TIJSEG

ISSN: 1300 – 7432
www.tijseg.org

Turkish International Journal of Special Education and Guidance & Counseling 2014, volume 3, issue 1

THE KNOWLEDGE AND BELIEFS CONCERNING ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) HELD BY CHILDREN WITH ADHD IN SAUDI ARABIA

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ABSTRACT
Attention Deficit Hyperactivity Disorder (ADHD) is considered one of the most frequently diagnosed psychiatric childhood disorders. It has an effect on 3–5% of school-aged children, and brings about difficulties in academic and social interaction with both parents and teachers. The rationale behind this study is the exploration of the knowledge and beliefs of childrenregarding ADHD. The results of the survey based on the responses of 58 children to the ADHD Knowledge and Opinions Questionnaires and subsequent interviews showed positive choices of evidence-based medication and psychosocial treatment, and an understanding of the range of effects of ADHD, and the possible handling strategies. Children were able to determine environments in which ADHD made it difficult for them to be, and also identify adults who they considered capable of assisting them with their condition. Overall, the findings reveal that, whilst childrenhave some knowledge regarding ADHD, demystification workshops are required.
Key words: ADHD, Children with ADHD, Special Educational Needs

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) can be defined as a pattern of a constant lack of attention and/or hyperactivity-impulsivity, which occurs more frequently and harshly than anticipated during average development, and which manifests itself in a diversity of situations (1). This condition often leads to various impairments in the child's social and academic functioning (2).

The importance of this research stems from various considerations. First, this study, to the best of the researcher's knowledge, delivers a first attempt at investigating the knowledge and beliefs of children with ADHD in Saudi Arabia in relation to their disorder; in KSA, there is no data from research in the field of children with ADHD learning in schools, specifically in terms of understanding and determining their knowledge and beliefsabout the condition.

One of the main aims of this research is concerned with listening to the experiences of children with ADHD with the objective to understand the difficulties of dealing with the disorder in Saudi Arabia.
The following sections will discuss children's rights and perspectives, children's understanding of disabilities, and children's knowledge of ADHD.

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Children's Rights and their Perspectives

A large amount of social research has been focused on the contexts of children's lives, such as the school or home, which has not straightforwardly engaged children in the fieldwork principally for the reason that their participation was undervalued (3) or not deemed reliable, but partially for the reason that research performed with children frequently involves several ethical considerations (4).

Further attention has been assigned to children's rights and voices, predominantly following the publication of Convention on the Rights of the Child (Article 12 of the United Nations(5)). It is highlighted that adults' and children's interests are not single and similar, and that the experience of childhood is varied culturally (6). For instance, children vigorously take part in the social order, and assist in constructing the life of families (7). Children are also influenced by significant key people, such as parent and teacher relationships, and in sequence reciprocally have an effect on interactions (8).

Children's Understanding of Disabilities

How a disability is viewed differs in terms of its severity, life impact, beliefs concerning causes, and treatment preferences. For example, one view of a disability is formed through what is recognised in terms of a medical and scientific standpoint (9); however, there is the assumption that adults provide further complete and precise data concerning the behaviours of a child than the self-report of a child conducted his- or herself (10). Conversely, the statement that children are not able to understand or offer information concerning their behaviours and internal states has been investigated (11).

Several argue that children are worthy informants concerning their own feelings and behaviours (12). It has been revealed that seven year old children are able to reliably make better discriminations between sadness, anger and fear, and to provide meaningful information, as well as developing ideas relating to the origins of causation, the possibility of control, chronicity and the outcomes of disabilities (13).

Children's Knowledge and Beliefs about ADHD

Provided that such children are at a high risk for negative outcomes of life, which continue on into adolescent, it would be valuable to consider children's ADHD knowledge baseline, as well as their thoughts of immediate matters associated with ADHD, as well as their views concerning evidence-based treatments. To the knowledge of the researcher, thus far, no studies have been carried out that examine children's knowledge and beliefs relating to ADHD, except that of MacKay &Corkum (14). In the aforementioned research, the scholars carried out a study in which 25 children responded (aged 8–14). The individuals were required to be present at a demystification workshop, concentrated upon evidence-based information regarding ADHD, as well as the treatments of such. In this regard, it was highlighted that children had a considerable increase in their ADHD knowledge following the completion of the workshop, and further illustrated more positive views of medication and psychosocial treatments. In complete opposition, however, the views of interventions options—such as massage therapy and diet—did not alter.

