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Knowledge of and Attitude towards Attention-deficit Hyperactivity Disorder among Primary School Teachers in Jordan

Hasan Al-Omari, Mohammad A. Al-Motlaq & Hanan Al-Modallal

International studies have revealed variable levels of knowledge and attitudes among teachers regarding attention-deficit hyperactivity disorder (ADHD). This study investigated Jordanian teachers’ ADHD knowledge and their attitudes towards children with this condition. A standardised self-report questionnaire was completed by a convenience sample of 130 teachers recruited from 13 primary schools in Zarqa city, Jordan. Findings revealed a gap in teachers’ knowledge that extended across all aspects of ADHD causes and management. Teachers’ attitude towards children with ADHD was also lower than expected, where many misconceptions about the causes and management of ADHD have emerged. The lack of pre-service teachers’ training on ADHD, the dearth of studies on the condition, and the almost absent formal and informal support of children with ADHD have contributed to these results. The findings stress the need for implementing special programmes targeting school teachers and reforming pre-service teachers’ training to meet the needs of children with ADHD.

Keywords: Attention-deficit Hyperactivity Disorder; Knowledge; Attitudes; School Teachers; Primary Schools

Introduction

Attention-deficit hyperactivity disorder (ADHD) is a psychiatric disorder that has been estimated to affect 3–7% of school-aged children (American Psychiatric Association, 2000). As of 2005, a review estimated the worldwide pooled prevalence of ADHD to be 5.3% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007).
The disorder is more common in boys than girls, with some reports estimating the ratio to be six boys to one girl (Cormier, 2008). In Jordan, a study conducted in 2009 has shown a high prevalence of ADHD among school-aged children, reaching over 6.2% with a male to female ratio of 2.4:1 (Nafi & Shaheen, 2011). This variation is related to differences in the diagnostic criteria and definitions rather than to differences in clinical presentation (McGough & Barkley, 2004), behaviour (Farahone, Sergeant, Gillberg, & Biederman, 2003), and access to healthcare and language (Pastor & Patricia, 2008). ADHD is characterised by developmentally inappropriate levels of inattention, impulsivity and hyperactivity that influence children’s behavioural and academic performance in the classroom (Leslie & Wolraich, 2007; Weber, Frankenberger, & Heilman, 1992). Because of its symptoms, ADHD causes functional, social, educational and family impairments (Centers for Disease Control and Prevention, 2005; Lesesne, Visser, & White, 2003). A major burden is placed on children with ADHD, their families and school teachers, as Jordan has no special services to care for their general and specific issues. Unfortunately, there is no formal information or policy to guide the diagnosis or treatment of such conditions in schools. While a number of research projects targeting children with ADHD have been conducted in Jordan (Zaghlawan, Ostrosky, & Al-Khateeb, 2007), none of these projects have focused on school teachers.

Starting school for the first time can be a challenging experience for some children. Children with ADHD may experience further difficulties as a result of their condition (Ghanizadeh, Bahredar, & Moeini, 2006). It has been reported that students with ADHD have difficulty maintaining attention for long periods of time and sustaining persistent work effort (Bekle, 2006), including staying focused in the classroom, completing assignments, staying on their seats, or carrying out classroom activities. Therefore, it is important to identify children with ADHD and implement special educational approaches to help them overcome these academic and psychological difficulties. A key element in the diagnosis and management of school children with ADHD is school teachers. As teachers closely interact with their students on a daily basis, they are able to provide important information about ADHD history and symptoms, and contribute to children’s treatment plans. A study conducted in Washington, DC found that teachers and other school personnel were often the first to suggest the diagnosis of ADHD in children (Sax & Kautz, 2003). Bailey and Owens (2005) found that one of the challenges for treating ADHD is teachers’ training to recognise the symptoms of the condition that have influenced their ability to facilitate the necessary treatment required to optimise school-related outcomes.

