ORIGINAL ARTICLE

# Knowledge, Attitude & Practices Towards Attention Deficit Hyperactivity Disorder Among Private Elementary School Teachers of Karachi, Pakistan

Nighat Mirza[1], Nighat Nisar[2], Zia Ikram[3]

## ABSTRACT

**Objective:** To determine knowledge, attitude and practices regarding Attention deficit and hyperactivity disorder (ADHD) among primary school teachers in Gulshan-e-hadeed Karachi.
**Methods:** Cross-sectional study conducted to detect ADHD, Semi-structured questionnaire was adopted by Conner's teacher's rating scale (CTRS), administered to selected private elementary school teachers of Gulshan-e-Hadeed. Data was collected in 2 steps. In first step the reaction of teachers for the first three questions was observed, which was seen unsatisfactory, teachers were then taught about the ADHD, then data was collected in second step .
**Results:** Knowledge, attitude and practices estimated. 94.7% showed positive knowlege and 5.3%showed Poor knowlege towards ADHD. 96.2% teachers showed positive attitude, and 3.8%showed negative attitude towards, ADHD, 66.3% teachers found to be performing good and 33.7% were performing unsatisfactory.
**Conclusion:** It can be concluded that the adequate knowledge, Positive attitude and good practice regarding ADHD among primary school teachers play a significant role in prevention, detection and screening of these children and prevent them from future consequences. Provision of information to Teachers regarding ADHD prior to study would have an auspicious impact. Timely interventions can make difference in the educational and social development of these children.

**Key words:** ADHD, Conner's Teacher's Rating scale (CTRS) awareness elementary school teachers, Karachi, Pakistan.

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## INTRODUCTION

ADHD is a behavioral and neurocognitive disorder characterized by developmentally improper and impaired levels of gross motor activity, attention and impulsivity, affecting 3 to 5% of children universally[1]. These children are predisposed to develop numerous complications, including poor academic performance, behavior disorders, attitude disorders, contracted social relationships, social refusal and adjustment problems. Juvenile ADHD can be projected if left untreated as it delays with the child's learning, interpersonal dealings and the capacity to maintain a normally positive sense of confidence.[2]

Department of Community Health Sciences[1]/ Professor, Department of Community Medicne[2]/ Biochemistry Department[3]/ Dow Medical College, Dow University of Health Sciences, Karachi, Pakistan.

**Correspondence:** Dr. Nighat Mirza, Department of Community Health Sciences, Dow Medical College, Dow University of Health Sciences, Karachi, Pakistan.

**Email:** nighat.mirza@duhs.edu.pk

ADHD is connected with extensive psychiatric co-morbidity, 50-60% of affected children meeting the criteria for at least one additional psychiatric disorder[3]. 30to 50% of known childhood ADHD cases have symptoms that continue into their adult life[4,5].The prevalence of ADHD in India was estimated to be around 5%[6]. The prevalence of ADHD in Pakistan has been found to be around 2.49%[26]. Children with ADHD are usually inattentive, impulsive, and hyperactive in the classroom usually disrupting class. 30 to 60% children with ADHD have communication and linguistic problems[7,8]. The impact of ADHD on society is huge in terms of fiscal cost, constant worry to families, along with behavioral problems in their work place as well as adverse effects on self-esteem. Indian studies reveal that ADHD was the most common in first born and from a poor social class. Delayed development, behavioral problems, single parents were found to be the most common factors among children with ADHD[9]. Usually the problem is not noticed until the entrance of school[10]. It is extremely hard to detect the problem in children before four years of age[11]. knowledge of primary teachers towards ADHD children will equally

help and provide timely care to these children, as ADHD will continue up to their adult life. Screening these children early by teachers can prevent these children from severe consequences. School is the best setting for the early detection and effective management of the disease. ADHD Children usually perform productively within the classroom setting.

