The Knowledge and Beliefs Concerning ADHD Held by Children, Parents and Teachers in Saudi Arabia

By

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I confirm that the work submitted is my own and that appropriate credit has been given where reference has been made to the work of others.

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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 in relation to both parents and teachers. The rationale behind this study is the exploration of the knowledge and beliefs of children with ADHD, their parents and teachers in relation to ADHD. An ecological framework has been used in order to achieve an understanding and to interpret data gained through this research; however, although this study considers the social model of disability, the medical one, which is recognised as the dominant framework in Saudi Arabia, was not overlooked.

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, as well as the possible handling strategies. The 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.

The data gained from The KADD-Q (Knowledge about Attention Deficit Disorder Questionnaire) and subsequent interviews with a sample of 40 parents and 54 teachers reveals that the levels of knowledge of parents and teachers in regard to ADHD characteristics were considerably higher than their knowledge of ADHD-related causes and treatment.

Overall, the findings reveal that, whilst children, parents and teachers have some knowledge regarding ADHD, more training is required. Furthermore, the strengths and limitations of the research, as well as suggestions for future research, are discussed. The study also provides theoretical, political and practical implications for prompting knowledge of ADHD within the Kingdom of Saudi Arabia (KSA).

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Abbreviations

ADHD	Attention-deficit/hyperactivity disorder
ADD	Attention deficit disorder
APA	American Psychiatric Association
CD	Conduct disorder
DCD	Developmental coordination disorder
DSM	Diagnostic and Statistical Manual
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders 4th Edition
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders 4th Edition Text Revision
EF	Executive Function
HKD	Hyperkinetic disorder
LD	Learning Disabilities
ICH-10	International Classification of Diseases 10th edition
SEN	Special Educational Needs
ODD	Oppositional defiant disorder
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organisation

Chapter One: Introduction

1.1. Introduction

Attention Deficit Hyperactivity Disorder (hereafter referred to as ADHD) is a diagnostic label utilised in order to highlight those children who show developmentally uncharacteristic levels of inattention and hyperactivity/impulsivity (APA, 2000; Barkley, 2006; Conners, 2000). Notably, if this disorder is left without diagnosis and/or management, there could be major continuing impairments across two main domains: academia and social performance (Barkley, 1998; DuPaul, Eckert & McGoey, 1997; Treuting & Hinshaw 2001; Sawyer *et al*., 2002; Rief, 2005). In general, children with the condition show signs out-of-the ordinary constant behaviours, lasting not less than six months, with commencement prior to the age of seven years—despite symptoms possibly appearing prematurely, i.e. as early as three years of age (APA, 2000; Cohen *et al*., 1993; Barkley, 1998). The majority of children are not diagnosed until the beginning of formal schooling owing to the more prominent sign of symptoms of ADHD in the classroom setting (Barkley, 2006). With this in mind, it is vital to state that children might also display a number of the predefined ADHD symptoms as an element of regular maturation; therefore, a consistent framework for a precise ADHD diagnosis is required.

This thesis has presented a research study into the knowledge and beliefs of children with ADHD, as well as their parents and teachers, focusing on the context of Saudi Arabia. The researcher's interest in this area of study arises from the fact that he is a Saudi national with a professional background in primary schools as a learning disabilities teacher. Furthermore, he has worked with several children with learning disabilities, with such children having shown abilities below the degree expected of their chronological age and their grade level in school (APA, 2000), some of whom have ADHD. His experience has enabled him to recognise the significance of this topic, and the need for further studies in this arena.

Prior to investigating the literature on the topic, a brief introduction to the key essentials concerning the research has been given. Therefore, this chapter presents the researcher's interest (Section 1.2), a summary of the context and background of Saudi Arabia (the Saudi educational system), the educational services provided to children with special needs, with concentration on one of the services, which is that aimed towards children with ADHD, as this is the major principle of this study (Section 1.3). Subsequently, the research's importance and aims (Section 1.4), theoretical framework (Section 1.5), research questions (Section 1.6), and the thesis outline are provided (Section 1.7), followed by a chapter summary (Section 1.8).

1.2. Researcher's Interest

My interest in increasing my knowledge about ADHD is based on a range of factors. Perhaps the most important factor is derived from my personal experience as a teacher for children with ADHD in Saudi Arabian schools, where I realised that this group of children is not getting the quality of education they deserve when compared with other children, either due to the lack of staff knowledge and experience, or to the shortage of adequate resources.

This experience goes back to my Bachelor degree study at Jeddah Teachers College in Saudi Arabia, and increased after I started teaching children with learning disabilities (This term is used in Saudi Arabia same as in the USA, whereas in the UK, the term used is "specific learning difficulties"), where I experienced children with ADHD having serious attention and behavioural problems. The problems that children with ADHD have are most likely reflected in their performance at school through their grades and other learning progress, such as maintaining attention, inability to complete tasks, poor memory, and excessive physical activity. Since children with ADHD usually show these symptoms in classrooms, this may have a negative impact on the entire learning process.

This inadequate situation has inspired me, personally and professionally, to carry out a research on children with ADHD. The initial concern of this research arises from a personal interest in the field of SEN, learning disabilities and ADHD. During my postgraduate study, especially after undertaking a module about ADHD delivered by Professor David Sugden, I became more interested in learning more about this subject. An initial motivation for pursuing PhD study was in attempt to understand how diverse cultures perceive ADHD. There was not as much information available for children, parents, teachers and other parties on the subject of ADHD in Saudi Arabia.

In addition, during recent times, there has been considerable interest in children with ADHD in Saudi Arabia. However, when having a closer look, it is clear that this interest is limited in scope to medical aspects rather than educational. Although there are qualified teachers dedicated to learning disabilities in primary schools, they give their attention to academic problems in isolation from the developmental difficulties faced by the children.

1.3. Contextual Background

There are several elements that contribute to forming and shaping the socio-political context of research in education. These comprise contexts of national, international, local, social and discursive; thus, a researcher is obliged to be conscious of each of these considerations when conducting research (Cohen, Manion & Morrison, 2007). In addition, since this study has a likely global interest in terms of knowledge and beliefs regarding ADHD, the Saudi context comprises the need for some clarification concerning general background information relating to Saudi Arabia. It is considered that this would facilitate readers to make more sense of the research context. Therefore, details of the subject of Saudi Arabia will be firstly provided, including the city of Jeddah, the educational system, taking into account special educational needs, as well as the current situation of children with ADHD.

1.3.1 The Kingdom of Saudi Arabia

As stated, the research considers what is important when striving to provide information concerning the background of Saudi Arabia and the city of Jeddah in which the research was conducted. Thus, a conciseness is necessary, and providing in the following.

1.3.1.1 Background:

The Kingdom of Saudi Arabia (KSA) was established in 1932 by King Abdul Aziz, who unified the Arabian Peninsula during a 30-year campaign (Al-Rasheed, 2002). The country is located in South-West Asia, and has a total area of 2,272,929 square kilometres (877,578 square miles), including approximately 80% of the Arabian Peninsula (Siddiqui, 1998). In 2006, the population of Saudi Arabia was estimated to be 28,161,417 million, including 6.4 million non-nationals (United States, 2008).

Saudi Arabia is a monarchy with no political parties involved. Constitutionally, policies of the king are compliant with the Sharia of Islam—the country's official religion. The Saudi Arabian economy is predominantly based on oil, which was discovered during the 1930s and is sold abroad. Nowadays, KSA own 25% of the entire world's petroleum reserves, and thus the country is positioned as the largest petroleum exporter. The country plays a primary role in the Petroleum Exporting Countries Organisation (Library of Congress, 2006).

The population's official spoken language is Arabic, and it is the instruction language at all different educational levels. However, at the University level, themes—such as medicine, sciences, and engineering, etc.—English is used. Nevertheless, English is spoken broadly, particularly in places where a number of employees and clients are non-Arabic speakers, i.e. hospitals and foreign companies (Samirad, 2008; Al-Seghayer, 2005).

1.3.1.2 Jeddah City:

Jeddah is located within the Region of Mecca (Makkah). It is the second largest city in the Kingdom of Saudi Arabia, second only to the capital, Riyadh. It is positioned on the western Red Sea coast, and covers 470 square kilometres in area. In proportion to the census performed by the Central Statistics Department of the Ministry of Economy and Planning in 2004, the population of Jeddah was 2,801,581 (Ministry of Economy and Planning, 2004).

By virtue of its position in terms of trade direction (deemed as the commercial capital) and being the major port of entrance to Mecca and Medina (the two holy cities), Jeddah has been developed as a cosmopolitan city with a varied and heterogeneous population since people from diverse parts of Saudi Arabia approach to settle there (Altorki, 1986; Al-Ahdal, 1989; Diyab, 2003). Moreover, 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 (Fadaak, 2010; First Welfare Society, 2007, 2008).

1.3.2 The Educational System in Saudi Arabia

The Saudi educational system is divided into three major types: general, technical and vocational, and high education (Alsalloom, 1995). It receives greater than 25% of the annual budget allocated by the Saudi government (Ministry of Education, 2008b). The system offers students free education (including books) and health services. In accordance with the statistics of the Ministry of Education, the Saudi system of general educational comprises 31,798 schools, including 5,019,007 enrolled students (Ministry of Education, 2008b).

The Ministry of Education (MoE) was established in 1954, and supervises General Education, which comprises the following: pre-school stage, which is a small

segment of educational activity, and which is presently generally limited to cities and towns; six years of primary school (from 6 to 12 years of age); three years of intermediate school (from 12 to 15 years of age); and three years of secondary school (from 15 to 18 years of age) (Al-Huqail, 1998; Ministry of Education, 2008a). Primary schools implement a formative and continuous evaluation. If pupils satisfy the essential criteria on a yearly basis, they move on to the next grade (Ministry of Education, 2008a). In the case of intermediate and secondary school, pupils move from one grade to another following examination and subsequent assessment. The progress of the pupils is determined by comprehensive exams performed twice a year (Ministry of Education, 2008a). After completing secondary schooling, pupils who wish to apply for a university college are then required to conduct an examination named the General Aptitude Test (GAT), which is administered via the National Centre for Assessment in Higher Education (NCFAHE, 2008).

Boys and girls are segregated at all different school stages, which is compliant with Islamic law. Prior to 2003, schools of girls were managed via the General Presidency for Girls' Education, and schools of boys were managed via the Ministry of Education. Near the beginning of 2003, the Ministry of Education was restructured and took over the General Presidency for Girls' functions. During the present time, the Ministry of Education directs both boys' and girls' schools. The school curriculum of girls is similar to that of the boys', with the only exception being that boys have physical education and girls have home economics (Ministry of Education, 2008a).

1.3.2.1 Special Educational Needs in Saudi Arabia:

In 1970, the Saudi Arabian educational policy was written (Al-Hamed *et al*., 2005), and within it there was reference not merely to general education but also to special education as well. Through implementing particular aims that concentrate on taking care of pupils with special educational needs, the government of Saudi Arabia

attempted to grant each pupil with the right to learn. The result is two of the major aims for special education in KSA:

- Taking care of pupils with special needs through working towards eliminating any obstacles preventing them from learning, and determining special programmes in order to assist them to meet their needs; and
- Directing consideration to seeking out gifted pupils and paying attention to them by providing them with opportunities to expand their talents through determining satisfactory programmes for those pupils. (Al-Hamed *et al*., 2005)

The number of pupils receiving services from the Directorate General of Special Education—which is a division of the Ministry of Education across the Saudi country—has increased to 57,165 students, with all distributed across 2,577 special institutes and programmes in mainstream schools in 2006 (The Ministry of Education, 2006). Besides educational services, pupils with special needs obtain all learning tools required at no cost, such as textbooks, visual and hearing aids, teaching aids, and daily transportation. In addition, each pupil is given a monthly allowance dependent on the stage of education. The teachers in these programmes are provided with an additional allowance above their income, ranging from between 20% and 30%, which is conditional on whether or not they are special education teachers (Ministry of Education, 2006).

In accordance with Al-Mosa (2005), in Saudi Arabia, the inclusion approach is provided in two different ways. Firstly, there is partial inclusion, which engages opening classes in mainstream schools for pupils with special needs, which ensures the needs of pupils are met; it also ensures that they are able to participate in activities with other pupils out of the classroom environment. Al-Mosa further states that there are two different types of special class. For instance, a number of these classes utilise a special curriculum for pupils who are deaf or have intellectual disabilities, whilst other classes employ the ordinary curriculum for blind and hearing-impaired pupils. The second version of inclusion is where several educational pathways are utilised, such as in the form of resource rooms, which are

rooms at ordinary schools where students with special educational needs are able to attend for a period of no more than half of the school day in order to receive special educational services provided by a specialist teacher (The Directorate General of Special Education, 2006). As a consequence of the rise in figures of the programmes of inclusion and the alterations nature in the occupation of special schools and residential facilities, the general proportion of special needs students present and served in ordinary classrooms raised to 88% (Al-Mosa, 2005).

There are several barriers with the potential to postpone complete inclusion: for example, parents of students with special educational needs are concerned about their children when attending ordinary schools; they believe that their children's needs will not be met, and are not certain whether or not the teachers in ordinary schools are capable of coping with their children's difficulties (Al-Mosa *et al*., 2006). Al-Mosa points out that a number of people have negative attitudes toward others with disabilities, and it is therefore probable that a number of teachers in mainstream schools will also fall into this group. Consequently, they might not provide those pupils with special needs with adequate attention (Mushoriwa, 2001; Alghazo & Gaad, 2004). More significantly, ordinary schools are not equipped to deal with students with disabilities (Al-Mosa *et al*., 2006).

1.3.2.2 Educational provisional for children with ADHD :

In the Arab World, the published studies concerning this disorder are inadequate, although there is the actuality that this condition normally influences children and adolescents in schools, and is commonly met in medical settings there (Fayyad, Jahshan & Karam, 2001). Farah et al. (2009) review of the studies conducted in the Arab countries from 1996 to 2008 on the prevalence of ADHD revealed similar findings to those in other countries. They reported that the rate of ADHD amongst Arab school pupils ranges between 5.1% and 14.9%.

In the Kingdom of Saudi Arabia, the prevalence of ADHD is 12.6–16.7% (Rahim et al., 1996; Al-Hamed et al., 2008), which therefore shows fairly a high rate of

prevalence of ADHD in contrast to the prevalence rate of the DSM-IV-TR (APA, 2000), for example, which is between 3% and 7% in school-aged children. In addition, the National Institute of Clinical Excellence (NICE) (2006) reported that the number of children receiving medication for ADHD is about 3 per 1,000 (NICE, 2006). Conversely, the rate is not higher than some figures disclosed by a number of studies in several other countries, such as the United State of America (USA): for instance, it is reported that 18.9% of school-aged children in the USA have ADHD (Carlson, Tamm & Gaub, 1997). In Colombia, the prevalence rates are estimated to be 19.8% for boys and 12.3% for girls (Pineda et al., 2003).

A number of other studies have revealed a similar rate of prevalence: for instance, in the USA, Wolraich *et al*. (1996) show that 16% of school-aged children have ADHD. However, this study has compared the Saudi rate with that of the USA simply because of the belief that the majority of children diagnosed with ADHD have been assessed by American professionals or by local professionals who have been taught and trained by American professionals, which therefore may be seen as partially rationalising the similarity in the rate of ADHD.

Importantly, the Government of Saudi Arabia considers education as a fundamental human right for all pupils in all areas—whether it be urban, rural, mountainous or costal—and this right includes all pupils—with or without disability. It aims to provide equality and quality education to all students without exception and in an inclusive environment (AL-Mosa, 2003). Therefore, in the Kingdom of Saudi Arabia, there have been significant changes in terms of the special educational policies, which have been accompanied by a great deal of debate in terms of what is considered to be the better educational settings for a variety of special needs pupils, how personal, psychological, intellectual attributes should be assisted, and how academic achievements—both verbal and non-verbal—should be examined. Also of importance are the questions of when and how the most appropriate teaching approaches should be used for different individuals or small groups. Therefore, the government has decided to take proactive action, approving the national project when dealing with children with ADHD (the decision was made in January, 2009) (Saudi Press Agency, 2009). Amongst the most prominent features of this resolution

is the fact that the different ministries—such as education, higher education, and health—ought to work together in order to provide the appropriate services for this category, which in itself demonstrates the importance of gaining significant knowledge and up-to-date information with regards to children with ADHD.

More recently, there has been considerable interest in children with ADHD in Saudi Arabia (for example, Al-Haidar, 2003). However, when analysing such research further, it is clear that this interest is only focused towards medical areas, and all available research carried out have been conducted by doctors. Such researches do not give consideration to educational areas and, as an additional consideration, most Saudi research demonstrates the importance of school teachers', parents' and children's awareness of the condition. A specialist at the Ministry of Education has partaken in correspondence (Abed, 2009), and has highlighted that this category of students is, in general, educated in schools, receiving educational services as any ordinary student. It is the responsibility of the learning disabilities teachers (who are responsible for providing suitable educational services for the children with learning disabilities in the ordinary school, assessing difficulties in several areas as reading, writing, mathematics, etc.) (The Ministry of Education, 2006) to identify and deal with such pupils according to their expertise and skills. Such teachers might send pupils to psychologists located in the region for a diagnosis, with psychologists subsequently writing a report on the status of the student and how to deal with the condition, as well as whether or not the pupil's presence in the Resource Room should be continued, or whether the decision should be made to exclude the pupil and accordingly attach the report to the relevant student file.

Teachers specialising in learning disabilities have to be specialists in special education—at least at an undergraduate level. In the case of the absence of this qualification, teachers are then required to have at least obtained the Bachelor degree in an educational subject, in addition to the Diploma in Special Education (path of learning disabilities) for no less than a full academic year (Department of Learning Disabilities, 1998). However, from the researcher's own experience, although there are qualified teachers present and dedicated to learning disabilities in primary schools, they nevertheless appear to give their attention to curriculum

delivery and academic progress in isolation, apparently ignoring the underlying developmental difficulties faced by the children.

Regarding the families of children with ADHD, the 'Guide for teachers of learning disabilities' (Abdulelah, 2003) states that parents must be sensitised by communicating with them through meetings, school Boards, and school visits. During such meetings, teachers should clarify in an easy and clear way the role of the Resource Room for students with learning disabilities so as to ensure the understanding of parents; this can be achieved by providing parents with clarification as to the definition of the term 'learning disabilities', as well as details of the programme's objectives. The characteristics of children with learning disabilities should be explained, which will subsequently enable parents to understand the problem experienced by his or her child, and to show satisfaction with the services provided to him or her in relation to the Resource Room (Abdulelah, 2003). As a further consideration, during the assessment and diagnosis stage, parents' points of view ought to be heard and taken into account and, before referring the child in question to a health unit or to the Resource Room, parents should first provide consent (Abdulelah, 2003).

1.4 The Importance and Aims of the Research

Considering the rationale for conducting research, the present study will ensure the focus of the research is placed on children with ADHD, their parents' and teachers' knowledge and beliefs about ADHD, as they significantly contribute to the successful process of learning and development of such children, and might partly assist in obtaining a clearer picture of the current situation of ADHD in Saudi Arabia.

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, parents and teachers in Saudi Arabia in relation to ADHD; 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 beliefs, as well as their valued people, about the condition.

As a second consideration, the research would point to further research areas, and bring about several recommendations that may prove valuable and effective in terms of enhancing knowledge and beliefs about children with ADHD in Saudi Arabia.

Thirdly, as several studies consider cultural differences concerning ADHD, it is recognised that little is known about knowledge and beliefs, since the way in which the disorder is conceptualised is affected by cultural and ecological factors (Ghanizadeh, Bahredar & Moeini, 2006). Therefore, by providing a culturally situated dimension, the study adds to the broad international research studies based on the knowledge and beliefs of children about ADHD, their parents and teachers.

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. With this in mind, this research is carried out with the anticipation that the findings might extend existing knowledge, understanding and practice in working with ADHD in Saudi Arabia.

Thus, the present research addresses a topic in which there is known to be a lack of information. Therefore, the objective of the current research is to attempt to fill the literature gap, and to accordingly present such crucial baseline data, such as Saudi children's, parents' and teachers' knowledge and beliefs surrounding ADHD. It was also intended that this research serve as an important building block in the new knowledge base of schooling children with ADHD, thereby adding to the research body on ADHD—particularly that of Saudi Arabia.

1.5 Theoretical Framework

It has been found that there are values related to acceptable and unacceptable behaviours in diverse societies (Dwivedi & Banhatti, 2005). Therefore, cultural attitudes might be crucial in determining whether or not a child may be diagnosed

with ADHD (Barkley, 1995). Consequently, when assessing children, it is essential to take their cultural backgrounds into account. It is significant to emphasise that the dissimilar prevalence rates of ADHD in various cultures (discussed in Section 2.4) may be owing to the reality that diverse criteria may be utilised for the diagnosis of ADHD in diverse countries. Nevertheless, when using the same criteria, the prevalence rates emerge as very similar (Rohde *et al*., 2005), which underlines the actuality that cultural factors play a minor role in ADHD diagnosis (Meyer *et al*., 2004). On the contrary, cultural factors might play a major part in ADHD intervention (Perry, Hatton & Kendall, 2005).

In an attempt to enhance understanding concerning the issues experienced by children with ADHD, their parents and teachers, two theoretical approaches have been explored: the first is the medical model, which continues to dominate ADHD understanding, and which is critically challenged by a number of researchers (Barkley, 1990; Woods & Ploof, 1997); the second is concerned with understanding the experiences of daily living and behaviours as socially constructed. The social model of disability considers social interactions and barriers as the major foundation for seeing disability.

The fundamental emphasis of this research surrounds building awareness of the significance of the interface between individuals and the social structures in which they live. The issues experienced by children and parents are defined not merely in psychological terms but rather in the broader social structures context, as well as the belief systems that continue in their existence (Ife, 1997; Mullaly, 1997).

To a significant degree, children's ADHD behaviours are affected by the ability of parents or teachers to manage these behaviours. When such behaviours become difficult for adults, it then becomes a problem for children. As will be revealed in Section 3.2, ADHD might be socially constructed, and so an ecological framework has been used to focus on two significant settings—home and school—and the interaction/relationships between the two. Accordingly, this research includes children with ADHD, their parents and teachers; however, although this research considers the social model of disability, the medical one, which views disability as a

pathology and which is recognised as the dominant framework in Saudi Arabia, was not overlooked.

1.5.1 The Ecological Model

With the intention of achieving greater understanding into the theoretical perspective of this study, it is essential to present and examine the ecological theory (Bronfenbrenner, 1979, 1988, 1989, 1993, 1994, 1995, 1998, 1999; Bronfenbrenner & Evans, 2000), which is used as a framework for understanding and interpreting data gained from this research. According to this model, people with close relationships with children and who spend a considerable period of time with them have the most direct influence on their development (Bronfenbrenner, 1979, 1986, 1999).

Bronfenbrenner (1979) proposed that the development of humans happens in the context of developing an understanding process based on the interaction between individuals and their social environment. This happens in the form of a series of five overlapping systems in which the individual interacts and develops. These systems are: the microsystem (the immediate environment, for example, home and school), the mesosystem (the interactions and relationships between two or more systems wherein the individual is actively involved, for example, between home, school and neighbourhood), the exosystem (the environment that indirectly impact the individual's experiences, for example, local government), the macrosystem (the dominant beliefs of certain culture), and the chronosystem (the sequence or pattern of events or changes over time in a person's life that impact their development). (Charlesworth, 2011; Berk, 2005; Miller, 2010). However, Bronfenbrenner also recognised the significance of the biological and genetic aspects that individuals bring into their social interactions (Bronfenbrenner, 1993, 1995, 2005; Bronfenbrenner & Ceci, 1994).

The ecological perspective highlights the notion that the development of a child is influenced by home, school or neighbourhood contexts, and even the contexts

beyond them, which, in sequence, affect how his/her caregivers and teachers perform towards them (Smith, 1998). The basic premise of the ecological model is that the development of the behaviour is a result of the interaction between the child and the environment. During the lifelong development process, the child might be an active participant and also a non-active participant depending on the system by which he/she is influenced. The theory also presumes that the environment is not one setting but is rather a group of settings, with the interactions occurring between them. The ecological model acknowledges the significance of diverse environments in the child's life, and stresses strong associations between the family and the school (Hooper *et al.*, 2000). The ecological framework shows that everything is, in fact, part of a child's ecosystem by various means, and that everything eventually has an effect on the child's behaviour. Any alterations in any part subsequently alter the whole system in addition to that part; one will not be able to recognise the entire system by interacting with merely part of it (see Figure 1.1).
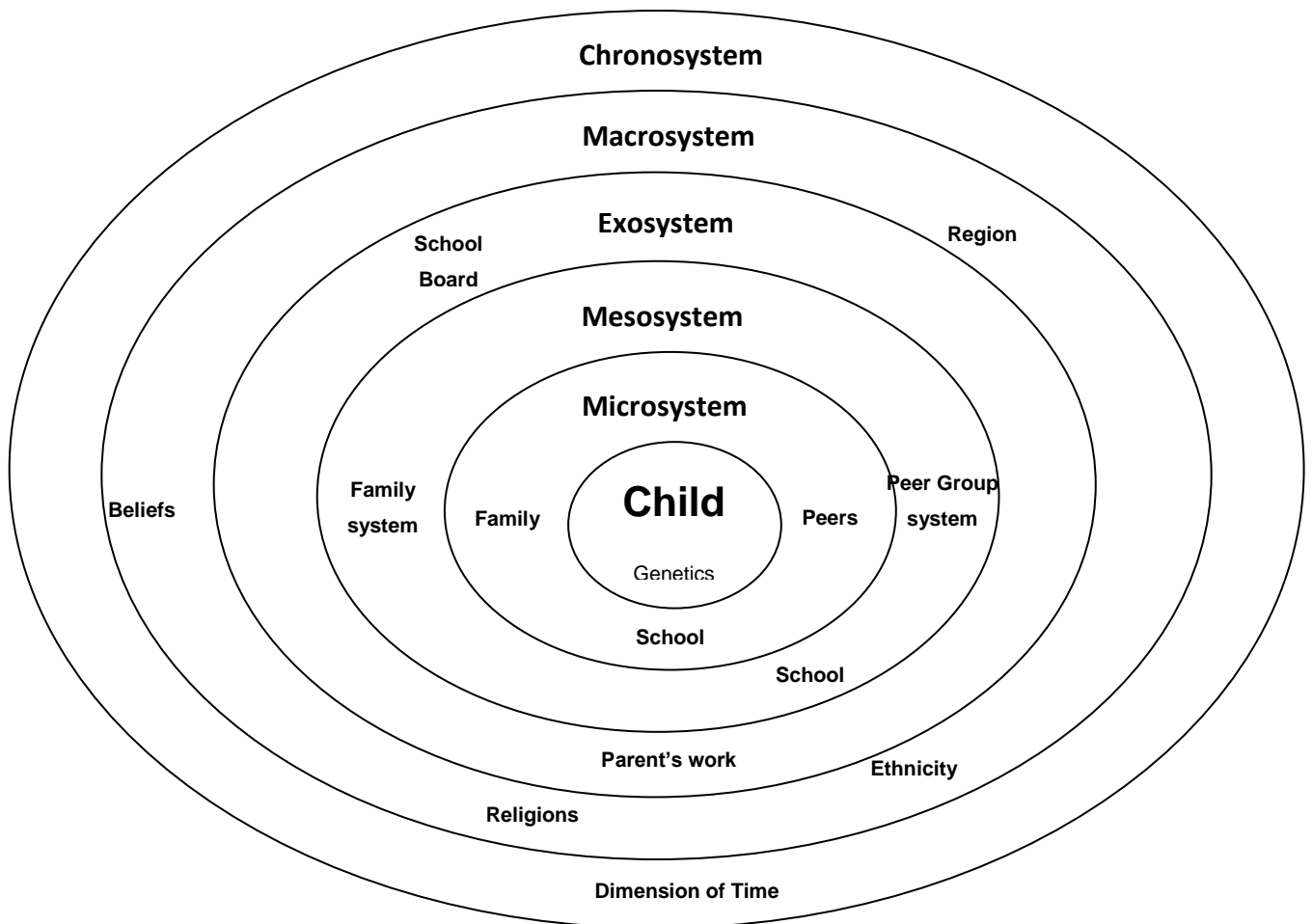
Figure 1.1: The ecological model (Bronfenbrenner, 1979; 1989).

Importantly, it is believed that if educators depict a certain belief, which is that parents are 'dysfunctional', a beneficial partnership for the learning of children might never happen; therefore, the perception which parents and educators grasp concerning each other ultimately sets the stage for successful intervention practices to occur. The personnel of schools that try to implement interventions in the non-attendance of positive attitudes will experience limited achievement (for example, Cavell, 2000).

In summary, the ecological model is a systems model that posits that every individual, in their environment, is involved in dynamic interaction where there is a two-way effect within the systems transaction in which the individual exists and lives (Shinn & Toohey, 2003). Basically, according to the ecological framework, all is, in fact, part of the ecosystem of an individual in one way or another, and the whole thing eventually has an effect upon the behaviours of an individual; therefore, this paper agrees with the notion that researchers ought to ensure that the voices of parents or guardians and children are heard whilst performing research—even when this is not the focus of the research (Sugden, Kirby & Dunford, 2008). The views of those are deemed significant, and could have a considerable influence on the way in which a person behaves, as well as their corresponding beliefs (Robinson, 2000); thus, from what has been mentioned previously, this research attempted to explore children's, parents' and teachers' knowledge and beliefs about children with ADHD.

1.6 Research Questions

As stated previously, the aims of this study were:
- To assess the knowledge of ADHD as held by children with ADHD, their parents and teachers in a Saudi Arabia context;
- To identify the beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia;

- To compare the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia; and
- To explore the perceptions of children with ADHD, their parents and teachers of one another in Saudi Arabia.

With the intention of attaining the aims of this study, a number of study questions are produced. Five questions appeared from the above, setting out the key aim as follows:

1. What are the knowledge and beliefs of ADHD as held by children with ADHD in Saudi Arabia?

2. What are the knowledge and beliefs of ADHD as held by parents of children with ADHD in Saudi Arabia?

3. What are the knowledge and beliefs of ADHD as held by teachers of children with ADHD in Saudi Arabia?

4. What similarities and differences exist between the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia?

5. What are the perceptions of children with ADHD, their parents and teachers of one another in a Saudi Arabia context?

The relationship between the research questions is shown below in Figure 1.2:
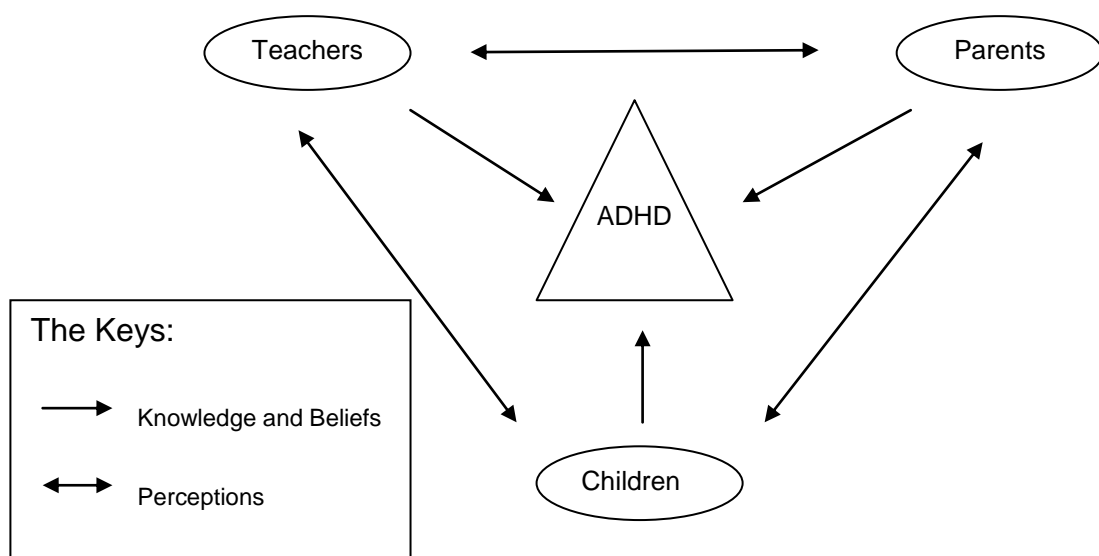
Figure 1.2: The relationship between the research questions

These research questions guided the research in terms of reviewing the literature, emerging the theoretical framework and data collection, and analysis. There are particular concepts that have been utilised throughout this research for the aims of the study, which is utilised in the title of the thesis. However, it is significant to state here that, in this research, the terms 'knowledge', 'belief' and 'perception' are defined according to the Longman dictionary of contemporary English (2003). This research utilises the word 'knowledge', which refers to 'the information, skills, and understanding that you have gained through learning or experience' (p. 895), 'beliefs', which infers 'the feeling that something is definitely true or definitely exists' (p. 124), and the word 'perceptions', which refers to 'the way you think about something and your idea of what it is like' (p. 1219). The implications of these findings derived from the outcomes of the research questions are presented in Section 8.10.

1.7 Outline of the Thesis

The chapters outlined below provide an overview of the way in which this research is presented. This study is divided into nine chapters. The first chapter covers necessary information relating to the researcher's interest, a background on Saudi Arabia, Jeddah in particular, and the educational system, with specific attention to special needs and ADHD in particular. In addition, the research aims, questions, and theoretical framework were detailed.

Following the introductory chapter, the second chapter provides a detailed literature review of the existing and current researches relevant to ADHD, including its definition, theories, characteristics, co-morbidity, prevalence, causes, interventions and developmental course. The third chapter incorporates a discussion of the important points relating to ADHD, as viewed by children, parents and teachers, counting The Theory of the Social Construction of ADHD. The fourth chapter provides the methodological chapter, which covers several research aspects,

including research questions, research design, sampling, ethical issues, procedure, and the instruments to be utilised for the different research questions. At the end of this chapter, the piloting, and validity and reliability—with clarifications of the Analysis of Questionnaires and Interviews data—are discussed. Following, chapters five, six and seven present the results of the questionnaires and interviews held with children, parents and teachers, as well as detailing a comparison between these results. Subsequently, Chapter eight discusses the findings according to the research questions, stating the research strengths and limitations, and provides suggestions for future research in addition to implications. Finally, the last chapter draws conclusions from the findings.

1.8 Summary

This introductory chapter has presented the background and context of this research. The contextual background has provided information regarding Saudi Arabia, its educational system, and the services provided to children with special needs in Saudi Arabia. Focus was subsequently directed to services for children with ADHD, as this is recognised as the major principle underpinning this study. Following, the importance, aims and questions, and theoretical framework of the research—the ecological model—in addition to the outline of the thesis were provided.

Chapter Two: Current Understanding of ADHD

2.1. Introduction

ADHD is one of the most extensively researched psychiatric childhood disorders and a commonly diagnosed disorder in children (APA, 1994). In their environment, children with the condition experience several challenges in their learning, along with self-worth perceptions, and consequently necessitate support during their lives and in a number of different aspects (Dumas & Pelletier, 1999; Train, 2009). ADHD characteristics have the potential to bring about substantial problems in children, in and with their parents, and schooling (Hinshaw, 1992; Swanson *et al*., 1998). The core characteristics of ADHD have significant negative effects on children's development of social, cognitive and emotional skills (National Institute for Clinical Excellence, 2003; 2006). For instance, children with ADHD often experience low levels of self-esteem and frustration, along with depression (Kendall & Shelton, 2003).

As stated in the introductory chapter, the focus of the current research is placed on the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers. This chapter reviews the literature concerning the current understandings of ADHD, and presents information relating to ADHD characteristics (Section 2.2), ADHD co-morbidity (Section 2.3), ADHD prevalence (Section 2.4) and possible causes of ADHD (Section 2.5). Following this, interventions verified as effective for children with ADHD (Section 2.6) and the developmental course of ADHD (Section 2.7) are discussed.

2.2. Characteristics of ADHD

ADHD can be described as a neurobiological, developmental or neurodevelopmental disorder, which appears through developmentally unsuitable

inattentiveness and/or impulsivity, as well as through hyperactivity levels, and is normally initially diagnosed in childhood or adolescence (APA, 2000; Wodrich, 1994). In order for a child to be diagnosed with ADHD, definitive criteria—established by the Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR) (APA, 2000) or the International Statistical Classification of Diseases and Related Health Problems 10th revision (ICD-10) (World Health Organisation, 2005) must be met. According to DSM-IV-TR criteria (see Appendix B), which is the most widely used diagnostic classification system (Sorensen, Mors & Thomsen, 2005) and the one utilised in Saudi Arabia, such symptoms need to be persistent for six months; the behaviour ought to be deemed maladaptive; the symptoms should be inconsistent with the child's development; and there must be the presence of symptoms by the age of seven. In addition, the criteria states that the impairment should to be present in at least two environments, such as home and school, and must influence social, academic and/or occupational functioning (APA, 2000).

Currently, ADHD diagnostic criteria are detailed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (APA, 2000). This manual distinguishes three subtypes: Inattentive Type, wherein children display inattentiveness without signs of hyperactivity; Hyperactive-Impulsive Type, wherein children display hyperactivity and impulsivity but with no inattention; and finally, the Combined Type, wherein children display each of the subtypes' symptoms (APA, 2000). Children with ADHD (Inattentive type) appear to have additional problems with focused and/or selective attention (Barkley, Grodzinsky & DuPaul, 1992). Importantly, the differentiation between inattention is that it is age-unstable, showing a poor span of attention, whilst hyperactivity is referred to as age-unstable raised activity in multiple environments, and lastly, impulsivity is defined as the inclination to do something impetuously as well as thoughtlessly. Essentially, it ought to be taken into account that the majority of children frequently display characteristics commonly attributed to ADHD, with this recognition potentially explaining much of the debate surrounding the disorder of ADHD (Schlozman & Schlozman, 2000).

ADHD presents itself in various different environments; therefore, there is an

effect on individuals in each of these settings; thus, the child diagnosed with ADHD will not only display ADHD behaviours at home, to their parents, family and friends, but will also demonstrate such behaviours within the school environment, to their teachers, classmates, peers and staff. Those teachers who spend at least six hours a day with the child are therefore in a good position to observe and experience ADHD-related behaviours.

In accordance with the ICD-10—which is an alternative classification of ADHD— ADHD is classified as a behavioural and emotional disorder, with onset usually occurring throughout childhood and adolescence. The ICD-10 moves on to explain ADHD as a hyperkinetic disorder represented by a

> '…lack of persistence in activities that require cognitive involvement and a tendency to move from one activity to another without completing any one, together with disorganised, ill-regulated, and excessive activity' (World Health Organisation, 2005, p. 262).

The correct diagnosis of ADHD ultimately depends on the health professional in terms of gathering accurate information concerning the student's behaviour (Karande, 2005). Current checklists—which are available to assist in making a diagnosis—comprises questionnaires that a parent and a teacher are required to fill out; however, such surveys have been heavily criticised owing to the fact that they are viewed as merely depending on the observed and subjective opinions of others (Pelham, Fabiano & Massetti, 2005). Unlike other conditions that depend upon more empirically based data, such as a blood tests, the diagnosis of ADHD essentially rests on at least one individual's perceptions of another person's behaviour. Therefore, ADHD could be complicated to diagnose since there is no particular diagnostic test— for instance, laboratory or neurological tests—that have been recognised as the main tool of clinical measurement (APA, 2000). In this regard, diagnosis problems are apparent with over- and/or under-diagnoses of the disorder (Parens & Johnston, 2009). More recently, however, it has been noted by Sonna (2005) that electroencephalogram (EEG) images—which depict the brain's electrical activity— of children with ADHD show key differences in comparison to their non-ADHD

peers. More specifically, the frontal lobes of persons with ADHD were found to show less beat waves than their non-ADHD peers. More alpha and/or theta waves were illustrated. Unfortunately, however, scans of the brain are unlikely to be utilised with the aim of diagnosing cases of ADHD in Saudi Arabia, mainly owing to the fact that it is not cost-effective. ADHD behaviour is much more noticeable in a classroom environment owing to the high structure, where students are expected to stay still and remain seated (Andrews, 2000). Nevertheless, in Saudi Arabian classrooms, where there may be confusion owing to a large class size of more than forty pupils and with a number of on-going activities, students with ADHD are much more easily overlooked.