For teachers to recognise children with potential ADHD and provide appropriate care, it is important that they have a sound knowledge of this disorder and a positive attitude towards children with this condition. A study that examined teachers’ knowledge and misperceptions of ADHD found that teachers scored significantly greater on the symptoms/diagnosis subscale than scores on the treatment and general information subscales (Sciutto, Terjesen, & Frank, 2000). Another study found that teachers’ participation in ADHD training was positively correlated with the
knowledge of ADHD and acceptability of behaviour management strategies (Vereb & DiPerna, 2004). A study carried out in three schools in Jordan showed that many factors affected teachers’ ability to recognise children who may require further diagnostic assessment (Al-Hroub & Whitebread, 2008). Attitudes concerning the acceptance of ADHD as a valid medical condition have an impact on the perceived need for services (Mulligan, 2001). Teachers’ knowledge and attitude about ADHD therefore influence the performance of students with ADHD in classroom practices and activities (Bekle, 2006). Healthcare professionals can assist teachers to develop strategies to help promote the classroom performance of students with ADHD. The relationship between teachers and healthcare providers is crucial. As healthcare providers depend on teachers’ input to evaluate and manage children with ADHD, they provide these teachers with a good source of information (Barbaresi & Olsen, 1998). Therefore, to understand how teachers manage children with ADHD, it is important to assess the teachers’ level of ADHD knowledge and examine their attitudes towards children with this condition. The purpose of this study was to examine the knowledge and attitudes of primary school teachers about ADHD in Zarqa city, Jordan and describe the relationship between their knowledge and attitude towards children with ADHD.

Method

Participants

A cross-sectional descriptive correlational design was employed to examine the knowledge and attitude of primary school teachers towards students with ADHD. A convenience sample from 20 of the most accessible public and private primary schools in Zarqa city, Jordan was invited to participate in the study. Zarqa is the third largest city in the kingdom with an estimated population of more than one million. The Hashemite Kingdom of Jordan had a population of 6.4 million as of July 2010 with 36% of the population under 14 years of age (Central Intelligence Agency, 2011). School teachers who had direct contact with children were invited to participate in the study. Teachers who worked in administrative duties and were not in direct and daily contact with students were excluded. Two hundred teachers working in the 13 schools that agreed to participate were invited to participate in the study, of which 130 teachers (65%) completed and returned the questionnaires by the end of May 2012. Information about those who refused to participate was not obtained.

Instruments

The data were collected using a self-report questionnaire developed by Ghanizadeh et al. (2006). The questionnaire was tested by its developers and reached a moderately high test–re-test reliability ($r = 0.78$) and was re-tested again in another study (Ghanizadeh & Zarei, 2010). This instrument was selected because it uses items that have been empirically supported and are agreed-upon measures of general rather than specialised knowledge of ADHD; in addition, the authors considered the simple
language used in the instrument and its reasonable number of items (20 items) to be suitable for the target sample. The questionnaire consists of two parts: demographic information (age, gender, marital status, place of work, years of experience, educational level, the source of information about ADHD), and the knowledge and attitude of school teachers towards ADHD scale. The scale consists of 20 “Yes, No” items: 12 items assess teachers’ knowledge of ADHD and eight items assess teachers’ attitude towards students with ADHD (Ghanizadeh et al., 2006). The scale was translated and back-translated into Arabic language, and the face validity of the Arabic version was approved by two nursing lecturers specialised in psychiatric nursing.

Procedure

Approval to conduct the study was obtained from The Hashemite University Institutional Review Board. A letter of statement clarified the confidentiality of the study and stated that participants will remain anonymous (no identifying information was obtained). The researchers explained the purpose of the study and clarified the method of completing the questionnaire to the school personnel. Teachers were also informed that they could withdraw if they preferred not to complete the questionnaire. Teachers who agreed to participate were asked to sign a consent form. Descriptive statistics were used to describe the study participants and illustrate the levels of ADHD knowledge and attitudes towards children with ADHD. A Pearson product moment correlation was used to calculate the relationship between teachers’ knowledge and attitude towards children with ADHD.

Results

Sample Characteristics

More than 83% of returned questionnaires came from governmental schools. Table 1 presents the demographic characteristics of the sample. The majority of teachers who participated in the study were female (94.6%), with only seven male teachers completing the questionnaire. Around 64% of the participants were aged younger than 35 years, and the vast majority (85%) were married. More than 72% of teachers in the sample held a bachelor’s degree or higher, while the remaining teachers held diplomas. The participants’ teaching experience varied from one to 30 years, with the vast majority (75%) having at least five years of teaching experience. The teachers were asked about their source of information about ADHD. More than 25% indicated that they have no information about the condition. Around 35% of the participants reported television and/or radio to be their main source of information, followed by friends and relatives (24%). Surprisingly, less than 15% reported journals, educational workshops and training as their source of information about ADHD.
Teachers’ Knowledge of Attention-deficit Hyperactivity Disorder

Table 2 presents the percentage of teachers who agreed with each statement regarding ADHD. Most teachers (76.2%) reported that ADHD is a serious problem which should be managed effectively, although only 20.8% considered its related difficulties to be lifelong. Although more than 75% of the participants reported that ADHD is related to biologic and genetic factors, the majority (76.2%) reported that ADHD can be caused by poor parenting practices and parental spoiling. Similarly, 48.5% thought that dysfunctional and chaotic families could be an aetiology for ADHD. Around 35% of the teachers thought that sugar or food additives cause ADHD.

