

Increase in Teachers' Knowledge About ADHD After a Week-Long Training Program

A Pilot Study

Ehsan Ullah Syed

Sajida Abdul Hussein

Aga Khan University, Pakistan

Objectives: ADHD affects 3% to 5% of school-age children. Clinical and community based epidemiological studies in Pakistan have shown a high prevalence of ADHD among school going children. A thorough review of literature shows that no studies of teachers' training programs regarding ADHD have been published in Pakistani research literature. The aim of the present study is the development and evaluation of an ADHD training program for teachers. **Methods:** A teachers' training program for ADHD was designed and a pilot run in 3 schools of Karachi, Pakistan. Teachers knowledge regarding signs and symptoms of ADHD was tested before and after the workshop and then again after 6 months using an ADHD knowledge questionnaire. **Results:** Forty-nine teachers, all of them women, completed the questionnaires before and after the training program, and 35 of them filled it out at the 6-month interval. Mean scores of these tests were compared using a paired *t* test. The authors found the difference of mean score of 1.48 ± 2.95 , and this was statistically significant ($p < .005$). **Conclusion:** The authors conclude that the workshop improved the knowledge of the school teachers regarding ADHD symptomatology, and it remained significant even after 6 months of training (*J. of Att. Dis. XXXX; XX(X) XX-XX*).

Keywords: child mental health; ADHD; teachers' training; Pakistan

The ADHD impacts children in a myriad of ways, affecting about 5% of school age children with a male-to-female ratio of 3:1 (Polanczyk, Lima, Horta, Biederman, & Rohde, 2007). Many children with ADHD display low frustration tolerance, a tendency to become bored very easily, a lack of motivation for all but the most stimulating activities, and a relative inability to recognize future consequences of behavior or to learn from mistakes. In addition, children with ADHD often exhibit short attention spans, impulsivity, distractibility, and hyperactivity (Batshaw, 1997). These common behavioral characteristics carry many negative academic and social undertones for children.

The disruptive behavior of children with ADHD has been shown to have social and academic implications. In school, children with ADHD often have difficulty following teachers' instructions and classroom rules. They also have difficulty focusing on classroom tasks and completing homework. Such difficulties frequently result in less time engaged in academics and lower grades (Wentzl, 1993). In addition, the disruptive behaviors of

students with ADHD require teachers to spend more time on classroom control and discipline and, therefore, less time on academics. As children with ADHD mature, symptoms of the behavioral disorder may persist.

In the social atmosphere, children with ADHD continue to face challenges. Due to their disruptive behavior, peer rejection may be common for the child with ADHD (Batshaw, 1997). These negative characteristics may not end in childhood, and disruptive behavioral patterns during the early school years have been shown to dramatically increase the risk for later antisocial behavior (Tremblay, Pihl, Vitaro, & Dobkin, 1994). Due to the disruptive and pervasive nature of ADHD, effective treatments are needed

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to manage the behaviors and to improve the academic performance of students with this condition.

A variety of interventions exist to manage the behavioral problems of children with ADHD. Stimulant medications, such as immediate release methylphenidate, have been found to effectively manage many symptoms of ADHD by increasing academic productivity, information processing, attention, and associative learning (Greenhill et al., 2006).

In addition to medication, various psychosocial or nondrug treatments exist for children with ADHD. These include skills training, cognitive-behavioral techniques, parent and teacher training therapy, and behavior modification. Although parents perceive schools as having failed to respond adequately to their children's educational needs (Reid, Hertzog, & Snyder, 1996), teachers may still be better placed than primary health care professionals to identify at-risk children. Unlike primary care, schools represent a setting where there is daily contact with the same children and where symptoms of ADHD are readily observable. Stage and Quiroz (1997) reviewed 99 studies that used interventions to decrease disruptive classroom behaviors and found that behavioral interventions were more effective than other interventions. Specifically, Stage and Quiroz (1997) reported that, on average, 78% of students reduced their disruptive behavior with behavioral interventions.