ADHD symptoms overlap with various other conditions, counting developmental variations include intellectual disability; giftedness (Morrow *et al.,* 2012), neurologic or developmental conditions such as Learning disabilities, Language or communication disorders, Autism spectrum disorders, Developmental Coordination Disorder (Leslie & Guevara, 2009; Wijburg *et al.,* 2013), emotional and behavioural disorders include anxiety disorder, mood disorders, oppositional defiant disorder, conduct disorder (Taylor *et al.,* 2004; Pliszka, 2007; Pastor & Reuben, 2008), psychosocial and/or environmental factors include a stressful home environment or an inappropriate educational setting (APA, 2000; Wolraich *et al.,* 2011), and certain medical problems include hearing or visual impairment, sleep disorders (Pearl, Weiss & Stein, 2001). A number of these conditions may coexist with ADHD and might or might not be accountable for several symptoms, for instance, children with learning disabilities might develop inattention due to incapability to understand new information, which shows the need for the differential diagnoses since they might generate behaviours apparently comparable to those of ADHD (National Collaborating Centre for Mental Health, 2009).

2.3. ADHD Co-morbidity

Approximately, 80% of children with ADHD have co-morbid conditions (Mash & Wolfe, 2002). In addition, in relation to clinic-referred children with the disorder, between 50% and 70% meet the Oppositional Defiant Disorder (ODD) criteria, 20% and 50% meet Conduct Disorder (CD) criteria, and 18% upwards are diagnosed with a tic disorder (Peterson *et al*., 2001). With this in mind, it is also noted that they are, in addition, at risk of anxiety and/or depression (The MTA Cooperative Group, 1999; Brown, 2000). Besides the risk of developing psychiatric co-morbid conditions, children with ADHD also characteristically show signs of impaired functioning in academic areas (Barkley, 1998). Notably, the majority of children with ADHD experience problems with performance in school, particularly with reference to low productivity. Whilst a great deal of pupils with ADHD show intelligence around average or above average as early as preschool, ADHD influences the gaining of the diverse range of skills necessary to be successful academically (Barkley *et al*., 2002). It has been predicted that approximately 80% of children with ADHD face academic underachievement, with roughly one-third of these children predicted as having specific learning difficulties (DuPaul & Volpe, 2009). Between 8% and 39% of children with ADHD are likely to be diagnosed with a reading difficulty, whilst 12–27% are likely to demonstrate spelling deficits, whilst between 12% and 30% experience maths-related disabilities (Barkley, 2006). Co-morbidities also comprise neurological disorders (Dunn *et al*., 2003), sleep-related problems (Corkum *et al*., 1999; Mick *et al*., 2000), chromosomal-genetic disorders (Hagerman & Hagerman, 2001), and language disorders (Tannock, 2000).

In this context, each one of the co-morbid conditions has an effect on the ADHD appearance symptoms, which makes choosing the appropriate intervention strategy more difficult. According to Fornes & Kavale (2001), it is reported that an understanding of the co-morbidities that might be present with ADHD and its psycho-pharmacological treatment promote the successful treatment of children diagnosed with ADHD. An efficient treatment means, for instance, being capable of providing children with a pharmacological treatment that enhances their concentration, and consequently enhances their academic performance. The

existence of an associated mental health disorder could change the ADHD characteristics, and therefore make it more challenging to efficiently treat.

2.4. Prevalence of ADHD

The prevalence of ADHD, consistent with the DSM-IV-TR (APA, 2000), is estimated as being between 3% and 7% in school-aged children (Carr, 2000; Purdie, Hattie & Carroll, 2002). It is estimated that there is approximately one child with ADHD in each elementary school classroom (Barkley, 1998).

When utilising the ICD-10 diagnosis criteria for Hyperkinetic Disorder (HKD), the prevalence of ADHD in children ranges 1–3% (Remschmidt, 2005). Such dissimilarities are owing to the differing criteria utilised in the diagnosis: for example, it has been found that there are higher rates of prevalence in researches utilising the criteria of DSM-IV (Skounti, Philalithis & Galanakis, 2007), and considerably lower rates of prevalence in researches utilising the criteria of ICD-10 (Polanczyk *et al*., 2007). It is believed that the dissimilarity comes as a result of the fact that HKD necessitates evidence of more symptoms. Nevertheless, several epidemiological studies suggest that the rate of prevalence amongst school children might, in fact, be as high as 20% (Barbaresi *et al*., 2002).

In addition to the reasons outlined by Purdie, Hattie & Carroll (2002), it is recognised that the other potential reasons for the various prevalence rates could be owing to alterations in diagnostic standards (obvious in the dissimilarity in text of the DSM- III (1980), DSM-IV (1994), and DSM-IV-TR (2000). Other probable rationales include the overlap between ADHD and other conditions, as well as economic factors that may bring about a decrease in mental health, education, and services of care, thus promoting ADHD 'medicalisation' (Purdie, Hattie & Carroll, 2002). Moreover, this percentage differs across the literature owing to the various methods of sampling, geographic area, age, sex, and the criteria of diagnosis (Barkley, 2003). In this regard, it is advised that the results of prevalence studies ought to be interpreted cautiously, as commonly there was little dissimilarity

between countries, with any dissimilarity most likely associated with methodological issues (Polanczyk *et al*., 2007).

It is known that ADHD can run in families, which therefore implies a genetic component (Hechtman, 1996; Faraone & Doyle, 2001). ADHD also emerges as being more prevalent amongst boys than girls (APA, 2000; Purdie, Hattie & Carroll, 2002; Quay & Hogan, 1999, Valente, 2001). More specifically, the male-to-female ratio ranges from 2:1 to 9:1 depending on the type of ADHD—where, for example, Predominantly Inattentive (ADHD-I) is less diagnosed due to the behaviours being less extreme and subsequently less disruptive—and the environment in which diagnosis takes place, as children referred clinically are more likely to be male (APA, 2000). Nonetheless, it is proposed that it is not simply the case that there is a lower prevalence of ADHD amongst females, but also that behavioural differences may play a role, as females with this disorder are likely to go undiagnosed (Wender, 2000). Some studies suggest this is because of the aspect of hyperactivity, with boys commonly more aggressive and assertive than girls (Arcia & Conners, 1998). Without the presence of this aspect taken into consideration, the ADHD occurrence rate may, in actual fact, be comparable between males and females. As such, the girls identified are those who show severe symptoms of ADHD (Bowman, 2008). On the other hand, no gender-significant diversity has been identified relating to the co-morbidities for the duration of childhood (Biederman *et al*., 2005).

2.5. Causes of ADHD

There are dissimilar and opposite perspectives adopted in regard to the cause(s) of ADHD (Taylor *et al*., 2004). Potential ADHD causes have been identified as neurological, genetic, parental, and food-related (Samples, 2005), including deficiencies of additives or nutritional causes (Purdie, Hattie & Carroll, 2002; Biederman & Faraone, 2005). Importantly, there is a lack of agreement amongst researchers concerning what is directly responsible for ADHD (Purdie, Hattie & Carroll, 2002). Accordingly, there are several studies and literature concerning

ADHD (Dryer, Kiernan & Tyson, 2006; Biederman & Faraone, 2005), which emerge as being a deficient in a conceptual model; this illustrates the associations between the impacted structures of the brain, cognitive functions, the environment, and behaviour (Rapport, 2001). An approach that can assist in interpreting ADHD causes is Causal Modelling (Morton & Frith, 1995), which is a framework that seeks to combine biological, cognitive and behavioural description levels, with a separate domain for the impacts of environments that can interact on any of the three levels. With this noted, Morton & Frith seek to connect brain activity to behavioural outcomes via theoretical concepts of cognition.

Whilst it is supported that ADHD is a heritable disorder that becomes apparent in early childhood, ADHD origins and pathogenesis is, at present, not well understood, most likely owing to factors combination (Thapar *et al*., 1999, 2005). Symptoms and diagnosis of ADHD are further frequently found in the first level biological relatives of children with the disorder, which therefore similarly proposes a familial connection (APA, 2000).

Molecular genetics research has proposed that the dopaminergic system is engaged in ADHD, although more support is needed (Thapar *et al*., 1999, 2005). Although it is obvious that there is a genetic base causal to the ADHD development in children, the precise gene(s) accountable is still unidentified (Durston 2003; Wallis, Russell & Muenke, 2008).

Environmental impacts—such as the impact of peers, family members, and school environment, for example—are believed to have an effect on the symptoms of ADHD (APA, 2000). Importantly, in this regard, poor parenting is recognised as worsening the underlying symptoms of ADHD (Daley *et al*., 2009). A number of environmental factors, such as techniques of coercive and/or chaotic parenting, may be considered inconsistent and/or an intrusive style of parenting (Jacobvitz & Sroufe, 1987). In this vein, when children with a biological predisposition to ADHD are raised in such an environment, the symptoms of ADHD may worsen (Johnston & Mash, 2001); on the other hand, the relationship between ADHD and parenting impact is best viewed as naturally reciprocal (Daley *et al*., 2009). In view

of the fact that ADHD is genetically related, the likelihood of children with ADHD having parents with ADHD is frequent, which might also have an effect on their parenting approach (Daley *et al*., 2008). With this in mind, the results of Durston (2003), as highlighted in the literature review, in addition to the results from other researches, propose that there are several grounds and origins for ADHD that engage factors of genes, environments, anatomics, and physiology, each of which has an involvement with the symptoms of severity, perseverance and continuation.

Several studies have been conducted in order to identify the causes of ADHD. Consequently, such theories and models striving to explain ADHD and to thereby suggest the appropriate interventions for such have been developed. Barkley (1997a) introduced a theory based on a combination of previous existing theories of ADHD for providing further explanations to students with ADHD, and further gives a better understanding to their behaviours (West *et al*., 2002). The theory of Barkley surrounding ADHD is considered in the literature as the most important ADHD theory (Bailey, 2000; Berlin *et al*., 2004; Fischer *et al*., 2005; Meaux, 2000; Nicpon, Wodrich & Kurpius, 2004; Purdie, Hattie & Carroll, 2002). It is a theory of the ADHD pathophysiology, which highlights deficits in behavioural inhibition, thereby bringing about impairments in executive function (Barkley, 1997b). This is defined as the cognitive functions, which serve to sustain a suitable problem-solving set with the intention of achieving a future aim (Welsh & Pennington, 1988). Executive functions are the major shortfall in behavioural inhibitions (Barkley, 1997a, 1997b). Accordingly, such difficulties in behaviours result in deficits in other executive functioning aspects, such as working memory and planning, for example (Barkley, 1997a; Panzer & Viljoen, 2005).

Executive function includes cognitive domains, which are recognised as being very pertinent to the activities of daily life, suitable behaviours, as well as academic and social functions (Barkley, 2006; DeBonis, Ylvisaker & Kundert, 2000). Basically, they are the functions that bring about self-regulation. Neurobiological research points out that the brain neurotransmitter imbalances and reduces brain-derived neurotropic factor levels, and similarly reduces the flow of cerebral blood to the prefrontal regions of the brain. In addition, it contributes to behavioural features and

the executive function impairments in the condition of ADHD (Hynd *et al*., 1990). Although current diagnostic criteria of DSM-IV-TR perseveres to heavily concentrate upon the symptoms, recent research has emphasised that deficits in self-regulation and executive functioning present a superior theory for ADHD and its related problems (Barkley & Murphy, 2006).

2.6. Interventions of ADHD

Given that ADHD is a chronic disorder, treatments are in general centred on symptoms management, rather than curing them. Treatments might, in addition, concentrate on decreasing impairments in life functioning arising from the existence symptoms of ADHD and co-morbid conditions.

In the literature, ADHD treatment has been well studied. Numerous treatment approaches have been introduced, although ADHD treatment has been a controversial matter of public belief during the previous decades (Diller & Goldstein, 2006). In this regard, definite treatment forms are shown to be effective, such as, for example, stimulant medication, behavioural interventions, and the combination of such, as well as classroom interventions and non-stimulant medications. However, others have not been proven, such as programmes of cognitive training, dietary and supplement management, as well as others that are in anticipation of greater study, such as biofeedback, integration of sensory, acupuncture and homeopathy (Lilienfeld, Lohr & Lynn, 2003; Purdie, Hattie & Carroll, 2002). Based on empirical studies, medication is considered one of the most efficient treatment forms of ADHD (Jensen *et al*., 2001).

Medication intervention might comprise the subsequent groups of drugs:

- Amphetamines, such as amphetamine (sold as Adderall), dextroamphetamine (Dexedrine), and methamphetamine (Methadrine);
- Nonamphetamine Behavioural Stimulants, such as Methylphenidate (Ritalin);
- Pemoline (Cylert);

- Selective Norepinephrine Re-uptake Inhibitors, such as Atomoxetine (Strattera);

- Antidepressants, such as Bupropion (Wellbutrin, Zyban);

- Formulations of Medication (Olfson *et al.,* 2003; Julien, 2005; Swanson *et al.,* 2004).

The objective of this kind of medication is to aim ADHD core symptoms, which are inattention, hyperactivity, and impulsivity (Lilienfeld, Lohr & Lynn, 2003). Stimulant medications enhance attention and focus, hand-writing, obedience, sociality and fine motor skills. They reduce impulsivity, task unrelated activity level, and violence (Barkley, 2006). However, the National Institute for Clinical Excellence (2009) argues that Medication intervention is utilised for children with severe ADHD, and ought not to be a first-line intervention for children with moderate ADHD.

Although psycho stimulants are a frequently used intervention for a child diagnosed with ADHD, they do not contribute to academic gains in students with ADHD. Cohen *et al*. (2002) also confirmed that there is no empirical information supporting that psychotropics improve learning in the long-term. Likewise, Frankenberger & Cannon (1999) conducted a longitudinal study on academic gains in children with ADHD who were taking psycho stimulants (for example, Ritalin), comparing them against their classroom peers. They found that, in comparison, the children with ADHD were functioning at lower cognitive and academic levels compared to before they began taking medication. Additionally, once the course of medication was initiated, doses were frequently increased over the years. Results of the study also demonstrated that the children with ADHD and who were taking stimulant medications were consistently scoring significantly lower regarding their academic performance.

According to Purdie, Hattie & Carroll (2002) this lack of academic progress shows the importance of implementing educational interventions. Merely improving some of the behavioural symptoms is not sufficient; there needs to be proactive assistance in improving the academic achievements of children with ADHD. In addition, the

study showed that educational interventions had the greatest outcome on academic gains. Owing to the fact that educational interventions have been found to be the most successful of interventions when it comes to raising academic gains for children with ADHD, it is essential that teachers and parents establish how to implement certain strategies, which can be of help in achieving success by children who are diagnosed with ADHD. It should also be considered that not only do educational interventions assist teachers in controlling classroom behaviour, but they also have a positive effect on academic performance—unlike pharmacological interventions (Barry & Messer, 2003).

Behavioural and school-based therapies are treatment alternatives that have been extensively researched in the literature. DuPaul & Eckert (1997) have reported that the management of contingency and academic interventions were found to be further efficient in terms of enhancing behaviours than cognitive behavioural therapy. They have reported that school-based interventions are efficient in terms of decreasing the symptoms of ADHD in the classroom.

The Multimodal Treatment Study for ADHD (MTA) is the widest long-term study carried out thus far examining the children with ADHD treatments efficiency and safety. Results point out that children ought to receive a combination of pharmacological and behavioural treatments with the aim of treating ADHD (The MTA Cooperative Group, 1999). Its findings also reveal that, in a number of cases, the daily functioning of children (academic and familial relationships) is only enhanced with a combination of pharmacological and behavioural treatments (Owens *et al*., 2003; Dopfner *et al*., 2004).

Although the overall effectiveness of these treatments is well recognised (Chacko et al., 2005; Barkley, 2006), a great deal of children are not given them or do not stick to such treatments (Barkley, 2008). It was also found that around one-quarter of all families do not start the suggested medication, and one half do not begin the proposed behaviour therapy (Bennett *et al*., 1996). It has also been reported that, for families who commence pharmacological or behavioural interventions, only 50% adhere to the intervention for the recommended period of time (Schachar *et al*.,

1997). This indicates that many children with ADHD are not be given the essential treatments for the proposed length (Gau *et al.,* 2006).

2.7. Developmental course of ADHD

It was supposed that, by adolescence, ADHD symptoms would have disappeared. The condition was most frequently witnessed in primary school-aged children, and then many assumed that symptoms would reduce—and even disappear completely—between childhood and adulthood (Kordon, Kahl & Wahl, 2006; Oltmanns, Neale & Davison, 2007). It is currently recognised that children with ADHD frequently experience problems of adjustment during adolescence, as well as adulthood difficulties with social interaction and academic underachievement (Willoughby, 2003; O'Callaghan *et al*., 2003; Barry, Lyman & Klinger, 2002).

The long-term ADHD prognosis is debated significantly, with a number of research studies suggesting that ADHD symptoms do not continue into adulthood (Shaffer, 1994; Hill & Shoener, 1996), which supports the argument that ADHD is a developmental disorder of childhood as well as adolescence. In contrast, the majority of research has highlighted that symptoms of ADHD are present and can be accurately diagnosed in adulthood (Barkley, 1997a; Wilens, Faraone & Biederman, 2004; Faraone*,* Biederman & Mick, 2006). Whilst ADHD is documented as a disorder primarily diagnosed in childhood (APA, 2000), the principle that it is only developmental is not accepted globally.

2.8. Summary

ADHD is a diagnostic label assigned to children who appear to have experienced difficulties in terms of attention, impulsivity and hyperactivity. This chapter has examined several main topics surrounding ADHD, which were the characteristics and identification of ADHD, including the general definition as a neurobiological or

developmental disorder, in addition to the three different subtypes of ADHD: Inattentive, Hyperactive/Impulsive and Combined subtype. A number of other aspects were considered, including co-morbidity in 80% of children with ADHD, prevalence, which is estimated as being between 3% and 7% of school children, causes of ADHD by a combination factors, interventions including a discussion of pharmacological interventions as effective alternative, behavioural interventions (which have established that no negative physical impacts have been observed) and multimodal interventions as the better option, the developmental course of ADHD, and the persistence of ADHD into adolescence and adulthood. Since ADHD is viewed as a medical phenomenon (Conrad, 1992), this chapter discussed the medical perspective. The following chapter considers the social perspective of ADHD.

Chapter Three: Children with ADHD, their Parents' and Teachers' Knowledge and Beliefs about ADHD

3.1. Introduction

Children with ADHD, or those who have not been yet diagnosed with ADHD, and/or are untreated, go through experiences where they misunderstand what is expected of them, by acting or saying the incorrect things at the wrong time (Brown, 2000). This situation of misunderstanding might ultimately cause the child to get the wrong message about him- or herself, such as thinking that they are slow, lazy, useless or otherwise inadequate (Brown, 2000). Teachers and parents may also find themselves not able to deal with situations, such as controlling the children with ADHD, preventing them from making noise that disturbs other people, attracting their attention to preventing them from daydreaming, or otherwise ensuring they finish their homework. This inability to deal with such situations might cause educators and families to feel frustrated (Brown, 2000).

Misunderstandings and misinformation of ADHD appear to have a number of explanations. For example, it might be that parents and teachers do not understand completely the complexity associated with ADHD. According to APA (2000), ADHD is regarded as a common developmental disorder frequently manifesting as misbehaviour. Thus, ADHD could be simply misunderstood since teachers and parents frequently have little understanding of the overall complexity of the condition (Bender, 1997). The ADHD complexity arises from:

   a. the several factors that contribute to the disorder causes,
   b. the disorder diagnosis, the differential diagnosis and the co-morbidity, and
   c. its prevalence (Wood & Benton, 2005).

Other possible reasons include ADHD diagnosis, which can depend on misinformation provided by the parent or the health professional. Importantly, it

appears that healthcare professionals presume that teachers understand ADHD diagnosis and management the same way they do (Wood & Benton, 2005).

Since ADHD has profound impacts on individuals, their families, schools and societal levels, which are difficult for parents and teachers to manage (Stormont, 2001; Chan, Zhan & Homer, 2002; Kendall *et al.*, 2003; Kats-Gold, Besser & Priel, 2007), it is subsequently considered vital that there be understanding of the social sequelae of ADHD so as to develop efficient interventions to limit its associated impairment (Bagwell *et al.*, 2001).

The following critical literature review is presented in association with the theoretical framework, the ecological model suggestion for this study, established by Bronfenbrenner (1979, 1989; Bronfenbrenner & Evans, 2000) where the voices and views of those deemed significant ought to be heard whilst performing research (Robinson, 2000; Sugden, Kirby & Dunford, 2008). Therefore, this chapter reviews studies relating to the knowledge and beliefs regarding ADHD held not only by children (Section 3.3), but also their parents (Section 3.4) and teachers (Section 3.5), including discussion of various important points relating to the study for such parties, followed by a chapter summary (Section 3.6).

3.2. The Social Construction Theory of ADHD

ADHD is a medical phenomenon (APA, 2000; British Psychological Society, 1996). However, the concept is socially and culturally embedded (Danforth & Navarro, 2001; Timimi & Taylor, 2004), although this currently remains a matter of debate (Anderson, 1996; McArdle, 2004; Rohde *et al.*, 2005). It is believed that ADHD is a social construct arising from the interaction between individuals and social structures, and is not present *per se*, since the notion of what is and what is not a disorder is dependent on alteration over time (Baldwin & Anderson, 2000). This is consistent with an ecological perspective that does not deny individual differences.

With studies revealing similar prevalence rates of ADHD from a variety of countries across the globe, the concept of a cultural construct of ADHD appears few, with very little found in relation since further studies show comparable effects of ADHD upon individuals and their families across a range of cultures (Faraone *et al*., 2003; Bauermeister *et al*., 2005; Polanczyk *et al*., 2007). However, it is believed that cultural factors might play an important function in ADHD identification (Jacobson, 2002; Moon, 2012); in actuality, there might be a higher threshold in the number of cultures in the Arab world for what is recognised as problematic behaviours. For example, considering that ADHD negatively impacts academic performance (Rief & Heimburge, 2006)—which is culturally considered to be extremely appreciated in Arab societies (Fayyad, Sadek & Cordahi, 2001).—it might therefore be the symptoms of inattention of ADHD and not the symptoms of hyperactivity/impulsivity that ultimately take the attention of parents in terms of early identification and intervention (Fayyad, Sadek & Cordahi, 2001).

Importantly, children are partly reliant upon others' observations and insights in order to determine their 'caseness' (Timimi & Taylor, 2004; Timimi, 2005). Essentially, cultures differ markedly in terms of their tolerance of behaviours of children (Mann *et al*., 1992). The same problematic behaviours may be viewed in different ways within diverse cultural contexts (Hackett & Hackett, 1993; Dwivedi & Banhatti, 2005). For instance, it is stated that families and cultural aspects play a significant role in the child's overall environment structure, as well as in terms of the perception, characteristics and interventions of the psychopathology of childhood (Reid, 1995; Livingston, 1999; Dwivedi & Banhatti, 2005). Consequently, there is the argument concerning whether or not the ADHD condition is better conceptualised as a cultural construct, or constructed based on solely neurobiological associations, as maintained in medical studies (Ali, 1996; Anderson, 1996). Recently, for example, the British Journal of Psychiatry endorsed a discussion on this very subject (Timimi & Taylor, 2004).

It is believed that what is considered inappropriate differs in terms of its time and place, between sexes, amongst different social classes and ethnic groups, and, in addition, concerning parenting styles and school systems (Dwivedi & Banhatti,

2005; Burcham & DeMers, 1995; Barkley, 1995). Therefore, some cultures regard some behaviours as those displayed by an active child or otherwise as being healthy, whilst others deem such behaviours as being problematic.

3.3 Children with ADHD

Children with ADHD commonly reveal lower self-esteem, and academic and social difficulties (Phelps *et al*., 2003; DuPaul & Eckert, 1998; Slomkowski, Klein & Mannuzza, 1995). They frequently experience many difficulties at home and school with regards to the core characteristics of ADHD. For instance, an inattentive child may have trouble following the instructions and rules of teachers, difficulty remaining focused on a task, and finishing set work (Ervin *et al*., 1998; Phelps *et al*., 2003), whilst an impulsive child, on the other hand, may speak and chat in the classroom with other pupils at unsuitable times and without prior permission. An overactive child may have difficulties remaining seated, and may play with things not connected to the set task (DuPaul & Stoner, 2003). However, there might be gender variations concerning these problems and their corresponding severity (Abikoff *et al*., 2002; Rief, 2005).

The following sections will discuss children's rights and perspectives, children's understanding of disabilities, the challenges faced by such children, and children's knowledge of ADHD.

3.3.1 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 (Hill & Tisdall, 1997) or not deemed reliable, but partially for the reason that

research performed with children frequently involves several ethical considerations (Alderson, 1995).

Recently, 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, 1989), which was approved by the British Government in 1991 (Alderson, 2002). The Code of Practice on the Identification and Assessment of Special Educational Needs (DfES, 2001), for instance, includes a chapter about 'pupil participation'. It is stated there that:

> 'Children, who are capable of forming views, have a right to receive and make known information, to express an opinion, and to have that opinion taken into account in any matters affecting them. The views of the child should be given due weight according to the age, maturity and capability of the child' (DfES, 2001, p. 27).

It is highlighted that adults' and children's interests are not single and similar, and that the experience of childhood is varied culturally (Matthews & Limb, 2001). For instance, children vigorously take part in the social order, and assist in constructing the life of families (Mayall, 2002; Hallden, 1994). Children are also influenced by significant key people, such as parent and teacher relationships, and in sequence reciprocally have an effect on interactions (Solberg, 1996) that occur within microsystems and mesosystems (in the context of Bronfenbrenner's framework) (Bronfenbrenner, 1979, 1989; Bronfenbrenner & Evans, 2000).

3.3.2 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 (Aranda & Knight, 1997); 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 (Bierman, 1983). Conversely, the statement that children are not able to understand or offer information concerning

their behaviours and internal states has been investigated (Sturgess, Rodger & Ozanne, 2002).

Several argue that children are worthy informants concerning their own feelings and behaviours (Edelbrock *et al*., 1985; Jones & Walker, 2011). It has been revealed that preschool-aged children are able to recognise simple emotions in others, such as happiness and sadness, and are further aware and able to recognise physical, cognitive and behavioural dissimilarities in others (Shahinfar, Fox & Leavitt, 2000). On the other hand, 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 (Aboud, 1988; Lewis, 1995; Penza-Clyve & Zeman, 2002; Beckett, Barrett & Ellison, 2009).

Having discussed the rights of children to express their views, as well as their abilities to understand disabilities, it is significant to talk about challenges experienced by children with ADHD. This will be done in the next section.

3.3.3 Challenges Faced

The structured classroom can create a remarkable challenge for children with ADHD owing to its concern with pupils displaying self-regulation and goal-directed behaviours (Barkley, 1990; Rief, 2005; Schwean *et al*., 1993). Importantly, achievement in this setting is frequently reliant on the expectations and capabilities of children to concentrate on tasks, fulfil instructions, and be conventional to classrooms whilst creating minimal disruption (DuPaul & Stoner, 2003). Subsequently, it is recognised that the ADHD core symptoms—particularly inattention, impulsivity and hyperactivity—could present an unstoppable barrier. For this reason, such children are at risk of inadequate academic attainment (DePaul & Stoner, 2003; Pfiffner & Barkley, 1990), in addition to learning disability diagnosis, lower self-esteem, social refusal (Bagwell *et al*., 2001; Hodgens, Cole & Boldizar, 2000), and anti-social actions (Barkley, DuPaul & McMurray, 1990; DePaul &

Stoner, 2003; Gittleman *et al*., 1985). Typically, children with ADHD have difficulties sustaining or continuing attention to tasks with which they are showed (APA, 2000). These challenges compromise their capability to focus for great lengths of time, which frequently confines them from completing set tasks. Essentially, their inadequacy in regard to organisation might also influence their academic function—predominantly if they are continuously losing materials relevant to completing their school task. The maintenance of such behaviours frequently has an effect on the school setting, academic function, and the capacity to form relationships with peers (Mather & Goldstein, 2008).

Children with hyperactivity-impulsivity might find it difficult to remain seated or to continue on with tasks, and/or may repetitively fiddle with things not essential for the instructed tasks. This brings about misunderstanding in the children of the existing material, exhibiting an array of disciplinary troubles and disturbing peers (Barkley, 1998; DuPaul & Stoner, 2003; Pfiffner & Barkley, 1990). Although it is recommended that these main symptoms reduce as children become adolescents, frequently, secondary problems—such as antisocial actions, including stealing, lying or destruction—appear, causing, in a number of cases, a further rate of school dropouts, and problems of emotional adjustment (DuPaul & Stoner, 2003).

Academic achievement within a classroom requires abilities from students in order to make progress. In order for learners to make progress in a learning situation, specific requirements—such as having certain command of cognitive, language and social skills—should be fulfilled. According to Lucangeli & Cabrele (2006), students with ADHD do not have such required skills, which allow him/her to attain academically. Pupils with ADHD are more likely to act aggressively and conduct anti-social behaviours. A piece of research carried out by Zalecki & Hinshaw (2004) supports that aggressive behaviours are more obvious in relations of girls with ADHD than amongst other girls.

Studies that have concentrated on diversity in academic capabilities by subtypes of ADHD have established varied results (DuPaul & Power, 2000). In a number of papers, impairments in terms of academic subjects have been found to be larger in

children with the inattentive subtype than in children with the hyperactivity or impulsivity types (Gadow *et al*., 2004), although with no subtype dissimilarity on psychometric measures regarding reading, mathematics, spelling ability and academic achievement (Paternite, Loney & Roberts, 1995; Faraone *et al*., 1998).

The successful inclusion of children with ADHD in learning settings is extremely complicated. Specialists within the ADHD field frequently make reference to the difficulties—both behaviourally and academically—children experience in the classroom, and the impacts of such difficulties on the outcomes of their life, in addition to on interpersonal relations with both teachers and parents (Barkley, 2006; DuPaul & Power, 2008; DuPaul & Stoner, 2003).

3.3.4 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 (2006). In the aforementioned research, the scholars carried out a study in which 25 children responded (aged 8–14 years). 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.

There are several rationales for why children with ADHD would benefit from an educational programme designed to increase their knowledge of ADHD, and of treatments which are evidence-based, which have been acknowledged as efficient in

managing symptoms of ADHD. Firstly, children with ADHD are at risk of experiencing negative life outcomes. For this reason, it is important to present children with the information required to make informed decisions with reference to the choice and adherence of treatment. Secondly, children might be misinformed concerning the surrounding issues of ADHD, with such misconceptions potentially influencing their beliefs relating to such issues. In this regard, studies reveal that both parents and teachers are commonly lacking in accurate knowledge associated with ADHD—mostly with reference to treatment (for example, West *et al*., 2005). This indicates that children might be misinformed when asking questions and/or voicing concerns to parents and/or teachers. In addition, as a result of the media, children are as overwhelmed with misleading information. For example, television shows and magazine advertisements express ADHD images that do not necessarily provide correctly impressions of the condition (Meaux, 2000; Barkley, 1998). An educational programme could help to determine such misconceptions, and thereby provide the children with information that is evidence-based.

Children with ADHD who do not know they have ADHD often emerge as perceiving themselves negatively (Brown, 2000). Knowledge and understanding might go a long way in helping a child with 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 (Hepperlen *et al*., 2002). 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 (MacKay & Corkum, 2006).

3.4 Parents of Children with ADHD

It is believed that all parents experience stress of some level or another; however, it is reported that parents of children with behavioural problems face significantly

further stress owing to the fact that they regard themselves as possessing less parenting knowledge and competence. This is further attributable to a considerable lack of social support (Morgan, Robinson & Aldridge, 2002). Accordingly, parents of a child with ADHD experience higher stress levels (DuPaul *et al*., 2001). ADHD might also impose a supplementary negative influence upon the family as a whole— and may even have an effect on the parent–child relationship (Johnston & Mash, 2001) in addition to their functioning and emotions (Seipp & Johnston, 2005).

The following sections discuss several topics, including parental stress, parental involvement, and parents' knowledge and beliefs relating to ADHD.

3.4.1 Parental Stress

Studies have identified that, in contrast to families of children without ADHD, those families of children with ADHD experience many difficulties concerning relationships, particularly the parent–child relationship (Johnston & Mash, 2001), reporting family environments as being both stressful and conflicted (Pressman *et al*., 2006), as well as encompassing dysfunctional interactions (Johnston *et al*., 2002; Keown & Woodward, 2002). When interacting with their children with ADHD, parents are said to be more over-reactive and less responsive (Fischer, 1990) in consideration of interaction problems being more pronounced for the period of structuring task conditions (Woodward, Taylor & Dowdney, 1998). In addition, parents are believed to be more likely to utilise harsh discipline (Khamis, 2006) and more negative control strategies (Winsler, 1998). Also, in the case of families with children of this condition, father–child interactions in particular are frequently problematic (Gerdes, Hoza & Pelham, 2003). For example, fathers negatively perceive the behaviours of ADHD children as being disruptive (Flouri, Buchanan & Bream, 2002), and, importantly, unsuccessful parenting is generally likely to occur in the case of fathers who have ADHD symptoms themselves (Harvey *et al*., 2003).

ADHD is also closely associated with a parental and marital discord atmosphere in conjunction with negative beliefs associated with child-rearing (DeWolfe, Byrne &

Bawden, 2000) which, in consequence, results in chronic stress (Hinshaw, 2002). As a further deliberation, whilst parents make an effort to appropriately manage their child with ADHD, they might nevertheless be negatively perceived by others as being flawed in their ability to take care of the child, in spite of the child being more challenging and desperate than others; this could ultimately include the stress of parents (Kaplan *et al.*, 1998). Therefore, for such parents in this situation, the parent–teacher collaboration is needed and critical, since parents necessitate teacher guidance concerning the development of their children (Hoover-Dempsey & Sandler, 1995); vice versa, teachers request parents to be more involved in schools (Morris & Taylor, 1998; Leitch & Tangri, 1989). This has been discussed within the Bronfenbrenner systems (Section 1.5.1).

By gaining an understanding of the exhibiting behaviours of children with ADHD, it is reasonable to suggest that several parents give in to stress or otherwise suffer exhaustion. For instance, high levels of stress are connected with disturbances to the parent-child relationship, and the overall psychological functioning of parents (Anastopoulos *et al.*, 1992; Harrison & Sofronoff, 2002). Frequently, this is complicated further by frustrations connected with attempting to ensure that their child's needs are being sufficiently tackled at school.

3.4.2 Parental Involvement

Parents and caregivers play a very important role in their children's development and growth (Bronfenbrenner, 1979, 1989; Bronfenbrenner & Evans, 2000). With this in mind, the parental role could comprise, for example, protection and supervision, which could affect the future of their children. As parents of ADHD children, they are also expected to act as case managers, which necessitates that they observe, educate, and manage their children's needs (Barkley, 1998).

Parents have an effective role to play in contributing to the diagnosis and intervention process. Importantly, they can provide the necessary information to health professionals, which helps in establishing the right diagnosis. They have an

even more significant role to play in ensuring that the plan of treatment is rightly implemented, and similarly ensuring that the student takes medicines on time in the case that medication was prescribed as part of the treatment (Hughes & Cooper, 2007; Munden & Arcelus, 1999). Furthermore, if required, parents are those viewed as being in charge of taking the student to any psychological, remedial or occupational therapy (Jensen, 2004). Consequently, parent involvement is examined in regard to its impacts on social, emotional, and cognitive aspects of their child. Parental involvement could therefore have a direct impact on the ways in which the child is capable of applying him- or herself to tasks (Barkley, 2000).

Parents are the 'link' between diverse systems (Bronfenbrenner, 1979, 1989; Bronfenbrenner & Evans, 2000); they are responsible for forming the link between the student and the teacher; they are the ones in charge of implementing any home-based therapy (Haarmeier & Thier, 2007). Importantly, parents are the link between the student with ADHD and the health professional, as well as between the health professional and the teacher, and finally between the student and the wider environment.

3.4.3 Parents' Knowledge and Beliefs about ADHD

As mentioned previously in Section 2.2 and Section 2.6, parents' knowledge and beliefs could play a vital role in assessing and diagnosing children with ADHD, as well as determining the process of interventions. For these rationales, greater examination concerning the knowledge and attitudes of parents towards ADHD is justified.

Research regarding ADHD has principally concentrated on the knowledge and attitudes of parents towards treatments; more specifically, pharmacotherapical approaches (Arcia, Fernandez & Jaquez, 2004; Berger *et al*., 2008; Corcoran & Dattalo, 2006; dosReis & Myers, 2008; Ghanizadeh, 2007; Harpur *et al.,* 2008; Johnston et al., 2005; Stroh et al., 2008; Palacios-Cruz *et al.,* 2011). Research has also highlighted that greater knowledge of ADHD from the parents' perspective can

also bring about enhanced attitudes towards the acceptance and fulfilment of intervention (Bennett *et al*., 1996; Corkum, Rimer & Schachar, 1999). Importantly, whilst some studies do suggest that such results are still questionable (Bussing *et al*., 2007), there is no rejection of the potential of parents to affect intervention choices, which is an essential consideration in the overall management of such children.

Despite both pharmacological and psychosocial interventions having been verified as valuable in regard to reducing a figure of symptoms and impairments associated with ADHD, several children are not given—or stick to—such interventions. With this in mind, it is reported that almost one-quarter of parents did not initiate the suggested pharmacological interventions, with around half of them not enrolling in the suggested behaviour therapy (Bennett *et al*., 1996). With this in mind, a number of researchers have highlighted the fact that the knowledge of parents concerning ADHD might impact significant decisions on the topic of alternatives of intervention for their children, as well as adherence to such interventions (Corkum, Rimer & Schachar, 1999). Importantly, researchers recommend that parents knowledgeable on the subject of ADHD are more likely to enrol their children in interventions based on evidence when compared with less knowledgeable parents. Additionally, formally well-educated parents in the arena of ADHD medical causes, medications' biochemical action, the shortage of association between attention and dietary habits, and such children's educational rights, are also more likely to follow treatments, such as methylphenidate—even subsequent to two-year periods (Monastra, 2005). Notably, such information is applicable when considering converse treatment for children with the disorder.

A research conducted by Corkum, Rimer & Schachar (1999) considered the association between knowledge of ADHD and opinions of the treatment of parents and their effects upon enrolment and adherence to both treatments—pharmacological and non-pharmacological—for children with the condition. Findings reveal that those parents who were more knowledgeable of ADHD were further likely to enrol in both interventions—pharmacological and non-pharmacological. West *et al*. (2005) study have mainly concentrated on parents' knowledge and beliefs of ADHD and, as pointed out earlier, researchers contrasted

these results to the knowledge and beliefs of teachers. Importantly, scores of parents have been shown that they are capable of responding at a rate of 62.1% on the scale of knowledge and beliefs. The proportion of right scores of parents on the subscales—comprising causes, characteristics and treatments—were as follows, respectively: 76.7%, 62.8% and 57.8%. Moreover, parents who attended a seminar about ADHD in the previous twelve months, showed higher scores (mean = 50.68) than those who did not (mean = 38.05). Parents belonging to a support group (mean = 48.33) were also found to obtain higher scores than those who did not (mean = 39.61). Parents had higher scores concerning the knowledge of causes than on the knowledge of ADHD characteristics. Interestingly, a number of evidences garnered recently also support a variation of cultures in the knowledge of ADHD of parents amongst Caucasian and African American parents, with the second group showing less consciousness and lower self-rated knowledge of ADHD (Bussing *et al*., 2007). This result possibly emphasises the necessity for further culturally accessible and suitable approaches of training when working with parents of diverse cultural backgrounds.

The previous study of West *et al*. (2005) stresses that there are important misconceptions concerning ADHD found amongst educationalists. With the purpose of examining the knowledge and attitudes of teachers and parents towards such children, their questionnaires (KADD-Q) were developed and employed in Perth, Australia, targeting teachers (n = 256) of, and parents having, children with the condition (n = 92) (West *et al*., 2005). The results highlight that parents and teachers are particularly knowledgeable concerning ADHD causes; however, they are short of knowledge in relation to ADHD characteristics and their treatments. Interestingly, in the same context, parents were found to know significantly more than teachers regarding ADHD causes and treatment. In spite of this, however, such consequences emphasise that parents and teachers are comparatively ill-informed in their ADHD knowledge.

A recent Australian study performed by Efron, Sciberras & Hassell (2008) investigated the beliefs and attitudes of parents towards ADHD understanding in schools, the information of ADHD given, as well as general support. The parents of

children with ADHD (n = 66) attended a paediatric clinic at the Community Child Health Centre in the Royal Children's Hospital, Melbourne. At this time, they were required to fill in the questionnaire of dosReis *et al*. (2003): Attitudes, Satisfaction, Knowledge, and Medication Experiences (ASK-ME). Only 23% of parents agreed that the majority of school teachers have a sound ADHD understanding; half agreed that schools are helpful of such children, whilst 30% of the parents considered teachers to be a source of information about ADHD. The researchers conclude by stating that, although parents' perceptions about teachers' understanding of ADHD was not high, they did not mind turning to them for information about ADHD (Barbaresi & Olsen, 1998; Bekle, 2004; Efron, Sciberras & Hassell, 2008; Jerome, Gordon & Hustler, 1994; Kos, Richdale & Jackson, 2004; Sciutto, Terjesen & Frank, 2000; West *et al*., 2005).