The vast majority of teachers in the sample (94.5%) agreed that they should be aware of ADHD and ADHD students in their classroom, despite the fact that most of them had no prior professional knowledge about ADHD (only 15% indicated their source of information is from education, training, or journals; see Table 1). The majority of teachers in the sample (93%) also thought that ADHD can be treated and managed using proper medications. However, around 79% of them agreed that only
Table 2 Teachers’ Knowledge of ADHD

<table>
<thead>
<tr>
<th>Statement</th>
<th>% agreed&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD children have a biological and genetic predisposition (true)</td>
<td>75.2</td>
</tr>
<tr>
<td>ADHD is not a serious problem and does not need to be managed (false)</td>
<td>76.2</td>
</tr>
<tr>
<td>ADHD can be caused by poor parenting practices and parental spoiling (false)</td>
<td>23.8</td>
</tr>
<tr>
<td>ADHD-related difficulties are lifelong (true)</td>
<td>20.8</td>
</tr>
<tr>
<td>Specially trained educators should teach these ADHD children (true)</td>
<td>78.5</td>
</tr>
<tr>
<td>The same discipline and rules used for all children should be applied to ADHD children (false)</td>
<td>46.9</td>
</tr>
<tr>
<td>Educators should be aware of ADHD and ADHD children in the class (true)</td>
<td>94.5</td>
</tr>
<tr>
<td>ADHD students should receive less homework than others (false)</td>
<td>56.9</td>
</tr>
<tr>
<td>ADHD can be treated and managed with proper medication (true)</td>
<td>93.0</td>
</tr>
<tr>
<td>ADHD can often be caused by sugar or food additives (false)</td>
<td>64.8</td>
</tr>
<tr>
<td>Chaotic and dysfunctional family is the aetiology of ADHD (false)</td>
<td>48.5</td>
</tr>
<tr>
<td>Being able to watch television or play with computers for minutes or hours rules out ADHD diagnosis (true)</td>
<td>41.9</td>
</tr>
</tbody>
</table>

<sup>a</sup>Percentage of teachers answering in agreement to statements.

Educators with special training should teach children with ADHD. The mean score for teachers’ knowledge on the ADHD scale was 6.9, ranging between four and 11 with no one achieving the maximum score of 12.

*Teachers’ Attitude towards Children with Attention-deficit Hyperactivity Disorder*

Table 3 presents the percentage of teachers who agreed with each statement of the attitude towards children with ADHD scale. The majority of teachers had a negative attitude towards children with ADHD, indicated by their agreement with negative statements (e.g. “ADHD children are at a higher risk of truancy and escaping”) and disagreement with the positive ones (e.g. “ADHD children’s IQ is more than that of non-ADHD children”). More than 60% reported that ADHD students’ IQ level is lower than non-ADHD students, while around 73% thought that the educational achievement of students with ADHD will be less than that of students with no ADHD. Most teachers (89.8%) agreed that there is a high risk of school escaping and truancy among students with ADHD, and more than 50% indicated that children with ADHD have a high risk for becoming delinquent teenagers, substance users and depressed children. The majority of teachers (93%) believed that ADHD children needed psychological support. The mean score for teachers’ attitude was 5.3, ranging between two and eight, which is the maximum score.