Children with ADHD who do not know they have ADHD often emerge as perceiving themselves negatively(15). Knowledgeandunderstandingmight goalongwayin helping achildwith ADHD if they are aware of their disorder. Without self-advocacy, children with the disorder might not obtain the attention and adaptations they require with the aim of succeeding academically (16). In a school environment, for instance, children ought to be conscious of when, how, and who to seek for assistance in order to make sure such important supports are provided. In order for individuals to

improve in regard to self-advocacy skills, it is importantly primarily to gain a knowledgebase concerning the condition and associated issues (14).

In Saudi Arabia, it is since inadequate attention has been assigned to children' experiences and ADHD social implications that a child is frequently viewed as being a problem. The gap in terms of ADHD understanding is placed in the broader social context understanding. With this in mind, this research has explored the perceptions of the social consequences of unsuitable behaviour. It is not the aim of this research to negate the existence of ADHD, but rather to suggest an alternative approach associated with thinking concerning the behavioural symptoms of ADHD. Therefore, this current study was designed to examine the knowledge and beliefs about ADHD as held by children with ADHD in a sample set of schools in the city of Jeddah, Saudi Arabia.

Method

This research has adopted a mixed-methods design, and comprises two distinct stages: quantitative followed by qualitative. In the first phase, the quantitative data have been collected and analysed; in the second phase, the qualitative phase has been built on the first, and comprises the collection and analysis of qualitative data so as to assist in explaining or expanding upon the quantitative outcomes acquired during the first stage. The justification for this design is that quantitative data and their consequent analyses provide a general understanding concerning the problem of the research (17).

Respondents

Consistent with the research objectives and questions, The sample frame for this research study was restricted to children in private centres (special schools for children with SEN) and public schools who have been clinically diagnosed with ADHD or where the label is admitted by children themselves, their parents, and learning disabilities teachers (children, their parents and teachers made use of the term). Using both routes provided a more representative sample.

It is believed that this study needs to attempt to ensure as broad a sample as possible (18). Accordingly, this research idea is concerned with distributing the questionnaires to and conducting interviews with everyone eligible for entry into the research within the frame of the sample, more willingly than to utilise a technique of sampling in order to identify a representative population.

The sample taken through this research was restricted to participants in Jeddah city, Saudi Arabia. Jeddah, the second largest city in Saudi Arabia, was selected as the population owing to ease and convenience from the researcher's perspective, who was the sole researcher and who was required to visit each school involved on at least two occasions. Those schools represented a cross-section of low, middle, and high socio-economic status areas, in addition to varied Saudi backgrounds.

Regarding the questionnaires, 7 private centres and 53 (21 F, 32 M) public schools were involved. The number of questionnaires distributed totalled 192 children. The number of questionnaires returned was 58 questionnaires.

Regarding the interviews, there was an item in the questionnaire that questioned whether or not the participant would like to take part in the interviews. Subsequently, the list of agreed participants were contacted via their preferred method of communication, and asked whether they were still willing to participate in the research. This procedure of recruitment attracted 4children.

Instrument

Two instruments—questionnaires in the first phase and interviews in the second phase—were used in this research, as it is believed that this combination would enable triangulation in the study. However, questionnaires and interviews questions were translated into Arabic.

The questionnaire used was Children's ADHD Knowledge & Opinions Questionnaire—developed by Psychology Department, Dalhousie University, Halifax, Canada—has been designed in order to assess a child's knowledge and beliefs concerning ADHD, and to measure the perceptions of children concerning the impacts of ADHD across multi-settings (14). This measure is modelled after the AKOS (ADHD Knowledge and Opinion Scale) (19), which is a questionnaire utilised for the purpose of evaluating the knowledge and beliefs of parents concerning ADHD. The instrument contains 30 items. There are 15 true or false questions, each of which assesses the ADHD knowledge of a child in different areas, such as prevalence, causes, characteristics, and interventions. The subsequent part contains 12 questions, which measure the opinions of a child concerning different interventions of ADHD; these questions formulate a four-point Likert-scale, ranging from 'strongly disagree' to 'strongly agree'. The last part incorporates three questions, each assessing the perceptions of a child concerning the ADHD impacts on them across a variety of settings.