In Pakistan, little is known about ADHD and therefore teachers need an extensive knowledge and training with regards to this condition in order to help and recognize these children so that effective behavior adjustment strategies can be planned. Studies show that interventional correspondence facility offers a boost in the knowledge of teachers regarding ADHD.[12, 13,14]

## MATERIAL & METHODS

This cross sectional descriptive study is done to inspect the knowledge, attitude and practices of ADHD among Private primary school teachers including male and female of Gulshan-e-Hadeed town, Karachi. Age of selected participants ranging from 20 to 50 years. A purposive sampling technique is used .A sample size (n=264) was calculated by using proportion of knowledge among school teachers regarding Attention deficit hyperactivity disorder 22%,.by keeping margin of error5% and 95% confidence interval. 14 private primary schools were conveniently selected, during the period of August 2014 to April 2015. A sample size of 264 was used to determine the knowledge, attitude and practices regarding ADHD among private primary school teachers.

The study was permitted after approval from institutional ethical board and from the related school authorities. A detailed explanation was done to every participant about the study and confidentiality maintained. Informed verbal and written consent was obtained and explained to the subjects.

Collection of data was started by using questionnaire, adopted by Conner's teachers rating scale (CTRS) following discussion to psychologist and psychiatrist. The reliability of the scale as measured by test/retest association and internal consistency was generally satisfactory with all the scale factors to make a differentiation among ADHD and normal children. 85%of children were properly classified, supporting the validity of the scale and indicating excellent clinical utility.[22] This scale is a checklist constructed on the universal text to distinguish the knowledge, attitude and practices of ADHD among teachers.

Demographic data was attached to the scale. Few questions were developed and modified according to the cultural features. The initial questionnaire was prepared in English language then translated in Urdu version.

Questionnaire was divided into four portions. Sociodemographic data, Knowledge, attitude and practices. A covering letter to explain the purpose of the study, ensuring anonymity and confidentiality was attached with each questionnaire.

Questionnaires were circulated among the participations and collected back soon after they have completed. Statistical analysis was performed using Statistical analysis (SPSS) version 16. Descriptive statistics of community- factors were existing as mean, standard deviation and frequency percentages.

For Inferential statistics, scores about knowledge, attitudes and practices was converted into categories i.e. adequate/In-adequate demographic variable, knowledge, attitude and practice. Association between the converted scores and other independent variables were determined through logistic regression analysis.

Adjusted odd ratio and their 95% confidence intervals for the presence of knowledge, attitude and practice towards ADHD were also obtained. Independent variables were appeared with p-value =0.25 was included in the multivariate analysis. The dependent variables were teacher's knowledge, attitude and practices.

Independent variable includes age, gender, marital status, education status, household income of teachers.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

## RESULTS

Fourteen private primary schools of Gulshan-Hadeed town, Karachi were randomly selected. Two hundred and sixty-four Private elementary school teachers have completed a semi structured questionnaire. Response was 100%. 18.2% were males, 81.8% were females.58.0% were married and42.0% were single.14.8%have completed higher secondary education, 54.2% were Graduates and31.1%were post graduates.

Association among demographic variables of population with knowledge, Attitude and Practice of ADHD is illustrated in Tables.

Table 1: Demographic characteristics and ADHD knowledge, Attitude and practices of study participants.

| Characteristics | N | % |
|---|---|---|
| Age (Median ±IQR) | 30.00±8.00 | |
| No. of Child(Median ±IQR) | 1±2 | |
| Income(Median ±IQR) | 22000.00±12000 | |
| Gender | | |
| Female | 216 | 81.8 |
| Male | 48 | 18.2 |
| Marital status | | |
| Married | 153 | 58.0 |
| Un married | 111 | 42.0 |
| Education | | |
| Higher Secondary | 39 | 14.8 |
| Graduate | 143 | 54.2 |
| Post Graduate | 82 | 31.1 |

Table 1: shows the demographic characteristics of study participants

Age of selected participants was ranging from 20 -50 years.
Age: Median±IQR age of participants was 30.0±8.00Gender; Majority 216 (81.8%) of participants were female, on the other hand female male ratio was 4.5%.
Marital status; Majority 153 (58.0%) of participants were married, on the other hand unmarried were 111 (42.0%). Majority 153 (58.0%) of participants were graduates, on the other hand undergraduates 143(53.2%) and postgraduates 82(31.1%)