Recent clinical and community-based studies have shown high prevalence of ADHD among school-aged children in Pakistan (Syed, Hussein, & Naqvi, 2006). Not much is known about how the children with ADHD and disruptive disorders are dealt with in a school setting, nor do we know if teachers are able to recognize any of the symptoms. Some previous studies done in the West have demonstrated that educational interventions can improve the accuracy of both the teachers' and GPs' identification of depressed adolescents (Gledhill, Kramer, Iliffe, & Garralda, 2003). A few studies address measuring the teacher's knowledge and attitude toward ADHD by using or developing questionnaires (Hepperlen, Clay, Henly, & Barke, 2002; Jerome, Gordon, & Hustler, 1994), and some other researches have investigated teachers' recognition of ADHD and classroom-based management techniques (Barbaresi & Olsen, 1998; Sayal, Hornsey, Warren, MacDiarmid, & Taylor, 2006).

A thorough review of published Pakistani research literature showed that no studies of teachers' training programs in children with ADHD have been done. We did not find any information (via personal communications) whether any such programs exist in the entire

country. Thus, the aims of the present study were to develop and evaluate a school teachers' training program for ADHD and assess if teachers' knowledge regarding the disorder showed any significant increase after such a program.

Method

This pilot study was carried out in three schools in various areas of Karachi. The school authorities were informed about the present study, and written consents were obtained from the school principals and participants. The authorities were further asked to identify 15 teachers (preferably class teacher) from Grades 1 to 8. These teachers underwent a 10-hr training session on the basic signs and symptoms of ADHD along with a review of assessment tools and class room management techniques.

Training Program

The training program included a 10-hr session conducted over a period of 5 working days (2 hr a day). The program was attended by 49 teachers, approximately 15 to 20 from each of the three schools. The training program used an interactive approach with a combination of video clips, handouts, and printed material. The first 2 days covered areas including normal development and psychoeducational issues arising during the school age, description of ADHD based on *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994), differential diagnoses, comorbidity, and brief information about medications. Days 3 to 5 were spent familiarizing the participants with measuring tools such as Conners' teacher and parent rating scales (Conners, 1999), working on behavior techniques and practicing case scenarios, and addressing some real-life situations in group-work format. The authors were the main facilitators of the workshop, and in addition to them, a clinical psychologist was invited to work on classroom management skills using the multicomponent intervention model. This model included the use of many behavior modification tools, such as behavior observation charts/checklist, token reinforcement, response-cost techniques, and antecedent strategies. The teachers were also given handouts covering all these areas.

Outcome Assessment

The data for this survey were collected by a self-report questionnaire adopted from Jerome et al. (1994), which

Table 1
Demographic Profile of Workshop Participants

Age of Participants	Years
Mean age	26 ± 6.5
Age range	18-45
Participants' Education	<i>n</i> (%)
Undergraduate	10 (20.4)
College degree	30 (61.2)
Master's degree	9 (18.4)
Teaching Experience	<i>n</i> (%)
Up to 1 year	18 (36.7)
Up to 5 years	14 (28.6)
5-10 years	11 (22.4)
10 years +	6 (12.2)

Table 2
Participants' Scores on the Survey Questionnaires

	Pretest	Posttest	Follow up
<i>N</i>	49	48	36
Mean score	10.7 <i>SE</i> ± 0.29	13.4 <i>SE</i> ± 0.36	11.6 <i>SE</i> ± 0.35
Mode	10	13	13
Minimum	7	8	6
Maximum	16	23	15

were completed by participant teachers. The questionnaire was divided into two parts: The first part obtained demographic information—for example, age, gender, teaching level (i.e., elementary or secondary), teaching experience, and teachers' qualification—and the second part consisted of 20 true/false questions regarding knowledge about ADHD. Following the completion of the week-long training program, the survey questionnaire was readministered on the teachers to determine the improvement in knowledge of ADHD as a result of the training. Same assessment was repeated again after 6 months to see if the knowledge was stable or there was deterioration.

Results

A total of 49 teachers participated in the workshop. All of them were women with mean age of 26 years (± 6.5). Majority had a college degree, and there was great diversity in the number of years of experience, which ranged from less than 1 year to more than 10 years. Although all 49 teachers completed the questionnaires before and after the training program, however,

Table 3
One Sample *t* Test Comparing Teacher's Score Before and After Workshop

	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pretest	37.389	48	.000	10.69388	10.1188	11.2690
Posttest	37.572	47	.000	13.41667	12.6983	14.1350

only 35 of them filled out at 6 months interval. Details of demographic profile of workshop participants are given in Table 1, and the mean scores are given in Table 2.