Semi-structured interviews utilised in this study in order to investigate research themes to greater depths. The interviews were performed either in-person or via the telephone. The telephone interviews were utilised in order to provide the opportunity to gain information from participants who are not easy to contact in person owing to constraints of location. It has been revealed by Sturges&Hanrahan (20) that, when comparing between transcripts of personal and telephone interviews, there are no considerable dissimilarities in terms of interview validity.

Procedure

In the Kingdom of Saudi Arabia, for cultural and religious reasons, females are separated from males in their schooling. Moreover, only males are permitted to enter boys' schools, whilst women can telephone the schools when needed, and vice versa. With this in mind, it was difficult to include females in the study; however, some of the researcher's female relatives who work in schools provided assistance in distributing questionnaires and preparing interviews with females.

The children that participatedwere identified on the school database, which recorded behavioural incidents. In some cases where school data had not been updated or was seen to be inaccurate, participants were identified in conjunction with the teachers of learning disabilities within the schools. There are apparent limitations to utilising this approach, such as bias or discrimination from the concerned of professionals.

Additionally, it is held through this research that it is important to obtain the consent of children; therefore, a small leaflet was produced and sent out with the letter; it gave details, in simple terms, about the researcher, the research, and the hope of providing children with benefits, since it has been proven that such a leaflet assists in dispelling any fears and permits children to make informed decisions regarding participation (21).

Results of the questionnaires

Fifty-eight (58) children were recruited to take part in this research study. Of these children, the mean age was 10.45 years with a range of 8–14 years. The mean of the number of the brothers and sisters was 4, with a range of 0–8 years. The total number of children was 58 and 57% of the sample were

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ISSN: 1300 – 7432
www.tijseg.org
Turkish International Journal of Special Education and Guidance & Counseling 2014, volume 3, issue 1

boys. The majority of the population sample came from public schools and almost half of them were located in the North. 57% of the sample was diagnosed with ADHD, 74% with the ADHD-Ctype. 45% of the children with ADHD were taking medication and the vast majority of children in the sample had learning disabilities.

The questionnaire was divided into threesections: knowledge, opinions, and impacts. Thus, each section is discussed separately.

Section A: Children's Knowledge

In this section, the answers are provided based on the two types of response: Yes and No. The results from the children's questionnaires (Section A) highlight that on average children responded correctly to 65% of knowledge items correctly (range = 27–87%).

With consideration to the knowledge of children concerning the main domains (Causes, Characteristics and Treatment) (See table 1), the results of a Kruskal Wallis Test reflect that the differences between the scores of children on the three subscales were statistically significant ($p<$ 0.001). A within-subject contrast—applying the Mann-Whitney framework—revealed that, the children's scores on the *causes subscale* were significantly higher than those on the *characteristics subscale* $p < 0.001$, and that the *characteristics subscale* scores were significantly higher than the *treatment subscale* scores $p < 0.001$.

Table1:Comparisonbetween the resultsof the children of subscale scores (Questions 1–15) (N = 58)

	No. Items	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores	Mean Percentage
Causes	3	0	3	2.09	69.67%
Characteristics	5	1	5	3.31	66.2%
Prevalence	2	0	2	1.34	67%
Treatment	4	1	4	2.47	61.75%
Developmental course	1	0	1	0.52	52%

Notes: In spite of the small items numbers, the comparison was made for contrast purpose between subscale scores.

Section B: Children's Opinions

The results from the children's questionnaires (Section B) show that children hold positive attitudes toward the management of ADHD (opinion of medication, psychosocial, and alternative interventions), with the percentage of 72% (range = 50–87%) of opinions items.

In consideration to the opinion of children regarding the management of ADHD—including the opinion of medication, psychosocial, and alternative interventions (See table 2)—the results of the Kruskal Wallis Test reflect that the differences between the scores of children on the three subscales were statically significant ($p<$ 0.001). A within-subject contrast—applying the Mann-Whitney framework—emphasises the fact that the overall attitude of children relating to the *psychosocial interventions subscale* was significantly more positive when contrasted with *the medication subscale* attitude $p < 0.01$, and that the attitudes concerning the latter were significantly more positive than the *alternative interventions subscale* scores $p < 0.001$, which is significantly less than the *psychosocial interventions subscale* $p < 0.001$.