After talking about children with ADHD and their parents, the next section examines teachers of children with ADHD in terms of their role as teachers and their knowledge and beliefs of ADHD.

3.5 Teachers of Children with ADHD

Teachers are likely to be the first to detect any signs of ADHD within the classrooms (Snider, Busch & Arrowood, 2003), and are expected to make the necessary referral in the case that they suspect a learner might have ADHD (Snider, Busch & Arrowood, 2003). On the other hand, however, Vereb & DiPerna (2004) believe that teachers' knowledge of ADHD and their practical experiences in dealing with students with ADHD are related.

The following sections will discuss teachers' role as well as teachers' knowledge and beliefs relating to ADHD.

3.5.1 The Teacher's Role

Teachers can play a significant role in identifying the condition in students (Vereb & DiPerna, 2004). If the teacher believes that ADHD is present, the parents of a student need to be contacted, with the child subsequently referred to the suitable health professional specialising in the disorder so as to make a diagnosis (Snider, Busch & Arrowood, 2003). In addition, the teacher plays a vital role in working together with the healthcare professionals, any other professional and parents to be capable of providing the student with support (Brown, 2000).

When compared with others in schooling professions, teaching is one of the most stressful positions held (Kyriacou, 2001). With this in mind, teachers find that students with ADHD are more stressful than students without the disorder (Greene *et al*., 2002). There are many elements that teachers can deliver to a child with ADHD. According to Barkley (1998), teachers are one of the most significant factors in the success of an ADHD-child at school: for instance, teachers' knowledge and attitudes toward a pupil with ADHD could have an effect on other pupils' perceptions of that pupil (Atkinson, Robinson & Shute, 1997). The degree of teachers' knowledge of ADHD both influences and informs their instructional practices, as well as the education of pupils with ADHD (Kos, Richdale & Jackson, 2004; West *et al*., 2005; Aguiar *et al.,* 2012; Al-Obaidi *et al.,* 2012). With this taken into consideration, it is then vital to their educational success (Pfiffner & Barkley, 1990; Barkley, 1998; DuPaul, Stoner & O'Reilly, 2002), and accordingly increases the acceptability of treatments (Power, 2000). However, although it is essential to consider the extent of teachers' knowledge regarding ADHD interventions, knowledge might not directly transfer to the treatment's implementation (Power, Hess & Bennett, 1995), as knowledge of only intervention methods is deemed insufficient; the desire to employ them is crucial (Gibbs, 2003). Consequently, the beliefs and attitudes held by teachers are fundamental in relation to their preferences and actions (Stanovich & Jordan, 1998), and could both inhibit and facilitate child attainment (Collinson, 1996). For example, it has been determined that teachers who hold higher expectations induce greater accomplishments for the pupils they teach (Jordan, 1997) since expectations influence both teachers' and children's

behaviours, increase or decrease outcomes (Miller, 2001), and affect the ways in which teachers interact with students (Good & Brophy, 2000) and their pedagogical decisions (Rathvon, 1999). Besides, teachers' beliefs and attitudes towards pupils with ADHD might have an effect on the pupils' academic self-efficacy and subsequent success (Greene, 1992; Hepperlen *et al*., 2002).

In order for a student with ADHD to attain academic achievement, the teacher might necessitate the application of an intervention. There are many different interventions available to the teacher in order for a student with ADHD to be capable of attaining the skills required in the classroom (Purdie, Hattie & Carroll, 2002; Sonna 2005). McFarland, Kolstad & Briggs (1995) state that teachers are responsible for creating the most appropriate learning environment, which can be achieved by helping students to be organised, giving specific instructions, enhancing students' self-esteem, and ensuring the appropriate management of the classroom; this facilitates learning for everyone. Teachers are accountable for amending the plan of the lesson, curriculum, and the classroom management to ensure the needs of children with ADHD are fulfilled (for example, Green & Chee, 1997; Jones, Dohrn & Dunn, 2004; Mitchem, 2005; Roffey, 2004; Sonna, 2005).

3.5.2 Teachers' Knowledge and Beliefs about ADHD

As mentioned previously, the classroom achievement of children with ADHD largely lies in their teachers' hands. Teachers are therefore required to have a comprehensive understanding concerning such children's behaviours, as well as their nature and function, and how the strategies of management in employment in schooling settings impact them. It is required that teachers hold working knowledge of how to successfully commence and implement such interventions in the classroom in a way that supports the needs of every child—personally, socially and emotionally (Barkley, 1998).

Commonly, clinical research has concentrated principally on the research of the diverse causes, practices of assessment, and alternatives of treatment for ADHD. It has been agreed that a fundamental role could be played by teachers in the achievement of children with ADHD in the classroom, with examinations into the disorder implications in educational settings considered inadequate (Barkley, DePaul & McMurray, 1990). School-based studies have, in general, concentrated on the externalising behaviours experienced within schools by children with this disorder (Abikoff *et al*., 2002; Barkley, 1998; DuPaul, Eckert & McGoey, 1997; DuPaul & Stoner, 2003; Pfiffner & Barkley, 1990). On the other hand, thus far, little has been identified regarding the knowledge level of ADHD, as well as the beliefs of teachers who spend a substantial amount of time with such children.

It is known that there are at least ten published studies that have examined the consciousness and knowledge of teachers regarding ADHD, with these studies conducted in Australia (Bekle, 2004; Kos, Richdale & Jackson, 2004; Ohan *et al*., 2008; West *et al*., 2005), New Zealand (Curtis *et al*., 2006), and North America (Barbaresi & Olsen, 1998; Jerome, Gordon & Hustler, 1994; Jerome *et al*., 1999; Sciutto, Terjesen & Frank, 2000; Vereb & DiPerna, 2004).

The results propose that there are many misconceptions surrounding the knowledge of the condition held by teachers. Jerome, Gordon & Hustler (1994), for example, examined the general knowledge of ADHD of American and Canadian primary teachers, utilising their own scale of 19 true/false items. Their research findings demonstrated that, whilst teachers did reveal a good general ADHD consciousness (78% correctness for Canadian; 77% correctness for American), their information relating to existing interventions remained poor. Barbaresi & Olsen (1998) also reflected such results, with an overall rate of 77% for accurate answers. Additional information associated with this research is considered in Chapter eight.

Sciutto, Terjesen & Frank (2000) developed the Knowledge of Attention Deficit Disorders Scale (KADDS), which contains 36 items adopting a true/false/don't know format of responses for better response discrimination, with the purpose of steering away from answers of a predicting nature. The scale was provided to 149

primary school teachers in New York. It was subsequently found that, as a consequence of the diverse response alternatives, teachers scored a lower base rate of 48% of correct answers on the questionnaire of knowledge. Nevertheless, their research supports the results of Jerome, Gordon & Hustler (1994), given that teachers revealed better knowledge concerning ADHD characteristics, at a rate of 63% correct, when compared with general ADHD knowledge, at a rate of 43% correct, and the treatment of the disorder, at a rate of 43% correct. The results of Sciutto, Terjesen & Frank (2000) highlighted that teachers were largely knowledgeable in relation to the feature ADHD characteristics, but much less knowledgeable on the subject of the causes, treatments and prognosis. Unlike Guerra & Brown (2012), Sciutto, Terjesen & Frank (2000) and Anderson *et al.* (2012) also stated that teachers with previous teaching experience of children with ADHD had, to a great extent, better understanding of the condition in contrast to those who had little or no experience. In the same year, Arcia *et al.* (2000) employed the Teachers Rating Scale developed by Connors in the form of a telephone semi-structured interview, targeting 21 primary teachers across three different states of the USA. Teachers gave answers concerning a child who met the complete diagnostic criteria for the disorder, with findings highlighting that the capacity of teachers to recognise a child for referral was hindered by a shortage of understanding in relation to the ADHD behavioural profiles. Besides this, the results evidently verified that teachers were not adequately knowledgeable in the principles of behaviours crucial for the planning and implementation of successful interventions. Sciutto, Terjesen & Frank (2000) concluded by stating that, given these results, prospective attempts ought to concentrate on in-service teachers being trained predominantly in the arena of behaviour management.

Utilising a somewhat modified version of the questionnaire of Jerome *et al.* (1994, 1999), Bekle (2004) presented information in relation to teachers and undergraduate pupils' knowledge and attitudes towards the condition. 30 teachers and 40 primary school undergraduates filled the instrument of Jerome *et al.*, along with an added single item, which enquired, 'What is your attitude towards ADHD in children?' Importantly, the findings showed that, whilst both the teachers and undergraduate

pupils had similar perceptions regarding ADHD, the former were a little more precise in their answers. However, both groups did likewise with regards to the ADHD myths questions in this case in point; on the other hand, the results also showed a lack of knowledge. Although Bekle (2004) concludes the data confirms the need for further teacher training, which directly addresses pupils with ADHD needs, she cautions against over-generalising the outcomes as a result of the small size of the sample.

Based on this data, there is evidence to suggest that teachers are not very knowledgeable in relation to ADHD, with misconceptions apparently widespread amongst teachers. The fact that the knowledge of teachers could have an impact on practices in classrooms—which could subsequently affect pupils with ADHD in terms of performance—emphasises the value of teachers having an accurate knowledge concerning the condition (Goldstein *et al*., 1998). Specific suggestions for utilising a multimodal approach—whereby teachers jointly work with parents of such children to result in achievement management solutions—is considered vital in order to determine parents' knowledge levels.

The inadequacy of teachers' knowledge concerning treatment regarding ADHD was also found in a further research conducted by Vereb & DiPerna (2004), who investigated the Knowledge of ADHD Rating Evaluation (KARE), targeting a sample of 47 primary school teachers from the USA Eastern states—Pennsylvania and New Jersey. Their research findings established that teachers could have a good ADHD knowledge (70%), devoid of essentially being conscious of existing interventions (54%). Likewise, Curtis *et al*. (2006) conducted a research employing the questionnaire of Jerome, Gordon & Hustler (1994)on a target of New Zealand ordinary and special primary school teachers (261), which found that they have sound levels of the knowledge of ADHD (76%), repeating Jerome, Gordon & Hustler (1994) findings with North American primary teachers.

Kos, Richdale & Jackson (2004) utilised a scale developed through the use of Sciutto, Terjesen & Frank (2000) and Jerome, Gordon & Hustler (1994), and accordingly established a total knowledge score of 60.7% correct responses with

their sample of 120 Australian elementary teachers. In agreement with these results, a research by Bekle (2004) similarly revealed that 30 teachers in Perth, Australian showed a total rate of 83% correct knowledge. Likewise, the research of West *et al*. (2005) designed a modified KADDS version to measure teachers of primary and secondary school in Perth, Australia, and found a total correct response score of 53.9% for all teachers. As has been ascertained through the aforementioned researches, it has also emerged that Australian teachers have a better knowledge base of ADHD when contrasting overall scores on the respective scales of knowledge than North American teachers; however, similar to the majority of studies, these studies were not devoid of their limitations and differences, which therefore make comparisons complicated. It is not identified whether such samples representations might have an effect on their findings, or otherwise if methodological variation—for instance, the size of samples and diversity of scales, counting the disparity in the covered content, alternatives of responses, the items utilised number, and every item of individual content, i.e. a number of items giving additional information than others—might have a role to play (Kos, Richdale & Hay, 2006; Ohan *et al*., 2008).

In a more modern examination concerning the knowledge of ADHD of teachers, Ohan *et al*. (2008) employs the scale of Jerome, Gordon & Hustler (1994), which considered 140 elementary school teachers from Melbourne in Australia with a mean age of 42.33. They reported that, overall, teachers scored accurately at a rate of 76.34% of the knowledge of ADHD items; however, they scored lower on causes and treatments knowledge. In line with prior researchers (Jerome, Gordon & Hustler, 1994; Vereb & DiPerna, 2004), teachers were also found to have significant number of misconceptions in relation to ADHD causes and treatment.

Overall, the literature reviewed above points out that, commonly, teachers are more knowledgeable regarding the characteristics of ADHD, but nevertheless fare less in their general information level of ADHD and knowledge of treatments and causes. When providing an alternative—signifying a response of 'I don't know'—their knowledge rate is lower by reason of a probable decrease of guessing.

3.6. Summary

This chapter has considered the social perspective, and has provided a literature review relating to the knowledge and beliefs held by children, parents and teachers regarding ADHD. This is consistent with the ecological model, where the views of parents and teachers are deemed significant, and are therefore recognised as having considerable influence on the way in which a child behaves, as well as their corresponding beliefs. Children have the right to express their views, especially when they are able to understand disabilities. Parents of ADHD children are expected to act as case managers, which necessitates that they observe, educate, and manage their children's needs. Teachers are also acknowledged as being in a valuable position to identify the condition in students, as well as assisting them in attaining academic achievement. Teachers play an essential role in working together with healthcare professionals, amongst other professionals, and parents, in terms of providing pupils with support.

Chapter Four: Methodology

4.1 Introduction

Traditionally, research has placed vast importance on findings, and has not considered a research process as being valuable to discussion; however, more recently, others have voices contrasting opinions, stating that the research process ought to be accepted as an essential element of the eventual result (Cotterill & Letherby, 1993; Parker, 1998; Letherby, 2003). It is proposed that the methodology objective is to assist in becoming more aware of the scientific inquiry process (Gomm, 2003). Nevertheless, the basis for employing one methodology in favour of another is associated with the research question's overall nature and the primary research aims (Best & Kahan, 1998). The alternative methodology is also guided by research paradigms relating to the reality nature, and the way in which knowledge concerning reality could be realised (Fraenkel & Wallen, 2006; Husen, 1997).

This chapter of the paper presents several research aspects, including research questions (Section 4.2), research design (Section 4.3), sampling (Section 4.4), ethical issues (Section 4.5), the procedure (Section 4.6), the instruments to be utilised for the different research questions (Section 4.7), and piloting (Section 4.8). At the end of the chapter, validity and reliability (Section 4.9), and Analysis of Questionnaires and Interview Data (Section 4.10) are discussed, followed by a chapter summary (Section 4.11).

4.2 Research Questions

As highlighted previously, the research aims were:

- To assess the knowledge of ADHD as held by children with ADHD, their parents and teachers in a Saudi Arabia context;

- To identify the beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia;
- To compare the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia; and
- To explore the perceptions of children with ADHD, their parents and teachers of one another in Saudi Arabia.

Such aims have been refined in order to devise the five research questions for this study, which markedly guide the research. These are as follows:

1. What are the knowledge and beliefs of ADHD as held by children with ADHD in Saudi Arabia?
2. What are the knowledge and beliefs of ADHD as held by parents of children with ADHD in Saudi Arabia?
3. What are the knowledge and beliefs of ADHD as held by teachers of children with ADHD in Saudi Arabia?
4. What similarities and differences exist between the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia?
5. What are the perceptions of children with ADHD, their parents and teachers of one another in a Saudi Arabia context?

The relationship between the research questions is shown below in Figure 4.1:
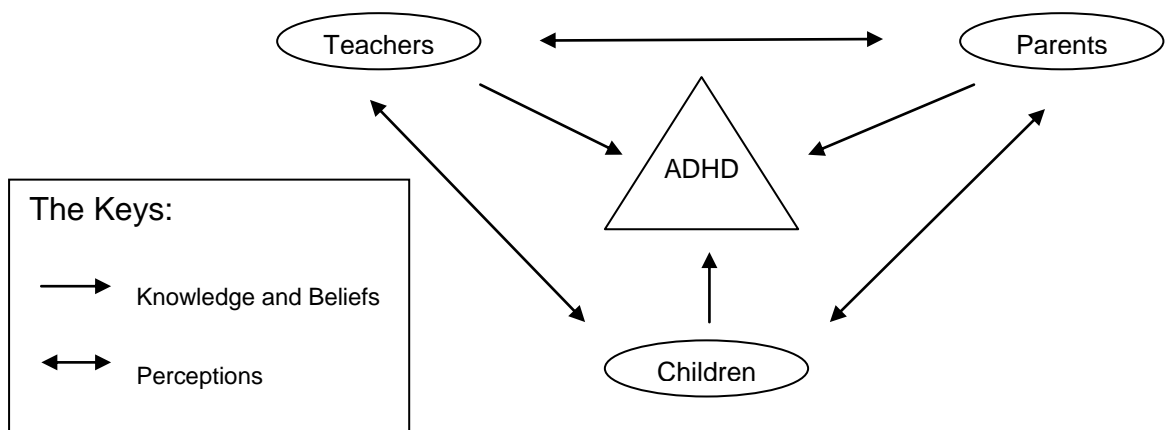
Figure 4.1: The relationship between the research questions

As stated earlier, this research implements a number of terms: 'knowledge', 'belief' and 'perception'. These are defined in the Longman Dictionary of Contemporary English (2003), which defines 'knowledge' as 'the information, skills, and understanding that you have gained through learning or experience' (p. 895), 'belief' as 'the feeling that something is definitely true or definitely exists' (p. 124) and 'perception' as 'the way you think about something and your idea of what it is like' (p. 1219). The implications of these findings, reflected on the outcomes of the research questions, are presented in Section 8.10.

Reflecting on the above points, this study intends to make methodological decisions derived from considering suitable data to respond to the questions of this research; therefore, with the aim of answering these research questions, a mixed method—structured by the type of procedures, i.e. quantitative and qualitative—was employed. The decision-making process is explained below. The utilisation of questionnaires and interviews complement the descriptions of children's, parents' and teachers' knowledge and beliefs surrounding ADHD in Saudi Arabia, and answer the five questions. The conceptual frameworks and methods for data collection contribute to the researcher being capable of responding to the questions of the research (Thorne, 2000).

4.3 Research Design and Methodology

This section covers various research paradigms. The research design and methods used in this research are discussed, with the reasons and justifications for choosing a mixed-method research strategy for this study explained, in addition to the triangulation and methodological pluralism.

4.3.1 Research Paradigms

Paradigms are described as 'the entire constellation of beliefs, values, techniques shared by members of a given scientific community' (Kuhn, 1996, p. 15). In social sciences, there are two major paradigms of research, both of which are examined extensively in the literature: 'positivism' (Blaxter, Tight & Hughes, 1997; Burns, 2000; Peca, 2000) and 'interpretivism' (Lincoln & Guba, 1985; Merriam, 2009). These two paradigms have come into existence owing to contrasting views concerning social reality. They provide hypotheses regarding the social world, the way in which knowledge can be comprehended or observed, and what can be regarded as valid problems, clarifications and verifications. Consequently, they vary with regards to the approach of related philosophy.

It has also been argued that both approaches stand for conflicting and mismatched paradigms, which is a view consistent with Guba (1985), who states that, 'we are dealing with an either-or proposition, in which one must pledge allegiance to one paradigm or the other; there is no compromise' (1985, p. 80). Others admit that the qualitative and quantitative methods explore social life facets from diverse perspectives (Oakley, 1999), and that they are not mutually exclusive (Bryman, 2003).

Reichardt & Cook (1979) indicate that, although specific methods and techniques of research are, at times, associated with methodological paradigms, it is nevertheless their view that, 'the paradigmatic perspective which promotes this incompatibility between the method-types is in error' (p. 11). They also indicate that, 'there is no reason for researchers to be constrained to either one of the traditional, though largely arbitrary, paradigms when they can have the best from both' (pp. 18–19).

Schwandt (2006) also points out that, 'it is highly questionable whether such a distinction [between qualitative inquiry and quantitative inquiry] is any longer meaningful for helping us understand the purpose and means of human inquiry' (2000, p. 210). Therefore, it is believed that it is helpful to categorise three different

research paradigms in order to indicate three broad clusters of methodological, as well as philosophical, perspectives: quantitative, qualitative, and mixed methods.

With regard to the latter, some authors (such as Greene, Caracelli & Graham, 1989; Collins, Onwuegbuzie & Sutton 2006) identify five wide rationales of mixed methods as following: (1) triangulation (seeking convergence and validation of findings from utilising diverse methods in order to study the same phenomenon); (2) complementarity (seeking enhancement and clarification of the findings from one method with consequences from the other); (3) development (utilising the findings from one method in order to assist the notification of the other); (4) initiation (noticing paradoxes and contradictions, which bring about a reframing of the questions of the research); and (5) expansion (seeking to enlarge the width and inquiry range through utilising diverse methods for diverse components of inquiry).

4.3.2 Research Design

Given the aims and questions of the study, as detailed previously, there is the necessity to make use of a research method that enables the researcher to fulfil them. This research maintains that both qualitative and quantitative perspectives have several measures of truth; consequently, elements from both perspectives are included in order to present complementary insights of the social world, and to subsequently gain a general vision (Todd, Nerlich & McKeown, 2004). This provides the opportunity to gain a greater variety of views (Tashakkori & Teddlie, 2003), and to accordingly assist in understanding complex phenomena (Newman *et al.*, 2003). It is valuable in terms of assisting the gathering of richer information than the utilisation of separate methods (Reichardt & Cook, 1979). In actual fact, some researchers, such as Johnson & Onwuegbuzie (2004), consider the mixed-method approach to be the third approach in educational research. Utilising a mixed-method approach would ultimately take advantage of both methodologies' strengths whilst simultaneously minimising their points of weakness (Gray, 2004). In addition, this helps in terms of answering the same questions of the research in diverse ways or

from a variety of different angles (Mason, 2006). The mixed-method approach adds value and richness, and further raises the validity of the research findings (Gall, Borg & Gall, 2007). However, it is believed that mixed methods can be expensive and time-consuming (Tashakkori & Teddlie, 2003).

In accordance with the way in which the two methods are combined, Creswell (1994) distinguishes between four different designs of mixed method:

- Sequential design: utilising one method in order to inform another;
- Parallel design: utilising two methods simultaneously;
- Equivalent status design: utilising two methods with relative equal emphasis; and
- Dominant/ less dominant design: utilising one of both methods as a main paradigm, and the other as a supplementary.

In the current research, the utilisation of the mixed method falls under the first and fourth types in which the quantitative method is dominant, with the qualitative method being sequent and supplementary. It has been stated that:

'Qualitative data are useful when one needs to supplement, validate, explain, illuminate, or reinterpret *quantitative* data gathered from the same setting' (Miles & Huberman, 1994, p. 10).

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 (Creswell, 2003). The qualitative data, along with and its analysis, refines and elucidates the quantitative consequences by examining the views of the participants in greater depth. The goal of this design is to utilise the qualitative

approach in order to clarify important (or non-important) consequences, as well as outlier or surprising outcomes (Morse, 1991).

The researcher intends to utilise the follow-up explanations model (Creswell *et al*., 2003), a term used to refer to an approach in which qualitative data is required in order to help to explain or build upon the quantitative results. Specifically, when certain quantitative data necessitate further explanation—such as statistical dissimilarities amongst groups or unanticipated consequences—the collection of qualitative data from participants is then an excellent way for the researcher to explore these results (Creswell & Plano Clark, 2007). The emphasis in this model is mainly placed upon the findings of the quantitative approach. This model is considered to be the most straightforward of designs concerning mixed methods. In addition, the two-stage structure permits the researcher to carry out the two different methods unconnectedly, thereby collecting merely one type of data at a time; however, although this model is straightforward, difficulties in relation to employing this design do exist. For example, in order to implement the two stages, further time is required since it is impossible to decide which quantitative consequences require more clarification until after the quantitative stage has been completed.

4.3.3 Triangulation and Methodological Pluralism

Triangulation has been defined by Cohen, Manion & Morrison (2005, p. 112) as a combination of two or more different methodologies of data collection in the research of several human behaviours. Denzin (2009) further outlines four types of triangulation as following: (1) triangulation of data (for example, utilising a diversity of sources); (2) triangulation of investigators (for example, utilising a number of diverse researchers); (3) triangulation of theories (for example, utilising a multiple viewpoints and theories with the intention of understanding the research consequences); and (4) triangulation of methodologies (for example, utilising multiple methods to examine the problem of a research). This research utilised the first and fourth types. The former notion of triangulation refers to using either

various quantitative or various qualitative approaches, whilst the latter engages using both qualitative and quantitative perspectives (Flick, 1992). Denzin (1997) surmises that triangulation within-methods have incomplete value, since merely one paradigm is being used. As a result, Denzin distinguishes within-methods triangulation from between-methods triangulation, with some referring to it as methodological pluralism (for example Carter & New, 2004; Danermark, 2006; Sayer, 2000).

There are two kinds of methodological triangulation, both of which have been outlined by Morse (1991): simultaneous or sequential. Consistent with Morse (1991), simultaneous triangulation represents the simultaneous utilisation of both methods—i.e. qualitative and quantitative—in which there is partial interaction between the two different data sources for the duration of the stage of collecting data. However, at the stage of interpreting data, the results complement one another. Conversely, sequential triangulation is used once the consequences of one method are essential for the preparation of the subsequent one.

Regardless of the argument concerning triangulation reliability, which has been raised by various studies (for example, Silverman, 2006), this paper believes that triangulation has several valuable features that cannot be overlooked: for instance, the overcoming of bias and validity problems (Denzin, 1997). Consequently, this study regards triangulation as an approach that adds a great deal of richness and value, strengthens the findings' reliability, and accordingly assists in investigating the theme at greater depth (Gray, 2004).

4.4 The sample

In view of the fact that it is impracticable to include everyone everywhere in the context of the study, sampling is a significant aspect of both quantitative and qualitative researches (Mertens, 2009). Nevertheless, whilst such a method frequently supposes that sampling principles are more vital in terms of quantitative research (Mason, 1994), this ignores the role that accurate sampling could play in

terms of strengthening the qualitative data basis (Platt, 1988). In fact, as written by Cohen, Manion & Morrison (2000), 'the quality of a piece of research not only stands or falls in the appropriateness of methodology and instrumentation but also by the suitability of the sampling strategy adopted' (p. 92).

A diverse range of strategies for selecting a suitable sample exists and is divided into two main dimensions: probability sampling (random sampling), which is designed in terms of representativeness and generalizability; and non-probability sampling, where appropriate participants are identified deliberately (Thompson, 2002). The tendency of a probability sample to present generalisable findings makes this approach more appropriate in the case of quantitative research (Mukhopadhyay, 2007). However, in opposition, the non-probability deliberateness makes it suggested for qualitative researches (Punch, 2009).

Surveys necessitate caution with respect to the sample population to be studied (Blaxter, 2010). Consistent with Tryfos (1996), sampling is mainly stimulated by the requirement to learn from the population aggregation. The representative of a sample fundamentally depends on the randomness drawn from a particular frame of sampling. A non-representative sample would raise the element of bias within the results, and would accordingly decrease the findings' reliability and generalisability. Consequently, it is critical for any survey to identify an appropriate frame and method of sampling (Denscombe, 1998).

The sampling type applied to a researcher's study is determined by the methodology chosen and the subject under examination (Higginbottom, 2002). Consequently, 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. The selection of teachers of learning disabilities was according to the Directorate General of Special Education (2006), which states that teachers of children with

learning disabilities are responsible for children with ADHD. Therefore, the sample frame includes 60 male teachers and 15 female teachers (Jeddah LEA, 2010); thus, all of them are aware of the condition and have knowledge and beliefs in this field. In actuality, the entire sample was recruited via schools. With this noted, it can be recognised that most schools are located in the north and the south of Jeddah where most people live.

It is believed that this study needs to attempt to ensure as broad a sample as possible (McIntyre, 2005). 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. With this in mind, this research is not able to manage a representative sample, as participants have the choice to either partake in or decline participation. However, variation appeared in those approved to participate, as different quarters of Jeddah have been involved.

The sample taken through this research was restricted to participants in Jeddah city, Saudi Arabia, as mentioned earlier on in this paper. 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.

For male teachers, the schools' directors in The Four quarters of Jeddah had been contacted in order to ensure demographic and geographical diversity since, as stated, people from different social classes and Saudi regions were needed. A stratified sampling approach was utilised in order to determine a sample of teachers since, as mentioned previously, such individuals vary in different quarters of the city of Jeddah; however, for female teachers and private centres, all have been involved.

Regarding the questionnaires, 7 private centres and 53 (21 F, 32 M) public schools were involved. The number of questionnaires distributed totalled 192 children, 364

parents, and 73 teachers. The number of questionnaires returned was as shown in Table 4.1 which also details the participants' gender and number:

Table 4.1: The gender and the number of participants of the questionnaires

	Males	Females	Total
Children	33	25	58
Parents	25	15	40
Teachers	28	26	54

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 26 participants (4 children, 12 parents and 10 teachers). A total of 18 (out of 26) interviews were conducted; 6 participants apologised and two never responded, even following two phone calls and an SMS message and/or an email message (if the email address had been provided). Diverse rationales were specified for apologising (i.e., focusing on academic assessments, being busy, divorce, or no reason at all). Therefore, the number of participants who agreed to continue and be interviewed is shown in Table 4.2, which also highlights the gender and number of participants interviewed. However, in the interviews, nine were carried out in person (4 children, 3 parents, 2 teachers), whilst nine interviews were carried out by telephone.

Table 4.2: The gender and the number of participants of the interviews

	Males	Females	Total
Children	0	4	4
Parents	4	2	6
Teachers	2	6	8

It is considered that the inferences made from such a sample results could be constrained; nevertheless, having mentioned this, the study considers that the participants accepted to be interviewed (children, parents and teachers) were typical

of the population of the city of Jeddah. As the sample encompassed participants from diverse quarters in Jeddah city, the participants varied in their experience, and thus a total of 18 children, parents and teachers participated. With this in mind, there is no reason to presume that the interview sample is principally skewed or biased. This study believes that the participants accepted to participate after they understood the research as they considered themselves to possess specific qualities or features appropriate for the research. They are, in brief, most likely to provide the most valuable information (Denscombe, 2007: 17).

4.5 Ethical Issues

Involving people as respondents requires the researcher to take into account different aspects, such as protecting the respondents from harm, certifying confidentiality, steering away from deception, and being aware of the participants' right to withdraw from the research at any time and for any or no rationale (BERA, 2004; Fraenkel & Wallen, 2006; Gray, 2004). Besides, according to the Data Protection Act (1998), it is prohibited to reveal any personal information connected to this study to another party without a complete consent of the persons. This research has worked in such a way that it remains compliant with these guidelines. Therefore, the schools (on the researcher's behalf), contacted the parents and teachers. However, the researcher's contact details were written on the letter, and the participants concerned were encouraged to make contact with the researcher. Participants were guaranteed that their personal information would remain confidential, and that the researcher was not be acquainted with who is going to be given the letter, and their identity would merely be able to be known if it was to be written down. Consequently, the disclosure of their identity was their complete personal decision. Participants are capable of acting in response by making contact with the researcher straight away or sending it back to the school by themselves or with their children. This process offered more satisfaction as it suits people in terms of providing more accurate and true responses, although it might contribute to a low rate of respondents.

In the case of the parents' letter, there was some information concerning how their details had been collected in order to assure them that their personal data had not been accessed, and that the schools had not broken any rules relating to confidentiality. Participants were advised that their anonymity would be protected with the purpose of ensuring that no negative effects would occur: for instance, parents were assured that their children's provisions would not change as a result of their contribution. Participants were informed with the research purpose and were asked to sign the consent form (see Appendix A). This involved the rationale of doing the research; thus, participants understood that the wish of attaining a doctorate degree is part of the study's motivation. Each participant was aware of the fact that they are able to withdraw from the research study or discontinue the interview on any grounds at all.

Questionnaires and interview transcripts were locked in a filing cabinet, which is not accessed except by the researcher's own key, which is located in a lockable suite of offices, which is accessible by only a small number of Leeds University educational research students. The electronic data were only accessible with the researcher's own password, which was altered at regular intervals in order to protect the generated information from participants and stored on the University's M-drive. Furthermore, photographic identification from the University of Leeds and the King Abdul-Aziz University, as well as the permission from the Jeddah local authority, was used in the interviews, with every participant assured of the researcher's professionalism.

Regarding the way in which distress should be handled, should any arise, it is believed that the potential distress to participants could be dealt with by ensuring that appropriate information and support was available. Therefore, if a respondent wanted to be supported by another family member or friend, this was permitted. Additionally, some information was given about local support groups, and they would be directed to where help could be found (leaflets 'available with the doctor at the hospital', and websites, such as Saudi ADHD Support Group website). The researcher was conscious of the possibility that the interviews might raise emotional reactions from participants. As the school psychologists are trained social workers

who have worked with several parents in a counselling role, they, along with the researcher, felt certain that we would be capable of easing the participants and referring them to suitable services if needed; however, no experience, as such, occurred during any of the interviews with the participants.

The purpose of the research was explained in a very simple language and in a friendly way. The participants were also fully informed that they had the right not to participate in the study. They were given enough time to complete the questionnaire in their own time, without any rush or pressure. It was also stated in the consent form that they could skip any questions or topics they did not want to discuss or that they did not feel comfortable with or happy answering without the need to give any reason.

Taking part in an interview was entirely voluntary; those involved were made aware that the interviews were conducted in order to help to explain or build upon the questionnaire results (i.e. they provided an opportunity to expand on information already provided). Respondents were also informed that they had the right to stop the interview at any time and demand that their data be withdrawn and deleted from the study without any justification. Again, the duty of care for respondents was the primary concern. The overall confidentiality of the participants was recognised as significant in order for participants to feel that they could share their beliefs with the study researcher; therefore, the confidentiality of the participants was ensured throughout the research process, as outlined in the consent forms (see Appendix A).

Given that some of the participants were children, special care was provided in order to protect their interests. Knowing that there was a sensitive nature inherent in the conversation concerning ADHD, and as it touched on personal information, it was acknowledged that the participants could have experienced embarrassment or difficulties in talking about the topic; thus, they were informed that they could stop at any time if they had the need or desire to do so. In addition, anonymity was a significant consideration, with respondents assured that their anonymity would be protected in order to facilitate their openness and honesty; this helped to ensure the

data gathered was reliable. Consequently, all of the respondents' names were changed to letters in order to protect their identity.

For transcription purposes, the interviews were recorded, with consent for this established prior to this being carried out. Individuals were guaranteed that the recordings would be listened to by the researcher only, and subsequently transcribed. Importantly, there would be no further utilisation of the recordings.

4.6 The Procedure

In the following part of this chapter, identification, recruitment and consent procedures, as well as the procedure of data collection tools, are discussed in order of conduction.

4.6.1 Identification

The Jeddah Psychiatric Hospital was communicated through the principals who make contact with the intention of questioning children who have been diagnosed with ADHD in order to contribute in the study. The hospital was given 35 questionnaires for children and 50 for their parents. The doctor stated that parents did not complete the questionnaires because they were in a rush, and if they collected it they would not be able to return it back. Moreover, the doctor stated that their preference was to be contacted through schools. Accordingly, the doctor provided the name of a supervisor responsible for such children, and who was the contact for parents of children with ADHD. The supervisor proposed and agreed to the idea of visiting the private centres receiving such children, as well as public schools where leaning difficulties teachers are available, as they should be aware of such children. Importantly, this offered further confidence in the selection process. What is more, for the entire duration, all ethics committee guidance were adhered to, with all participants recruited through schools.

As a result, for the children, their parents and teachers, the schools directors in the four quarters of Jeddah were contacted in order to ensure demographic and geographical diversity, since, as stated previously, people from different social classes and Saudi regions were included in the sample (Section 1.3.1). With the questionnaires, a letter was written to parents asking them whether or not they would like to participate in the interviews themselves and/or their children and, as mentioned previously, the rationale and procedure of the study and the opportunity to ask questions were revealed (Section 4.5). Similarly, this identification procedure was utilised with the teachers of learning disabilities through schools.

The children and parents that participated were 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. The occasionally unreliable data from schools—where ADHD symptoms frequently go unreported in schools or children's families—was taken into consideration. Therefore, it was recognised as essential that advice be taken from the teachers of learning disabilities.

4.6.2 Recruitment and Consent Procedures

The study firstly obtained the approval of the University of Leeds Ethics' Committee, and the approval of the University of KAU. Subsequently, prior to the research implementation, permissions and collaborations were sought and received from the Jeddah Local Education Authorities (males section as well as females section), and the Jeddah Psychiatric Hospital. However, in the Kingdom of Saudi Arabia, for cultural and religious reasons, females are separated from males in their schooling. In Saudi Arabia, 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.

In order to promote a response through schools, parents and teachers have been sent a covering letter in order to clarify the research study, and a photocopy of the letter from the Jeddah local authority was distributed, stating that the researcher was granted permission to contact them. 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 (Alderson, 1997:24). Respondents have been informed about their anonymity and confidentially, and so they should not write their names anywhere on the questionnaire. This procedure promotes the participants to provide complete and further informative responses (Wallace, 1998).

It was difficult to get parents to commit to participating in the study; this might be owing to a number of factors experienced in this study. First, parents with a child with ADHD might feel extremely stressed, and commonly only sought to ease the conflict and difficulties experienced by them. Parents frequently hesitate in terms of conversing with people outside their family regarding the issues and difficulties experienced by their family, fearing the likely involvement of welfare services, or otherwise being judged as a 'bad' parents.

4.6.3 Questionnaires

The questionnaires detail of which appear in Section 4.7.1 were distributed amongst every individual deemed available and eligible for entry into the research within the frame of the sample, and were collected by the principles of schools and teachers of learning disabilities or by the person they refer to who would then pass it to the researcher or the co-researcher. With this in mind, this study was not able to manage

a representative sample, as participants had the choice to either partake in the study or otherwise decline participation. However, variation was apparent in those agreeing to participate, as different quarters of Jeddah were involved.

Communication with the schools were through the principals, who subsequently make contact with the intention of questioning children who have been diagnosed with ADHD or have been given the label of ADHD in order to contribute in the study, as well as their parents and teachers of learning disabilities.

4.6.4 Interviews

The teachers and parents responded to the participation invitation either in writing, by telephone, or by e-mail, and the researcher then contacted them in order to discuss the interview details, such as the location. After parents' permissions was obtained, and according to their wishes, school psychologists were asked to prearrange a meeting with the children whose parents had given consent to participate; psychologists were advised that there may be the presence of a teacher and/or the child's parents, as they had been invited to attend if they so wish. For children, the rationale and procedure of the study were also made clear, and the opportunity to ask questions was also afforded.

Subsequently, for the duration of the meeting, the principles and the procedure of the study were clarified to parents, teachers and children with ADHD, as well as giving them the opportunity to enquire concerning the study. It was intended that the interviews would start with a short talk. The aim of this discussion was to build up a rapport, to create trust and to put the respondents at ease; as a result, they would talk freely (Bogdan & Biklen, 2007).

Since some participants might find having a stranger come into their home difficult, any participant who experienced difficulty with interviews being carried out in their home was able to ask for interviews to be conducted by telephone.

The study topic sensitivity was significant to consider. The participants were open and eager to engage in the discussion relating to ADHD, and willingness to share their views became clear quickly. Simple questions were used to introduce the subject and to provide a clear background, ensuring that the participants were capable of answering them without difficulty. This approach created a friendly environment during the interviews, which helped the participants to feel more at ease whilst elaborating on essential points. Importantly, confident that their responses were anonymous assisted them in feeling that they could be free in their answers, devoid of fearing any negative consequences from parents and/or teachers.

Since interviews were being carried out with children, the interview setting was given in-depth thought with the aim of making children feel as at ease as possible (Punch, 2002); thus, they felt capable of being more forthcoming with their responses. The interviews were conducted in an on-site youth club that children could utilise at lunchtimes to purchase drinks and snacks, and to spend time with their peers. It was operated by the school's community partner, and is seen as being a less threatening environment. Some children were invited into a separate room to take part in the research; this was in a more relaxed and comfortable setting, and away from a typical classroom environment. It was in a place where the children had been previously, and where they felt relaxed. This meant that respondents were away from school staff and other children, which would allow them to be honest regarding their feelings and which would provide them with the opportunity to talk about things with no concern of being reprimanded or getting into trouble; this ensured their interests were protected. By conducting interviews in a comforting and familiar setting, children were given the change to be further relaxed than in a more formal setting. For the children involved—most of whom struggled to focus or maintain sitting, for example—breaks were helpful, and assisted them in keeping on task.

4.7 The Instruments

In recent times, various researchers (for example, Creemers & Reezigt, 1999; Fraser, 1999) have supported combining interpretive (qualitative) and positivist (quantitative) paradigms and their techniques. Notably, it is believed that a combination of quantitative and qualitative will bring about a further thorough perspective of the research questions (Johnson & Christensen, 2008).