*The Effect of Demographic Variables on Teacher’s ADHD Knowledge and Attitudes towards Children with ADHD*

To explore the interrelationship among the studied variables and assess the predictors of teachers’ ADHD knowledge and attitudes, direct logistic regression was performed. The total knowledge and attitudes scores were re-coded to fit a categorical outcome (pass/fail). However, the model containing the variables was not statistically
significant, $\chi^2(9, N = 126) = 10.2, p > 0.05$, and hence none of the variables predicted teachers’ ADHD knowledge or attitudes. Comparative analyses were therefore conducted to find differences in terms of ADHD knowledge and attitudes among participants based on their personal characteristics. When appropriate, variables were re-coded to match test assumptions. No significant differences existed between teachers based on their age, marital status, place of work, educational level and years of experience. Surprisingly, no significant difference in terms of ADHD knowledge was found between teachers who indicated sources for their ADHD information (mean = 6.85, standard deviation = 1.5) and teachers who indicated that they had no information about ADHD (mean = 6.94, standard deviation = 1.3), $t(118) = -0.29, p > 0.05$. Similar results were found for teachers’ attitude, $t(120) = 1.1, p > 0.05$. Finally, there was no significant relationship between primary school teachers’ knowledge and their attitude towards students with ADHD ($r = 0.078, p > 0.05$).

### Discussion

Children spend most of their daytime at schools. Therefore, it is important to identify children with ADHD and implement special educational approaches to help them overcome any academic and psychological difficulties. As a result of their daily contact with children, teachers and other school personnel are in a central position to suggest further assessment for children of potential ADHD (Sax & Kautz, 2003; Snider, Busch, & Arrowood, 2003; Stroh, Frankenberger, Cornell-Swanson, Wood, & Pahl, 2008). Therefore, it is important that working teachers are adequately prepared to meet the needs of students with ADHD in their classrooms and contribute to the treatment plan. This study investigated the knowledge and attitudes towards children with ADHD across a sample of primary school teachers. The results suggest that Jordanian teachers may lack knowledge about ADHD and had negative attitudes towards children with ADHD.

### Table 3 Attitudes of Teachers towards Children with ADHD

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Positivea</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD children are at a higher risk of truancy and escaping (negative statement)</td>
<td>10.2</td>
</tr>
<tr>
<td>ADHD children have a high risk of becoming delinquent as teenagers, substance use and depression (negative statement)</td>
<td>46.2</td>
</tr>
<tr>
<td>ADHD children’s IQ is more than that of non-ADHD children (positive statement)</td>
<td>38.5</td>
</tr>
<tr>
<td>ADHD children need psychological support (positive statement)</td>
<td>93.0</td>
</tr>
<tr>
<td>ADHD children experience more difficulties in their relations with their classmates (positive statement)</td>
<td>61.5</td>
</tr>
<tr>
<td>Educational achievement of ADHD children will be less than that of non-ADHD peers (negative statement)</td>
<td>27.1</td>
</tr>
<tr>
<td>ADHD children experience more difficulties in their relations with their family members (positive statement)</td>
<td>60.8</td>
</tr>
<tr>
<td>Children with ADHD misbehave primarily because they do not want to obey rules and do their assignments (positive statement)</td>
<td>57.7</td>
</tr>
</tbody>
</table>

aPercentage of teachers with positive answers.
Attention-deficit Hyperactivity Disorder Knowledge

In contrast to studies from developed nations that showed satisfactory levels of ADHD knowledge among teachers (Bekle, 2006; Kos, Richdale, & Jackson, 2004), the major finding of this study is the unsatisfactory levels of ADHD knowledge among school teachers in Jordan. Only five items were answered correctly by more than 70% of teachers in the sample, with another five items answered correctly by less than 50% of the sample. This finding was similar across all groups regardless of their age, gender, marital status, years of experience and educational level. Previous studies found that teacher’s self-efficacy, prior exposure to an ADHD child, and years of teaching experience were all positively related to ADHD knowledge (Sciutto et al., 2000).

Another interesting result of this study was the lack of prior education about ADHD for school teachers. Unlike developed countries, Jordanian teachers do not receive specific training or preparation for working with children with additional needs. The majority of those who indicated having some knowledge about ADHD reported that their source of information was their friends/relatives and the television/radio, while many others reported that they had no information at all. Although the majority of teachers had a bachelor’s degree and were aged younger than 35 years old, professional sources of knowledge such as journals and educational workshops were less commonly reported. One would expect young and university-educated teachers to be prepared to deal with such chronic health issues (Anderson, Watt, Noble, & Shanley, 2012).