Mean scores on the 20-item quiz administered pre- and postworkshop and on 6 month follow-up were compared using paired *t* test (see Table 3). We found the difference of mean score of 1.48 ± 2.95 , and this was statistically significant ($p < .005$). The results meant that there was an improvement in the quiz scores among the group of teachers who attended the ADHD workshop, and this difference remained significant even after 6 months.

Conclusions

The ADHD training session was associated with an improved knowledge and awareness of various sign and symptoms of ADHD, which may lead to an increased rate of recognition of children with probable ADHD. This improvement in knowledge remained significant even after 6 months of workshop, which is quite encouraging. However, we do not know whether this knowledge results in increased referral of ADHD children to mental health professionals and better understanding and management of symptoms within the classroom. A larger follow-up study designed to assess the pattern of referral by the teachers for ADHD before and after an educational intervention can guide us about real effectiveness of such a program.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Barbarese, W. J., & Olsen, R. D. (1998). An ADHD educational intervention for elementary school teachers: A pilot study. *Journal of Developmental and Behavioral Pediatrics, 19*, 94-100.
- Batshaw, M. L. (1997). *Children with disabilities: A medical primer* (4th ed.). Baltimore: Paul H. Brookes.
- Conners, C. K. (1999). Clinical use of rating scales in diagnosis and treatment of attention-deficit/hyperactivity disorder. *Pediatric Clinics of North America, 46*, 857-870.

- Gledhill, J., Kramer, T., Iliffe, S., & Garralda, M. E. (2003). Training general practitioners in the identification and management of adolescent depression within the consultation: A feasibility study. *Journal of Adolescence*, *26*, 245-250.
- Greenhill, L., Kollins, S., Abikoff, H., McCracken, J., Riddle, M., Swanson, J., et al. (2006). Efficacy and safety of immediate-release methylphenidate treatment for preschoolers with ADHD. *Journal of American Academy of Child & Adolescent Psychiatry*, *45*, 1284-1293.
- Hepperlen, T. M., Clay, D. L., Henly, G. A., & Barke, C. R. (2002). Measuring teacher attitudes and expectations toward students with ADHD: Development of the test of knowledge about ADHD (KADD). *Journal of Attention Disorder*, *5*, 133-142.
- Jerome, L., Gordon, M., & Hustler, P. (1994). Comparison of American and Canadian teachers' knowledge and attitudes towards attention deficit hyperactivity disorder (ADHD). *Canadian Journal of Psychiatry*, *39*, 563-566.
- Polanczyk, G., Lima, M., Horta, B., Biederman, J., & Rohde, L. (2007). The worldwide prevalence of ADHD: A systematic review and meta-regression analysis. *American Journal of Psychiatry*, *164*, 942-948.
- Reid, R., Hertzog, M., & Snyder, M. (1996). Educating every teacher, every year: The public schools and parents of children with ADHD. *Seminars in Speech and Language*, *17*, 73-90.
- Sayal, K., Hornsey, H., Warren, S., MacDiarmid, F., & Taylor, E. (2006). Identification of children at risk of attention deficit/ hyperactivity disorder: A school-based intervention. *Social Psychiatry and Psychiatric Epidemiology*, *41*, 806-813.
- Stage, S. A., & Quiroz, D. R. (1997). A meta-analysis of interventions to decrease disruptive classroom behavior in public education settings. *School Psychology Review*, *26*, 333-368.
- Syed, E. U., Hussein, S. A., & Naqvi, H. (2006). Frequency, clinical characteristics and co-morbidities of attention deficit hyperactivity disorder presenting to a child psychiatric clinic at a university hospital in Pakistan. *Journal of Pakistan Psychiatry Society*, *3*(2), 74-77.
- Tremblay, R. E., Pihl, R. O., Viatro, F., & Dobkin, P. L. (1994). Predicting early onset of male antisocial behavior from preschool behavior: A test of two personality theories. *Archives of General Psychiatry*, *51*, 732-738.
- Wentzl, K. R. (1993). Does being good make the grade? Social behavior and academic competence in middle school. *Journal of Educational Psychology*, *85*, 357-364.

Ehsan Ullah Syed is a child and adolescent psychiatrist and currently holds a position of associate professor at Aga Khan University, Karachi, Pakistan. He has a research interest in ADHD, mood disorders among children and adolescents, and self-harm behavior.

Sajida Abdul Hussein was a child psychologist and a PhD student at University of Leicester, United Kingdom, at the time of this study. Her research interest is prevalence of ADHD in Pakistani children.