The rationale of the two-phase mixed-methods research is to obtain statistical quantitative findings from a sample of children, parents and teachers, and to subsequently follow-up with interviews in order to refine and clarify the findings in more depth (Section 4.3). In the initial quantitative phase, survey questionnaires gathered from the sample participants describe the knowledge and beliefs concerning ADHD in Saudi Arabia. In the follow-up qualitative phase, semi-structured interviews were conducted in order to deliver further understanding of the quantitative findings. The purpose of the explanatory follow-up is to assist in giving details or to build on preliminary quantitative findings.

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 (Section 4.3.3). However, questionnaires and interviews questions were translated into Arabic (Section 4.7.3).

4.7.1 First Phase: The Questionnaires

Self-completion questionnaires are utilised extensively as a method of data collection in educational and social science research (Scott & Usher, 1999). They are deemed to be a cost-effective data-collection method, particularly for large numbers of people; which provides generalisability in a comparatively standardised way. In a number of situations, self-completion questionnaires might permit people to state views relating to issues which they might otherwise not be comfortable discussing with an interviewer (Boulton, 1994).

It is reported that, in order to gain high-quality information, the questionnaire is the most broadly utilised technique (Patten, 2001). It is comparatively economical, has identical questions for the all subjects, can ensure anonymity, and includes written questions with precise intentions (McMillan & Schumacher, 1997). However, it is essential to also consider the drawbacks of the self-completion questionnaires, such as the respondent being inclined to make his/her answers in relation to what he/she believes may be the correct reply, rather than providing their true reply (Robson, 2002).

It is stated that the design of high-quality questionnaires is labour-intensive and difficult to attain (Gillham, 2002). As a means of solving designing questionnaire difficulties, the utilisation of related questionnaires as implemented by similar studies is proposed (Cornford & Smithson, 1996). This is applied with the first four questions (not completely the fifth one, which has been discussed later on in this paper).

In general, the questionnaires that have been used in this research are composed of highly structured closed questions. In this instance, a closed-ended question has been defined as 'one in which the respondents are offered a choice of alternative' (Oppenheim, 1992, p.12), and is considered to be easy to answer with no writing required (Hartog, 2008). This type of questionnaire is deemed preferable since open-ended questions may possibly be vulnerable to respondents' understanding, and may also be more difficult to analyse; they also require a great deal of time—particularly when dealing with a lot of responses (Robson, 2002), which is the intention of this research. Closed questions are also considered to be helpful in generating response frequencies, which are susceptible to statistical analysis and which accordingly facilitate a researcher to compare across groups sample (Oppenheim, 1992). However, closed questions also have a number of disadvantages, such as when the researcher is not aware of different possible answers, or if the design of the closed questions is poor, which would have the potential to mislead or frustrate participants (Brace, 2004). Besides, closed questions provide a restricted range of alternatives and cannot cope with qualifications to responses: for example, 'it depends' (Gillham, 2002).

The demographic questionnaires were collected from several questionnaires that had been designed so as to assess the knowledge of ADHD (such as Mackay & Corkum, 2006; Sciutto, Terjesen & Frank, 2000; Johnston & Freeman, 2002; West *et al.*, 2005; KOS, 2004). The aim of the questionnaires was to collect demographic information—such as relating to age, sex, teaching years' experience, qualifications, etc.—with the purpose of describing the sample.

4.7.1.1 The Criteria for Choosing a Specific Questionnaire:

It is vital that the employment of the current instruments be justified with the purpose of collecting data in this research for the reason that further confidence and motivation are guided by more positive attitudes (Smith, 2005). Therefore, the articles available in different journals were searched and considered: for instance, Journal of Attention Disorders, as well as various databases, such as the Australian Education Index, British Education Index and ERIC. Subsequently, the researcher established different measures available concerning knowledge and the beliefs relating to ADHD of teachers, with less for parents and children. However, it is believed that, when deciding which questionnaires to use, it is significant to cautiously consider the type of questions needing to be answered in the research study, and to then accordingly select questionnaires which meet with the research objectives. With regards to this research aims, it is important that, for example, the questionnaire is designed for children, and allows a comparison to be drawn between teachers' and parents' knowledge and beliefs, and which of these actively seeks to determine the perceptions of others (for example, asking children about parents and teachers, etc.) in order to properly and precisely answer the research questions. The questionnaires need to be well-known, published, widely used, recent, and must comprise high reliability and high validity, which therefore allows the researcher to be more confident when selecting specific questionnaires. With the purpose of ensuring a good choice of selected questionnaires and gathering helpful suggestions and recommendations, various professionals, such as Professor Kirby (Chair in Developmental Disorders in Education; Medical Director of The

Dyscovery Centre), have been asked. Subsequently, two instruments have been found to which these criteria have been applied: one for teachers and parents, and one for children.

The literature on ADHD underlines the continuous alterations in this field, in addition to the complexity, the arguments and several myths regarding this condition (Mash & Wolfe, 2013). As a result, it is significant to criticize the questionnaires used since the accuracy of some items included in the questionnaires is outdated such as Q10 in the children's questionnaire as well as Q1, Q10, Q15, Q32 and Q65 in the parents' and teachers' questionnaire.

4.7.1.2 The Instrument for the First Question and Part of the Fourth Question:

Children's ADHD Knowledge & Opinions Questionnaire (see Appendix C)—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 (Mackay & Corkum, 2006). This measure is modelled after the AKOS (ADHD Knowledge and Opinion Scale) (Rostain, Power & Atkins, 1993), 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.

As the study was unable to establish any earlier developed measures determining the knowledge and beliefs of children with ADHD, the MacKay & Corkum scale was utilised. It contains three parts which have knowledge of ADHD, opinions regarding

their treatment, and perceptions of the impact of ADHD on the diverse aspects of their lives.

The questionnaire was developed for children aged 8–12 years. The questions were to be read for children; all they needed to do was listen and give their opinion. Whenever needed, explanations would be given without any bias. The administration of this instrument was to be undertaken sensitively. For example, if appropriate, there would be a 'rest break' part way through the questions, or the questions would be broken into sections and posed on separate occasions.

4.7.1.3 The Instruments for the Second and Third Questions and Part of the Fourth Question

The KADD-Q (Knowledge about Attention Deficit Disorder Questionnaire) (see Appendix D) was developed by The Centre for Attention and Related Disorders, Graduate School of Education, The University of Western Australia, Australia (West *et al*., 2005), and comprises 67 rating scale items, all of which have been modelled after the KADDS (Knowledge of Attention Deficit Disorders Scale), which includes 20 items (Sciutto, Terjesen & Frank, 2000). Each item of the KADD-Q is phrased in a statement, and utilises a format of 'True', 'False' or 'Don't Know', which thus permits separation of what is not known from what is incorrectly believed concerning ADHD (Sciutto, Terjesen & Frank, 2000). Data relating to the knowledge of teachers and parents concerning ADHD is gained via three different domains: ADHD causes, ADHD characteristics, and ADHD interventions. Although there are only a few items besides examining the knowledge concerning ADHD prevalence and ADHD developmental course, it is nevertheless determined that these are inadequate when shaping viable subscales (West *et al*., 2005). When building the KADD-Q, concern is merely focused on the comprising items, which are arguably well-supported via empirical research (West *et al*., 2005) .Similar to the work of Sciutto, Terjesen & Frank (2000), the KADD-Q incorporates together positive and negative points of ADHD in order to steer away from possible bias response.

Using this instrument is noteworthy in a number of ways. For example, it allows researchers to specifically assess, as well as to compare, the knowledge and beliefs of both teachers and parents concerning ADHD and associated issues. For parents and teachers, the scale comprised various items from the ADHD Beliefs Scale (Johnston & Freeman, 2002)—3 items; and the Self-report ADHD Questionnaire (KOS, 2004)—1 item. The items were taken directly in order of answering research questions; to be specific, a part of the fifth question regarding the perceptions of parents and teachers of each other.

Researchers have developed and utilised several scales of knowledge surrounding ADHD, all of which differ in terms of the number of items, formats of questions, and construct definitions. The two scales that are most largely utilised were developed by Jerome (1994) and Sciutto et al. (2000). The present research utilises KADD-Q (West et al., 2005) for several reasons: first, unlike the scale of Jerome (1994), the KADDS and KADD-Q includes an 'I don't know' answer option, besides the format of true-false, which decreases the probability of guessing and differentiates misconception from guesses; second, the KADD-Q includes more items than the scales of Jerome and the KADDS (Sciutto et al., 2000), which subsequently raises the measure reliability, as well as sensitivity; and third, although the development of KADDS (Sciutto et al., 2000) presents researchers with an instrument to specifically assess in addition to compare knowledge of ADHD of parents and teachers and associated issues, it contains merely twenty items, with the evidence relating to its psychometric properties being limited. In the current study the KADDS, the items content was expanded, and its psychometric properties examined.

4.7.1.4 The Data Gathering Approach for the Fifth Question:

After a lengthy review of the literature, it seems that there is no universally suitable questionnaire for utilisation that specifically succeeds in meeting the criteria of chosen questionnaires or the aim of this research (asking teachers and parents about each other); thus, various items from different questionnaires has been taken, as

stated earlier in the previous section, for the purpose of fulfilling the research objectives. Since there is the intention of maximising the study's overall validity and reliability, it is believed that it is vital that the questions be grounded from literature, but then ought to be piloted (Denscombe, 1998).

Therefore, for the period of the questionnaire's development, questionnaires utilised in similar studies were reviewed in order to assist the researcher in terms of constructing questions considered suitable for the study aims. Care was given to the purpose of the questionnaire's design in order to ensure that it is attractive and easy to complete, as a questionnaire's appearance is considered to be significant (Cohen, Manion & Morrison, 2007). The question numbers and order necessitate care with the aim of promoting the participants to fill out the questionnaire (Blaxter, Hughes & Tight, 2002): for instance, if the questionnaire is lengthy, participants would be less inclined to use the time required for filling in the form completely (Witmer, Colman & Katzman, 1999).

Therefore, as a means of answering the fifth question, the questionnaires for children, parents and teachers included some questions about each other, which allowed the researcher to gain information about their perceptions of one another.

4.7.2 Second Phase: The Interviews

Interviews are defined by Robson (2002) as 'a conversation with a purpose', and in all social science investigations, interviews are utilised in 90% of them (Weinberg, 2002). The strengths of interviews have been illustrated as fulfilling all different areas where questionnaires are deemed weak (Cornford & Smithson, 1996). This adds to the validity of the triangulation intended at comprehensiveness. Comparable to the work vital in a questionnaire's planning, there are many considerations that are necessary for any research interview, including interviewing skills development (Denscombe, 1998; Mertens, 1998).

There are several diverse types of research interview and various diverse classifications (Vaughn, Schumm & Sinagub, 1996). The dissimilar researcher interests have increased the unlike interviews sort (Warren, Karner, 2010); therefore, three interview types have been distinguished. First, there are structured interviews, which comprise a predetermined questions sequence, which is intended to obtain exact answers from participants. This type of questionnaire provides either 'yes' or 'no' answers, or could be answered by choosing from a short answers options set; thus, the structured interview is helpful when there is a consciousness of what is not known and when the researcher is therefore in a position to structure questions which could produce the required data (Gall, Gall & Borg, 2003).

Second, semi-structured interviews also comprise a predetermined questions sequence, but the order of the questions may be altered based on the perceptions of interviewer of what appears to be most suitable. Question wording could be modified for the period of the interview, and questions could then be clarified with the purpose of attaining further information. Additional questions might be asked in order to gather data on other aspects which were not expected at the interview's commencement (Gray, 2004). The major benefit of this interview type is its flexibility since the researcher has the opportunity to repeat, explain and give details concerning specific interview components, and might consecutively ask the participant to clarify exact answers in terms of aspects given in reply to the questions of the interview. For the aforementioned reason, this method provides a wealth of richness compared to the structured interview (Harrell & Bradley, 2009).

Third, the unstructured interview is made up of informal conversations in which the researcher might have some key issues and may ask questions relating to them with the aim of guiding the participant to providing the required information. It does not engage any definite kind or series of questions; in fact, it has greater flexibility and freedom when compared with the earlier two interview types and, as a result, it is valuable when there is no conscious of what is not known, which may consequently be dependent on the participants' own answers to present the unknown information. (Lodico, Spaulding & Veogtle, 2006). Interviews might be performed in groups (used when interaction amongst respondents encourages them to express their

perceptions more wholly than individually interviewed) or individually (where participants would not be influenced by the presence of others or via any previously given answers) (Robson, 2002).

It is believed that the nature, purpose, questions and objectives of the research determine the interview kind (Gall, Gall & Borg, 2003). As a result, subsequent to careful consideration, it is decided that semi-structured interviews be performed on an individual basis with children, parents and teachers. This interview type is considered suitable when utilised in this research for two rationales: first, the researcher would be capable of expanding upon the answers of the participants, which would therefore accordingly permit in-depth exploration of the experiences of respondents with the intention of gathering further information; and second, the prearranged questions would assist in directing and concentrating the interviews toward the objectives of the research. The flexibility of this type of questionnaire would, as a result, be reasonable, permitting adequate room for exploration of the definite aspects; however, it would also maintain and ensure the direction management of the interview. Finally, the individual interviews would allow for gathering information that is not influenced by the opinions of others.

Semi-structured interviews would be utilised in this study in order to investigate research themes to greater depths. It is reported that, 'the 'semi-structured' interview suggests a certain degree of standardisation of interview questions, and a certain degree of openness of response by the interviewer' (Wengraf, 2001, p. 62). It is said to provide a level of flexibility that permits the researcher to follow-up questions and explore matters (Cohen, Manion & Morrison, 2007).

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 (2004) that, when comparing between transcripts of personal and telephone interviews, there are no considerable dissimilarities in terms of interview validity.

Literature concerning ADHD was consulted with the aim of ascertaining the

condition complexities and to further assist in the interview schedule design process. With the aim of designing the schedule of the interview, literature surrounding interviews (Kvale, 1996) were reviewed.

It has been argued that semi-structured interviews permit the researcher to probe for extra detailed answers when participants are asked to elucidate what has been said (Gray, 2009). This interview type appears to be suitable in the majority of educational research (Bennet, Glatter & Levacic, 1994; Coleman & Briggs, 2002) since the predetermined questions it comprises can be reordered based on the perception of the interviewer of what appears suitable. The questions' wording could also be altered with clarifications given, and specific questions which appear unsuitable to a certain interviewee could be omitted whilst other ones could be included (Robson, 2002, p. 270). A semi-structured interview schedule could also provide participants with the ability to articulate themselves at great length, but may also provide adequate shape to prevent useless rambling. In addition, for the interviewer, the schedule might include spaces to facilitate note-taking, or a tape recorder might be utilised (Bennet, Glatter & Levacic, 1994); this allows the researcher to vary the interviewing style from an open-ended interview to a structured interview conditional on the interviews circumstances. Therefore, fewer conversations will be necessitated on the researcher's part when dealing with 'talkative' interviewees. It has also been commented that interviews are affected by the context (Converse & Schuman, 1974, p. 53). It is reported that 'there is no single interview style that fits every occasion or all respondents'. With this in mind, the interview style is differed with the intention of fitting the circumstances or contexts, consistent with them, and assisting them in establishing a balanced relationship amongst 'too casual and friendly' and 'too directive and impersonal' (Converse & Schuman, 1974, p. 53).

Although the interview questions will be a prearranged set of open-ended questions and planned in such a way that ensures data flow consistency, flexibility and progressive concentration will be permitted in the interview schedule (Hammersley & Atkinson, 2010). The interview wording was also constructed in a sensitive manner with the intention of steering away from any respondent

discomfiture or cultural inconvenience.

Interviewer skills have a vital impact on the interviews findings and 'the outcome of the interview depends on the knowledge, sensitivity, and empathy of the interviewer' (Kvale, 1996, p. 105). In the period that the researcher has worked as a learning disabilities teacher in primary schools, he has interviewed children with ADHD and their parents. When working at the King Abdul-Aziz University, he has also carried out many interviews with adults who are teachers, and also with parents as well. For the duration of the PhD degree, the researcher attended a number of courses and read several literatures, including discussions surrounding the skills of interviews and how to conduct research interviews. A pilot study was conducted so as to provide the researcher with practice.

Initially, respondents were thanked for their time, and reference was made to the questionnaire each had completed. This enabled the explanation of any uncertain areas prior to commencing the interviews. All respondents were advised that interviews would be recorded if they accepted, and that they would be given a copy of the transcriptions so as to permit them to make any modifications deemed necessary (Lapadat and Lindsay, 1999; Tilley, 2007). At the end of the interview, a summary of what had been said was given, which provided the interviewee with the ability to attain a good picture of the situation, and which also helped to remove any false perceptions. Subsequently, at the end of the interview, words of hope and thanks were given.

All interview questions were designed with the use of simple language and syntax; thus, the children participants could understand, to a great extent, the meaning. The majority of interview questions were open-ended questions to attempt to elicit as large an amount of data as possible in the semi-structured interviews' typical style. Through utilising a less structured questioning form, it was intended that the children would feel more at ease and capable of presenting their true opinions on the topic. The further free structure supposed the children could then be encouraged with supplementary questions if needed, or a subject could be probed more if of certain interest. In the case where children did not understand or required further

clarification concerning the questions' meaning, the questions were then paraphrased and/or put into further tangible and less theoretical situations in order to assist understanding as well as comprehension.

The interview was semi-structured with seven questions covering the required aspects needing further explanation and clarification during the quantitative phase. Every question comprised sub-questions, which assisted in collecting more data from respondents. One additional question was added concerning the views of respondents relating to the questions of the interview, and whether or not they had any extra comments.

Whilst the data quality is mostly reliant on the interviewer skills (Erlandson *et al.*, 1993), there is, in addition, the likelihood of bias occurring if questions were poorly phrased (May, 1991) or for diverse responses to arise (Patton, 2002). The utilisation of short, open questions would ultimately overcome such limitations; however, the flexibility to probe areas of interests and meanings associated with a number of answers remain, which helps to ensure the context understanding of matters placed (Rubin & Rubin, 1995). With the aim of eliminating the likelihood of digression, specific questions were evolved in order for both knowledge and beliefs to be elicited and added so as to focus and sharpen the interview schedule.

Subsequently, the interview schedule was drafted and provided to the researcher's supervisor for review and comments. The ultimate interview schedule was subsequently accepted following its review by the researcher's supervisors, subsequent to three drafts. This schedule was then employed during the interview process with the respondents.

For children, with the school psychologist, an explanation of the research and the practical arrangements were prepared, and the venue and participant numbers considered essential for interviewing were discussed. It was considered that the interviews should be carried out following school activities so as to ensure learning was not disturbed. The selection of venue is recognised as being important in that the interviewees should be in a comfortable setting (Silverman, 2006) that is familiar to them. The selection of venue was left to participants owing to

cooperation considered crucial between the researcher and participants (Clandinin & Connelly, 2000); thus, this provided familiarity as well as confidentiality (Marshall & Rossman, 1999).

To ensure data reliability in this research, the four female psychologists based at the school were given detailed instructions. Each of the four female children was interviewed by one of the four school psychologists who were familiar with interview techniques and the children.

In addition, field notes permitted the researcher to gather data that could not be recorded by means of tape-recording; thus, non-verbal languages were noted (Silverman, 2006). It is also proposed that the employment of the telephone might also help the interviewer when performing interviews in other further practical means: for example, the interviewer could take notes devoid of disturbing the interviewee; this could be done whenever the interviewee desired, thereby staying away from seeming busy, making anyone uncomfortable, or becoming involved in an unfamiliar setting. Importantly, this leads to the general result established by several researchers (for example, Sturges & Hanrahan, 2004), which is that telephone interviews are an adequate and valuable data collection mode. This vision appears to be supported by the current research, and is therefore selected mainly owing to the potential to promote interviewee participation, owing to the fact that this minimises the involvement time and can be conducted whilst they are at their places. It has been revealed by Sturges & Hanrahan (2004) that, when comparing transcripts of personal and telephone interviews, there are no considerable dissimilarities in terms of interviews validity.

Since memory can significantly distort reporting, and also considering its nature, which is to mishear, an audio recording is often used in research interviews so as to ensure data accuracy (Heritage, 1984; Poland, 1995; Lee, 2004). This also relieves the researcher from note-taking, and thereby permits them to listen, watch and act more attentively in response. Although there is the risk that audio recording might intimidate interviewees, it is likely that this would decrease after a while, as outlined by Powney & Watts (1987, p. 124), who states that, 'most

people quickly become accustomed to the presence of tape recorders, which are overall less obtrusive than inefficient note takers'. In order to relieve the respondents, participants were further assured that all information collected was confidential, and that tape-recordings would be deleted after they were transcribed. This study ensured that the responses given were vital; therefore, writing them was extremely significant.

On the other hand, a number of researchers have questioned the way in which the employment of recording apparatus impacts the research encounter. This is frequently termed as 'the interviewer (researcher) effects' or 'the reactive effects' (Fielding, 1993; Bryman, 2004). In fact, being tape-recorded is not an ordinary circumstance for a lot of people, and researchers have subsequently found that, under such circumstances, the interviewees might become more nervous, change their language, or otherwise refuse to speak, which is undesirable and makes the data less natural and accordingly less valid and reliable (Speer & Hutchby, 2003). In actual fact, in this research, audio-recording might be refused by the interviewees since this is not familiar in Arab culture, and this may accordingly lead to preventing interviewees from expressing themselves and explain their feelings and problems freely. Importantly, it should be recognised that a lot of Saudis—principally Saudi women—do not accept to be recorded. Thus, in this case, the key strategy employed in managing the large information quantity was by the researcher taking notes and writing out the statements; in most cases, the co-researcher was also taking notes. Subsequently, the notes were then written following the completion of the interview; this skill was considered during the pilot study.

4.7.3 The Translation of the Data-gathering Instruments

In cross-cultural studies, there is a model entitled 'Ask the Same Question', which indicates that the translated version of a questionnaire ought to ask the same questions as those in the original questionnaire (Harkness, 2003). This study's instruments (questionnaires and interview questions) were developed using the English language, and were then subsequently translated into Arabic. Nevertheless,

translations might generate the probability of presenting two dissimilar questionnaires if the translation is not precise; therefore, translators ought to be skilled practitioners, having training on questionnaires translation (Harkness, 2003).

As the decision of translation has a direct influence on the research and its reports of validity, three methods were adopted in order to eliminate potential drawbacks: back-translation، consultation combined with collaboration, and piloting (Birbili, 2000). Markedly, both the study tools and reported results were back-translated; both original and translated English copies were contrasted. No fundamental dissimilarities were identified. Translators were also consulted in order to develop and contrast versions، whilst piloting assisted in developing study tools, which similarly aided in the language of Arabic as the tools were utilised in Arabic.

Accordingly, in this research, both questionnaires and interviews questions were translated from English into the Arabic, and separately re-translated into English by bilingual people who have a Bachelor's and Master's degree in English and translation. They also have a translation certificate in translating a range of documents, including questionnaires.

The method of translation, back-translation, is the well-known method for translating instruments (Brislin, 1986). However, it is stated that, in spite of the process of translation and back-translation, it is not certain that expressions have the same meanings in dissimilar languages, as well as between cultures (Smith & Schwartz, 1997). As a result, the procedure explained in the following was intended to minimise differences in the items across cultures conceptual meaning.

Both translators were requested to compare and converse the differentiation between both English translations, and be in agreement on the ultimate version concerning the most suitable wording capable of signifying both linguistic and conceptual correspondence. Their qualifications for translating, and the researcher's own acquaintance with this research study, as well as checking the terms in Arabic books written about ADHD, made certain of the precision and correctness of the translated questionnaire version. In addition, the terms have been written and explained, with

the researcher subsequently piloting the questionnaires in order to examine and verify the questionnaire's appropriateness and translation quality.

In assessing the back-translation accurateness, a pragmatic approach (Brislin, 1986) was in use owing to the fact that contrasts would be unacceptable if translations were dissimilar. The focus, in this instance, was on the concept rather than on the precise words. Nevertheless, there was no indication of errors in translation.

Particular care was taken with the use of medical terms and jargon, which may not be known by people of low educational level, and which might not translate well from English into Arabic. Therefore, particular care was taken with the use and translation of medical terms and jargon into Arabic.

4.8 Pilot Study

Piloting is a process that allows the researcher to examine the instrument's intended utilisation, and to make an initial judgement about such (Blaxter, Hughes & Tight, 2001). It is vital in terms of the purpose of certifying data set suitability and maximising validity and rate of responses (Barton, 2006). With the purpose of enhancing validity in addition to the reliability of the instrument of the study, a pilot study was conducted with several participants.

A pilot study was carried out with both questionnaires and interviews. It is indicated that a pilot study could be of considerable assistance in terms of developing the questions' actual wording; it functions as a 'health check' in examining the questionnaire's and interview questions' validity, and accordingly identifying any unanticipated errors or problems which may occur whilst administering such (Oppenheim, 1992; Mitchell & Jolly, 2007). In addition, it would provide the opportunity to identify the probable consequences of the chief study (Lietz & Keeves, 1997). Therefore, the process of the interview pilot study was performed as well so that the researcher was able to practice the skills of interviewing; this was

recognised as ensuring the clarity of the questions, and also facilitated the sound functioning of the recording instruments.

4.8.1 Pilot Study of the Questionnaires

As stated by Oppenheim (1992), pilot studies ought to be expanded so as to comprise all elements of the fieldwork, from drawing the sample to the kind of paper utilised in the questionnaire. Consequently, the pilot study of the research was not restricted to the instruments but rather incorporated all aspects of the fieldwork. For example, the questionnaire's clarity and design (face validity), determining whether or not the instruments accurately measured the intended (content validity), determining the level of consistency of the instruments over time (reliability), determining whether or not the instruments present the required sort of data response which would guide towards answering the questions of the research, identifying any errors or problems whilst administering the questions of questionnaires, and exploring the required time to fill in the questionnaires.

However, the questionnaire pilot study did not intend to confirm reliability and validity since the instruments have sufficient levels of reliability and validity (except the one for answering part of the fifth research question which has been discussed in Section 4.9). However, these questionnaires were developed and utilised in an English context, with their appropriateness in the Arabic context subsequently comprising a significant concern. Consequently, the rationale for the questionnaire pilot study included the following:

- Verification of the questionnaire's appropriateness with Saudis; and
- Verification of the translation quality (to demonstrate how well the translated questionnaires could be understood by Saudi children, parents and teachers).

Moreover, whilst taking into account the time constraints, the pilot study was conducted in a Saudi school in the UK in order to examine the questionnaires on a selected small sample. Convenience sampling procedures was utilised in order to select a sample. It is a non-probability sample, which consists of individuals selected

merely for the reason that they are available (Gorard, 2001). Gorard (2001) proposes that this sort of sampling could be utilised for pilot works when the purpose is to trial a design of a research more willingly than to collect utilisable data.

Therefore, firstly, the researcher met the head of the school, clarified the idea of the research study and sought his support. There was no random selection; as an alternative, the questionnaires were distributed to available teachers, parents and children. The same piloting procedure occurred in Jeddah (the number of participants were as follows: children, 21 (6 female, 15 male); parents, 15 (3 female, 12 male); and teachers, 18 (10 female, 8 male)). Second, after performing the pilot study, based on a variety of feedback types, improvements were implemented.

4.8.2 Pilot Study of the Interviews

Conducting a pilot study provided the researcher with further experience and additional training in the techniques of interviewing and communicating with respondents (Roulston, deMarrais & Lewis, 2003; Teijlingen & Hundley, 2001). In addition, it provided the opportunity to ensure a trial is carried out in relation to practical and technical aspects (Baker, 1994). Importantly, this assisted in recognising the benefits and problems associated with the interview questions (Janesick, 1998), and also helped to gain better understanding of the structure of the reference related to the wording of questions (Balnaves & Caputi, 2001). It is also noted as vital that the interview questions are straightforward and simple; this helped to ensure the responses, as well as the answers, were precise and concentrated on the research questions. This helped to ensure the questions entirely presented that which was intended (Davies, 2007).

The pilot study began with the conduction of interviews with four research students at the School of Education in the University of Leeds. The interview question schedule and the research questions were previously given to the interviewees. Subsequently, a sample from Jeddah, Saudi Arabia were interviewed (the number of

participants were as follows: children, 1 (1 female); parents, 2 (1 female, 1 male); and teachers, 2 (1 female, 1 male)). The interviews were audio-recorded, if permitted, or manually taken if not, with consent achieved for both instances.

From the pilot study, interview skills on the telephone, as well as in person, were practiced; thus, based on the semi-structured interviews in the pilot study, the response indication provided the researcher with the confidence to utilise a similar technique in subsequent interviews.

The recommended corrections and/or modifications for the interview schedule were taken into account when making the second modified version of the interview questions schedule. Generally, there was consistency in understanding from the respondents. Importantly, a number of more complicated questions were induced relating to problems for some of the participants, although through paraphrasing or providing more clarification, the questions became accessible. It was decided, however, that the question would need to remain in its original wording since it drew various interesting and insightful answers from participants who grasped its meaning first-time. Meaning became apparent to others upon minor paraphrasing, and they were also capable of responding with complete understanding (as far as the researcher was aware). This meant that each participant was capable of responding to the question in a similar way, and each child's voice was heard.

4.9 Validity and Reliability

In quantitative research, validity establishes whether or not the instrument truthfully measures what it is intended to be measured; however, reliability checks the level of consistency of the instrument over time (Slavin, 1992). With the purpose of determining content as well as face validity, the questionnaire for part of the fifth research question and the questions of the interview were given to the research supervisors for their comments, revisions and propositions, and a panel of research students in the school of education at the University of Leeds were then consulted in order to verify the clarity, design and length of the instruments, and to accordingly

determine their consistency in relation to the research aims and purposes. Feedback from each of those was utilised in order to make alterations and provide explanations before performing the pilot study. Subsequently, a pilot study was conducted so as to ensure that questions were clearly worded and simply understood, and also to verify consistency with the major research purposes.

In terms of the study's external validity or generalisability, concern was given to selecting the sample. Establishing external validity would enable the researcher to generalise the findings 'outside the specifics of the situation studied' (Robson, 2002, p. 93). Validity was also ensured by sustaining the employment of the instruments' triangulation, as stated previously in Section 4.3.3, and, on the other hand, data collected throughout the pilot study was utilised for the purpose of calculating the instrument reliability. Cronbach's Alpha coefficient was employed as a means of measuring the internal consistency and thereby determining the instrument's overall reliability. Cronbach's Alpha assesses internal consistency reliability through approximation of how an instrument's items relate to each other, as well as to the entire instrument (Gay & Airasian, 2000). Therefore, with the intention of establishing the internal consistency reliability of the questionnaire, Cronbach's Alpha coefficient was calculated. Considering the Alpha coefficients of the questionnaires, it could be concluded that the questionnaire had a high internal-consistency reliability.

However, since this research utilised both quantitative and qualitative methods, it is important to state that several researchers utilising qualitative perspectives do not deal with their results' validity and reliability as a consequence of their point that these notions go in opposition to the very qualitative inquiry nature, and that the suppositions of positivist lie beneath these terms' traditional descriptions (Marks & Dollahite, 2001).

This research has the same opinion with the statement that these characteristically quantitative explanations of validity 'cannot be applied directly to qualitative research without distorting what qualitative researchers actually do in addressing

validity issues, and tautologically confirming quantitative researchers' critiques'
(Maxwell, 2002, p. 39).

It is suggested that traditional validity and reliability constructs are not relevant to qualitative research, and then, as an option, four 'more appropriate' constructs are proposed (Lincoln & Guba, 1985, p. 20): credibility, which attempts to display that the research is performed in such a manner so as to make certain that the subject is precisely recognised and described; transferability, which refers to the applicability of a research's findings to be generalised to another similar context; dependability, which is considered important when reviewing data which was originally considered as unrelated in order to verify whether or not it might be coded for inclusion in the consequences; and confirmability, which emphasises the necessitate to query whether an outside party would prove the study results, or the literature study would certify a confirmability measure). These structures are terms utilised in qualitative research (Rolfe, 2006), which mention the procedures supporting the research and making it trustworthy and confirmed (Morse *et al*., 2002).

Regarding the trustworthiness of this study, the researcher depends on the strategies of triangulation as well as in-depth description, the researcher also needs to take into account that the trustworthiness established was supported virtually through the application of pilot research, the results and implications of which have assisted in refining the 'data collection plans with respect to both the content of the data and the procedures to be followed' (Yin, 2003, p. 79). Triangulation has been discussed previously in Section 2.4.3.

In-depth description has been illustrated as an approach for ensuring the criteria of dependability (Yin, 2003) in addition to transferability (Lincoln & Guba, 1985). As the researcher was conscious of the significance of this strategy in terms of strengthening the trustworthiness of this research, the researcher anticipates that all information integrated in the thesis, besides those comprised in the appendices, provides adequate details of the process of the study. Nevertheless, this research maintains that deciding what comprises a relevant in-depth description is not straightforward, and is not definite. Therefore, the attempt has been made to

elucidate this study's constructs to the degree that may facilitate others in replicating the research methodologically—specifically to repeat, as closely as possible, its practice along with procedures. This has been implemented following the advice of Yin (2003), who states that, whilst having a discussion concerning the criterion to judge the study quality, 'The general way of approaching the reliability problem is to make as many steps as operational as possible' (p. 38).

During the course of this research, the researcher has given a detailed account of the study focus, background information concerning participants, selection justification, and in-depth and rich descriptions, all of which present a foundation for any who may want to replicate the research in the future. A comprehensive record of gathering the data, in addition to analysis, was maintained and could be monitored.

Neuman (1991) adds that ideal validity and reliability are almost impossible; nevertheless, the researcher has sought to ensure that clear procedures were carried out in order to facilitate assurance optimum potential validity and reliability.

Internal validity was enhanced through the design of the research, which explored diverse aspects of the phenomenon from various perspectives to ensure a broad understanding of the phenomenon (Arksey & Knight, 1999). In addition, piloting empowered the internal validity of the research (Teijlingen & Hundley, 2001), with content validity also certified: items in the tools of the research represent the whole range of items of the phenomenon examined (Neuman, 1991). This was attained through the utilisation of piloting (Teijlingen & Hundley, 2001).

Regarding reliability, particular concern and attention was afforded in terms of planning and consistency, as well as in the stability of sampling, collecting data, recording, analysing, and interpreting (Lewis & Ritchie, 2003). This was supported by the rich and complete description of the study design, in addition to the procedures provided in this chapter.

Several points presented by Wolcott (2009) have been utilised in this study with the aim of assuring the validity of the qualitative method, for example: (1) talking a

little and listening a lot; (2) recording precisely; (3) beginning writing early; and (4) seeking feedback in order to check for accurateness and comprehensiveness.

4.10 Data Analysis

As depicted previously (Section 4.3), this study was divided into two different phases: quantitative and qualitative. The paradigm of each research stage is dissimilar. In each phase, a diverse approach to collecting and analysing data was determined. This section discussed and described the analysis of the questionnaire and interview data collected from children with ADHD, as well as parents and teachers. The gathered data were examined by groups and afterwards compared.

4.10.1 Analysis of Questionnaire data

It is reported that the analysis procedure is essential owing to the fact that raw data are not meaningful (Robson, 2002). Their implications are concealed, and thereby necessitate cautious clarify. The analysis procedure and products provide the basis for interpretation. Data analysis refers to separating, classifying, summarising and organising the data with the aim of arriving at the research outcomes and conclusions (Bland, 2000; Seliger & Shohamy, 1995). As a result, data analysis becomes the product of all thoughts in the process of the research design and planning; nevertheless, the choice of a particular technique of data analysis depends primarily on the research questions nature, the design selected to explore it, and the type of data collected. Thus, data analysis is vital, merely to the degree that there is a valid relation between it and other research components.

4.10.1.1 Alpha Level:

The 'statistics' term denotes numerical data. The tests of statistics are a main

support for the interpretation of data. Through their utilisation, data groups can be compared in order to determine the possibility that differences are based on chance, which means providing an indication for judging a hypothesis or inference validity (Ritchi & Lewis, 2003). The acceptance decision of hypotheses is made through p-value estimation. However, owing to the exploratory nature of this research—and with the purpose of identifying potential significance—the standard of 0.05 was chosen as the alpha level (significant level).

4.10.1.2 Data Analysis:

This study tends to hold that several researchers do not have the capability to make informed appraisals of the diverse software options in order to select software; therefore, choices were made according to recommendations or otherwise after attempting software and finding it suitable. Thus, the time required in terms of becoming familiar with a software is considered to be a significant part of the decision process; as a result, it is believed that the short course availability, the ease of use, and a support network are all essential, as each of these would assist the researcher in becoming increasingly more skilful in terms of utilising the software.

The analysis of quantitative data was completed through the use of SPSS (Statistical Package for the Social Scientists), since SPSS allows all data to be gathered simultaneously and manipulated in order to construct a thorough analysis, and enables storing data of questionnaires electronically (Babbie, Halley & Zaino, 2003). It permits the researcher to produce descriptive statistical data for responses of questions: for instance, frequency counts, distribution of responses of multiple-choice question and so on; besides generating graphical presentations for reporting or publications, and discovering relations between responses to diverse questions (Sarantakos, 2007).

It has been stated that selecting the suitable statistical technique relies upon the research questions and the nature of the data (Pallant, 2007). In this research, descriptive and inferential statistics were utilised. Descriptive statistics were

described as 'the numerical, graphical, and tabular techniques for organising, analysing, and presenting data' (Argyrous, 2005, p. 14). The data were formed into a frequencies tally in order to present an obvious picture concerning the responses, which have occurred more often than others (Denscombe, 1998).

The reduction of a large data set into a more concise and obvious form was carried out in order to ensure the descriptive statistics could be read. Examples of descriptive statistics utilised in this study are frequency distribution, central tendency measures, such as means, and dispersion measures, such as standard deviation. However, inferential statistics are 'the numerical techniques for making conclusions about a population based on the information obtained from a random sample drawn from that population' (Argyrous, 2005, p. 204). Examples of inferential statistics utilised in this study comprise The Independent Samples t-test, Mann-Whitney, One-way ANOVA and Kruskal Wallis.

The data was coded into numbers, and was continued through various stages in order to analyse the data for the questionnaires, such as developing a coding framework. A coding framework ought to implement the intention of reflecting the questionnaire (Dornyei & Kormos, 2003). Subsequently, all questionnaires were entered into the SPSS. Subsequently, the research results are presented in two parts. The first one consists of the background information acquired from the Demographic Questionnaires. Descriptive statistics were utilised to analyse such. The second part is composed of the findings of the questionnaires, which were directed in the research questions order (Burton, Brundrett & Jones, 2008). In order to facilitate the achievement of this, in this study the need to set the outcomes in light of the parts set out in the survey is outlined. This process allowed the researcher to gather the data obtained and also afforded the opportunity for the data to be 'compared and related to past research findings and theoretical perspectives from the literature.' (Burton, Brundrett & Jones, 2008, p. 144). Every question of the study is listed together with the types of analysis conducted and the outcomes revealed, with any significant differences regarding the demographic differences then revealed. Inferential statistics are utilised to generalise the study results derived from a sample to a

population (Salkind, 2005, p. 384); however, in this document, when the findings show no significant differences, they were not mentioned.

4.10.2 Analysis of Interviews Data

When working with qualitative data, there are various alternatives concerning how the raw data can be transferred to ultimate patterns meaning. This relies on the inquiry methodological structure, and intends to facilitate the procedures of analysis. (Henning, Rensburg & Smit, 2004).

Ritchie & Lewis (2003:219) mentioned that making sense of the qualitative data partly depends on the tool or method utilised to categorise data, but is further reliant upon the analyst and the clearness, as well as the creativeness of her/ his conceptual view.

It has been clarified that 'qualitative data analysis involves extracting meaning from collecting textual materials' (Hesse-Biber & Leavy, 2004, pp. 409–410). It has been highlighted that, when analysing data, it is important to measure, compare and check relationships, and to predict, examine hypotheses, build concepts and theories, discover, manage and elucidate (Walliman, 2005, p. 301).

It has been argued that there is no 'cut-and-dried' analysis concerning qualitative data for each social study (Robson, 2002, p. 473; Davies, 1997); nevertheless, the methods presented offer guidance to be taken into account.

Qualitative research is focused on describing and interpreting the meaning attached to the world, as stated by participants, as well as the ways in which they sense and think regarding affairs and situations (Cutcliffe & McKenna, 1999; Thorne, 2000).

4.10.2.2 Transcribing:

As suggested by Atkinson & Heritage (1984), transcriptions are fundamental research actions; they engage close and repetitive listening to recordings. It is, in addition, stated that, 'tape-recording and transcript allow both analyst and reader to return to the extract either to develop the analysis or to check it out in detail' (Heritage, 1984, p. 237). The transcription would present an accurate recording of the interview (Drever, 2003).