Table 2: Association of demographic variables of Population with Knowledge, Attitude and Practice of ADHD

| Variables | N=264 | Good Knowledge n (%) | Poor Knowledge n (%) | P-value | Positive Attitude n (%) | Negative Attitude n (%) | P-value | Good Practice n (%) | Bad Practice n (%) | P-value |
|---|---|---|---|---|---|---|---|---|---|---|
| Age in years (Median ±IQR) | | 30.50±8 | 24.50±4.5 | <0.001* | 30±8 | 29±11.5 | .571* | 31±8 | 29±8.5 | 0.040* |
| Gender | | | | 0.698 | | | 0.323 | | | .782 |
| Female | 216 | 204(81.6) | 12(85.7) | | 209(82.3) | 7(70.0) | | 144(82.3) | 72(80.9) | |
| Male | 48 | 46(18.4) | 2(14.3) | | 45(17.7) | 3(30.0) | | 31(17.7) | 17(19.1) | |
| Marital status | | | | 0.22 | | | .603 | | | 0.046 |
| Married | 153 | 149(59.6) | 4(28.6) | | 148(58.3) | 5(50.0) | | 109(62.3) | 44(49.4) | |
| Un married | 111 | 101(40.4) | 10(71.4) | | 106(41.7) | 5(50.0) | | 66(37.7) | 45(50.6) | |
| No. of Child (Median ±IQR) | | 1.5±2 | 0.0±2 | 0.111* | 1.0±2 | 1.0±3 | 0.853* | 2±2 | 0±2 | 0.047* |
| Education Status | | | | 0.075 | | | 0.072 | | | 0.432 |
| Higher Secondary | 39 | 34(13.6) | 5(35.7) | | 35(13.8) | 4(40.0) | | 23(13.1) | 16(18.0) | |
| Graduate | 143 | 137(54.8) | 6(42.9) | | 139(54.7) | 4(40.0) | | 94(53.7) | 49(55.1) | |
| Post Graduate | 82 | 79(31.6) | 3(21.4) | | 80(31.5) | 2(20.0) | | 58(33.1) | 24(27.0) | |
| Income (Median ±IQR) | | 25000±11000 | 19500±8000 | 0.124* | 22000±12000 | 23500±12000 | 0.821* | 25000±11000 | 22000±11000 | .094* |

N= total number of the teacher
IQR = Inter-quartile ranges
*Mann Whitney test

Table 2: shows the association demographic variables of Population with Knowledge, attitude and Practiceof ADHD

Mean age of good knowledge of ADHD was30.50±IQR,while poor knowledge score was 24.5±o.oo1,Which is statistically significant. Positive attitude in median age group score30±8,while negative attitude was29±115, which is statistically significant(0.571).Positive attitude in male teachers seen45(17.7) while negative attitude in male teachers was 3(30.0). Positive attitude in female teachers seen209(82.3) while negative attitude in female teachers was7(70.0) which is insignificant. Median age ± IQR ,in good practice ADHD age group was 31±8 and in bad practice age was 29±8.5, which is statistically significant. Out of total good practices group 109(62.3)

Table 3: nivariate logistic Regression Analysis for model predicting knowledge, Attitude and Practice of ADHD