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Table2:Comparisonbetween the resultsofchildren of subscale attitude (Questions 16–30) (N = 58)

	No. Items	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores	Mean Percentage
Medication	6	8	23	17	70.83
Psychosocial interventions	6	9	23	18	75
Alternative interventions	3	3	12	8	66.67

Notes: In spite of the small items numbers, the comparison was made for contrast purpose between subscale attitudes.

In terms of the demographic variables, the following points emphasise the statistically significant differences:

a. Children in private schools have a more positive attitude when compared to children in public schools p <0.05 (t-test).
b. Children who have been diagnosed with ADHD had a more positive attitude than children who have not, the T-test results demonstrated statistically significant difference of overall scores between the two groups (p<0.05).

Section C: ADHD Impact
This section identifies children's overall ability to recognise the number of adults in their lives who can help them to manage their ADHD. In this section, the participants were asked to tick the boxes that apply to them. With this in mind, the next figures show the responses and the choices of questions.

(31) ADHD makes it hard for me to get along with certain people.
Figure 1 clarifies the choices of the children:

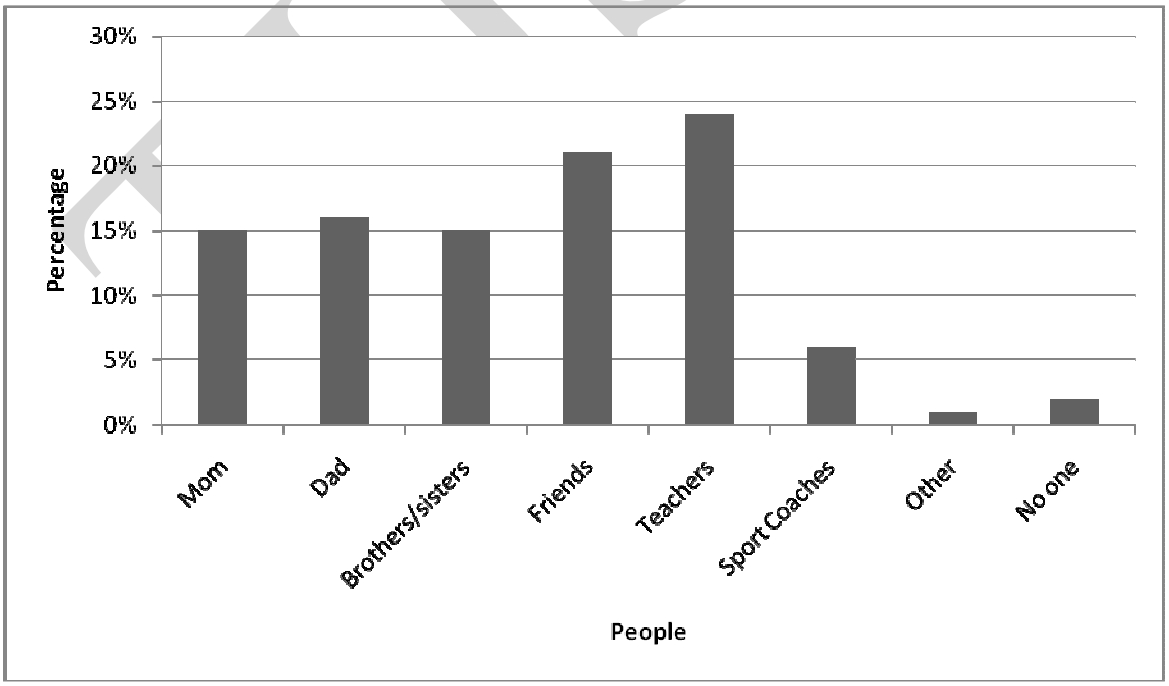

Figure 1: Identifying the people who children with ADHD find it hard to get along with (Question 31) (N = 58)

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The graph above shows that those children with ADHD find dealing with teachers difficult at a percentage of 24%, with friends recognised as second at a rate of 21%, whilst dads score 16%. Mothers, as well as brothers and sisters, come next with 15%, noting that sport coaches score the lowest percentage amongst the familiar adults around such children.