All audio recording interviews were transcribed in a full-verbatim transcription. The choice to transcribe the interviews in full-verbatim was a consequence of the small amount of data recorded—totalling five interviews—which created a very low volume of work to be carried out (Lee & Fielding, 2004, 533). Every interview was transcribed in full. These transcription sheets were written and revised many times, especially for quoting purposes.

All interviews were transcribed manually, capturing all words in a Microsoft Word document. Although there are several available software packages to help transcribing as well as coding, the preference was to work with the data manually.

During the process of transcribing, the data was reviewed in order to ensure that the words of the interviewees were captured accurately. Additionally, printed copies of the transcribed interviews were reviewed several times—initially through general editing and a process of coding. This ensured that the needed information was accurately captured from the interviews. Providentially, the recording of the interviews was of high quality, and it was likely that all of the words of the interviewees would be understood.

Accuracy checks were performed by sending the edited transcripts to the respondents for review, in addition to comments, giving them the opportunity to correct or add information. Respondents reviewed the transcription for content and accuracy; however, they did not alter anything in the transcripts. The transcripts of the children's interviews, however, were not sent back to the children with the aim of

ensuring that the information they had given was kept confidential. Furthermore, these were not, in any way, fed back to their parents.

4.10.2.3 Data Analysis:

This part considers the procedures of the analysis of the collected data in the interviews of this research. The interviews were performed with three different groups. Similar procedures of data analysis were performed across all groups. When analysing the interview data, the researcher revealed all the results by writing every theme and the associated responses, as per the theme from all participates.

The analysis process of interview data followed a number of researcher propositions. Consistent with Wolcott (1995) and Marshall & Rossman (2006), data analysis is known to comprise a number of phases: data organisation; data generating categories (so as to recognise relations and key factors); and data interpretations (in order to seem sensible of understanding or clarification). Additionally, qualitative data analysis is inevitably interpretive (Cohen, Manion & Morrison, 2007), and the analysis process of qualitative data is framed via researcher questions (Maykut & Morehouse, 1994). It is indicated that data analysis necessitates the researcher's choices and own interpretation of the qualitative data (Corbin, Strauss & Strauss, 2008).

Researchers have been cautioned by Pope, Ziebland & Mays (2000) that transcripts present a good descriptive record of interviews, but cannot provide explanations; therefore, the researcher necessitates the utilisation of data analysis and interpretation.

Tesch (1990) states that the hermeneutical circle is when the researcher deems each piece of information gathered in relation to the whole—the part given meaning from the total. Understanding every part is, to a degree, an understanding of the entire text. In taking the whole into account, one would deem context, the personal circumstances of the researcher, and the greater social or historical context/situation

as relevant (Tesch, 1990).

Consequently, initially, all data of interviews were listened to carefully and repeatedly, and subsequently transcribed (Atkinson & Heritage, 1984). Following, all interviews were then listened to again in order to ensure understanding (Heritage, 1984). Secondly, the data were structured and grouped into five categories, all of which were framed by the study's questions (Maykut & Morehouse, 1994; Marshall & Rossman, 2006). Third, interpretations were sought in order to describe the stories of the interviewees with the intention of making sense of and understanding the data, and accordingly determining the key points with a view to analysing the relationships (Wolcott, 1995; Cohen, Manion & Morrison, 2007). However, for the period of interview analysis, the researcher referred back to the transcriptions in order to obtain further information to include in the analysis, as and when required.

Quotations from participants' words were inputted in italic, with the quotation source (for example C1, C2, P1, P2, T1, T2 etc.) put in round brackets ( ) at the quotation ending, where the letter (C, P or T, referred to the child, parent or teacher, respectively) and the number differentiated between the children, parents and teachers. When the researcher added his own words in order to make the quotation clearer, the insertions were put in square brackets ([ ]). Once omitting a part of the quotation, for the reason that it was not of interest, the researcher referred to this through three dots (…) within quotations.

Within each theme and categorisation, a number of sub-themes appeared, which generated patterns that were categorised and coded. The analysis of data was performed in the transcripts, with a number of coloured highlighter pens used with the aim of refining the data. A diverse colour highlighter was utilised for every sub-theme for visual analysis easiness and simple data retrieval. The analysis adopted marginal memos as well as comments. This approach enabled the researcher to scan across all interviews. Murphy (1992, p. 109) stated that, although this appears to be a 'clumsy and time-consuming' analysis method, it presents a much clearer picture for subjects under investigation. Numeric analysis (frequencies) was implemented in the interview data analysis.

The transcriptions were subsequently analysed qualitatively through contrasting similarities and dissimilarities within each group of children, parents, and teachers, which were supported with quotations from participants' oral answers. With the intention of analysing their interviews, the researcher initially worked on the interviews transcriptions by individually underlining key points in terms of the knowledge and beliefs aspects of ADHD, as well as the issues linked with their perceptions of each other. Subsequently, these points were converted and classified into headings, in addition to subheadings, so as to compile a group-coherent story of each group of children, parents, and teachers, all supported by quotations of the participants' own words. Finally, looking over the stories of the groups, the researcher made conclusions through combining the key issues shared by the three groups.

4.11 Summary

This chapter has considered the methodological issues associated with this research. It has presented the research questions, with the study known to adopt a mixed-method approach for pragmatic, along with fit-for-purpose, rationales. The design of the study has also been presented, and is seen to have comprised two sequential phases. Sampling and access have also been discussed. A comprehensive description on the data collection methods associated with each stage has also been provided, along with a discussion of validity and reliability issues. The techniques of questionnaires and interviews data analysis have also been examined.

The study is seen to have followed the ethical guidelines of the University of Leeds, with ethical issues discussed in light of the research study and the issues relating to the respondents'/participants' rights, as well as their data confidentiality and anonymity. The clarity and logic of the process of the study presented permitted the findings to be understood.

Chapter Five: Findings from Questionnaires

5.1 Introduction

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 (Section 4.3.3). This chapter presents the data obtained from the children with ADHD, their parents and teachers through the use of questionnaires. It is divided into four parts: the results of the children's questionnaires (Section 5.2), the results of the parents' questionnaires (Section 5.3), the results of the teachers' questionnaires (Section 5.4), and a final cross-group analysis (Section 5.5). Each part is divided into several sections depending on the number of sections in each questionnaire, including a section on the demographic characteristics of the participants. A series of exploratory data were collected in order to examine the association of demographic information on the knowledge and beliefs of ADHD. When the findings show no statistically significant differences, such points will not be mentioned.

5.2 Children's Questionnaires

This part is divided into two sections: the first section considering the demographic information of the children participants; whilst the second part is concerned with the results of the children's questionnaires, discussed in terms of knowledge, opinions and impacts.

5.2.1 Section A: Demographic Information of the Children Participants

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. Other demographic data is described in Table 5.1.

Table 5.1: Demographic information of the children (N = 58)

Variable		Frequency (%) (N = 58)
Gender	Boys	33 (57%)
	girls	25 (43%)
School Type	Private	17 (29%)
	Public	41 (71%)
School Location	North	28 (48%)
	South	8 (14%)
	East	13 (22%)
	West	9 (16%)
Diagnosed with ADHD	Yes	33 (57%)
	No	25 (43%)
Learning disabilities	Yes	52 (90%)
	No	6 (10%)
Taken Medication	Yes	26 (45%)
	No	32 (55%)
Type of ADHD	ADHD-I	11 (19%)
	ADHD-HI	4 (7%)
	ADHD-C	43 (74%)

Table 5.1 shows the demographic range of the children who participated in this survey. The total number of children was 58 and 57% of the sample were 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-C type. 45% of the children with ADHD were taking medication and the vast majority of children in the sample had learning disabilities.

Figure 5.1 highlights that the qualifications of the fathers are higher than the mothers in general, with the rates of the fathers holding a bachelor's degree approximately three times greater than the mothers. However, mothers who hold a secondary degree are higher than the rate of fathers holding the same qualification.
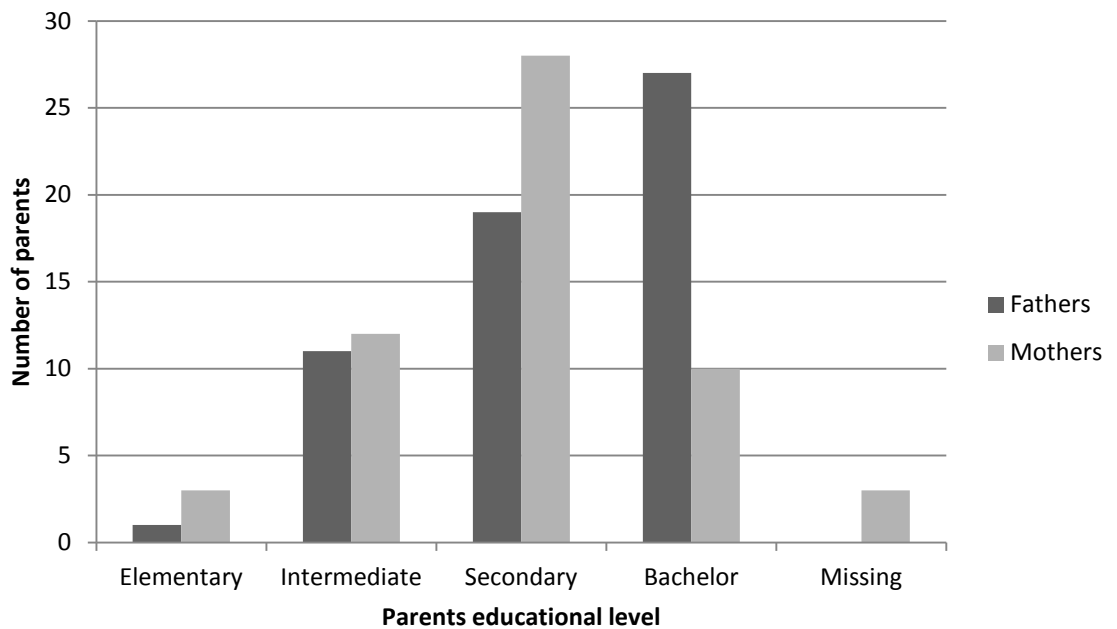
Figure 5.1: The qualifications of the children's parents (N = 58)

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

5.2.2 Section B: Children's Knowledge

This part of the questionnaire was intended to gather data concerning the knowledge and beliefs of children with ADHD concerning ADHD in Saudi Arabia. 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%).

The items within this section are divided into five subscales (Causes, Characteristics, Prevalence, Treatment and Developmental course); therefore, each aspect has been discussed separately. Accordingly, the following tables detail the children's answers to the first section, which has been divided into its subscales.

Table 5.2 shows the children's answers to the *causes of ADHD subscale*. On average, children responded correctly to 70% of items (range = 0–100%) relating to the causes of ADHD.

Table 5.2: Item analysis of the children's knowledge of causes of ADHD (N = 58)

		False	True	Missing
Q6: ADHD happens because you are allergic to something in the air (F)	Number	54	3	1
	%	93.1	5.2	1.7
Q11: ADHD is due to differences in the way kid's brains work (T)	Number	26	32	0
	%	44.8	55.2	0
Q13: ADHD is caused by troubles at home (F)	Number	35	23	0
	%	60.3	39.7	0
Causes	Number	115	58	1
	%	66.09	33.33	0.58

Table 5.3 shows the children's answers to the *characteristics of ADHD subscale*. On average, children responded correctly to 66% of items (range = 20–100%) relating to the characteristics of ADHD.

Table 5.3: Item analysis of the children's knowledge of characteristics of ADHD (N = 58)

		False	True	Missing
Q1: All kids with ADHD are hyperactive (F)	Number	14	44	0
	%	24.1	75.9	0
Q3: There are more boys than girls diagnosed with ADHD (T)	Number	15	41	2
	%	25.9	70.7	3.4
Q5: Kids with ADHD sometimes act before they think (T)	Number	13	44	1
	%	22.4	75.9	1.7
Q12: Only boys (not girls) can have ADHD (F)	Number	43	15	0
	%	74.1	25.9	0
Q15: Unless things really grab their attention, kids with ADHD find it hard to concentrate (T)	Number	8	50	0
	%	13.8	86.2	0
Characteristics	Number	93	194	3
	%	32.07	66.90	1.03

Table 5.4 details children's answers to the *prevalence of ADHD subscale*. On average, children responded correctly to 67% of items (range = 0–100%) relating to the prevalence of ADHD.

Table 5.4: Item analysis of the children's knowledge of prevalence of ADHD (N = 58)

		False	True	Missing
Q4: Most kids have ADHD (F)	Number	42	16	0
	%	72.4	27.6	0
Q14: Very few kids have ADHD (for example, only 1 or 2 kids in my school) (F)	Number	36	22	0
	%	62.1	37.9	0
Prevalence	Number	78	38	0
	%	67.24	32.76	0

Table 5.5 considers the answers given by the children in regard to the *Treatment of ADHD subscale*. On average, children responded correctly to 62% of items (range = 25–100%) relating to the treatment of ADHD.

Table 5.5: Item analysis of the children's knowledge of Treatment of ADHD (N = 58)

		False	True	Missing
Q2: The only treatment for ADHD is medication (F)	Number	37	21	0
	%	63.8	36.2	0
Q8: Medication will cure ADHD (F)	Number	28	30	0
	%	48.3	51.7	0
Q9: Parents and teachers can learn how to help kids with ADHD (T)	Number	5	53	0
	%	8.6	91.4	0
Q10: Treatment for ADHD is only needed for kids, not adolescents or adults (T)	Number	33	25	0
	%	56.9	43.1	0
Treatment	Number	103	129	0
	%	44.40	55.60	0

Table 5.6 details the answers given by the children concerning the *Developmental Course of ADHD subscale*. On average, children responded correctly to 52% of items (range = 0–100%) relating to the developmental course of ADHD.

Table 5.6: Item analysis of the children's knowledge of developmental course of ADHD (N = 58)

		False	True	Missing
Q7: When kids with ADHD become teenagers their problems automatically go away (F)	Number	30	27	1
	%	51.7	46.6	1.7
Developmental course	Number	30	27	1
	%	51.7	46.6	1.7

With consideration to the knowledge of children concerning the main domains (Causes, Characteristics and Treatment), 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 $p < 0.001$.

However, according to the demographic variables, there were no statistically significant differences established thus far.

5.2.3 Section C: Children's Opinions

This part of the questionnaire was intended to gather data concerning the opinions of children with ADHD regarding the management of ADHD, including the opinions of medication, psychosocial, and alternative interventions. In order for the respondents to accurately answer the questions in this section, a range of multiple choices was provided from 1–4 (strongly disagree, disagree, agree and strongly agree, respectively), of which 1–2 demonstrate negative attitudes and 3–4 demonstrate positive attitudes. The score of 1 was given the least, demonstrating the most negative attitude, whilst the score of 4 was the highest, demonstrating the most positive attitude.

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. Therefore, since this section's items are divided into three subscales—medication, psychosocial and alternative interventions. Each subscale will be discussed separately.

Table 5.7 breaks down the opinions of the children regarding the *medication subscale*.

Table 5.7: Item analysis of the children's opinion of medication (N = 58)

		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
Q17: Medication helps kids with ADHD pay attention	Number	4	8	30	16	0
	%	6.9	13.8	51.7	27.6	0
Q18: Medication helps kids with ADHD control their behaviour	Number	3	17	26	12	0
	%	5.2	29.3	44.8	20.7	0
Q21: I believe everything I hear bad about medication for ADHD	Number	3	39	13	3	0
	%	5.2	67.2	22.4	5.2	0
Q22: Doctors know that medications for ADHD are safe	Number	3	17	32	6	0
	%	5.2	29.3	55.2	10.3	0
Q24: Medication helps kids get along better with their friends and family	Number	2	17	30	9	0
	%	3.4	29.3	51.7	15.5	0
Q26: Medication can help kids get better grades in school	Number	4	18	32	3	1
	%	6.9	31.0	55.2	5.2	1.7
Medication	Number	19	116	163	49	1
	%	5.5	33.3	46.8	14.1	.3

The overall opinion of children in regard to medication, as shown in this table, is positive. More than half of the children (51.7%) agree that medication helps children with ADHD to control their behaviour and get along better with their friends and family, whilst 55.2 % agree that medication can help kids get better grades in school. The majority of the children (67.2%) disagreed with the statement 'I believe everything I hear bad about medication for ADHD', which indicates that children are aware of the effect of medication.

Table 5.8 provides information regarding the children's opinions of the *psychosocial interventions subscale*.

Table 5.8: Item analysis of the children's opinion of psychosocial Interventions

(N = 58)

		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
Q20: It's OK for teachers to give kids with ADHD extra help in school	Number	1	13	28	16	0
	%	1.7	22.4	48.3	27.6	0
Q23: Learning information about ADHD would be helpful to me	Number	2	6	25	25	0
	%	3.4	10.3	43.1	43.1	0
Q25: My parents can help me with my ADHD	Number	2	8	33	14	1
	%	3.4	13.8	56.9	24.1	1.7
Q27: Parents can take classes to learn how to help their kid with ADHD	Number	0	2	23	30	3
	%	0	3.4	39.7	51.7	5.2
Q28: You can learn ways to help yourself control ADHD	Number	0	9	40	8	1
	%	0	15.5	69.0	13.8	1.7
Q29: There are ways that kids with ADHD and their teacher can work together so schoolwork gets done without so much trouble	Number	2	9	38	8	1
	%	3.4	15.5	65.5	13.8	1.7
Psychosocial Interventions	Number	7	47	187	101	6
	%	2.0	13.5	53.7	29.0	1.7

In terms of children's opinions of psychosocial interventions, this table reveals that more than half (69.0%) of the children agree that they can learn ways to help themselves control ADHD. Also, the majority (65.5%) of them agree that there are ways that kids with ADHD and their teacher can work together so schoolwork gets done without so much trouble, while 56.9% agree that parents can help them with their ADHD. On the other hand, less than half of the children (48.3%) agree that it is acceptable for teachers to give kids with ADHD extra help in school. The vast majority of the children were positive about learning information about ADHD would be helpful to them with (43.1%) agree and (43.1%) strongly agree. The

overall children's opinions of psychosocial interventions was positive with (53.7%) agree and (29.0%) strongly agree.

Table 5.9 detailed below considers the opinions of the child participants in regard to the *alternative interventions subscale*.

Table 5.9: Item analysis of the children's opinion of alternative interventions (N = 58)

		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
Q16: ADHD can be treated with massage therapy	Number	10	30	13	4	1
	%	17.2	51.7	22.4	6.9	1.7
Q19: ADHD can go away if you eat a certain type of food	Number	11	20	23	4	0
	%	19.0	34.5	39.7	6.9	0
Q30: There are vitamins you can take that make ADHD go away	Number	8	23	22	3	2
	%	13.8	39.7	37.9	5.2	3.4
Alternative Interventions	Number	29	73	58	11	3
	%	16.7	42.0	33.3	6.3	1.7

In terms of children's opinions regarding alternative intervention, the children disagreed that ADHD can be treated with massage therapy at a rate of 51.7%. The rate of children who agree that ADHD can go away if you eat a certain type of food was higher than those who disagree with 39.7% against 34.5%, and more children disagreed with the statement 'there are vitamins you can take that make ADHD go away'.

In consideration to the opinion of children regarding the management of ADHD—including the opinion of medication, psychosocial, and alternative interventions—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* $p < 0.001$.

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).

Table 5.10: Analysis of attitude of children by school type (Questions 16-30)

(N = 58)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Public	41	30	52	41.85
Private	17	39	52	45.53

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 ($p < 0.05$).

Table 5.11: Analysis of attitude of children by ADHD diagnoses (Questions 16–30)

(N = 58)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Yes	33	33	52	44.30
No	25	30	51	41.12

c. Children taking medication had a more positive attitude than children who do not *p* <0.05 (t-test).

Table 5.12: Analysis of attitude of children by taking medications (Questions 16–30) (N = 58)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Yes	26	34	52	45.04
No	32	30	51	41.22

d. Children whose fathers have higher qualifications had a more positive attitude than other children, the one-way ANOVA results demonstrated statistically significant difference of overall scores between the four groups (p <0.05).

Table 5.13: Analysis of attitude of children by fathers' qualifications (Questions 16–30) (N = 58)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Elementary	1	41	41	41.00
Intermediate	11	30	47	39.82
Secondary	19	34	51	42.32
Bachelor	27	37	52	44.70

5.2.4 Section D: 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 tables show the responses and the choices of questions.

(31) ADHD makes it hard for me to get along with certain people.

Figure 5.2 clarifies the choices of the children:
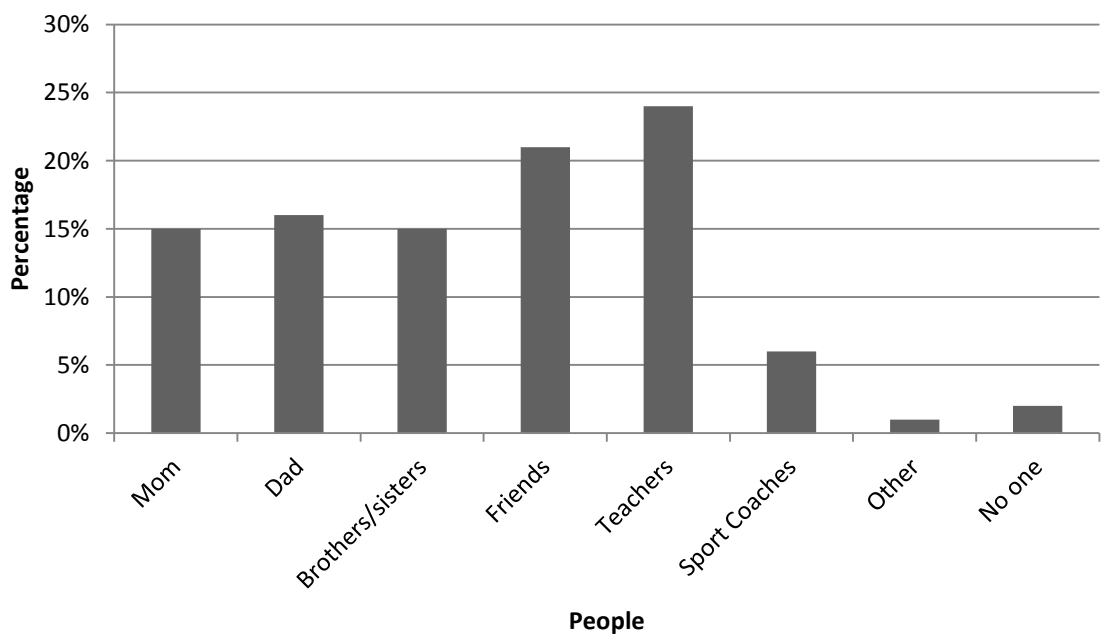
Figure 5.2: Identifying the people who children with ADHD find it hard to get along with (Question 31) (N = 58)

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 5.3 details below further clarifies children's results.
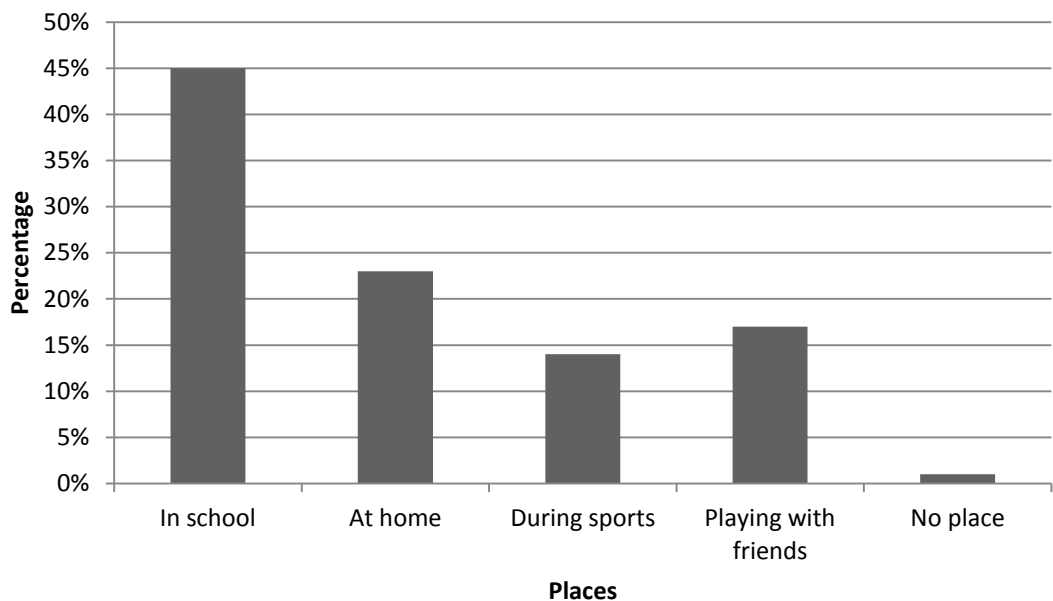
Figure 5.3: Identifying the places where children with ADHD find it hard to concentrate in (Question 32) (N = 58)

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 5.4 below illustrates the findings.
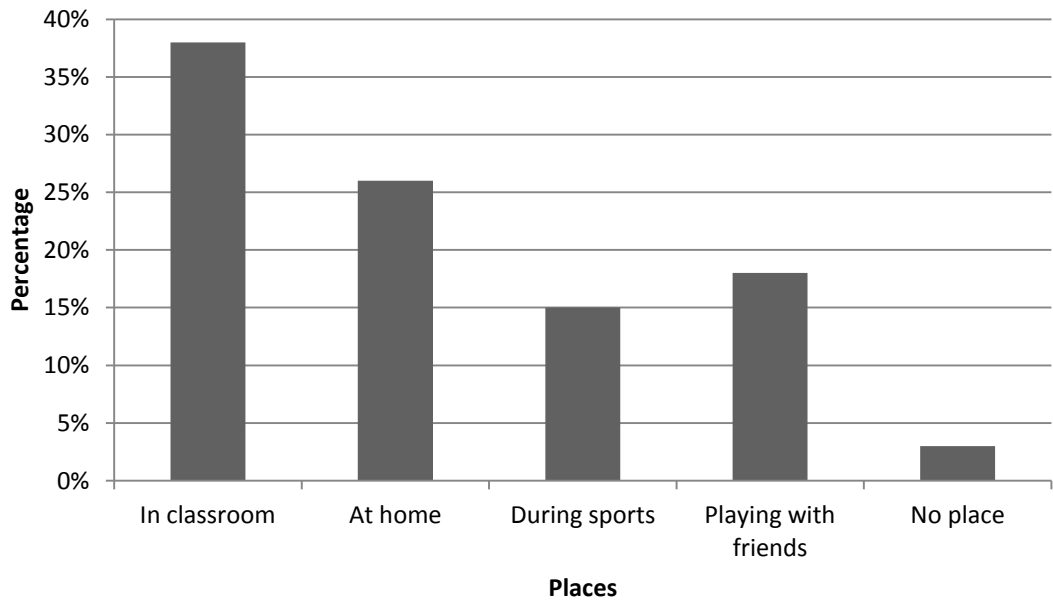
Figure 5.4: Identifying the places where children with ADHD find it hard to stay out of trouble (Question 33) (N = 58)

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 5.5 below depicts their results.
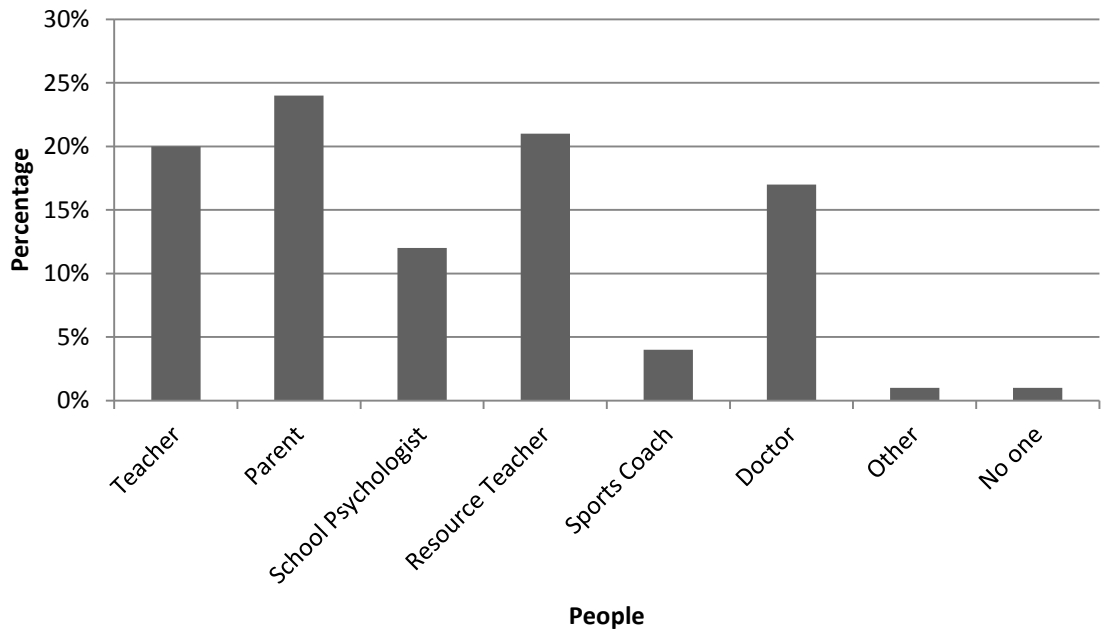
Figure 5.5: Identifying the adults who can help children with their ADHD
(Question 34) (N = 58)

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 5.6 provides further explanation of the results.
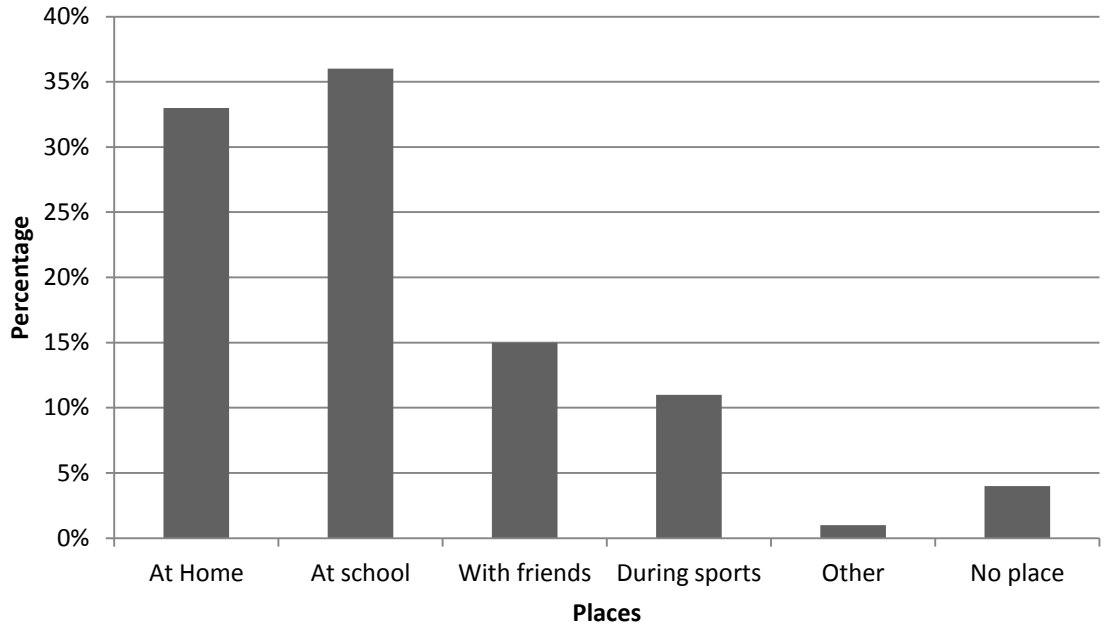
Figure 5.6: Identifying the places where children can learn ways to control their
ADHD on their own (Question 34) (N = 58)

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%.

Regarding the demographic variable, the next tables highlight the results following the application of the Mann-Whitney framework.

a. The differences according to school type. It was established that there are statistically significant differences amongst questions: Q31 p <0.05 - Q33 p <0.05 - Q35 $p = 0.067$.

Figure 5.7 detailed below highlights the results to Question 31 "**ADHD makes it hard for me to get along with certain people**".
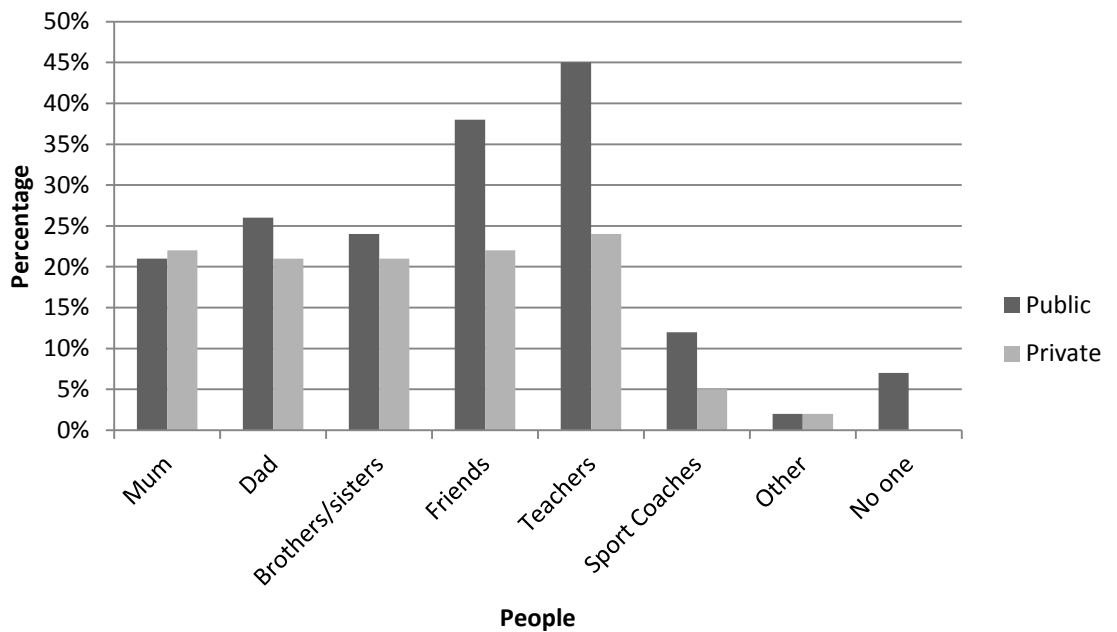
Figure 5.7: The differences according to school type (Question 31) (N = 58)

Figure 5.8 details the findings of Question 33 "**ADHD makes it hard for me to stay out of trouble**".
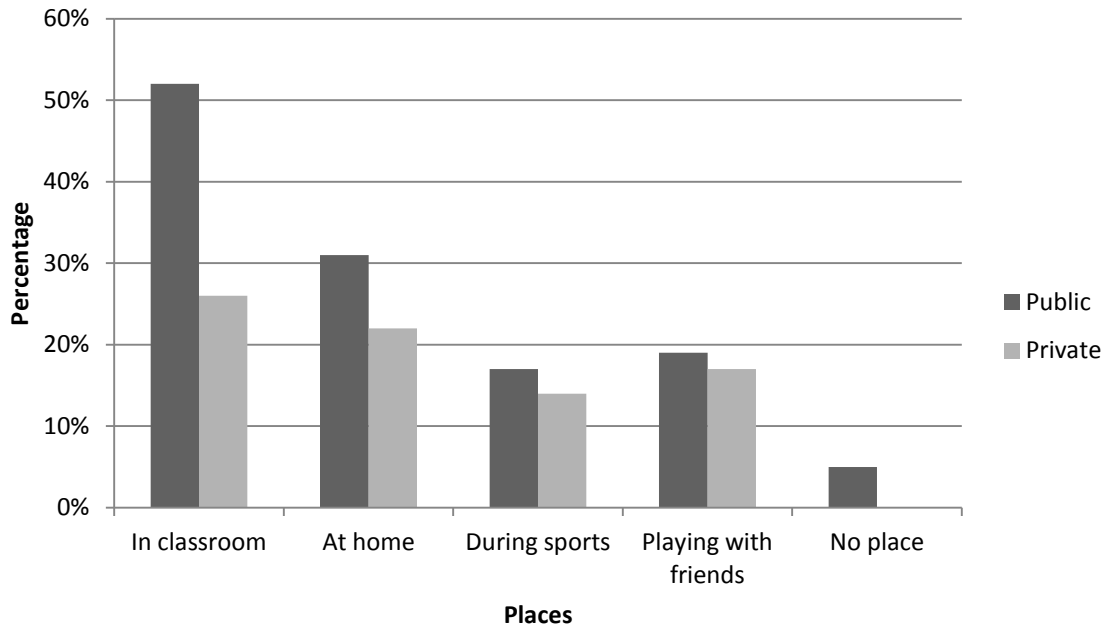
Figure 5.8: The differences according to school type (Question 33) (N = 58)

Figure 5.9 detailed below clearly depicts the results of Question 35 "**I can learn ways to control my ADHD on my own**".
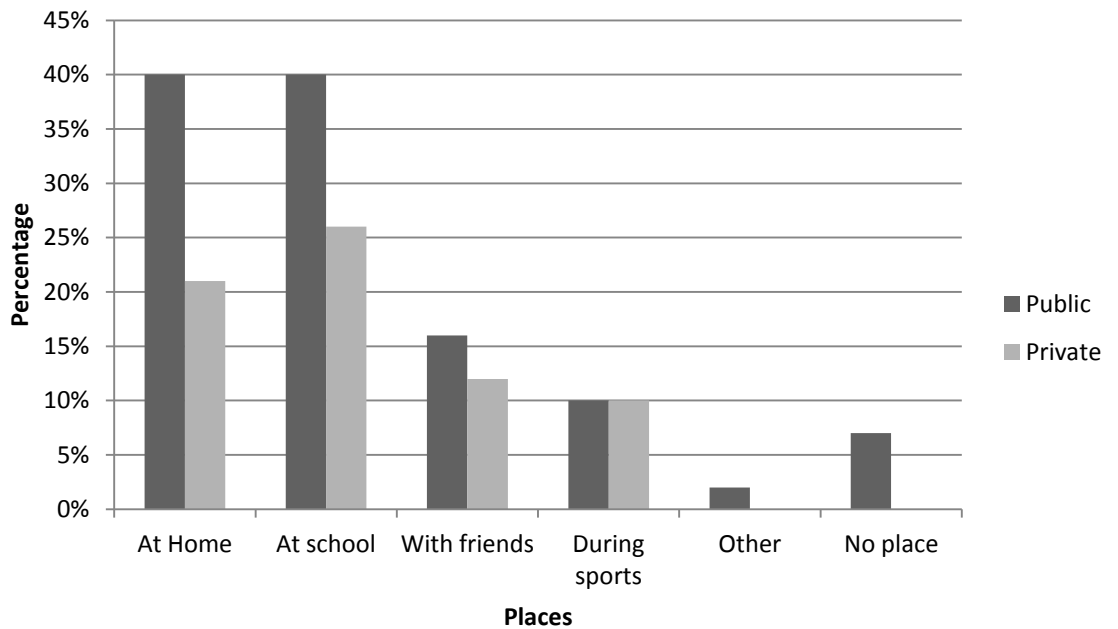
Figure 5.9: The differences according to school type (Question 35) (N = 58)

b. In terms of the differences according to whether or not children are taking medication, it was determined that there are statistically significant differences in questions, Q34 p <0.01 – Q35 p <0.05 as shown in the following table.