| | Knowledge | | Attitude | | Practice | |
|---|---|---|---|---|---|---|
| Variables | COR (95 % C.I) | P-value | COR (95 % C.I) | P-value | COR | P-value |
| Age (years) | 0.751 (0.651-0.868) | <0.001 | 0.970 (0.869-1.083) | 0.588 | (95 % C.I) | 0.042 |
| Gender | | 0.699 | | 0.332 | 0.955 (0.913-0.998) | 0.782 |
| Male(Reference) | | | | | | |
| Female | 1.353 (0.293-6.253) | | 1.990 (0.496-7.994) | | | |
| Marital status | | | | | 1.097 (0.569-2.113) | |
| Married(Reference) | | 0.031 | | 0.605 | | 0.046 |
| Un married | 3.688 (1.126-12.084) | | 1.396 (0.394-4.944) | | 1.689 (1.008-2.829) | |
| No. of Child | 0.713 (0.452-1.124) | 0.145 | 1.088 (0.704-1.682) | 0.704 | 0.826 (0.684-0.998) | 0.047 |
| Education Status | | 0.099 | | 0.103 | | 0.435 |
| Higher Secondary | 3.873 (0.876-17.127) | 0.074 | 4.571 (0.800-26.129) | 0.087 | 1.681 (0.759-3.726) | 0.201 |
| Graduate | 1.153 (0.281-4.739) | 0.843 | 1.151 (0.206-6.425) | 0.873 | 1.260 (0.700-2.268) | 0.441 |
| Post Graduate (Reference) | | | | | | |
| Income in rupees | 1.000 (1.000-1.000) | 0.221 | 1.000 (1.000-1.000) | 0.824 | 1.000 (1.000-1.000) | 0.062 |

Table3: shows the Univariate logistic Regression Analysis for model predicting knowledge, attitude and practice of ADHD:

No association between age and attitude seen among teachers. (OR=0.751,95%C. 10.591-P=<0.001). Unmarried teachers showed poor knowledge towards ADHD, 3.688 times poorer than married teachers {(OR=3.688, 1.126-12084) P=0.031}, which is statistically significant.

More negative attitude towards the disease among female is seen as compared to male (OR=1.990, CI= 0.496-7.994)P=0.332}, which is statistically significant. Negative attitude towards the disease seen among married teachers as compared to married.{(OR=1.39,CI=0.394-4.944)P=0.605}, which is statistically significant.

Teachers who are mothers showed more negative attitude, as their number of children are increasing, than those who are nulliparous.{(OR=1.088,CI=0.704-1.682)P=0.602}, which is statistically significant. Undergraduates showed more negative attitude towards the disease, as compared to graduates and post graduates.{(OR=4.57,CI=0.800-26.129)P=0.087}.

As age is increasing, good practices towards ADHD is also increasing.

{(OR=0.955, CI=0.913-0.998) P=0.042}, which is statistically significant. Unmarried teachers showed poorer practices of ADHD than married.{(OR=1.689,CI=1.008-2.829)P=0,046}, which is statistically significant. Teachers who are married showed, as their number of children increased, the score of good practices towards ADHD is also increasing among them.{(OR=0.826,CI= 0.6840.998)P=0.145}, which is statically significant.

Undergraduate teachers showed more negative practices towards the disease than graduates and postgraduates {(OR=1.681CI=,0.7593726)P=0.201}, which is statistically significant.

## DISCUSSION

The present study reveals the knowledge, attitude and practices regarding ADHD among primary school teachers. Majority of our study participants were married postgraduate female primary school teachers. Participants having good knowlege of ADHD showed positive attitude towards these children. Young teachers have sound knowledge and comparatively better understanding of the behavioral problems in these children.

Table 4: Multivariable logistic Regression Analysis for model predicting knowledge, Attitude and Practice of ADHD

| Variables | AOR (95% C.I ) | P-value | AOR (95% C.I ) | P-value | AOR (95% C.I ) | P-value |
|---|---|---|---|---|---|---|
| Age (years) | .674 (0.558-0.814) | <0.001 | 1.231 (1.03-1.43) | .020 | 1.231 (0.871-1.004) | .066 |
| Gender | | 0.031 | | .471 | | .059 |
| Male(Reference) | | | | | | |
| Female | 14.162 (1.267-158.32) | | .471 (0.033-4.85) | | 0.471 (0.967-5.868) | |
| Marital status | | | | .117 | | .349 |
| Married(Reference) | | | | | | |
| Un married | 1.67 (0.34-824) | | 3.946 (0.708-21.9) | | 3.946 (0.715-2.585) | |
| Education Status | | .071 | | .027 | | .994 |
| Higher Secondary | | | | | | |
| Graduate | .122 (0.012-1.20) | .083 | 8.657 (1.27-58.98) | 0.507 | 8.657 (0.365-2.570) | .949 |
| Post Graduate (Reference) | .190 (0.029-1.24) | .003 | 1.893 (0.287-1246) | <0.001 | 1.893 (0.499-2.048) | .975 |

Table 4: On multivariate analysis, female that were unmarried, were more likely to have good knowledge, while as the increasing of age of participants, more positive attitudes and good practices regarding the ailment seen. While postgraduate participants show positive practice. There were no significant associations of socio-demographic characteristics with level of knowledge, attitude and practices towards ADHD,.