(32) ADHD makes it hard for me to concentrate.
Figure 2 details below further clarifies children's results.

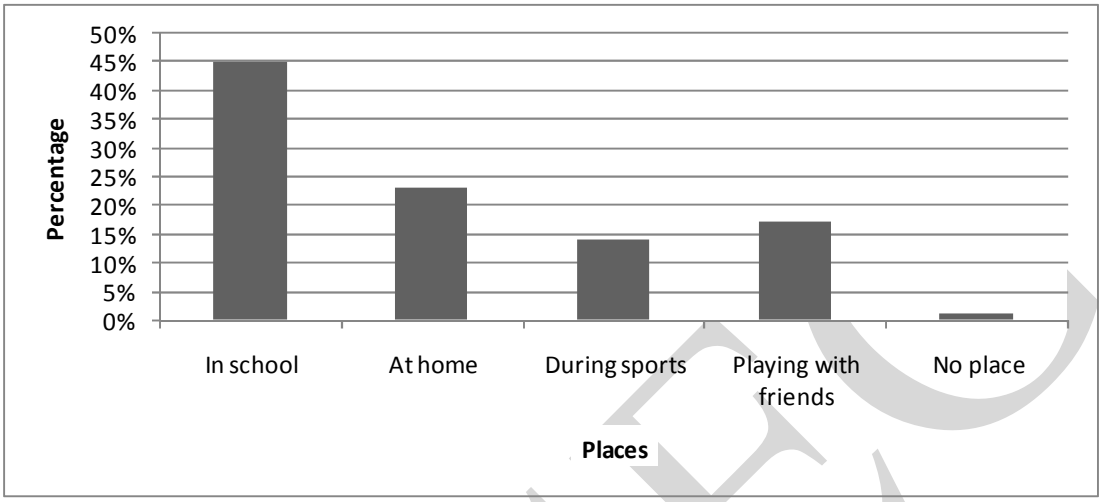

Figure 2: Identifying the places where children with ADHD find it hard to concentrate in (Question 32) (N = 58)

The graph above reveals that schools have the highest percentage (45%) for when children with ADHD find it difficult to concentrate. Homes come second with 23%, and when playing with friends comes next (17%). The most infrequent time when children with ADHD find it difficult to concentrate is during playing sports, showing a percentage of 14%.

(33) ADHD makes it hard for me to stay out of trouble.
Figure 3 below illustrates the findings.

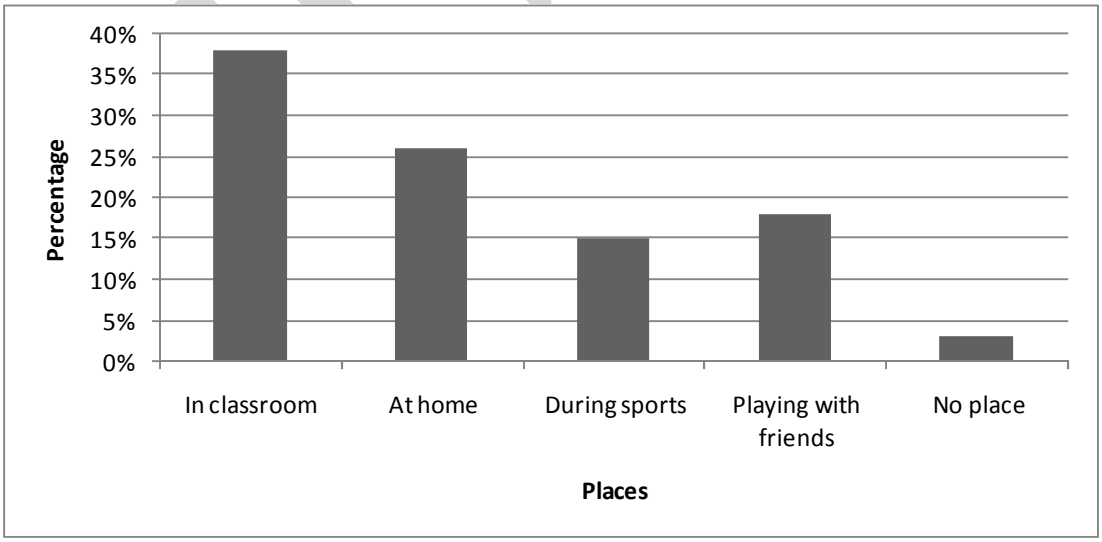

Figure 3: Identifying the places where children with ADHD find it hard to stay out of trouble (Question 33) (N = 58)