Figure 5.10 shows the results of Question 34 "**The following adults can help me with my ADHD**".
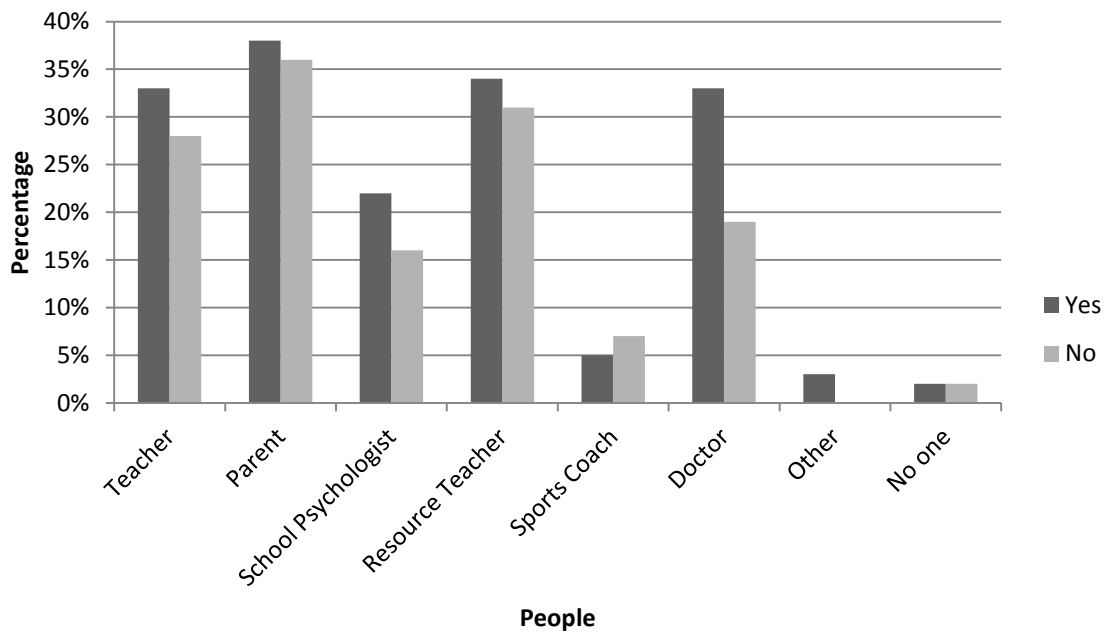
Figure 5.10: The differences according to whether or not children are taking medication (Question 34) (N = 58)

Figure 5.11 clarifies the results of Question 35 "**I can learn ways to control my ADHD on my own**".
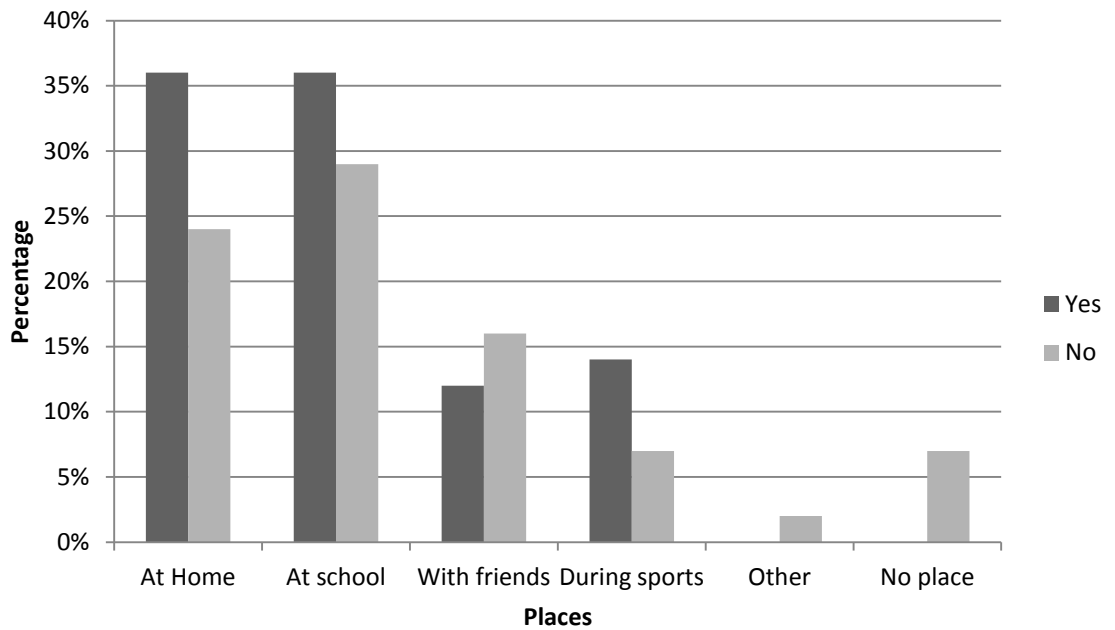
Figure 5.11: The differences according to whether or not children are taking medication (Question 35) (N = 58)

c. As for the differences according to whether or not children have been diagnosed with ADHD, it was established that there are statistically significant differences, as established through question Q34 p <0.05.

Figure 5.12 below clarifies the findings of Question 34 "**The following adults can help me with my ADHD**".
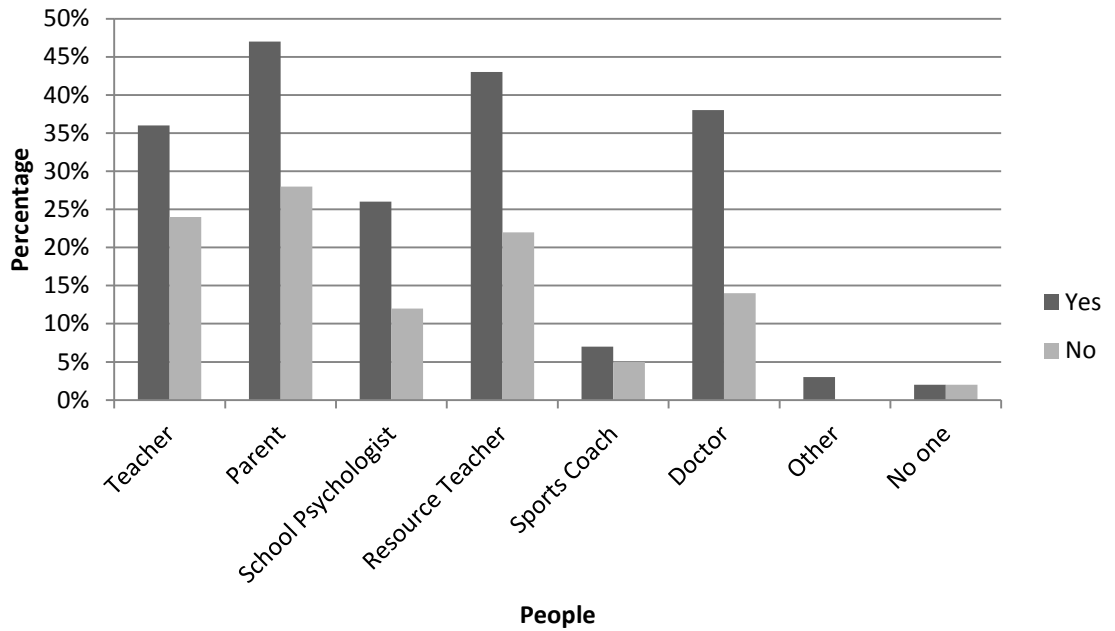
Figure 5.12: The differences according to whether or not children have been diagnosed with ADHD (Question 34) (N = 58)

5.3 Parents' Questionnaires

This part of the results is divided into three sections: a section concerning the demographic information of the participants; one part relating to the findings of the first part of the parents' questionnaires; the third section details the findings of the second part of the parents' questionnaires.

5.3.1 Section A: Demographic Information of the Parent Participants

The sample of parents comprises 40 parents (25 fathers, 15 mothers). Of these parents, their qualifications were elementary (1), intermediate (8), secondary (14), bachelor (16), and master (1). In addition, seven (7) of the participating parents had attended training regarding ADHD, with 13 believing they have the information and

skills needed. The average age of the children with ADHD was 9.73 years (SD = 1.811 years). The mean number of the children's brothers and sisters was 4 years, with a range of 0–8 years. Other demographic data of their children are described in Table 5.14.

Table 5.14: Demographic information of children with ADHD of participated parents (N = 40)

Variable		Frequency (%) (*N = 40*)
School Type	Private	12 (30%)
	Public	28 (70%)
Home location	North	20 (50%)
	South	7 (17.5%)
	East	7 (17.5%)
	West	6 (15%)
Diagnosed with ADHD	Yes	27 (67.5%)
	No	13 (32.5%)
Learning disabilities	Yes	31 (77.5%)
	No	9 (22.5%)
Taken Medication	Yes	16 (40%)
	No	24 (60%)
Type of ADHD	ADHD-I	14 (35%)
	ADHD-HI	6 (15%)
	ADHD-C	20 (50%)

The demographic information regarding the parents of the children with ADHD who participated in this research can be seen in this table. Most of the sample (70%) are parents who have children in public schools and half of them (50%) were located in the North. Furthermore, 67.5% of the parents have children who had been diagnosed with ADHD, half are parents for children diagnosed with ADHD-C type, but only 40% had children who were taking medication. Around three-quarters of the sample were parents of children with learning disabilities.

5.3.2 Section B: Parents' Knowledge and Beliefs about ADHD

This part of the questionnaire was intended to gather data concerning the knowledge and beliefs of parents of children with ADHD in terms of ADHD within the context of Saudi Arabia. The items set were Yes, No, and I do not know. The results from the parents' questionnaires highlight that on average the parents answered correctly to 40% of items (range = 19–64%).

Table 5.15 details parents' answers to the *causes of ADHD subscale*. On average, parents responded correctly to 32% of items (range = 8–83%) relating to the causes of ADHD.

Table 5.15: Item analysis of the parents' knowledge of causes of ADHD (N = 40)

		True	False	I Don't Know
Q9: Attention Deficit Disorder is caused by an allergic reaction (F)	Number	8	12	20
	%	20	30	50
Q18: Attention Deficit Disorder is caused by family problems (F)	Number	17	12	11
	%	42.5	30	27.5
Q20: Attention Deficit Disorder is caused by ineffective discipline at home (F)	Number	16	16	8
	%	40	40	20
Q23: Attention Deficit Disorder runs in families (T)	Number	21	8	11
	%	52.5	20	27.5

Q30: Attention Deficit Disorder is caused by the inconsistent application of rules and consequences (F)	Number	16	9	15
	%	40	22.5	37.5
Q36: Attention Deficit Disorder is caused by neurological impairments (T)	Number	23	5	12
	%	57.5	12.5	30
Q44: Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behaviour (F)	Number	31	6	3
	%	77.5	15	7.5
Q49: Attention Deficit Disorder is caused by excessive exposure to environmental substances such as lead (F)	Number	8	3	29
	%	20	7.5	72.5
Q53: Attention Deficit Disorder is caused by inoculations (F)	Number	3	17	20
	%	7.5	42.5	50
Q60: Attention Deficit Disorder is caused by a diet high in junk food (F)	Number	13	8	19
	%	32.5	20	47.5
Q62: Attention Deficit Disorder is caused by food sensitivities (F)	Number	7	11	22
	%	17.5	27.5	55
Q63: Attention Deficit Disorder is caused by inconsistent parenting (F)	Number	14	14	12
	%	35	35	30
Causes	Number	177	121	182
	%	37	25	38

Table 5.16 details parents' answers to the *characteristics of ADHD subscale*, On average, parents responded correctly to 63% of items (range = 33–88%) relating to the characteristics of ADHD.

Table 5.16: Item analysis of the parents' knowledge of characteristics of ADHD

(N = 40)

		True	False	I Don't Know
Q4: Children diagnosed with an Attention Deficit Disorder tend to talk excessively in class (T)	Number	24	8	8
	%	60	20	20
Q5: Children diagnosed with an Attention Deficit Disorder tend to be accident-prone (T)	Number	33	4	3
	%	82.5	10	7.5
Q11: Children diagnosed with an Attention Deficit Disorder tend not to finish their assignments (T)	Number	33	4	3
	%	82.5	10	7.5

Q16: Children diagnosed with an Attention Deficit Disorder tend to have difficulties reading other people's social cues (for example body language, facial expressions) (T)	Number	20	13	7
	%	50	32.5	17.5
Q17: Children diagnosed with an Attention Deficit Disorder tend to blurt out answers in class (T)	Number	29	6	5
	%	72.5	15	12.5
Q22: Children diagnosed with an Attention Deficit Disorder frequently are also diagnosed with another disorder (T)	Number	19	6	15
	%	47.5	15	37.5
Q24: Children with an Attention Deficit Disorder experience difficulties in establishing strong family bonds (F)	Number	24	7	9
	%	60	17.5	22.5
Q27: Children with an Attention Deficit Disorder experience difficulties in forming adult relationships (T)	Number	21	14	5
	%	52.5	35	12.5
Q28: In order for a child to be diagnosed with an Attention Deficit Disorder, symptoms of the disorder must have been present in the child prior to the age of 7 years (T)	Number	28	5	7
	%	70	12.5	17.5
Q29: Children diagnosed with an Attention Deficit Disorder tend to have coordination problems (T)	Number	16	13	11
	%	40	32.5	27.5
Q31: Children with an Attention Deficit Disorder tend to have difficulties following rules (T)	Number	34	2	4
	%	85	5	10
Q33: Children diagnosed with an Attention Deficit Disorder tend to engage in dangerous activities (T)	Number	23	9	8
	%	57.5	22.5	20
Q35: Children diagnosed with an Attention Deficit Disorder tend to have poor handwriting (T)	Number	21	14	5
	%	52.5	35	12.5
Q40: Children diagnosed with an Attention Deficit Disorder tend to be disorganised (T)	Number	34	5	1
	%	85	12.5	2.5
Q43: Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking) (T)	Number	35	5	0
	%	87.5	12.5	0
Q47: Children diagnosed with an Attention Deficit Disorder tend to be quarrelsome (T)	Number	28	8	4
	%	70	20	10
Q48: Children diagnosed with an Attention Deficit Disorder tend to be inattentive (T)	Number	33	4	3
	%	82.5	10	7.5
Q50: All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go (F)	Number	32	4	4
	%	80	10	10
Q51: Children diagnosed with an Attention Deficit Disorder tend to have poor	Number	32	4	4
	%	80	10	10

concentration (T)				
Q58: Children diagnosed with an Attention Deficit Disorder tend to have poor body posture (for example they appear to slouch, slump in their chair or sprawl across their desk) (F)	Number	18	15	7
	%	45	37.5	17.5
Q59: Children with an Attention Deficit Disorder have more behavioural problems in new situations than in familiar ones (T)	Number	28	5	7
	%	70	12.5	17.5
Q65: Children diagnosed with an Attention Deficit Disorder tend to be verbally aggressive (T)	Number	24	9	7
	%	60	22.5	17.5
Q66: Children diagnosed with an Attention Deficit Disorder tend to experience difficulties in forming and maintaining friendships (T)	Number	25	9	6
	%	62.5	22.5	15
Q67: Children diagnosed with an Attention Deficit Disorder tend to make careless errors (T)	Number	34	5	1
	%	85	12.5	2.5
Characteristics	Number	648	178	134
	%	68	19	14

Table 5.17 detailed below considers parents' answers to the *prevalence of ADHD subscale*. On average, parents responded correctly to 29% of items (range = 0– 100%) relating to the prevalence of ADHD.

Table 5.17: Item analysis of the parents' knowledge of Prevalence of ADHD

(N = 40)

		True	False	I Don't Know
Q15: Attention Deficit Disorder occurs in approximately 5% of all school-aged children (T)	Number	10	10	20
	%	25	25	50
Q64: Attention Deficit Disorder occurs in over 10% of all school-aged children (F)	Number	4	13	23
	%	10	32.5	57.5
Prevalence	Number	14	23	43
	%	18	29	54

Table 5.18 below shows parents' answers to the *treatment of ADHD subscale*. On average, parents responded correctly to 24% of items (range = 4–50%) relating to the treatment of ADHD.

Table 5.18: Item analysis of the parents' knowledge of treatment of ADHD (N = 40)

		True	False	I Don't Know
Q1: Following stimulant medication, children with an Attention Deficit Disorder may become highly anxious (for example crying or worrying excessively) (T)	Number	11	6	23
	%	27.5	15.0	57.5
Q3: Providing a child with a firm male role model is an effective treatment for Attention Deficit Disorder (F)	Number	25	7	8
	%	62.5	17.5	20
Q6: Following stimulant medication, children with an Attention Deficit Disorder may experience mood swings (T)	Number	22	4	14
	%	55	10	35
Q7: Stimulant medication increases a child's ability to follow rules (T)	Number	14	5	21
	%	35	12.5	52.5
Q8: Stimulant medication increases IQ (F)	Number	6	11	23
	%	15	27.5	57.5
Q10: Stimulant medication causes insomnia or disrupted sleep patterns (T)	Number	19	3	18
	%	47.5	7.5	45
Q12: Following stimulant medication, children diagnosed with an Attention Deficit Disorder are more able to pay attention (T)	Number	14	7	19
	%	35	17.5	47.5
Q13: Special diets (for example reduced sugar, wheat free, milk free, additive free) are an effective treatment for Attention Deficit Disorder (F)	Number	19	3	18
	%	47.5	7.5	45
Q14: Dietary supplements such as fish oils are an effective treatment for Attention Deficit Disorder (F)	Number	13	5	22
	%	32.5	12.5	55
Q19: Currently, a combination of medication and behaviour management is a highly recommended form of treatment for Attention Deficit Disorder (T)	Number	24	3	13
	%	60	7.5	32.5
Q21: Special parenting techniques are an effective treatment for Attention Deficit	Number	28	3	9
	%	70	7.5	22.5

Disorder (T)				
Q25: Following stimulant medication, children with an Attention Deficit Disorder tend to experience improvements in their relationships with peers, parents and teachers (T)	Number	13	8	19
	%	32.5	20	47.5
Q26: Social skills training is an effective treatment for Attention Deficit Disorder (F)	Number	32	0	8
	%	80	0	20
Q32: Following stimulant medication children with an Attention Deficit Disorder may experience tics (motor movements and uncontrolled vocal sounds) (T)	Number	10	8	22
	%	25	20	55
Q34: Stimulant medication works for all children diagnosed with an Attention Deficit Disorder (F)	Number	10	9	21
	%	25	22.5	52.5
Q37: Stimulant medications is the single most effective treatment for Attention Deficit Disorder (T)	Number	5	9	26
	%	12.5	22.5	65
Q38: Attention Deficit Disorder can be treated effectively by structuring a child's environment (for example making lists or having a routine) (F)	Number	27	3	10
	%	67.5	7.5	25
Q39: Electroconvulsive Therapy (ECT) is an effective treatment for Attention Deficit Disorder (F)	Number	0	7	33
	%	0	17.5	82.5
Q41: Biofeedback is an effective treatment for Attention Deficit Disorder (F)	Number	8	3	29
	%	20	7.5	72.5
Q42: Stimulant medication reduces or suppresses appetite (T)	Number	9	7	24
	%	22.5	17.5	60
Q45: Stimulant medication is addictive (F)	Number	19	6	15
	%	47.5	15	37.5
Q46: Slow-release stimulant medication needs to be taken only once during the school day (T)	Number	6	7	27
	%	15	17.5	67.5
Q52: Stimulant medication works within five minutes of taking it (F)	Number	5	8	27
	%	12.5	20	67.5
Q54: Stimulant medication increases concentration (T)	Number	10	6	24
	%	25	15	60
Q56: Homeopathic remedies are an effective treatment for Attention Deficit Disorder (F)	Number	8	1	31
	%	20	2.5	77.5
Q61: The effects of a single dose of stimulant medication lasts for six to seven hours (F)	Number	6	3	31
	%	15	7.5	77.5
Treatment	Number	363	142	535
	%	35	14	51

Table 5.19 provides data on parents' answers to the *developmental course of ADHD subscale*. On average, parents responded correctly to 38% of items (range = 0–100%) relating to the developmental course of ADHD.

Table 5.19: Item analysis of the parents' knowledge of developmental course of ADHD (N = 40)

		True	False	I Don't Know
Q2: Children diagnosed with an Attention Deficit Disorder, who take stimulant medication are less likely to become addicted to other drugs (T)	Number	4	10	26
	%	10	25	65
Q55: Adults with an Attention Deficit Disorder are more likely to experience difficulties holding down a job (T)	Number	22	3	15
	%	55	7.5	37.5
Q57: Adolescents with an Attention Deficit Disorder are more likely than adolescents without an Attention Deficit Disorder to receive a driving conviction (T)	Number	19	1	20
	%	47.5	2.5	50
Developmental course	Number	45	14	61
	%	38	12	51

With consideration to the knowledge of parents regarding main domains (Causes, Characteristics and Treatment), the results of a Kruskal Wallis Test show that the scores of parents vary considerably between the three subscales $p < 0.001$. A within-subject contrast—applying the Mann-Whitney framework—highlights that the parents' scores on the *causes subscale* were significantly less than those on the *characteristics subscale* $p < 0.001$ and significantly higher than their *treatment subscale* scores $p < 0.001$. However, the *characteristics subscale* scored significantly higher than the *treatment subscale* scores $p < 0.001$.

In regard to the demographic information, the scores of the diverse quarters of Jeddah were significantly different ($p < 0.05$) (the one-way ANOVA). In this regard, a within-subject contrast-applying the Post Hoc Tests, Tukey shows that, although there are marked differences in the means of scores across the diverse quarters,

overall, there were nevertheless statistically significant differences to be noted only in two quarters: scores in the west were significantly higher than the scores in the south $p < 0.01$.

Table 5.20: Analysis of knowledge of parents by home locations (Questions 1–67)
(N = 40)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
North	20	17	36	26.80
South	7	13	36	20.57
East	7	25	33	27.71
West	6	24	43	32.83

Parents of children taking medication had higher scores than parents of children who do not p <0.001 (t-test).

Table 5.21: Analysis of knowledge of parents by taking medication or not
(Questions 1–67) (N = 40)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Yes	16	13	43	31.00
No	24	14	35	23.96

5.3.3 Section C: Parents' Perceptions of Teachers of Children with ADHD

This part of the questionnaire was carried out with the objective to gather information relating to the perceptions of parents of children with ADHD of

children's teachers. This part of the questionnaire considers respondents' answers to each item through their selection of one of the four given items: strongly disagree, disagree, agree, and strongly agree.

Table 5.22 detailed below shows parents' answers to the items of the second part of the parents' questionnaires:

Table 5.22: Item analysis of the parents' perceptions of teachers (N = 40)

		Strongly Disagree	Disagree	Agree	Strongly Agree
Q68: ADHD is related to teachers' use of poor discipline strategies	Number	1	15	18	6
	%	2.5	37.5	45.0	15.0
Q69: Training teachers in behaviour management is a useful treatment for ADHD	Number	1	0	24	15
	%	2.5	0	60.0	37.5
Q70: ADHD results from teachers being inconsistent with rules and consequences	Number	2	11	23	4
	%	5.0	27.5	57.5	10.0
Q71: Teachers of ADHD students influence how I would manage a child with ADHD	Number	2	7	20	11
	%	5.0	17.5	50.0	27.5

From the table above, it can be seen that parents agreed that ADHD is related to poor use of discipline strategies, with ADHD resulting from teachers being inconsistent with rules and consequences; therefore, they strongly agree that training teachers in behaviour management is a useful treatment for ADHD, and also agreed that teachers of ADHD children influence the ways in which they would subsequently manage a child with ADHD.

5.4 Teachers' Questionnaires

This part is divided into three sections: a section on the demographic information of the participants; a subsequent section considering the findings of the first part of the teachers' questionnaires; and a further section relating to the findings of the second part of the teachers' questionnaires.

5.4.1 Section A: Demographic Information of the Teacher Participants

Of the total sample of 54 teachers, their average number of years' experience was 5.28 years (SD = 4.058 years). Other demographic data are described in Table 5.23.

Table 5.23: Demographic information of teachers of children with ADHD (N = 54)

Variable		Frequency (%) (N = 54)
Gender	Male	28 (52%)
	Female	26 (48%)
School Type	Private	12 (22%)
	Public	42 (78%)
School Location	North	24 (44%)
	South	14 (26%)
	East	8 (15%)
	West	8 (15%)
Taught a Child with ADHD	Yes	48 (89%)
	No	6 (11%)
Attended Training	Yes	11 (20%)
	No	43 (80%)
Information and Skills	Yes	34 (63%)
	No	20 (37%)

Qualifications	Secondary	2 (4%)
	Bachelor	47 (87%)
	Higher Diploma	2 (4%)
	Master	2 (4%)
	PhD	1 (2%)

The table above displays the demographic characteristics of the teachers of children with ADHD who participated in this survey. The whole number of the teachers was 54 teachers. 52% of the sample were males and 48% females. Most of them (78%) were working in public schools, and 89% of them taught a child with ADHD. Although only 20% of them had attended training, 63% of them had answered 'yes' to have information and skills. In terms of qualifications, the teachers' qualifications range between secondary education to PhD, though the majority 87% held a Bachelor Degree.

5.4.2 Section B: Teachers' Knowledge and Beliefs about ADHD

This part of the questionnaire was intended to gather data concerning the knowledge and beliefs of teachers of children with ADHD in the context of Saudi Arabia. The items set were Yes, No and I do not know. Results from the teachers' questionnaires highlighted that, on average, teachers have answered correctly at a rate of 47% (range = 25–72%).

Table 5.24 shows teachers' answers to the *causes of ADHD subscale*. On average, teachers responded correctly to 37% of items (range = 0–92%) relating to the causes of ADHD.

Table 5.24: Item analysis of the teachers' knowledge of causes of ADHD (N = 54)

		True	False	I Don't Know
Q9: Attention Deficit Disorder is caused by an allergic reaction (F)	Number	11	18	25
	%	20.4	33.3	46.3

Q18: Attention Deficit Disorder is caused by family problems (F)	Number	24	22	8
	%	44.4	40.7	14.8
Q20: Attention Deficit Disorder is caused by ineffective discipline at home (F)	Number	13	30	11
	%	24.1	55.6	20.4
Q23: Attention Deficit Disorder runs in families (T)	Number	27	9	18
	%	50	16.7	33.3
Q30: Attention Deficit Disorder is caused by the inconsistent application of rules and consequences (F)	Number	18	18	18
	%	33.3	33.3	33.3
Q36: Attention Deficit Disorder is caused by neurological impairments (T)	Number	31	5	18
	%	57.4	9.3	33.3
Q44: Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behaviour (F)	Number	28	21	5
	%	51.9	38.9	9.3
Q49: Attention Deficit Disorder is caused by excessive exposure to environmental substances such as lead (F)	Number	13	5	36
	%	24.1	9.3	66.7
Q53: Attention Deficit Disorder is caused by inoculations (F)	Number	1	20	33
	%	1.9	37	61.1
Q60: Attention Deficit Disorder is caused by a diet high in junk food (F)	Number	23	12	19
	%	42.6	22.2	35.2
Q62: Attention Deficit Disorder is caused by food sensitivities (F)	Number	12	10	32
	%	22.2	18.5	59.3
Q63: Attention Deficit Disorder is caused by inconsistent parenting (F)	Number	13	26	15
	%	24.1	48.1	27.8
Causes	Number	214	196	238
	%	33.02	30.25	36.73

Table 5.25 provides a breakdown of teachers' answers to the *characteristics of ADHD subscale*. On average, teachers responded correctly to 68% of items (range = 38–88%) relating to the *characteristics of ADHD subscale* items.

Table 5.25: Item analysis of the teachers' knowledge of characteristics of ADHD

(N = 54)

		True	False	I Don't Know
Q4: Children diagnosed with an Attention Deficit Disorder tend to talk excessively in class (T)	Number	39	13	2
	%	72.2	24.1	3.7

Q5: Children diagnosed with an Attention Deficit Disorder tend to be accident-prone (T)	Number	47	4	3
	%	87	7.4	5.6
Q11: Children diagnosed with an Attention Deficit Disorder tend not to finish their assignments (T)	Number	45	4	5
	%	83.3	7.4	9.3
Q16: Children diagnosed with an Attention Deficit Disorder tend to have difficulties reading other people's social cues (for example body language, facial expressions) (T)	Number	36	11	7
	%	66.7	20.4	13
Q17: Children diagnosed with an Attention Deficit Disorder tend to blurt out answers in class (T)	Number	48	5	1
	%	88.9	9.3	1.9
Q22: Children diagnosed with an Attention Deficit Disorder frequently are also diagnosed with another disorder (T)	Number	33	5	16
	%	61.1	9.3	29.6
Q24: Children with an Attention Deficit Disorder experience difficulties in establishing strong family bonds (F)	Number	32	11	11
	%	59.3	20.4	20.4
Q27: Children with an Attention Deficit Disorder experience difficulties in forming adult relationships (T)	Number	32	11	11
	%	59.3	20.4	20.4
Q28: In order for a child to be diagnosed with an Attention Deficit Disorder, symptoms of the disorder must have been present in the child prior to the age of 7 years (T)	Number	33	8	13
	%	61.1	14.8	24.1
Q29: Children diagnosed with an Attention Deficit Disorder tend to have coordination problems (T)	Number	23	21	10
	%	42.6	38.9	18.5
Q31: Children with an Attention Deficit Disorder tend to have difficulties following rules (T)	Number	52	0	2
	%	96.3	0	3.7
Q33: Children diagnosed with an Attention Deficit Disorder tend to engage in dangerous activities (T)	Number	31	9	14
	%	57.4	16.7	25.9
Q35: Children diagnosed with an Attention Deficit Disorder tend to have poor handwriting (T)	Number	24	19	11
	%	44.4	35.2	20.4
Q40: Children diagnosed with an Attention Deficit Disorder tend to be disorganised (T)	Number	46	5	3
	%	85.2	9.3	5.6
Q43: Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking) (T)	Number	53	1	0
	%	98.1	1.9	0
Q47: Children diagnosed with an Attention Deficit Disorder tend to be quarrelsome (T)	Number	44	6	4
	%	81.5	11.1	7.4
Q48: Children diagnosed with an Attention Deficit Disorder tend to be inattentive (T)	Number	50	1	3
	%	92.6	1.9	5.6

Q50: All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go (F)	Number	44	7	3
	%	81.5	13	5.6
Q51: Children diagnosed with an Attention Deficit Disorder tend to have poor concentration (T)	Number	49	5	0
	%	90.7	9.3	0
Q58: Children diagnosed with an Attention Deficit Disorder tend to have poor body posture (for example they appear to slouch, slump in their chair or sprawl across their desk) (F)	Number	22	23	9
	%	40.7	42.6	16.7
Q59: Children with an Attention Deficit Disorder have more behavioural problems in new situations than in familiar ones (T)	Number	50	2	2
	%	92.6	3.7	3.7
Q65: Children diagnosed with an Attention Deficit Disorder tend to be verbally aggressive (T)	Number	27	23	4
	%	50	42.6	7.4
Q66: Children diagnosed with an Attention Deficit Disorder tend to experience difficulties in forming and maintaining friendships (T)	Number	40	10	4
	%	74.1	18.5	7.4
Q67: Children diagnosed with an Attention Deficit Disorder tend to make careless errors (T)	Number	42	8	4
	%	77.8	14.8	7.4
Characteristics	Number	942	212	142
	%	72.68	16.36	10.96

Table 5.26 provides teachers' answers to the *prevalence of ADHD subscale*. On average, teachers responded correctly to 33% of items (range = 0–100%) relating to the prevalence of ADHD.

Table 5.26: Item analysis of the teachers' knowledge of Prevalence of ADHD

(N = 54)

		True	False	I Don't Know
Q15: Attention Deficit Disorder occurs in approximately 5% of all school-aged children (T)	Number	16	9	29
	%	29.6	16.7	53.7
Q64: Attention Deficit Disorder occurs in over 10% of all school-aged children (F)	Number	8	19	27
	%	14.8	35.2	50
Prevalence	Number	24	28	56
	%	22.22	25.93	51.85

Table 5.27 provides the teachers' answers to the *treatment of ADHD subscale*. On average, teachers responded correctly to 34% of items (range = 4–69%) relating to the treatment of ADHD.

Table 5.27: Item analysis of the teachers' knowledge of Treatment of ADHD

(N = 54)

		True	False	I Don't Know
Q1: Following stimulant medication, children with an Attention Deficit Disorder may become highly anxious (for example crying or worrying excessively) (T)	Number	16	9	29
	%	29.6	16.7	53.7
Q3: Providing a child with a firm male role model is an effective treatment for Attention Deficit Disorder (F)	Number	26	17	11
	%	48.1	31.5	20.4
Q6: Following stimulant medication, children with an Attention Deficit Disorder may experience mood swings (T)	Number	35	3	16
	%	64.8	5.6	29.6
Q7: Stimulant medication increases a child's ability to follow rules (T)	Number	23	13	18
	%	42.6	24.1	33.3
Q8: Stimulant medication increases IQ (F)	Number	4	25	25
	%	7.4	46.3	46.3
Q10: Stimulant medication causes insomnia or disrupted sleep patterns (T)	Number	31	5	18
	%	57.4	9.3	33.3
Q12: Following stimulant medication, children diagnosed with an Attention Deficit Disorder are more able to pay attention (T)	Number	29	7	18
	%	53.7	13	33.3
Q13: Special diets (for example reduced sugar, wheat free, milk free, additive free) are an effective treatment for Attention Deficit Disorder (F)	Number	28	4	22
	%	51.9	7.4	40.7
Q14: Dietary supplements such as fish oils are an effective treatment for Attention Deficit Disorder (F)	Number	14	1	39
	%	25.9	1.9	72.2
Q19: Currently, a combination of medication and behaviour management is a highly recommended form of treatment for Attention Deficit Disorder (T)	Number	46	2	6
	%	85.2	3.7	11.1
Q21: Special parenting techniques are an effective treatment for Attention Deficit Disorder (T)	Number	39	5	10
	%	72.2	9.3	18.5
Q25: Following stimulant medication, children	Number	16	9	29

with an Attention Deficit Disorder tend to experience improvements in their relationships with peers, parents and teachers (T)	%	29.6	16.7	53.7
Q26: Social skills training is an effective treatment for Attention Deficit Disorder (F)	Number	43	5	6
	%	79.6	9.3	11.1
Q32: Following stimulant medication children with an Attention Deficit Disorder may experience tics (motor movements and uncontrolled vocal sounds) (T)	Number	20	5	29
	%	37	9.3	53.7
Q34: Stimulant medication works for all children diagnosed with an Attention Deficit Disorder (F)	Number	6	23	25
	%	11.1	42.6	46.3
Q37: Stimulant medications is the single most effective treatment for Attention Deficit Disorder (T)	Number	14	14	26
	%	25.9	25.9	48.2
Q38: Attention Deficit Disorder can be treated effectively by structuring a child's environment (for example making lists or having a routine) (F)	Number	36	6	12
	%	66.7	11.1	22.2
Q39: Electroconvulsive Therapy (ECT) is an effective treatment for Attention Deficit Disorder (F)	Number	2	17	35
	%	3.7	31.5	64.8
Q41: Biofeedback is an effective treatment for Attention Deficit Disorder (F)	Number	14	1	39
	%	14	1.9	39
Q42: Stimulant medication reduces or suppresses appetite (T)	Number	26	4	24
	%	48.1	7.4	44.4
Q45: Stimulant medication is addictive (F)	Number	11	9	34
	%	20.4	16.7	63
Q46: Slow-release stimulant medication needs to be taken only once during the school day (T)	Number	20	5	29
	%	37	9.3	53.7
Q52: Stimulant medication works within five minutes of taking it (F)	Number	3	9	42
	%	5.6	16.7	77.8
Q54: Stimulant medication increases concentration (T)	Number	26	6	22
	%	48.1	11.1	40.7
Q56: Homeopathic remedies are an effective treatment for Attention Deficit Disorder (F)	Number	10	5	39
	%	18.5	9.3	72.2
Q61: The effects of a single dose of stimulant medication lasts for six to seven hours (F)	Number	9	5	40
	%	16.7	9.3	74.1
Treatment	Number	547	214	643
	%	38.96	15.24	45.80

Table 5.28 detailed below provides the answers given by the teachers in regard to the *developmental course of ADHD subscale*. On average, teachers responded correctly to 51% of items (range = 0–100%) relating to the developmental course of ADHD.

Table 5.28: Item analysis of the teachers' knowledge of Developmental course of ADHD (N = 54)

		True	False	I Don't Know
Q2: Children diagnosed with an Attention Deficit Disorder, who take stimulant medication are less likely to become addicted to other drugs (T)	Number	9	13	32
	%	16.7	24.1	59.3
Q55: Adults with an Attention Deficit Disorder are more likely to experience difficulties holding down a job (T)	Number	37	6	11
	%	68.5	11.1	20.4
Q57: Adolescents with an Attention Deficit Disorder are more likely than adolescents without an Attention Deficit Disorder to receive a driving conviction (T)	Number	37	3	14
	%	68.5	5.6	25.9
Developmental course	Number	83	22	57
	%	51.23	13.58	35.19

In terms of the knowledge of teachers relating to fundamental arenas (Causes, Characteristics and Treatment), the results of a Kruskal Wallis Test show that the scores of the teacher on the three subscales highlight a statically significant differences amongst the different domains ($p < 0.001$). A within-subject contrast—applying the Mann-Whitney framework—shows that, generally speaking, the teachers' scores on the *causes subscale* were significantly less than those on the *characteristics subscale* scores $p < 0.001$, and that the *characteristics subscale* scores were significantly higher than the *treatment subscale* scores $p < 0.001$.

Moreover, in regard to the demographic information, as shown in the table 5.29, private school teachers provide higher scores than public schools teachers ($p <0.05$) (t-test).

Table 5.29: Analysis of knowledge of teachers by school type (Questions 1–67)

(N = 54)

	No. of Participants	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores
Public	42	17	44	30.71
Private	12	23	48	35.33

5.4.3 Section C: Teachers' Perceptions of Parents of Children with ADHD

This part of the questionnaire was intended to gather data regarding teachers' perceptions of parents of children with ADHD, with this part of the questionnaire considering respondents' answers to each item through their selection of one of the four given items: strongly disagree, disagree, agree, and strongly agree.

Table 5.30 shows the teachers' answers to the items of the second part of the teachers ' questionnaires.

Table 5.30: Item analysis of the teachers' perceptions of parents (N = 54)

		Strongly Disagree	Disagree	Agree	Strongly Agree	Missing
Q68: ADHD is related to parents' use of poor discipline strategies	Number	7	16	29	2	0
	%	13.0	29.6	53.7	3.7	.0
Q69: Training parents in behaviour management is a useful treatment for ADHD	Number	2	3	23	25	1
	%	3.7	5.6	42.6	46.3	1.9
Q70: ADHD results from parents being inconsistent with rules and consequences	Number	8	18	25	3	0
	%	14.8	33.3	46.3	5.6	.0
Q71: Parents of ADHD children influence how I would manage a child with ADHD	Number	4	19	23	6	2
	%	7.4	35.2	42.6	11.1	3.7

As can be garnered from the table above, it appears that, although teachers disagreed that ADHD is related to parents' use of poor discipline strategies and ADHD results from parents being inconsistent with rules and consequences, they agreed that training parents in behavioural management is a useful treatment for ADHD, and also that the parents of ADHD-affected children influence how the teacher would ultimately manage a child with ADHD.

5.5 Cross-group Analysis of Questionnaires Results

As an element of this chapter—which intends to reveal the outcomes of the questionnaires and analyse the responses of children, parents and teachers groups— this particular section continues the presentation of the findings from different points of view, taking into account the data across diverse three groups. Subsequently to each group's voice being presented, a comparison across their data is essential.

5.5.1 Section A: Demographic Information of the Group Participants

The participants in each group vary in their numbers; the number of the children with ADHD is fifty-eight (58); the number of parents of children with ADHD is forty (40); and fifty-four (54) teachers who specialise in learning disabilities. In the three groups, the number of males exceeded the females.