Worldwide studies have discovered uneven levels of knowledge and attitudes among teachers with regards to attention-deficit hyperactivity disorder (ADHD) and was recorded lower in this study compared to those conducted in Western countries, but comparable to the studies conducted in low and middle income countries[24,25].

The literature directs that the early detection, referral and treatment can reduce the future consequences in a number of adolescent in community with mental disabilities, including ADHD, LD and intellectual braking[17,20]. Another analysis was carried in Sri Lanka on primary school teachers about their knowledge and attitude towards babyhood attention deficit hyperactivity disorder. Three-quarters had a confident approach towards progressive treatment. Still, only few had adequate knowledge about the progression of ADHD and its medical treatment. More than 80% of teachers thought that the parents were responsible for the juvenile ADHD. Teachers who received training related to behavioral therapy/ADHD documented a suggestively adequate knowledge had a more satisfactory position[21].

The limited Knowledge among teachers about the symptoms and presentation of ADHD have important impact on their efficiency, as they are key players in the initial diagnosis and screening. However, it should be noted that the reaction of considerable Proportion of teachers for the first three questions linked to the problem was poor. A person with poor information may be careful and search for information, but a person who grasps an improper belief may not pursue further. Teachers are responsible for understanding ADHD children. They can provide additional academic help to these children. This is a hopeful sign for the future and highlights the significance of providing the pre-Service or in-service training to teachers on common childhood psychological problems including ADHD. This reference is supported by the fact that Instructors who received training in child psychology recorded a significantly higher knowledge and had a more favorable position. Understanding of ADHD among teachers is really significant because it will enable the teachers to utilize a variety of teaching strategies in order to produce a positive learning environment This study is also aimed to investigate gaps in knowledge of primary school teachers in order to prevent these children and future generations, by implementing special training program for them. The notion of this research is to examine the knowledge, attitude and practices of primary teachers towards ADHD and also to develop proper training program for teachers to help these children, according to the severity of their problem, so they could be managed

properly. Screening these children early by teachers can prevent these children from severe consequences There is not as much of published data existing in our country with regards to ADHD therefore disappointing. Similar new analysis have not been conducted in the past.

## CONCLUSION

This study concludes that the adequate knowledge, Positive attitude and good practice regarding ADHD among primary school teachers plays a significant role in detection, prevention and screening of these children, and prevent them from future consequences. A multimodal Policy should be directed at the provision of Knowledge to all primary school teachers, highlighting on parent teacher communication and regular ongoing teachers and parent training platform. Provision of information to teachers regarding ADHD prior to study would have an inauspicious impact. Timely interventions can make difference in the educational and social development of these children. Relevant and appropriate education programs should be provided to all in-service and pre-service teachers in Pakistan.

## REFERENCES


1. Nair J, Ehimare U, Beitman BD, Nair SS, Lavin A. Clinical review: evidence-based diagnosis and treatment of ADHD in children.Missouri medicine. 2005;103:617-21.

2. Molina BS, Hinshaw SP, Swanson JM, Arnold LE, Vitiello B, Jensen PS, Epstein JN, Hoza B, Hechtman L, Abikoff HB, Elliott GR. The MTA at 8 years: prospective follow-up of children treated for combined-type ADHD in a multisite study. Journal of the American Academy of Child & Adolescent Psychiatry. 2009; 48:484-500.

3. Jensen PS, Hinshaw SP, Kraemer HC, Lenora N, Newcorn JH, Abikoff HB, March JS, Arnold LE, Cantwell DP, Conners CK, Elliott GR. ADHD comorbidity findings from the MTA study: comparing comorbid subgroups. Journal of the American Academy of Child & Adolescent Psychiatry.2001;40:147-5

4. Van Cleave J, Leslie LK. Approaching ADHD as a chronic condition: implications for long-term adherence. Journal of psychosocial nursing and mental health services2008;46:28-37.