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In the same vein, children with ADHD find it difficult to stay out of trouble depending on the situation. The classroom context scored the highest rate with 38%, followed by when they are at home at 26%. Whilst playing with friends came third with 18%, during playing sport appears to be the lowest in terms of when children find it hard to stay out of trouble, providing a rate of 15%.

(34) The following adults can help me with my ADHD.
Figure 4 below depicts their results.

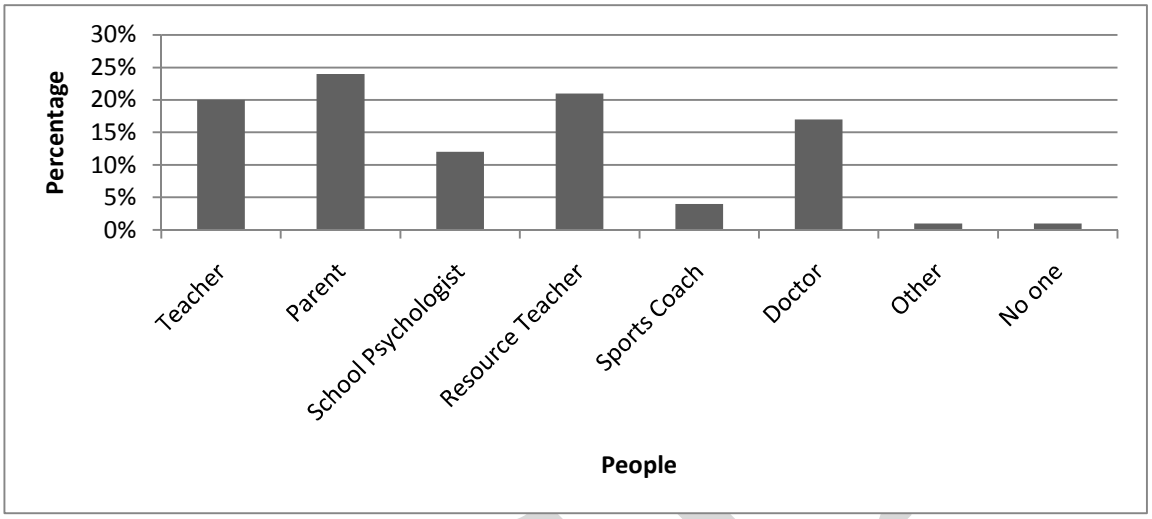

Figure 4: Identifying the adults who can help children with their ADHD (Question 34) (N = 58)

The graph shown above highlights that children trust their parents the most in terms of helping them with their ADHD problem, with a percentage of 24% children stating this, with resource teachers coming second with 21%, and general teachers coming third with 20%. Moreover, considering the fact that sport coaches scored that lowest rating amongst the adults with whom children with ADHD find it hard to get along, they also scored the lowest rate in terms of helping them with their ADHD.

(35) I can learn ways to control my ADHD on my own.
Figure 5 provides further explanation of the results.