Figure 5.13 demonstrates the demographic dissimilarities across the three groups in terms of their gender.
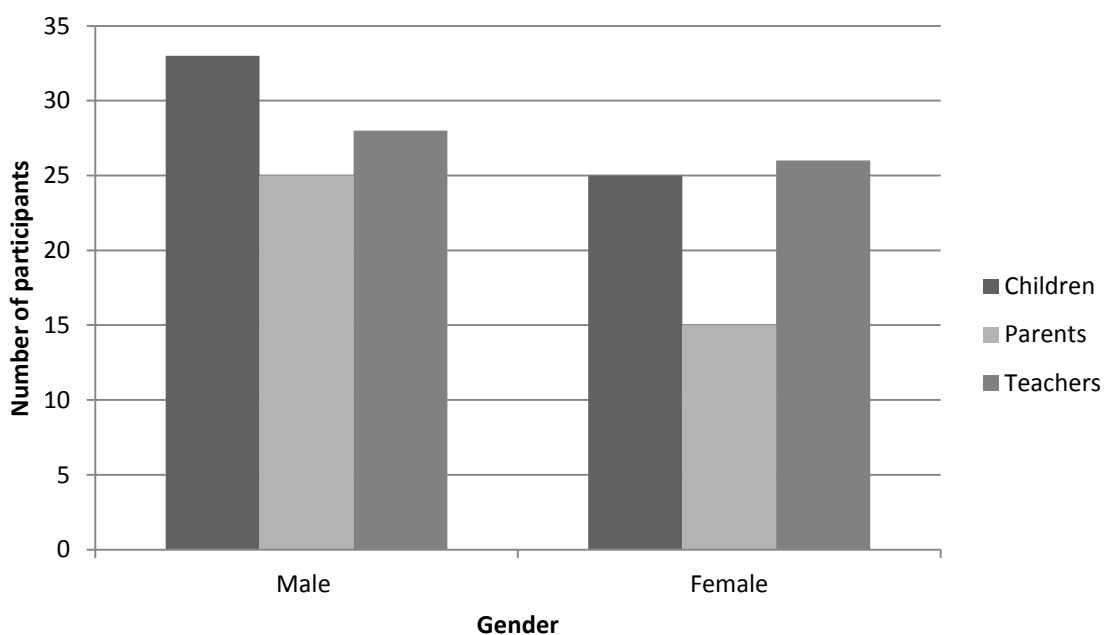
Figure 5.13: Comparison between the children, parents and teachers in questionnaires in terms of their gender

In addition, concerning the type of school—whether private or public—most of the participants come from private schools. The next figure (5.14) shows the differences between groups according to the type of school they come from.
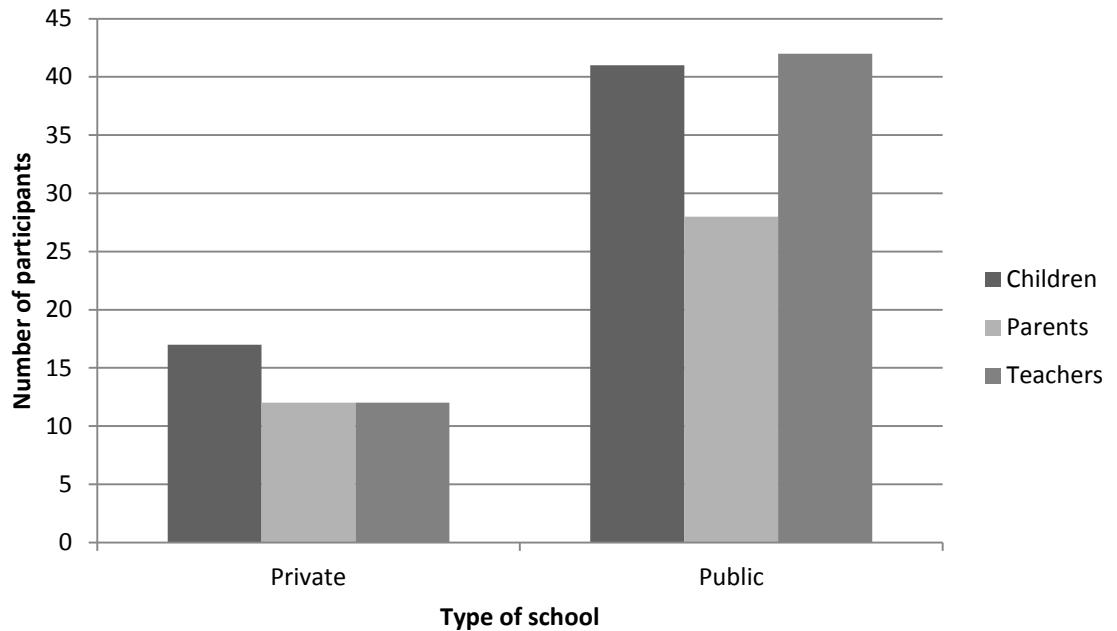
Figure 5.14: Comparison between the children, parents and teachers in
questionnaires in terms of the type of school

The findings include three sections: Knowledge and Beliefs regarding ADHD; Most
Common Correct, Incorrect and Don't Know Answers; and the reciprocal
Perceptions of Children with ADHD, their Parents and Teachers of Each Other.

5.5.2 Section B: Participants' Knowledge and Beliefs about ADHD

On average, when completing the questionnaires the children responded correctly to
65% of items (range = 27–87%) of knowledge items. Parents and teachers differ in
their percentage of correct answers; whilst the results from the parents'
questionnaires reveal that parents, on average, have responded correctly to 40% of
items (range = 19–64%), results from the teachers' questionnaires show that, on
average, teachers respond correctly to 47% of items (range = 25–72%).

Table 5.31 highlights the differences between the responses of children with ADHD, their parents and teachers according to their questionnaires.

Table 5.31: Comparison between the results of children, parents and teachers of the total questionnaires (N = 152)

	No. of Participants	No. of Items	Min of Individual Scores	Max of Individual Scores	Mean of Individual Scores	Percentage
Children	54	15	4	13	9.72	64.83%
Parents	40	67	13	43	26.78	39.97%
Teachers	54	67	17	48	31.74	47.37%

Since parents and teachers responded to the same questionnaires, an independent t-test was carried out in an attempt to contrast the overall scores of parents and teachers. The results highlight the fact that teachers' whole scores were significantly higher than those of the parents p <0.001 (t-test).

Of the three main domains included in this research, during the course of their questionnaires, children were found to be the most knowledgeable regarding the causes of ADHD and the least knowledgeable in terms of treatment. Parents and teachers were found to be most knowledgeable in relation to the characteristics of ADHD, whilst they were found to be least knowledgeable in regard treatment domain. The results of a Kruskal Wallis Test show that the scores of the teachers on the subscales—Causes, Characteristics and Treatment—were significantly higher than parents' scores ($p < 0.001$). More specifically, when applying the Mann-Whitney framework, teachers were found to have significantly higher scores on the *treatment subscale* than parents p <0.05. Dissimilarities in terms of the *characteristics subscale* between teachers and parents were found to be not statistically significant ($p = 0.071$).

Figure 5.15 displayed below clearly depicts the findings.
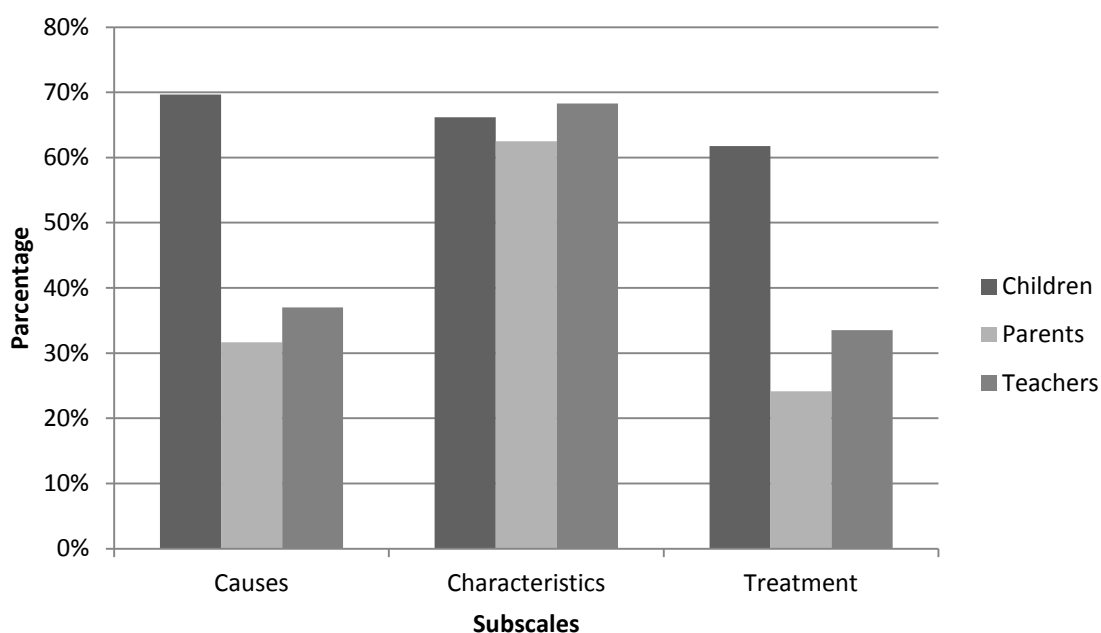
Figure 5.15: Comparison between the results of children, parents and teachers of
subscale scores (N = 152)

Notes: the comparison was carried out for contrast purposes between children,
parents and teachers of subscale scores. Unlike children, parents and teachers were
given the same questionnaires.

The ADHD Knowledge Questionnaire for Children, Section A format (true/false),
enabled the gathering of correct and incorrect responses. In addition, the KADD-Q
format (true/false/I don't know) also permitted correct, incorrect and 'I don't know'
answers to be observed independently.

Figure 5.16 reveals that, overall, children's, parents' and teachers' knowledge of
ADHD indicate what they know, their misconceptions, and what they acknowledged
they do not know.
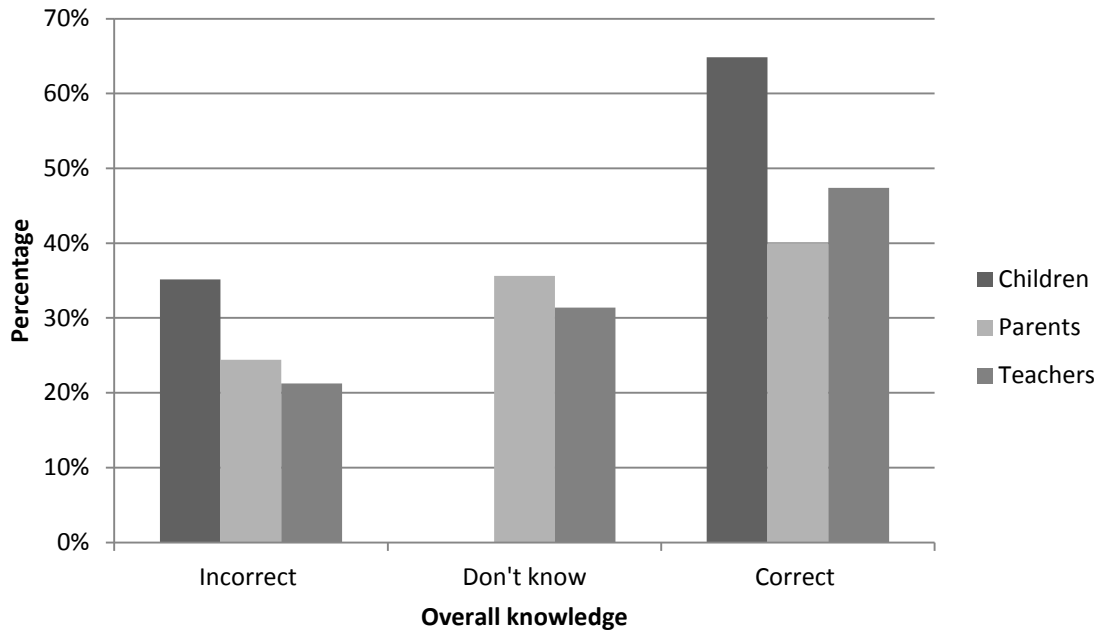
Figure 5.16: Children's, parents' and teachers' overall knowledge of ADHD

Figures 5.17, 5.18 and 5.19 below categorise the knowledge of ADHD from the standpoint of children, parents and teachers into individual domains: causes, characteristics, prevalence, treatment, and developmental course.
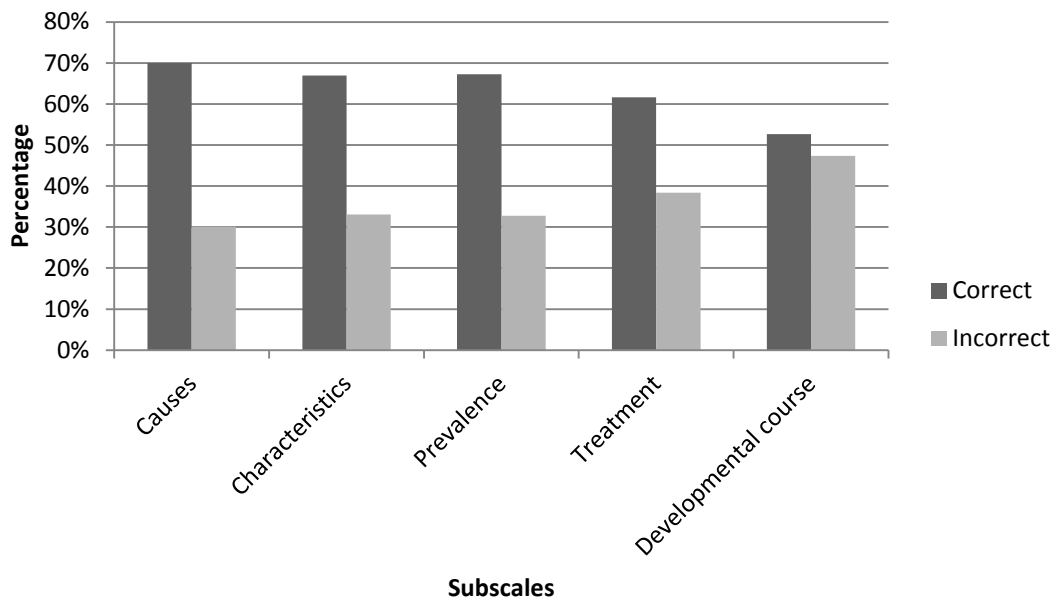
Figure 5.17: Children's knowledge by domain
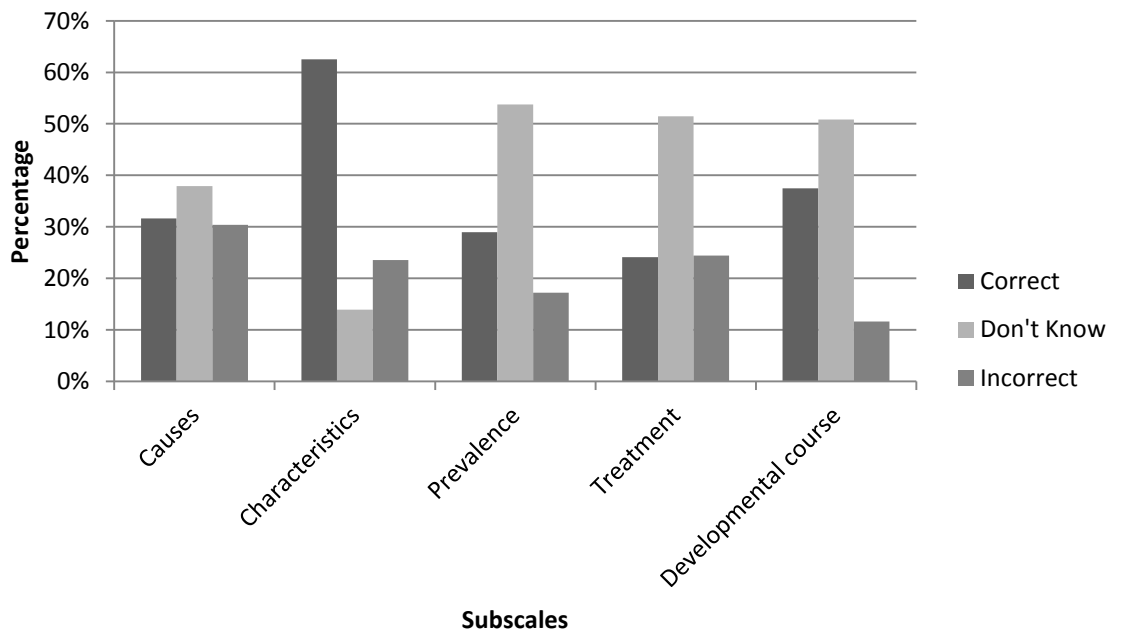
Figure 5.18: Parents' knowledge by domain
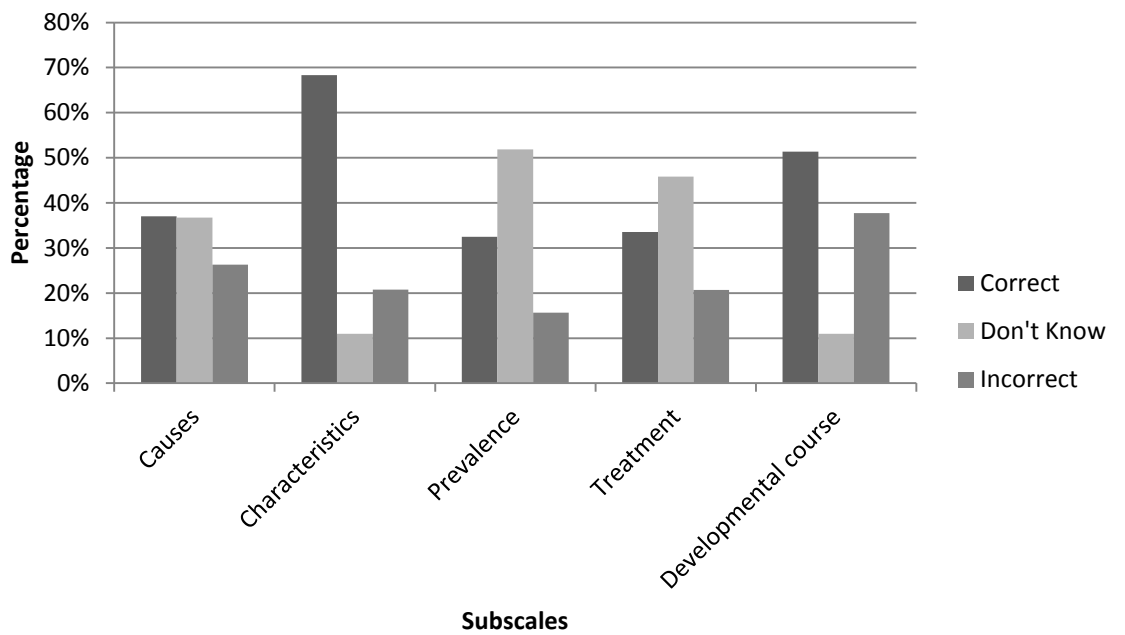
Figure 5.19: Teachers' knowledge by domain

5.5.2.1 Most Common Correct Answers:

As can be seen when reviewing tables 5.32, 5.33 and 5.34, the most common items responded to correctly by children, parents and teachers were those items pertaining to ADHD characteristics. Similarly, over 90% of teachers, 86% of children and 65% of parents correctly recognised that children with ADHD tend to be inattentive and have poor concentration. Many children, parents and teachers identified that children with ADHD act impulsivity (do things without thinking), whilst 96% of teachers and 68% of parents identified that children with ADHD tend to experience difficulty in following rules.

On the other hand, the highest percentage of correct children's responses was to those items relating to the causes and treatment of ADHD. Over 90% of children correctly identified that ADHD does not occur because those children are allergic to something in the air, and that parents and teachers are able to learn how to assist children with ADHD. For parents, the most common items correctly answered include the questions relating to their lives with children, such as children with ADHD tend to be accident-prone, do not finish their assignments, like to be disorganised, and make careless errors. Furthermore, 93% of teachers correctly recognise that children with ADHD have more behavioural problems in new situations than in familiar ones.

Table 5.32: Items with the highest percentage of correct answers by children

	Item	Subscale	Number (Percentage)
6	ADHD happens because you are allergic to something in the air (F)	Causes	54 (93%)
9	Parents and teachers can learn how to help kids with ADHD (T)	Treatment	53 (91%)
15	Unless things really grab their attention, kids with ADHD find it hard to concentrate (T)	Characteristics	50 (86%)
5	Kids with ADHD sometimes act before they think (T)	Characteristics	44 (76%)
12	Only boys (not girls) can have ADHD (F)	Characteristics	43 (74%)

Table 5.33: Items with the highest percentage of correct answers by parents

	Item	Subscale	Number (Percentage)
31	Children with an Attention Deficit Disorder tend to have difficulties following rules (T)	Characteristics	27 (68%)
43	Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking) (T)	Characteristics	27 (68%)
5	Children diagnosed with an Attention Deficit Disorder tend to be accident-prone (T)	Characteristics	26 (65%)
11	Children diagnosed with an Attention Deficit Disorder tend not to finish their assignments (T)	Characteristics	26 (65%)
40	Children diagnosed with an Attention Deficit Disorder tend to be disorganised (T)	Characteristics	26 (65%)
48	Children diagnosed with an Attention Deficit Disorder tend to be inattentive (T)	Characteristics	26 (65%)
67	Children diagnosed with an Attention Deficit Disorder tend to make careless errors (T)	Characteristics	26 (65%)

Table 5.34: Items with the highest percentage of correct answers by teachers

	Item	Subscale	Number (Percentage)
43	Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking) (T)	Characteristics	53 (98%)
31	Children with an Attention Deficit Disorder tend to have difficulties following rules (T)	Characteristics	52 (96%)
48	Children diagnosed with an Attention Deficit Disorder tend to be inattentive (T)	Characteristics	50 (93%)
59	Children with an Attention Deficit Disorder have more behavioural problems in new situations than in familiar ones (T)	Characteristics	50 (93%)
51	Children diagnosed with an Attention Deficit Disorder tend to have poor concentration (T)	Characteristics	49 (91%)

5.5.2.2 Most Common Incorrect Answers

As can be seen in tables 5.35, 5.36 and 5.37, there were a number of items commonly responded to incorrectly by children, parents and teachers. For instance, over 80% of parents and teachers and 76% of children incorrectly responded that all children with ADHD are hyperactive.

80% of parents and teachers responded that social skills training is an effective treatment for Attention Deficit Disorder, whilst 68% of parents and 67% of teachers answered that Attention Deficit Disorder could be treated effectively by structuring a child's environment. Moreover, 78% of parents and 52% of teachers responded that Attention Deficit Disorder is caused by children not trying hard enough to control their own behaviour, which is not in agreement with the present understanding of the condition.

Over 45% of children responded incorrectly that medicine will cure ADHD and that, when children with ADHD become teenagers, their problems will automatically go away. Children were unaware that treatment for ADHD is needed only for children, not adolescents or adults, because of the dissimilarities in the way in which children's brains work. Furthermore, 63% of parents believe that providing such children with a firm male role model is an efficient treatment for ADD, which is not consistent with current ADHD understanding.

More than 52% of teachers incorrectly identified that children with ADHD experience problems in establishing strong family bonds, as well as the belief that special diets are an efficient treatment form for ADHD.

Table 5.35: Items with the highest percentage of incorrect answers for children

	Item	Subscale	Number (Percentage)
1	All kids with ADHD are hyperactive (F)	Characteristics	44 (76%)
10	Treatment for ADHD is only needed for kids, not adolescents or adults (T)	Treatment	33 (57%)
8	Medication will cure ADHD (F)	Treatment	30 (52%)

7	When kids with ADHD become teenagers their problems automatically go away (F)	Developmental course	28 (48%)
11	ADHD is due to differences in the way kid's brains work (T)	Causes	26 (45%)

Table 5.36: Items with the highest percentage of incorrect answers by parents

	Item	Subscale	Number (Percentage)
26	Social skills training is an effective treatment for Attention Deficit Disorder (F)	Treatment	32 (80%)
50	All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go (F)	Characteristics	32 (80%)
44	Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behaviour (F)	Causes	31 (78%)
38	Attention Deficit Disorder can be treated effectively by structuring a child's environment (for example making lists or having a routine) (F)	Treatment	27 (68%)
3	Providing a child with a firm male role model is an effective treatment for Attention Deficit Disorder (F)	Treatment	25 (63%)

Table 5.37: Items with the highest percentage of incorrect answers by teacher

	Item	Subscale	Number (Percentage)
50	All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go (F)	Characteristics	44 (81%)
26	Social skills training is an effective treatment for Attention Deficit Disorder (F)	Treatment	43 (80%)
38	Attention Deficit Disorder can be treated effectively by structuring a child's environment (for example making lists or having a routine) (F)	Treatment	36 (67%)
24	Children with an Attention Deficit Disorder experience difficulties in establishing strong family bonds (F)	Characteristics	32 (59%)
13	Special diets (for example reduced sugar, wheat free, milk free, additive free) are an effective treatment for Attention Deficit Disorder (F)	Treatment	28 (52%)
44	Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behaviour (F)	Causes	28 (52%)

5.5.2.3 Most Common 'I don't know' Answers

The findings relevant to the most common 'I don't know' answers are presented separately for children, parents and teachers in tables 5.38 and 5.39. The items that revealed the largest percentages of 'I don't know' answers were from the subscale of treatment.

78% of parents and 72% of teachers answered that they did not know whether or not homeopathic remedies would be an efficient ADHD treatment. 78% of parents and 74% of teachers responded that they did not know whether a single dose stimulant medicine would last for 6–7 hours. In addition, 73% of parents and 72% of teachers answered that they did not know whether or not biofeedback is considered to be an efficient ADHD treatment.

Parents revealed that they do not know whether Electroconvulsive Therapy (ECT) is an efficient Attention Deficit Disorder treatment and whether or not it is caused by excessive exposure to environmental substances. Teachers stated that they do not know whether or not stimulant medications work within five minutes after taking it and whether dietary supplements are an efficient treatment for Attention Deficit Disorder.

Table 5.38: Items with the highest percentage of don't know answers by parents

	Item	Subscale	Number (Percentage)
39	Electroconvulsive Therapy (ECT) is an effective treatment for Attention Deficit Disorder (F)	Treatment	33 (83%)
56	Homeopathic remedies are an effective treatment for Attention Deficit Disorder (F)	Treatment	31 (78%)
61	The effects of a single dose of stimulant medication lasts for six to seven hours (F)	Treatment	31 (78%)
41	Biofeedback is an effective treatment for Attention Deficit Disorder (F)	Treatment	29 (73%)
49	Attention Deficit Disorder is caused by excessive exposure to environmental substances such as lead (F)	Causes	29 (73%)

Table 5.39: Items with the highest percentage of don't know answers by teachers

	Item	Subscale	Number (Percentage)
52	Stimulant medication works within five minutes of taking it (F)	Treatment	42 (78%)
61	The effects of a single dose of stimulant medication lasts for six to seven hours (F)	Treatment	40 (74%)
14	Dietary supplements such as fish oils are an effective treatment for Attention Deficit Disorder (F)	Treatment	39 (72%)
41	Biofeedback is an effective treatment for Attention Deficit Disorder (F)	Treatment	39 (72%)
56	Homeopathic remedies are an effective treatment for Attention Deficit Disorder (F)	Treatment	39 (72%)

5.5.3 Section C: The Perceptions of Children with ADHD, their Parents and Teachers of Each Other

5.5.3.1 Children–Parents:

Children tend to have negative perceptions of parents. This was ascertained when asking about adults in the sense of whether or not ADHD makes it difficult to get along with adults; 51.7% chose their parents. However, the majority (91.4%) believed that parents can learn how to help children with ADHD, and 60.3% hold the belief that ADHD is not caused by troubles at home. 81% state that their parents can help them with ADHD and 74.1% identified their parents as being adults who can 'help me with my ADHD', whilst 91.4% agreed that parents can take classes to learn how to help their children with ADHD.

The percentage of accurate beliefs held by parents regarding children with ADHD highlights that 44.1% of the answers revealed correct beliefs and 41.7% showed incorrect beliefs. Furthermore, when considering the false items so as to determine their perceptions and whether or not they believe negative things associated with ADHD, it was found that 60% believe that children with ADHD experience difficulties in terms of establishing strong family bonds, with 77.5% agreeing that

ADHD is caused by a child not trying hard enough to control his/her own behaviour. Furthermore, 80% hold the belief that all children diagnosed with ADHD appear to be constantly on the go; however, 45% tend to accept that children diagnosed with ADHD tend to have poor body posture, for example they appear to slouch, slump in their chairs, or sprawl across their desks.

5.5.3.2 Children—Teachers:

When asking children about adults in the sense that ADHD makes it difficult to get along with such individuals, more than a half (60.3%) identified teachers. however, 91.4% believing that teachers can learn how to help children with ADHD. 75.9% agreed that it is okay for teachers to give children with ADHD extra help in school. Furthermore, 79.3% state that there are ways that children with ADHD and their teachers can work together so that schoolwork gets done without much trouble, and 63.8% stated that, when it comes to their learning disabilities, teachers 'can help me with my ADHD'.

The percentage of accurate beliefs held by teachers regarding children with ADHD shows that 51.9% of the responses hold correct beliefs whilst 36.8% hold incorrect beliefs. In addition, when looking to the false items in order to discover their perceptions and whether they believe negative elements associated with ADHD, it was revealed that 59.3% believe that children with ADHD experience difficulties in establishing strong family bonds, and 51.9% agree that ADHD is caused by a child not trying hard enough to control his/her own behaviour. 81.5% believe that all children diagnosed with ADHD appear to be constantly on the go; however, 40.7% accept that children diagnosed with ADHD tend to have poor body posture, for example they appear to slouch, slump in their chairs or sprawl across their desks.

5.5.3.3 Parents-Teachers:

The perceptions of parents and teachers of each other were compared by considering the items of the second part of their questionnaires, as discussed below.

Parents and teachers were asked whether or not ADHD is related to others' use of poor discipline strategies. Their responses can be seen in figure 5.20.
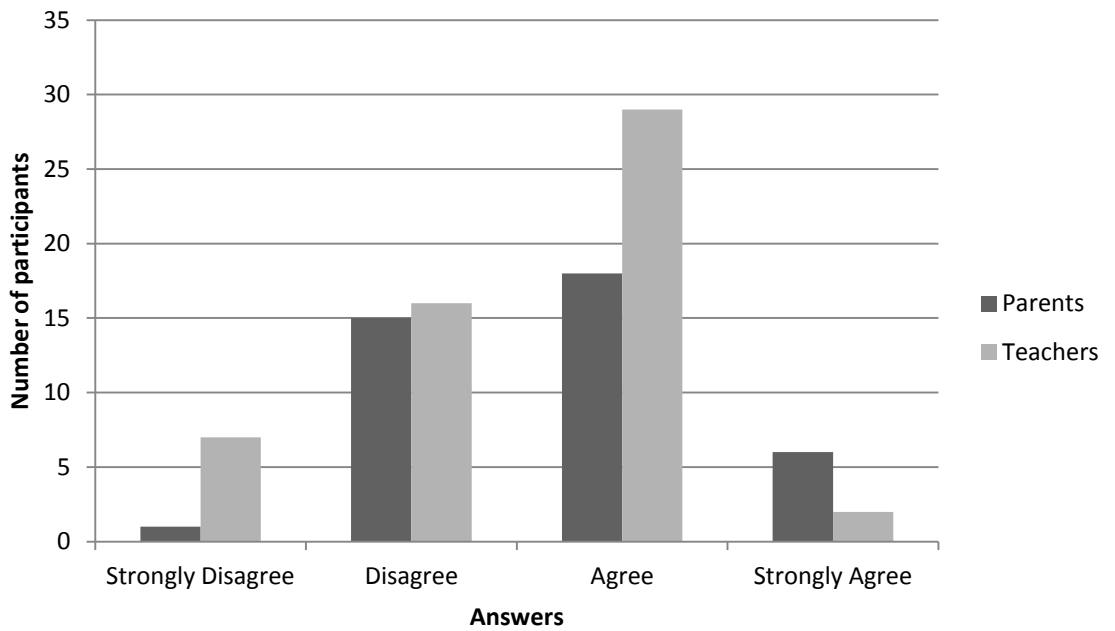
Figure 5.20: The answers of parents and teachers to the question 68
(parents = 40, teachers = 54).

When asking about whether or not the other training in behaviour management is a useful treatment for ADHD, parents' and teachers' responses were as can be seen in Figure 5.21.
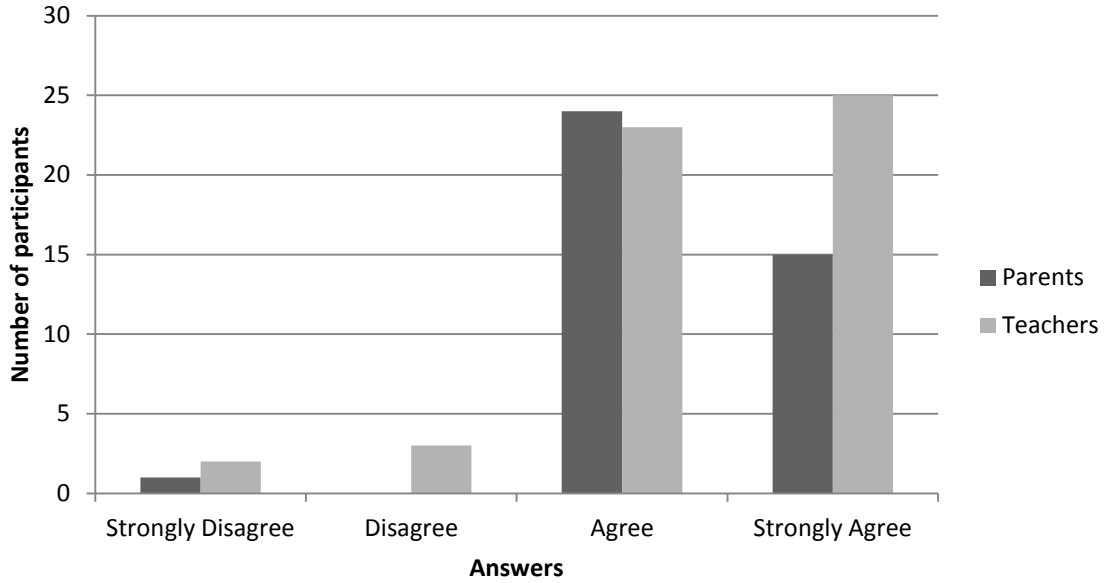
Figure 5.21: The answers of parents and teachers to the question 69
(parents = 40, teachers = 54).

The parents and teachers were questioned in regard to their belief of whether or not ADHD results from teachers being inconsistent with rules and consequences. Their responses can be seen in Figure 5.22.
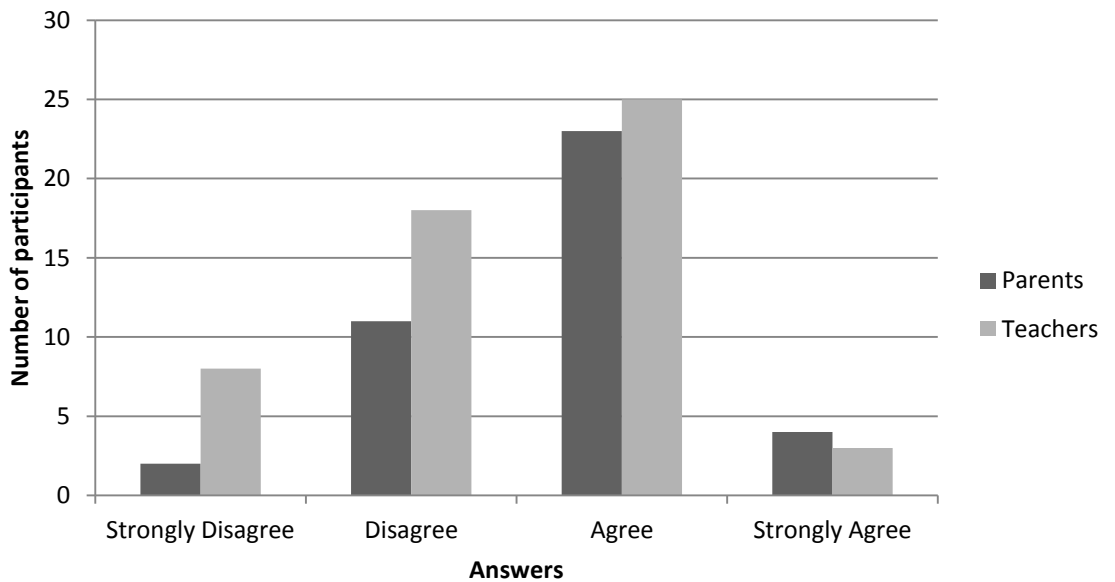
Figure 5.22: The answers of parents and teachers to the question 70
(parents = 40, teachers = 54)

Whilst parents inclined to agree that teachers of students with ADHD influence how they would manage a child with ADHD, similarly, teachers tended to agree that parents of ADHD children influence how they would manage a child with ADHD.

Figure 5.23 reveals the differences of the responses between parents and teachers in regard to this part of the questionnaires, Q71 p <0.05 (Mann-Whitney test).
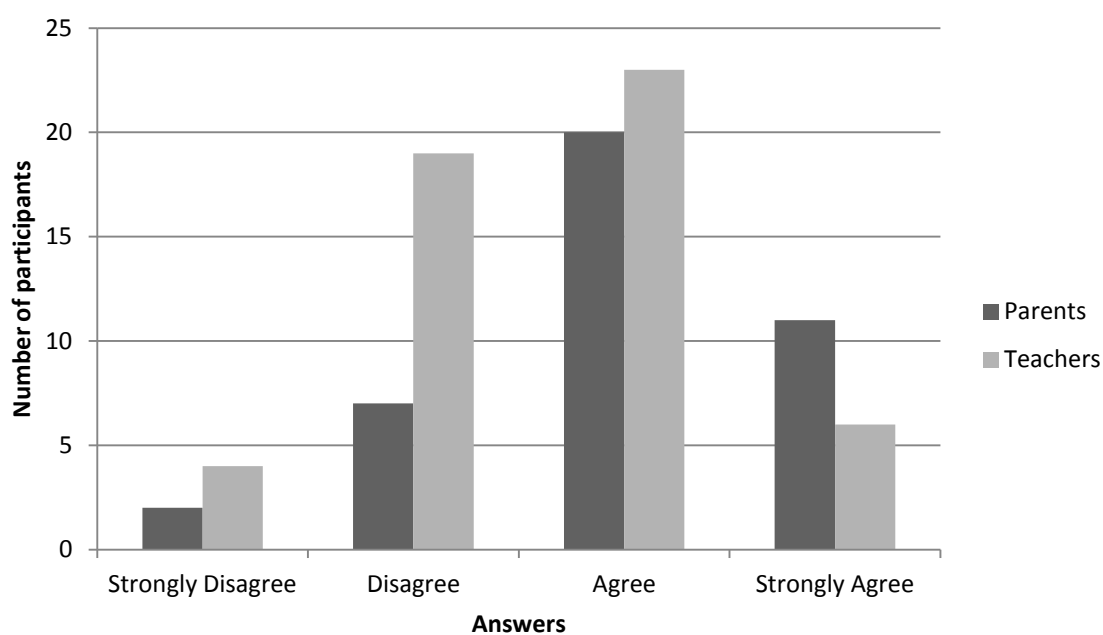
Figure 5.23: The answers of parents and teachers to the question 71
(parents = 40, teachers = 54).

5.6 Summary

This chapter has analysed the questionnaires' data gathered from children with ADHD, their parents, and teachers in Jeddah, Saudi Arabia. The analysis included their demographic information, actual results, and perceptions of each other. A cross-group analysis of the questionnaire results was then examined. The analysis indicates that children, parents and teachers hold misconceptions and misinformation regarding ADHD, and also lack in terms of information.

Importantly, they are seen to be most knowledgeable regarding ADHD characteristics and causes, and are least knowledgeable regarding treatment. From the findings, it has been established that there are several similarities and dissimilarities between them, as discussed in Chapter Seven.

Chapter six: Findings from Interviews

6.1 Introduction

The second stage of data collection involved the development of interview questions. The questions were designed to seek clarification of some of the findings from the quantitative data. The interviews were conducted, with the responses analysed with the intention that the information provided would supplement the insights children's, parent's and teacher's knowledge and beliefs concerning ADHD in Saudi Arabia obtained in the first phase.

Eighteen participants agreed to be interviewed either by phone or in person; thus, they were determined capable of responding to the questions seeking further explanation.

This chapter presents the data from the interviews with the children with ADHD (Section 6.2), their parents (Section 6.3) and teachers (Section 6.4). Subsequently, an analysis of the results of the interviews across groups was carried out (Section 6.5), followed by a chapter summary (Section 6.6).

6.2 Interviews with Children

This part comprises four sections: the first regarding the demographic information of the children participants; the second concerning the knowledge and beliefs about ADHD; the third centred on the similarities and differences between knowledge and beliefs; and the fourth in relation to the perceptions of children with ADHD towards others.

6.2.1 Section A: Demographic Information of the Children Participants

Table 6.1 below details the characteristics of the four children that participated in these interviews—all of whom are notably girls and have learning disabilities.

Table 6.1: Demographic information of the children (N = 4)

	Age	School Type	School Location	Diagnosed with ADHD	Taken Medication	ADHD Type	Parents' Qualifications	
							Fathers	Mothers
C1	10	Public	North	No	No	ADHD-I	Bachelor	Secondary
C2	13	Private	East	Yes	Yes	ADHD-C	Bachelor	Intermediate
C3	9	Private	South	Yes	Yes	ADHD-C	Secondary	Bachelor
C4	10	Private	West	Yes	Yes	ADHD-C	Bachelor	Intermediate

Notes: The order of the participants according to the order of conducting their interviews.

All children's interviews were conducted by school psychologists—not by the researcher; this that was done in accordance with their parents' wishes.

The findings include three different sections: Knowledge and Beliefs regarding ADHD; Similarities and Differences between Knowledge and Beliefs; and Perceptions of Children with ADHD towards Others.

6.2.2 Section B: Children's Knowledge and Beliefs about ADHD

This section covers the knowledge and beliefs of this group regarding ADHD in relation to a number of themes, as discussed further below.