Although teachers had knowledge misconceptions, they agreed that they need to be aware of ADHD cases in their classroom and hence expressed their willingness to learn more about the condition. Such results stress the need to initiate collaboration between in-service school teachers and healthcare professionals to design educational programmes about ADHD management. Furthermore, there is a need to include some training and education about ADHD for pre-service school teachers. Barbaresi and Olsen (1998) evaluated the effectiveness of an interventional programme for teachers (Children and Adults with Attention-Deficit Disorder) and found that training has effectively increased their knowledge about ADHD and significantly altered their misconceptions about this condition. Besides ensuring successful schooling, both teachers and health professionals are charged with caring for the health and well-being of students. The reciprocal relationship that teachers and nurses share when it comes to assessing and referring children with ADHD should be elaborated. In settings with school nurses, there is a great opportunity for nurses and teachers to collaborate in caring for children with ADHD. Nurses would provide an additional professional viewpoint that may assist teachers in recognising children with potential ADHD. However, the lack of school nurses in many settings in Jordan created a need to focus on the role of teachers.

Attitudes towards Attention-deficit Hyperactivity Disorder Children

While the majority believed that children with ADHD needed psychological support from experts and health professionals, the teachers’ responses on the questionnaire...
indicated that their perception of children with ADHD was mainly negative. This study found no relationship between teachers’ knowledge scores and their attitudes towards the children with ADHD. Previous studies showed that teachers with more work experience (Anderson et al., 2012) and who had higher knowledge scores (Ohan, Cormier, Hepp, Visser, & Strain, 2008) had better attitudes towards children with ADHD. The literature regarding other chronic conditions indicated that modifying attitudes involves more than simply providing teachers with relevant information (Al-Motlaq, 2010; Bishop & Slevin, 2004). The results of the present study also showed no difference in attitudes across the compared groups. Neither their age nor their work experience affected their behaviour towards children with ADHD. Scores were also similar for teachers in public and private sectors, regardless of their marital status and educational level.

Implications

ADHD is one of the most neglected health problems in Jordan, causing significant burden on patients and their families. Although children with ADHD in Jordan have no special services to care for their general and specific issues, a number of programmes have been conducted in Jordan targeting children with ADHD themselves (Zaghlawan et al., 2007)—but none of these programmes have targeted school teachers. Integrating special ADHD health and educational programmes into schools is one of the most viable ways of closing the gap for these children. This integration can be achieved by training teachers on the identification, management and appropriate referral of ADHD cases to health professionals. Such services, when accompanied by adequate resources, are more accessible to larger segments of the population. The findings of the current study stress the need for implementing special programmes targeting school teachers and reforming pre-service teachers’ training to meet the needs of children with ADHD. The interaction of teachers with children with ADHD who may have difficulties in school settings such as inattentiveness, disruptive classroom behaviour, academic underachievement, difficulty in establishing and maintaining peer relationships, or poor self-esteem, should raise the teachers’ awareness on this issue (Anderson et al., 2012). This interaction usually leads teachers to request a primary healthcare provider to see and assess the child, or refer the parents to a healthcare provider to assess their child (Cormier, 2008). The authors of the current study call for formal professional development for teachers in order to improve their awareness and to enable them to provide support for children with ADHD. Such awareness is of particular importance given the high prevalence of ADHD in Jordan (Nafi & Shaheen, 2011).

Within the context of Jordan, community nurses are in a key position to help school teachers understand ADHD and provide basic information and specific intervention programmes to deal with children with this disorder; these programmes will improve teachers’ attitude towards students with ADHD. Improving awareness and increasing collaboration between different disciplines, including school personnel and the child’s parents, are also recommended. A review by Cunningham (2007)
concluded that the measures of treatment outcomes for children with ADHD could be improved by utilising multiple informants (combining the reports of parents and teachers), and relying more on observational methods than on subjective reports by the parents.

This study is the first to assess teachers’ knowledge of and attitude towards ADHD in Jordan. However, the methodological limitations – such as the use of convenience sampling and the use of an instrument that was originally designed in another language and for a different culture – are recognised as limitations of the project and should be considered while interpreting the results.

Conclusion

This study investigated Jordanian primary school teachers’ knowledge and their attitude towards children with ADHD. The finding suggests a weakness in teachers’ knowledge that extended across all aspects of ADHD causes and management. The lack of teachers’ professional education about ADHD, the absence of school nursing in Jordan, and the almost absent formal and informal support of teachers working with children with ADHD may have contributed to these results. Teachers’ attitude towards children with ADHD is also lower than expected, which is reflected in the major misconceptions that have emerged. The academic curriculum needs reformation to meet the needs of these children, and both working and pre-service teachers require formal professional development to raise their ADHD awareness.

Conflicts of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

References