5. Elia J, Ambrosini PJ, Rapoport JL. Treatment of attention-deficit–hyperactivity disorder. New England Journal of Medicine.1999;340:780-8.

6. Sidana A, Bhatia MS, Choudhary S. Prevalence and pattern of psychiatric morbidity in children. Indian journal of medical sciences. 1998 ;52:556-8.

7. Comprehensive textbook of psychiatry (Philadelphia): Sadock, Ruiz ,Williams and Wilkins, 2009.

8. Abnormal child psychology (US), Wadsworth Publishers,2010.Mash, E. J., & Wolfe.

9. S Mehta,,,, et al,Peer-Mediated Multimodal Intervention Program for the Treatment of Children with ADHD in India: One-Year Follow-upISRN Pediatr,2012; 419168-419168

10. Kaur P, Chavan BS, Lata S, Kaur A, Tinku S, Arora Y, Ratnam V. Early intervention in developmental delay. The Indian Journal of Pediatrics. 2006 1;73:405-8.

11. Psychiatric Mental Health Nursing: concepts of care in evidence-based practice ,MC Townsend, (New Delhi: Jaypee Publishers, 2007

12. Syed EU, Hussein SA. Increase in Teachers' Knowledge About ADHD After a Week-Long Training Program A Pilot Study. Journal of attention disorders. 2010 ;13:420-2313. Kos J.

13. Primary school teachers' knowledge, attitudes and behaviours toward children with attention-deficit/hyperactivity disorder.

14. Niznik ME. An exploratory study of the implementation and teacher outcomes of a program to train elementary educators about ADHD in the schools.

15. Perold M, Louw C, Kleynhans S. Primary school teachers' knowledge and misperceptions of attention deficit hyperactivity disorder (ADHD). South African Journal of Education. 2010 ;30:2076-3433.

16. Tsai CH, Gau SF. [Long-term outcome studies of hyperactive children: literature review]. The Kaohsiung journal of medical sciences. 1999 ;15:307-14.

17. KURZWEIL SR. Developmental reading disorder: predictors of outcome in adolescents who received early diagnosis and treatment. Journal of Developmental & Behavioral Pediatrics. 1992;13:399-404.

18. Ramey CT, Ramey SL. Prevention of intellectual disabilities: early interventions to improve cognitive development. Preventive medicine.1998;27:224-32.

19. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Archives of general psychiatry.2005;62:593-60

20. Rodrigo MD, Perera D, Eranga VP, Williams SS, Kuruppuarachchi KA. The knowledge and attitude of primary school teachers in Sri Lanka towards childhood attention deficit hyperactivity disorder. The Ceylon medical journal. 2011;56:51.

21. Holz, T., & Lessing, A. Reflections on Attention-Deficit Hyperactivity Disorder (ADHD) in an inclusive education system: research paper. Perspectives in Education, 2002:20, 103-10.

22. Sidana A, Bhatia MS, Choudhary S. Prevalence and pattern of psychiatric morbidity in children. Indian journal of medical sciences. 1998;52:556-8.

23. Conners CK, Sitarenios G, Parker JD, Epstein JN. The revised Conners' Parent Rating Scale (CPRS-R): factor structure, reliability, and criterion validity. Journal of abnormal child psychology. 1998;26:257-68.

24. Snider VE, Frankenberger W, Aspenson MR. The relationship between learning disabilities and attention deficit hyperactivity disorder: A national survey. Developmental Disabilities Bulletin. 2000;28:18-38.

25. Ghanizadeh A, Bahredar MJ, Moeini SR. Knowledge and attitudes towards attention deficit hyperactivity disorder among elementary school teachers. Patient Education and Counseling. 2006;63:84-8821.

26. Karim R., Shakoor A, Azhar L, Ali A. Prevalence and Presentation of ADHD among the attendees of Child Psychiatric Clinic. Mother & Child 1998;36:71-5.