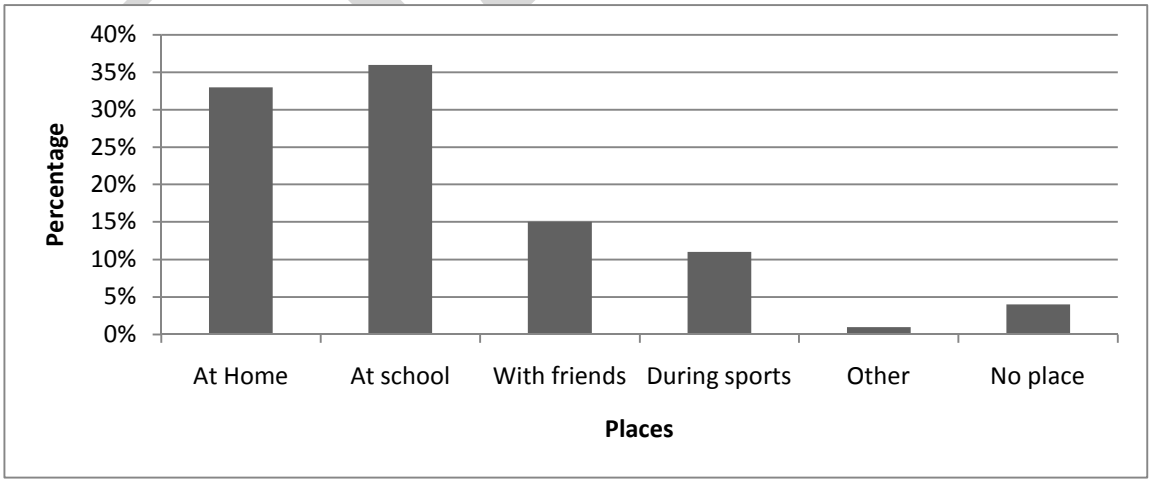

Figure 5: Identifying the places where children can learn ways to control their ADHD on their own (Question 34) (N = 58)

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ISSN: 1300 – 7432
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Turkish International Journal of Special Education and Guidance & Counseling 2014, volume 3, issue 1

The graph shows that children perceive they can learn ways of controlling their ADHD whilst in school at a percentage of 36%. Home is assigned second with 33%, and whilst with friends at a rate of 15%. Again, during sport scores the lowest with just 11%.

Results of the interviews

The characteristics of the four children that participated in these interviews—all of whom are notably girls and have learning disabilities.

Sources of Information Regarding ADHD:

All of the children (C1; C2; C3; C4) could not adequately answer questions and say nothing regarding where they had learned about ADHD.

Connections between People:

At this point, children showed that they did not talk about ADHD with anybody, with one child (C1) providing a reason for this by stating that:

- For parents: *I am afraid to ask my parents because they will shout at me (C1)*
- For teachers: *The teacher will say, 'I will not repeat the lesson, you were not paying attention' (C1).*

Furthermore, two children (C2; C4) believed they need to tell people that:

- *I am a normal human, just like them (C2)*
- *I will tell them how to help people with this problem (C4).*

In addition, when needing help, all of the children (C1; C2; C3; C4) stated that they would go to different people, with children most commonly going to their mother (C1; C2) or a friend (C1; C4) , as depicted in Table 4.

Table 4: Summary of children seeking people for help

	C1	C2	C3	C4
My mother	*	*		
My teacher			*	
My friend	*			*

However, one of the children (C1) mentioned that *she* (Mother) *is always busy; she has a lot of things to do (C1).*

Perceptions towards Parents of Children with ADHD:

What children mentioned regarding how parents treat children with ADHD can be divided into both positives and negatives, as depicted in Table 5.

Table 5: Summary of children's perceptions of parents

Positive (C2)	Negative (C1; C3; C4)
• *Sometimes they deal with them with love and care with the help of the doctor (C2)*	• *They shout at her (C1)* • *They beat them (C3)* • *They hold the child tightly so he does not move (C4)*

Perceptions towards Teachers of Children with ADHD:

What children mentioned regarding how teachers treat children with ADHD can be divided into both positive and negative statements, as shown in Table 6.

Table 6: Summary of children's perceptions of teachers

Positive (C2)	Negative (C1; C3; C4)
• *Developing their talents (C2)*	• *They reprimand them (C1)* • *Always complain (C1)* • *They beat them (C3)* • *force them to sit down (C3; C4)*

Discussion

A key finding from the present study is that the baseline knowledge of children was higher than anticipated by the researcher. Reasons for this are unclear; nonetheless, several pupils might have been educated regarding ADHD once the diagnosis had been made. In addition, all questions concerning the knowledge of children were in a format of true/false items. In the future, it might be helpful to amend the format to multiple-choice to have a more precise measure concerning the knowledge of ADHD and associated issues. It is possible that because most of the children who participated had a diagnosis of ADHD and were studying in special centres that this might have made them knowledgeable and therefore have a high score and be positive towards different managements methods.

