI P-value obtained from bivariate logistic regression analysis

Table 5 Shows that the teachers younger than 42 (20 to 41 years old) had 2.5 times more chance of having high level awareness on ADHD compared to older than and equal to 42. [P-0.014, UOR- 2.5 (1.19-5.02)]. The teachers having master level education had 4 times more odds of having awareness regarding ADHD as compared with intermediate level [p-0.008, UOR=4(1.6-9.8)]. The teachers having less than an equal to 15 years teaching experience had 3.8 times higher odds of having awareness on ADHD. On the other hand, teacher's sex, and previous

experience with child with ADHD was not significantly associated with the awareness on ADHD.

Table 6: Multivariate Analysis of the Factors Associated with Awareness on ADHD

| Characteristics | UOR (95%CI) | P value | AOR (95%CI) | P value |
|--------------------------|-----------------|---------|-----------------|---------|
| Age group | | | | 0.39 |
| <42 years | 2.5(1.19-5.02) | 0.01* | 1.5 (0.6-4.1) | |
| ≥42 years | 1 | | 1 | |
| Educational level | | 0.01* | | 0.03* |
| Master level and above | 4(1.6-9.8) | | 3.4(1.3-8.7) | |
| Bachelor level | 1.3(0.5-3) | | 1.1(0.5-2.7) | |
| Intermediate level | 1 | | 1 | |
| Years of teaching | | 0.04* | | 0.55 |
| 0-15 years | 3.8(0.9-15.2) | | 2.4(0.4-13.1) | |
| 16 to 30 years | 1.6(0.4-5.5) | | 1.4(0.4-5.6) | |
| 31 & above years | 1 | | 1 | |

CI= Confidence Interval 1=Reference UOR=Unadjusted odds ratio AOR=Adjusted odds ratio * Significant at 95%

Table 6 shows that the educational level of the teachers was significantly associated with the awareness level on ADHD. The teachers who had master level and above education had 3.4 times more chance of having high level awareness on ADHD (AOR:3.4, 95% CI: 1.3-8.7, p=0.03).

DISCUSSION

The children having attention deficit hyperactivity disorders have difficulty in paying attention to detail especially in classroom. Many children with ADHD might get punishment due to hyperactivity and impulsivity. Harsh behavior by the teachers towards the ADHD children due to lack of awareness might cause more severe psychopathology. The teachers can deal and teach effectively to the children with ADHD if they are equipped with awareness on ADHD. The study generates the baseline on teacher's awareness on ADHD. The objective of this study was to identify the level of awareness on ADHD and its associated factors. In current study, we found that more than half of the teachers (50.8%) had low level of awareness and (49.2%) had high level of awareness regarding ADHD. This datum is quite similar with the findings from South Africa, and Sri Lanka.^{13,14}

In current study, age of the teachers was significantly associated with the awareness level of ADHD that the younger aged teachers (less than 42 but more than 20 years) were more aware on ADHD than of the older teachers (aged more than or equal to 42 years) in bivariate analysis, however, it was not significantly associated in multivariate analysis. In addition, duration of teaching experience was significantly associated with the awareness on ADHD in bivariate analysis; conversely, it was not significantly associated in multivariate analysis. The bivariate analysis between teaching experience and ADHD awareness showed that the teachers who had less than 15 years teaching experience were more aware on ADHD compared to the teachers having more than 15 years teaching experience as the young and less experienced teachers seemed more updated on ADHD compared to older and more experienced teachers. A study conducted in Chitwan, Nepal had the same result as the teacher's age and teaching experience was significantly associated with the knowledge of ADHD.¹⁵ Another study from Iran found inverse relation between teachers' age and their mean knowledge score on ADHD.¹⁶ However, a study conducted in Saudi Arabia found no any association between teachers age and knowledge on ADHD.¹⁷ Another study from Lalitpur found association between teaching experience and knowledge on ADHD among the primary school teachers.¹⁸

In this study, there was an association between teacher's educational level and awareness on ADHD. The teachers having master level and above education had more than three times higher odds of having high level awareness on ADHD in bivariate and multivariate analysis. Likewise, a study conducted in Lalitpur, Nepal, showed that the teacher's knowledge on ADHD had significant associated with their educational level.¹⁸ Whereas, a study from Saudi Arabia found no any association between teacher's educational level and their knowledge on ADHD.¹⁷

In this study, previous experience of teacher with ADHD children was not significantly associated with the level of awareness. Quite the opposite, studies found a significant association between previous experience of teacher in dealing with ADHD and teacher's knowledge on ADHD.^{17,18} This dissimilar result might be due to the differences in population characteristics. The study in Madina of Saudi Arabia had included the teachers teaching the special need students and had trebles the sample size of our study. Another study was of Lalitpur, Nepal, in which more than three fourth teachers had poor knowledge on ADHD. The sample was more heterogeneous than of our study.

In current study, we found no any significant association between teacher's sex and their awareness on ADHD. Similar to this findings there was no significant association between teacher's sex and their knowledge on ADHD in the studies conducted in Chitwan and Lalitpur districts of Nepal.^{15,18}

CONCLUSION

More than half of the primary level school teachers had low level of awareness on ADHD. Higher the level of education higher the level of awareness on ADHD has been found among the teachers. Thus, the teachers need to be encouraged and facilitated to pursue higher level education.

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