On the other hand, when the interviewed children were asked where they had learned about ADHD, nobody answered or provided any indication of the person and/or place. Through parents' and teachers' interviews, there was a tendency not to tell or allow children to realise their condition, which was owing to several reasons, such as not making them feel that they are different and/or any less important or capable than others, which may reflect on their wellbeing; and causing them to think that they are vulnerable. Some children believed that they could not understand the problem. In the meantime, children conveyed that they do not discuss ADHD with anyone; one of the children provided a rationale for this by highlighting that they were blamed and/or shouted at; however, the children showed a desire to know about several aspects of ADHD.

The majority of children experienced ADHD as a medical disorder, and as something that was alleviated by medication. The research findings reveal that children reported a strong biological basis for the disorder of ADHD (22), and that children showed a desire to do the right thing, which was, at times, overruled by their ADHD. This also influenced the sense of children's self as well as identity, with ADHD viewed as a restrictive factor in terms of being capable of behaving well both at home and school.

Children have been formerly reported to view their ADHD label negatively in terms of a stigmatising consequence (23), with such a vision also identified in the present research. Views of medication have formerly been reported as mixed (24), with this finding similarly replicated in the present research. When children asked, they said they preferred not to be on medicine, but most children in the research identified positive effects of medicines and confirmed bad behaviours when off such medication.
Although many children were negative towards teachers, parents, friends and/or support staff, they believed that school-based interventions would be supportive for managing their symptoms of ADHD or negative experiences with parents, and that psychosocial treatments—such as parent training—would be helpful in managing their symptoms of ADHD. Respondents shared beliefs that suggest they do not sense that their condition is understood by their parents and/or teachers, which might have an effect in terms of their beliefs in relation to psychosocial interventions. The findings of a previous questionnaire study demonstrated that children positively viewed their medication, although there remained a large number who reported a negative view owing to side-effects (25). This study is similar to a another questionnaire study, which reported that, in contrast to parents, children know less about their medication and account fewer benefits (26). Children further stated that medication changes negative behaviours (23), and made them feel calm with increased levels of concentration (24), with negative behaviours increasing once medication was stopped (27). Children were also found to illustrate a reliance on medication (23).

With reference to the treatments opinions for ADHD, more positive selections toward pharmacological interventions have been revealed, and it is apparent that they are listening and learning from surrounding people. Children might also learn from others in their lives, such as parents, teachers, peers, and the media; consequently, this might be helpful in terms of presenting the

opportunity to continuing the discussion concerning what has been heard in relation to ADHD, as well as treatments and what has, in fact, been supported by scientific verification (14). The researcher considered that there would be differences between children according to the different parts of Jeddah city in view of the fact that Jeddah has been developed as a cosmopolitan city with a varied and heterogeneous population since the time that people from diverse parts of Saudi Arabia begun to settle there (28). People from different social classes and Saudi regions are distributed across the four different quarters of Jeddah city: for instance, predominantly rich people live in the west, whilst the poor live in the south (29); however, this was the case for parents but not for children and teachers.
According to MacKay &Corkum (14), it is found that children with an ADHD diagnosis who attended a workshop of demystification revealed important gains in knowledge concerning ADHD subsequent to their involvement in the session of two hours. Many of the attending children stated that they enjoyed the experience and believed they had learned from the demystification workshop (14). Demystification can be defined as the act of placing into simple words what strengths and weaknesses individuals have, devoid of the utilisation of labels or judgments (30). The demystification object is to resolve misconceptions, minimise tendencies of blame, and to present individuals and their families with data concerning their capacity which may have an effect on future results (30). Demystification emerges to vary from a psycho-educational group in the terms that, instead of basically learning in relation to a particular theme, individuals are learning on the subject of their own strengths and needs relative to the subject. For instance, a session of demystification on the subject of ADHD would give confidence to children in relation to discovering how ADHD influences their own lives in particular, and also how they could utilise their individual strengths to balance areas of weakness. In this regard, children ought to leave a session of demystification with feelings of confidence and optimism for the future. Therefore, demystification is suggested by this research.

Acknowledgement

This article wasweuf5 funded by the Deanship of Scientific Research (DSR), King Abdulaziz University, Jeddah. The authors therefore, acknowledge, with thanks, the DSR technical and financial support.

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