6.2.2.1 Perceived Characteristics:

The children's own descriptions of what they know about ADHD can be divided into two groups. Firstly, they (C1; C4) regard attention deficit as:

Attention (C1; C4):
- *Does not pay attention (C1)*
- *The attention of those children is low (C4).*

Focus (C1; C4):
- *Does not concentrate (C1)*
- *They are unable to concentrate (C4).*

Secondly, they (C1; C2; C3; C4) regard hyperactivity to be:
- *The child moves too much (C4; C1; C2; C3)*
- *The child is unable of staying in one place (C4).*

6.2.2.2 Perceived Prevalence:

The children believed that not many children have ADHD, although one of them (C1) stated 'there *are many*'; however, when asked to provide a number, she mentioned '*just 5 girls*'.

6.2.2.3 Perceived Causes:

One child (C1) answered 'I don't know', whilst other children (C2; C3; C4) mentioned the following reasons for why some children have ADHD:
- *A fever (C2)*
- *From birth (C2)*
- *Extra electricity that needs to be treated (C2)*

- *A complicated problem in the brain similar to retard (C3)*
- *A lot of energy in his brain (C4).*

6.2.2.4 Perceived Interventions:

The children provided the following methods of interventions for children with ADHD, some of which are considered to be behavioural whilst others are medical, as discussed below.

Behavioural interventions (C1; C4):
- *The teacher should tell the children that good children are the quiet children, so the children will then keep quiet to please the teacher… Girls who do not pay attention will be dismissed from the classroom (C1)*
- *By seating the child in a place and giving him a toy or something else to play with (C4).*

Medical interventions (C2; C3):
- *Go to the hospital for treatment (C3; C2).*

One child (C2) added that '*the treatment of this problem must be at an early stage,* i.e. *as soon as possible and without delay*'.

6.2.2.5 Perceived Developmental Courses:

All children (C1; C2; C3; C4) believe that ADHD will remain but will lessen as the child gets older, with one child (C2) believing that *'it will be largely reduced'*.

6.2.2.6 What to Say to Others in the Same Situation:

Regarding what children would say if they were to be learning alongside a child with ADHD, the children (C1; C2; C3; C4) provided a wide range of answers, which can be summarised into two main statements:

Be patient (C2):

- *What shall I say to her when I know it is out of their control and cannot do anything about it except to be patient? (C2).*

Stop please (C1, C3; C4):

- *I will tell her not to think of anything and to stop talking to the girl next to her (C1)*
- *I will say, 'what is wrong with you? Stop annoying us' (C3)*
- *I will tell her to sit down and not to move a lot (C4).*

6.2.2.7 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.

6.2.2.8 Individuals' Knowledge of ADHD:

The children (C1; C2; C3; C4) showed a desire to learn about ADHD, with two of them (C2; C3) able to specify the various aspects they wanted to know about:

- *How to deal with an ADHD child (C2)*
- *Who suffers more from it—children or adults? (C3).*

Regarding whether or not they were sure about their knowledge, three of them answered affirmatively (C1, C2; C3) whilst the other (C4) did not understand and therefore could not answer.

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6.2.2.9 Others' Information Regarding ADHD:

In terms of whether or not the others have enough information about ADHD, one of the children (C3) answered yes whilst the remaining three children (C1; C2; C4) stated that the others do not know enough about ADHD. Markedly, one child (C1) clarified her point of view by stating:

- *They don't have any idea about how I think or what I am thinking of.*

She (C1) added that:

- *All need to learn about it: mothers, fathers and teachers.*

6.2.2.10 Disseminating Correct Knowledge and Beliefs:

Most of the children (C1; C2; C3) stated that others can be taught through:

- *Mothers complaining to the teachers (C1)*
- *Asking the School Psychologist about how to deal with this (C2)*
- *Telling them that it is about children who move too much; that they get dizzy and fall to the floor (C3).*

However, one of the children (C4) was unable to answer.

A further two children (C2; C4) held the belief that the reasons for why some people do not understand ADHD properly are owing to other reasons, namely:

- *They have no experience in dealing with such a problem (C2)*
- *They do not understand the situation (C4).*

6.2.3 Section C: Similarities and Differences between Knowledge and Beliefs

This section covers the knowledge and beliefs in terms of the similarities and differences, and connections between people regarding ADHD.

6.2.3.1 Similarities and Differences :

With regard to whether some people hold different beliefs about ADHD, all children (C1; C2; C3; C4) agree this is true, which they justified through the following factors (Figure 6.2):

Table 6.2: Summary of children's beliefs concerning the reasons of the similarities and differences

	C1	C2	C3	C4
Understanding (*They don't understand; They are stupid*)	*		*	
Knowledge (*They think the child is being spoilt or naughty; They have no idea about this problem*)		*		*
Experience (*They have no one with this problem*)				*

The fact that some people know more about ADHD than others is believed to be owing to the factors detailed in the table 6.3:

Table 6.3: Summary of children's beliefs concerning why some people are more knowledgeable about ADHD

	C1	C2	C3	C4
Experience (*Some people may have experienced such a case with their child; They know about it earlier*)	*	*		
Understanding (*They are smart... they understand the others*)				*

One child (C3) did not give any reason.

6.2.3.2 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).

Table 6.4: 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).*

6.2.4 Section D: Children's with ADHD Perceptions of Others

This section includes the perceptions of children with ADHD toward parents of children with ADHD and their teachers.

6.2.4.1 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 6.5.

Table 6.5: 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)*

However, children clarified how parents can help them:

- *Teaching her the lesson again at home (C1)*
- *Talking to them (C2)*
- *Trying to develop their hobbies and talents (C2)*
- *Assisting them (C2)*
- *Encouraging them (C2)*
- *Following up with their cases (C3; C4).*

6.2.4.2 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 6.6.

Table 6.6: 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)*

However, the children further clarified how teachers could potentially help them:

- *The teacher tells them to pay attention to her; she gives them a present when they do (C1)*
- *Providing them with suitable games and exercises to reduce their activity (C2)*
- *Gradually guide them (C2)*
- *Make use of all her senses (C2)*
- *Possibly have only specialist teachers educate them (C2)*
- *Giving them coloured pencils and books to read (C3)*
- *Giving them toys to attract their attention (C4).*

6.3 Interviews with Parents:

This part comprises four sections: the first regarding the demographic information of the children participants; the second concerning the knowledge and beliefs about ADHD; the third centred on the similarities and differences between knowledge and beliefs; and the fourth in relation to the perceptions of children with ADHD towards others.

6.3.1 Section A: Demographic Information of the Parent Participants

Six parents participated in the interviews (4 fathers, 2 mothers). Of these parents, their qualifications were intermediate (1), secondary (2), and bachelor (3). Not one of the participating parents had attended training regarding ADHD, with three believing that they have the information and skills required.

Table 6.7: Demographic information of the parents (N = 6)

	School Type	Home Location	Diagnosed with ADHD	Taken Medication
P1	Public	North	No	No
P2	Public	North	No	No
P3	Public	East	Yes	Yes
P4	Private	South	Yes	Yes
P5	Public	South	No	No
P6	Public	West	No	No

* The order of the participants according to the order of conducting their interviews.

The findings include three different sections: Knowledge and Beliefs regarding ADHD; Similarities and Differences between Knowledge and Beliefs; and Perceptions of Parents of Children with ADHD towards Others.

6.3.2 Section B: Parents' Knowledge and Beliefs about ADHD

This section covers the knowledge and beliefs of the group concerning ADHD in terms of a number of different identified themes, which will be discussed in the subsequent sections.

6.3.2.1 Perceived Characteristics:

Parents' knowledge and beliefs in terms of ADHD-related characteristics fall within the following descriptions:

- *It lasted for a long time without stopping (P1)*
- *Repeated continually (P3)*
- *Obvious 'attracts the attention of all people' (P3; P4)*

- *Beyond the normal limits or very much over limits 'where two people can't disagree about his case' (P6).*

Moreover, some of the parents (P1; P4; P5) highlighted that disobeying behaviours are commonly witnessed amongst such children:

- *The child kept disobeying (P1)*
- *When you tell him to sit down, he doesn't (P4)*
- *I can't force him to pay attention (P5).*

Regarding their perceptions of the signs or other indicators of attention deficit and hyperactivity, all of the parents (P1; P2; P3; P5; P6) considered attention deficit to comprise one or more of the following:

- *He concentrates for a while and suddenly turns to something else (P2; P5).*
- *Many things attract him (P3).*
- *Shows a lack of concentration on a specific thing (P5; P1; P6)*
- *The inability to focus (P2).*

On the other hand, all of the parents (P1; P2; P3; P4; P5; P6) regard hyperactivity to be:

- *Movement exceeds the limits 'obvious' (P2)*
- *Focus low (P4; P3)*
- *A lot of movement (P4; P1; P5; P6)*
- *His movement is not normal (P4; P3)*
- *Can't control himself (P4).*

6.3.2.2 Perceived Prevalence:

It has been found that parents differ in terms of their beliefs regarding the prevalence of ADHD. For instance, some of the parents (P1; P3; P4) believe it to be *low*, whilst some (P2; P5; P6) believe it to be *common*. The majority of the parents (P1; P3; P4; P6) further believe that the percentage of ADHD is between 10% and 30%;

however, two of them (P2; P5) divided the percentage of attention deficit and hyperactivity to:

- *Around 20% for hyperactivity and 30% for attention deficit (P2)*
- *40% attention and 20% hyperactivity (P5).*

6.3.2.3 Perceived Causes:

The parents highlighted a number of different factors responsible for the occurrence of ADHD, with some of these reasons attributed to a fate which cannot be changed or death with, whilst other reasons are attributed to bad eating, which can be changed or corrected. Overall, the following reasons were given for the cause of ADHD:

- *This is how God created them (P1)*
- *No specific reason—the child is born this way (P1; P2; P3; P4)*
- *Modern living (P5)*
- *Eating a lot of sweets and candies (P1; P5)*
- *Hereditary* (Genetics) *(P6).*

However, the most common cause was attributed to the parents as following:

- *Parents' negligence, i.e. not taking care of the child causes these things (P1)*
- *Perhaps it is our* (the parents') *fault (P5)*
- *The way parents treat their children is the main reason* (such as) *hitting and threatening the child (P6).*

One parent (P3) stated that *most parents and most people (I can say 80% of people) think it is the fault of the father or the mother in dealing with the child, that they were easy with him and spoiled him (P3).*

6.3.2.4 Perceived Interventions:

Whilst some of the participants (P3; P4; P6) did emphasise the importance of early interventions, the parents further provided a number of behavioural and medical interventions for helping children with ADHD, as discussed below.

Behavioural interventions (P1; P5; P6):

- *Be forceful… Seat him next to me and command him to keep quiet… control his movement with my hands. Also tap on his shoulder and tell him nice words (P1)*
- *It is important for the parents to be moderate… Some parents use violence and others use extra sympathy and spoil the child (P1)*
- *I give him something he likes so he settles down (P1; P5)... but I try to get him to do something useful, such as colouring, writing, drawing (P5)*
- *Give him freedom to speak, move and play to let his energy out (P6)*
- *Using physical exercises and activities for teaching him (P6).*

Medical interventions (P1; P2; P3; P4):

- *Refer to the doctor (P1; P3)*
- *Medication (P2; P4).*

However, all of the parents (P1; P2; P3; P4; P5; P6) did differ in terms of their beliefs when considering medication. One parent (P4) whose child has been diagnosed with ADHD and study in a private centre, for example, accepts this because:

- *Drugs made these children calm and increased their attention (P4)*
- *No other ways* (except medication) *(P4)*
- *His extra movement will make him lose a lot of things all through his life, things that he will not be able to acquire because of his hyperactivity and attention deficit (P4)*

A number of other parents (P1; P2; P3; P5; P6), on the other hand, emphasise that, unless it is very high, medication should be refused as:

- *Medication has side effects (P2)*
- *I prefer the behaviour intervention more than medical intervention (P3)... I get used to them solving my child's problem because he is very active at home and moves a lot (P3)*
- *The child might not clearly respond to the doctor (P3)*
- *It is not an illness (P6)*
- *It is temporary (P6).*

6.3.2.5 Perceived Developmental Courses:

Parents have different beliefs concerning the ADHD developmental courses. For example, many of the parents (P1; P2; P4; P6) hold the belief that the condition will decrease in terms of severity' *because the child moves a lot by nature and his movement will get less* [with] *age' (P4).*

However, one of the parents (P5) recognises that '*he will not change even when he gets older*' (P5) but that the child's situation will ultimately improve. However, it was further emphasised that '*this depends on his psychological status: if he was treated badly by his parents, this will influence him, but if the child is more comfortable, he will get better' (P5).*

One parent (P3) distinguished between attention deficit and hyperactivity by stating that:

- *Attention deficit might go on or become less; hyperactivity will certainly get less (P3).*

This is further supported by another parent (P1), who believes ADHD will go away, whilst others (P2; P4; P6) believe both:

- *It goes away with some children* [but] *it gets less with others (P2)*

- *I know many adults who suffer from the disorder; it has gone away for some and not for others (P6).*

6.3.2.6 What to Say to Others in the Same Situation:

When the parents were questioned on what they would say to other parents whose child had recently been diagnosed with ADHD, a list of advice and suggestions were provided, which can be categorised under the following headings:

Ways of thinking (P1; P2; P3; P4; P5; P6):
- *I will say that it is not shameful (P2)*
- *It will get less with medication and the boy will get better (P2)*
- *The harsh way leads to no good results (P3; P4; P5; P6)*
- *[Do not] double their problem by treating them badly… If I use violence with a child who has this problem, I might worsen his case, and probably he will [develop] a second problem, which is fear (P4)*
- *Clarify to him that the problem will go by time if we follow it up (P1)*
- *Be patient (P4).*

Ways of dealing (P1; P3; P4; P5; P6):
- *Give him more care (P1)*
- *Do not shout at him because he will get stubborn with you. And do not hit him because this will get you nowhere (P5; P6)*
- *Stay close to him… The child will improve as long as his father is close to the child (P1)*
- *Arrange a suitable environment for him (P1)*
- *It is important to fulfil some of his demands because he is very demanding. He wants to buy anything that attracts his attention; parents can't meet all his demands. It is important to respond to his demands in stages (P3)*

- *Treat him because his extra movement will make him lose a lot of things all through his life; things that he will not be able to acquire because of his hyperactivity and attention deficit (P4).*

6.3.2.7 Sources of Information Regarding ADHD:

In terms of identifying the sources of their information concerning ADHD, some parents (P3; P4; P5) revealed that they *heard a lot*, with all of the parents (P1; P2; P3; P4; P5; P6) stating that they learn and gather information concerning ADHD in several ways, as depicted in table 6.8.

Table 6.8: Summary of parents' sources of information regarding ADHD

	P1	P2	P3	P4	P5	P6
Experience	*		*			
Husband		*				
Parents of children with ADHD			*	*	*	
TV programmes			*	*		*
The internet						*
Books					*	*

This table shows that one-third of the parents get their information about ADHD from one source, one-third of the parents depend on two sources to get information, and one-third of them get their information from three sources. It can be seen that the sources (Parents of children with ADHD and TV programmes) get the highest rate with three parents each, Books and Experience came second with two parents each, and Husband and The Internet get the lowest rate with only one parent each. Apparently, only one parent (P6) relays on scientific sources (TV programmes, the internet, and Books) to get information about ADHD.

6.3.2.8 Individuals' Knowledge of ADHD:

In relation to parents' feelings concerning whether or not they possess adequate knowledge in terms of ADHD, a range of answers were provided. Some of the respondents (P1; P3) believe that they have adequate knowledge, with one participant (P1) stating that:

- *I am very confident of myself, but when the problem increases, I resort to others for advice (P1).*

Others (P2; P4; P5; P6) believe that they do not have adequate knowledge, and add that:

- *I wish I leaned more (P5)*
- *I know about 30% about the subject… I do not teach my children and this from my daily dealing with them (P6).*

In regard to parents' levels of confidence in consideration of the information they have, some (P1; P2; P3; P4) believe they are confident, and add that this is because:

- *I have enough experience (P1)*
- *I benefited from what specialists say and their answers to my questions (P3)*
- *I came across children who take medication for attention deficit hyperactivity disorder (P4).*

On the other hand, some (P5; P6) believe they are partially confident, with one parents (P5) adding that:

- *I think my information is correct; however, children vary. I will not say 100% but at least 60% I learnt from my experience, and it is possible that everyone has their own idea about raising children. For example, I only shout, and once a mother told me that hitting is the best, but I don't like hitting (P5).*

Therefore, taking into account the answers provided by the sample, it can be construed that the parents need to learn more about ADHD in those areas detailed in Table 6.9 below.

Table 6.9: Summary of the topics parents need to know more regarding ADHD

	P1	P2	P3	P4	P5	P6
Generally			*			
Attention deficit						*
Causes	*			*		
Intervention		*		*	*	

6.3.2.9 Others' Information Regarding ADHD:

In regard to the beliefs of parents surrounding whether others have sufficient information relating to ADHD, some parents (P2; P4) believe that others do not have sufficient information, adding that *'mothers and teachers do not have information about it' (P2).*

Other parents (P1; P3; P5; P6) also stated the belief that some do have adequate information whilst others do not, with such subjects adding that:

- *It varies from one person to another (P6; P5)... but* (generally) *parents and teachers do not know (P6)*
- *To an extent (P1)... It is impossible to have sufficient information. For sure, there must be something we don't know about (P5)*
- *The subject is becoming public and people talk about it in general (P3)*
- *The person who came across such a problem will have better information (P6).*

6.3.2.10 Disseminating Correct Knowledge and Beliefs:

In their views, parents believed that a combination of correct knowledge and beliefs can be delivered through a number of different avenues, such as by raising awareness and making use of the media. With this in mind, Table 6.10 below details the highlighted methods.

Table 6.10: Summary of parents' beliefs in terms of how correct knowledge and beliefs can be Disseminated

	P1	P2	P3	P4	P5	P6
Spread awareness (scientific lectures, Educating pamphlets, Symposiums, 'YouTube')	*	*	*			*
Courses	*	*	*	*		*
Media	*	*	*		*	*
Doctors	*		*	*		*
School psychologists				*		
Specialist Teachers			*	*	*	

This table reveals that parents maintain that correct knowledge can be disseminated by different means. On top of these means came *courses* and *media* with 5 parents each. *Spread awareness by scientific lectures and education* and *doctors* came second with four parents each. Next came Specialist *Teachers* with 3 parents and last *School psychologists* with only 1 parent. This indicates that parents believe that *courses and media* are the most effective and efficient methods for disseminating correct knowledge and beliefs than *school psychologists and Specialist Teachers.*

However, one of the parent participants (P3) added that, *'perhaps the whole community does not need to know much about this problem or needs to know only the general basics—not in-depth ideas on how to deal with the case' (P*3*).*

The parents provided a range of causes relating to what they personally consider to be the barriers of disseminating correct knowledge and beliefs. Such barriers are presented in Table 6.11 below.

Table 6.11: Summary of parents' beliefs on the barriers of Disseminating correct knowledge and beliefs

	P1	P2	P3	P4	P5	P6
Lack of awareness	*	*	*			*
A lack of disseminating the information (the extent of the information's simplicity and content)			*			*
Lack of reading		*				*
lack of resources			*			
Denying ADHD				*		
Parents are busy					*	

Most parents believe that *Lack of Awareness* falls on the top of the barriers of disseminating correct knowledge and beliefs, followed by the *lack of disseminating the information (the the extent of the information's simplicity and content)* and *lack of reading. Lack of resources, denying ADHD and parents are busy* were not view as serious barriers by most of the parents.

6.3.3 Section C: Similarities and Differences between Knowledge and Beliefs

This section covers the knowledge and beliefs of the similarities and differences, and connections between people regarding ADHD.

6.3.3.1 Similarities and Differences:

All the parents who participated in the interviews believe that people hold different views concerning ADHD owing to numerous reasons, as highlighted in Table 6.12 below.

Table 6.12: Summary of parents' beliefs on the reasons of the similarities and differences

	P1	P2	P3	P4	P5	P6
God created us like that	*					
Knowledge (think it is normal, not yet aware of this problem)	*	*	*	*		
Not many cases				*		*
New to our society			*	*		
Understanding (different ways of thinking)	*		*			*
The environment (a cultural difference, different environments)	*		*	*		*
No available information						*
Several ways of dealing					*	
Education	*	*		*		*

This table shows that most parents considered *knowledge, the environment* and *education* as reasons behind the similarities and differences. Half of the parents viewed *understanding (different ways of thinking)* to be the reason for the similarities and differences, whilst two of them believed that *Not many cases* is the reason of similarities and differences, only one parent believed that *God created us like that* is a reason. One parent believed that *No available information* is a reason for similarities and differences and one parent considered *several ways of dealing* to be a reason. It can be concluded that Knowledge, the environment and education scored the highest rate of the similarities and differences, whereas God created us like that, No available information and several ways of dealing scored the lowest rate.

The factors that make some people more knowledgeable than others include those incorporated within Table 6.13.

Table 6.13: Summary of parents' beliefs concerning the reasons for why some people are more knowledgeable about ADHD

	P1	P2	P3	P4	P5	P6
Understanding (Some have more understanding and conceptions)			*			
Experience					*	*
Education	*	*		*		
Concerning about these children:	*	*	*	*	*	*
This is how society is			*			

This table reveals that all the parents agreed that *concerning about these children* is the reason for why some people are more knowledgeable about ADHD. *Education* came second with 3 parents, followed by *experience* with 2 parents, and last, *came Understanding* and *This is how society is* with only 1 parent each.

6.3.3.2 Connections between People:

Regarding the discussion of ADHD with other persons or groups, parents said they discuss ADHD with a number of different individuals and professionals, as can be seen in Table 6.14 below.

Table 6.14: Summary of those with whom parents discuss ADHD

	P1	P2	P3	P4	P5	P6
Doctors	*		*	*		*
Friends	*	*	*		*	
Specialist Teachers	*		*	*		*
School Administration	*					
Parents	*		*	*	*	
Relatives			*		*	
Neighbours					*	

Those with whom parents discuss ADHD as listed in this table range between *Doctors, Friends, Specialist Teachers*, and *Parents* as the highest rate with four votes each, and *Neighbours* and *School Administration* as the lowest rate with only one vote each. Two parents discuss ADHD with *Relatives*. Discussing ADHD with their children was not mentioned by any of the parents.

In regard to whether or not the parents feel that dealing with this problem is part of their responsibility, parents' answers was seen to widen this responsibility so as to cover a number of different parties and sectors, including those detailed in Table 6.15.

Table 6.15: Summary of parties and sectors identified by parents as responsible for ADHD

	P1	P2	P3	P4	P5	P6
The Community		*	*			
The Government			*			*
The School		*	*			
Parents	*	*	*	*	*	*
Relatives			*			
Teachers	*	*				*

This table shows the parties and sectors identified by parents as responsible for ADHD. All the parents agreed on the responsibility of Parents. Half of the parents viewed *teachers* to be responsible. Whilst 2 parents considered *The School, The Community and The Government* to be responsible of ADHD, only 1 parent believed that *Relatives* are also responsible for ADHD. It can be concluded that parents were viewed to be the most responsible parties for ADHD. Teachers came second, followed by *The Community*, *The Government* and *The School*. *Relatives* came last.

However, one of the participants (P5) added that:

- *The teacher is not responsible because her job is to teach only... The teacher has nothing to do with the child who moves a lot or does not pay attention (P5).*

6.3.4 Section D: Parents' of Children with ADHD Perceptions towards Others

This section covers the perceptions of parents of children with ADHD towards children with ADHD and their teachers.

6.3.4.1 Perceptions towards Children with ADHD:

The perceptions of parents concerning children with ADHD can be divided into three types: the children; the parents themselves; and others.

In regard to the first type, the children (P1; P3; P4; P5; P6):
- *If children [have] the care and attention, they will be fine (P3)*
- *They are a group that we should take care of and contain as long as it is a sickness and we must seek* [its] *cure (P4)*
- *They are good at playing, not studying... They don't study except if they are forced (P5)*
- *It is temporary and will get less when they get older (P6)*
- *It* (ADHD) *is causing them problems because our society is very criticising (P1)*
- *He is pressured by his parents or his brothers and sisters, from the community from the people around him (P4).*
- *This* (ADHD) *might have negative impact on the child in the future (P4).*
- *Very smart and clever (P3).*

Concerning the second type, the Parents (P4; P5):

- *They are tiring and need full attention (P5)*
- *They* (parents) *don't know how to deal with him; they* (parents) *might use violence with him or hit him (P4).*

And in consideration to the final type, others (P2; P4):

- *People get annoyed; these children are annoying (P2)*
- *No one can bear his extra movement (P4).*

Importantly, when considering what drives parents to hold such perceptions, there are various views. Their reasons are presented as follows:

- *Because it is a way of ending the problem and making it decrease quickly (P1)*
- *It allows the child to realise his problem so that he will not feel that he is less [valuable] than others (P1)*
- *My experience (P2; P3)*
- *So as not to double their problem by treating them badly... If I use violence with a child who has this problem, I might worsen his case, and probably he will get a second problem, which is fear (P4)*
- [All of] *society will be hard on him and criticise his behaviour; this will affect him when he grows up (P4)*
- *They* (these children) *do not listen (P5)*
- *The child is tiring, but they are temporary cases (P3; P6).*

In addition, there are various factors that can create both positive and negative perceptions concerning this group of children, with some factors recognised as personal whilst others are owing to the characteristics of the child with ADHD.

Personal factors (P1; P2; P5; P6):

- *There are people who are more sensitive about the subject because they want their children to be the best, and other people are positive because they care less about what people think (P1)*

- *Mostly, for people, the most important thing is that their child is fine. Some people do not care about what people think and are not ashamed of the disorder, whereas others give priority to what other people think so they get mad and angry about it (P2)*
- *The way they think and raise their children (P5)*
- *Depending on each person's knowledge (P6).*

The characteristics of these children (P3; P4):

- *Honestly, I have not met any positive people; they are all negative. They say, we are tired, we can't get him, so this father at the end either hits him or silences him (P3)*
- *It is difficult to deal with or bear—regardless of how calm you are because he doesn't listen (P4)*
- *They* (parents) *did not find anyone to tell them how to treat him and take care of him or how to reduce his movement and make him focus (P3).*

Furthermore, the parents suggested a number practices through which children with ADHD can be helped:

Establish structure (P5; P6):

- *Organise the environment (P5)*
- *Make the child follow a daily routine for playing and studying (P6).*

Keeping them busy (P1; P3):

- *Providing him with the things he likes (P1)*
- *Allowing him to play more (P1)*
- *Respond to him to an extent. For example, fulfil his demands in stages (P3).*

Medication (P1; P4):

- *Take him* (the child) *to a specialist or a doctor who can diagnose his case and give him the right medication (P1; P4).*

Behavioural intervention (P1; P2; P5):

- *Not hurting him (P1)*

- *Rewarding him (P1)*
- *I shout at him… harsh treatment makes him afraid of getting punished... I get him out of the room and be hard on him when needed (P2)*
- *Talk to the child (P5)*
- *Use different methods to elevate the problem (P5).*

Things to keep in mind (P1; P3; P5):
- *Making it easier for him (P1)*
- *Accepting it (P1)*
- *Give more attention to this child (P1; P3; P5)*
- *Treat him different to a normal child (P5)*
- *Do not ignore it (P5).*

Educational intervention (P5):
- *Double efforts in teaching him (P5).*

Diet (P1):
- *Take care of his food (P1).*

6.3.4.2 Perceptions towards Teachers of children with ADHD:

In regard to parents' perceptions concerning teachers who are responsible for teaching children with ADHD, few parents regarded the role of the teachers to be neutral, whilst most regarded it to be negative and mostly negative. Parents mentioned the following:

Negative (P2; P3; P4):
- *For hyperactivity [the teacher] punish[es] her, kick[s] her out of the classroom, or taunt[s] her in front of her classmates (P2)*
- *For attention deficit teachers don't care much about who understands and who does not (P2)*

- *Teachers get bothered with such a girl and try to move her to another class and say 'Why should I teach a girl like this?' (P2)*
- *There is no specialist at school for these cases, and so the teacher always resorts to complaining to the teachers, officials or to the vice principle to find solutions (P3)*
- *They don't know how to deal with them... so he will treat him badly or kick him out of the classroom. He might send him to the principle or hit him (P4).*

Mostly negative (P6):

- *Two parts: the first part likes to learn and educate and develop—you find him aware of these things, and this group makes about 20%; but in the second part, teachers look at their work as just a job, and those are the majority—especially in public schools. You find them not aware of anything (P6).*

Neutral (P1; P5):

- *There are different types of teachers: some know about the subject and try to treat it, and others make things worse (P1)*
- *It is not the responsibility of the teacher if the child is not normal (P5).*

The reasons for holding such views include:

- *There are teachers who are educated and aware, and other teachers with bad attitudes who don't know how to deal with the problem. You should differentiate between the good teachers and the bad ones (P1)*
- *Because the child needs special treatment, the teacher—any teacher—will not say to you that this child has ADHD... instead, he will say that this child is driving him crazy and tiring him out, or he is affecting his classmates (P4)*
- *It is the parents' responsibility (P5)*
- *My experience with them (P2; P6).*

The factors that induce positive or negative perceptions towards teachers may include:

The level of knowledge held by teachers (P3; P6):

- *I am positive if teachers respond to my questions and my enquiries about the child with this problem, in a way that establish a link between the school and the parent (P3)*
- *Discussing the problem with the teacher shows whether or not he is aware of the problem (P6).*

The level of knowledge held by parents (P1; P5):
- *The parents' lack of knowledge about the appropriate ways of dealing with the child (P1)*
- *Generalisation: if there is one bad teacher, they will say that all the teachers are bad (P1)*
- *Parents who have negative views: some parents think that the teacher's job is to raise their children, whilst the teacher is only responsible for making sure that the girl is polite, her hair and uniform is tidy, and she speaks politely (P5).*

The children's progress (P2; P4; P6):
- *They are negative when their child doesn't understand the lesson and the opposite is true (P2)*
- *If the parent notices that the child is happy with the teacher and responding to him, he will definitely say that the teacher knows how to deal with his son (P4)*
- *Positivity depends on the progress of the child: for example, if a parent noticed that his child is progressing then she will have a positive attitude towards the teacher (P6).*

Furthermore, in terms of how the teachers can help the parents to deal with a child with ADHD, the parents expressed that teachers can acquire specific skills, further providing the following suggestions:

Being knowledgeable and skilful (P1; P4; P6):
- *The teacher should be delicate and skilful (P1)*
- *Teachers should be aware of how to deal with these children (P1)*

- *The teacher must understand and learn how to deal with them; he should acquire qualifications and skills about how to deal with this group (P4)*
- *It is assumed that the teachers can handle this problem depending on their knowledge and understanding… this is their job (P6).*

Helping the parents (P1; P2; P5):

- *Give comments and advices in a suitable way (P1)*
- *Follow the child's case with the parents (P1)*
- *Report the matter to parents (P2; P5).*

Helping the children (P1; P2; P3):

- *Rewards and gifts (P2)*
- *Punishment if the reward failed (P2)*
- *Seat this child in the front… when the teacher has 40 students or 30 students (P3)*
- *They must take care of them… They must be patient with them (P1)*
- *The teacher should make sure that the girl pays attention (P5).*

Informing the school administration (P2):

- *Report the matter to the school administration (P2).*

6.4 Interviews with Teachers

This part comprises four sections: the first regarding the demographic information of the children participants; the second concerning the knowledge and beliefs about ADHD; the third centred on the similarities and differences between knowledge and beliefs; and the fourth in relation to the perceptions of children with ADHD towards others.

6.4.1 Section A: Demographic Information of the Teacher Participants

Table 6.16 provides details concerning the characteristics of the eight teachers that participated in the interviews, all of whom notably teach a child with ADHD and have a bachelor's degree.

Table 6.16: Demographic information of the teachers (N = 8)

	Gender	School Type	School Location	Training	Info and Skills
T1	Female	Private	North	Yes	Yes
T2	Female	Public	North	No	No
T3	Female	Private	East	No	No
T4	Female	Public	East	No	Yes
T5	Female	Public	East	Yes	Yes
T6	Male	Public	South	No	Yes
T7	Male	Public	North	No	Yes
T8	Female	Public	West	Yes	Yes

Notes: The order of the participants according to the order of conducting their interviews.

The findings are broken down into three individual sections: Knowledge and Beliefs regarding ADHD; Similarities and Differences between Knowledge and Beliefs; and Perceptions of Teachers of Children with ADHD towards Others.

6.4.2 Section B: Teachers' Knowledge and Beliefs about ADHD

This section covers the knowledge and beliefs of the group in regard to ADHD, which are broken down into a number of relevant themes to be discussed throughout this section.

6.4.2.1 Perceived Characteristics:

Teachers' knowledge and beliefs concerning the characteristics of ADHD fall within the following descriptions:

- *It exceeds the normal limits 'appear*[ing] *to look not normal' (T2)*
- *It is frequent (T7)*
- *Unintentionally (T2)*
- *Very obvious (T7)*
- *Different than other kids at his age (T2; T4; T7; T8).*

Moreover, some of the teachers (T3; T6; T7; T8) highlighted the effects associated with ADHD in regard to both the children themselves and the people around them.

Effects on children with ADHD:

- *Decreases other skills (T3)*
- *Affects the child's practical and social life (T6)*
- *Affects his education in the future (T7; T8).*

Effects on people around children with ADHD (T7; T8):

- *The environment around him failed to deal with him (T7)*
- *Affects students around her (T8)*
- *It bothers others (T8).*

Importantly, their perceptions of Attention Deficit range from a lack of attention through to poor concentration, as highlighted below:

Attention (T2; T4; T5):

- *Not being able to pay attention to anything (T2; T5)*
- *Do not look at a specific direction (T4).*

Focus (T1; T2; T3; T4; T5; T6; T7; T8):

- *Easily distracted (T3; T6)*
- *Can't concentrate on anything (T2; T1; T3; T4; T5; T6; T7; T8)*
- *Her attention span is short (T1; T2; T8; T6).*

All of the teachers (T1; T2; T3; T4; T5; T6; T7; T8) regard hyperactivity as:

- *Unable to sit in a place without playing or talking (T1)*

- *Moves a lot (T4; T2; T3; T5; T6; T7)*

- *His movement does not have a target (T4)*

- *Doesn't have control over his movement (T4; T1)*

- *Playing with anything (T5)*

- *Uses every chance to turn away from the lesson (T8; T5).*

6.4.2.2 Perceived Prevalence:

In general, teachers vary in terms of their beliefs concerning the overall prevalence of ADHD. For instance, some of the subjects (T1; T5; T6) believe that *it is common*, whilst others (T2; T3; T4) believe *it is not common*.

However, two of the sample (T7; T8) differentiate between their prevalence by saying:

- *Hyperactivity is low but attention deficit is higher (T8)*

- *Attention deficit I think it is common (T7).*

They also believe that the percentage of ADHD prevalence is between 10% and 20% (T1; T2; T3; T5), whilst for mentally disabled children it is between 30% and 50% (T1; T3); however, some of the teachers (T4; T6; T7; T8) divided the percentage of attention deficit as being between 15% and 30%, and hyperactivity between 4% and 30%.

6.4.2.3 Perceived Causes:

The teachers mentioned a range of reasons that could cause ADHD, the most common of which was attributed to genetics (hereditary). On the whole, the teachers mentioned a number of reasons responsible for causing ADHD, as highlighted in table 6.17 below.

Table 6.17: Summary of teachers' perceived causes of ADHD

	T1	T2	T3	T4	T5	T6	T7	T8
Malnutrition (the big portion of sugar in their food)	*						*	
An electricity increase in the brain	*							
Born with this disorder (No specific reason)		*				*	*	*
Irregular routine (irregular sleep at home, irregular mealtimes, and irregular family gathering)	*							
Genetics (Hereditary)	*	*	*	*	*		*	
Psychological, caused by family rows, neglect, and family pressures		*						
A Brain Dysfunction (Brain problems)			*			*	*	
Illness (High temperature, which has affected her brain)			*		*			
Injury (Accidents)					*		*	*
A problem in nutrition during pregnancy and birth								*
Chemical changes in the body								*

The above table shows that most of the teachers, six out of eight, attributed the cause of ADHD to *Genetics*-related reasons, whilst half of them attributed it to *born with this disorder*. *A Brain Dysfunction and Injury* follow with 3 parents each. Next came *Malnutrition and Illness*, and *last An electricity increase in the brain, Psychological, Irregular routine, A problem in nutrition during pregnancy and birth,* and *Chemical changes in the body*. It can be concluded that teachers' attributed the causes of ADHD to pre-birth factors like genetic and born with this disorder rather than after birth ones, such as *Irregular routine* and *Chemical changes in the body*.

6.4.2.4 Perceived Interventions:

Whilst some of the participants (T1; T2; T3; T7) emphasised the importance of early interventions, the teachers highlighted a number of different approaches as means of intervening children with ADHD, as noted below.

Behavioural interventions (T1; T2; T4; T7; T8):

- *By organising the environment (T1)*
- *Giving them the kind of activities that suit their conditions (T4; T7; T8)*
- *Changing teaching method (T7; T2)*
- *Take a break then go[ing] back to the lesson (T7; T2)*
- *Try to remove any distracting objects (T7).*

Diet interventions (T7):

- *A change in diet by reducing the portion of sugar, the source of energy in his food (T7).*

Interventions related to training parents and teachers (T2; T5; T6; T7; T8):

- *By increasing teachers' awareness about this disorder and how to deal with it (T6; T5; T7; T8)*
- *Raising parents' awareness and clarifying how to deal with it (T2; T6; T7).*

In addition, the consideration of medical intervention was raised, with some of the teachers (T1; T2; T3; T4; T5) supporting this approach whilst others (T7; T8) were found to be against it. Their different views are shown hereafter.

Those teachers in support of medical intervention (T1; T2; T3; T4; T5) explained their points by stating:

- *If this* (ADHD) *had a negative impact on the child's learning and we could not control it, it is better to give him medication (T1; T2; T4)*
- *Drugs are inevitable in order to calm the child down and manage to teach him (T3)*
- *After taking the medication, he will become normal (T5).*

The teachers opposed to medical intervention (T7; T8) based their views on the following reasons:

- *I do not recommend medical treatment, but as they say, 'burning is the last treatment resort', so we should try all means before going to the doctor (T7)*
- *I am not with medical treatment; the child should get behavioural and psychological treatment (T8).*

Some participants (T1, T3; T5; T7; T8) added that:

- *We don't recommend using medications unless the hyperactivity is very high (T1, T3; T5; T7; T8) ... Drug is a partial solution—not a radical one—which means that it should be used for a short period of time and then minimised until understanding the problem and making the child not used to it. Parents prefer medication because it is easier (T1).*

6.4.2.5 Perceived Developmental Courses:

Teachers hold various different beliefs surrounding ADHD developmental courses, although most of them (T1; T2; T5; T6; T7; T8) do believe that the disorder will become less severe:

- *Researches stated that the child will get better (T2)*
- *It is natural that children move more than adults; human movement gets less by age (T7)*
- *An adult can direct themselves more than a child—especially when he knows about the problem (T8).*

Some of the sample (T1; T5) also believe that this problem will go away with time *'due to discipline and organising their bedtimes and daily routine' (T1).* Markedly, another of the teachers stated, *'I think it will go away if medication is given' (T5).*

Furthermore, one of the subjects (T3) distinguished between children with a mental disability and those without a mental disability, emphasising that (for mentally disabled), *'the problem will continue for a lifetime and it will be inevitable to use the*

drugs. If the child does not suffer from mental problem or was not retarded, in time he can direct himself by himself' (T3).

In addition, one of the teachers (T4) distinguished between attention deficit and hyperactivity, emphasising the view that, *'hyperactivity gets less by age; attention deficit depends on whether it is because of an organic reason, which will remain, but other types become less frequent' (T4).*

6.4.2.6 What to Say to Others in the Same Situation:

The responses of teachers in terms of what would they say if they were to meet a new teacher who might come across a child or children with ADHD can be divided into three categories: ways of thinking, ways of dealing, and things to learn about ADHD and its associated interventions. The answers provided by the sample are detailed below.

Ways of thinking (T2; T5; T6; T7; T8):
- *It is important to have a connection [with] the child (T1)*
- *The most important part is to accept the child (T8)*
- *Be patient… it is not easy to deal with such children (T2)*
- *It is important that the teacher truly wants to help this group (T2)*
- *These children need special handling (T5)*
- *It is true that the child might not focus with you if you lecture him, but if you engage him in practical activities where he can learn through play and games, the child will not get distracted—especially when he works in groups where there is challenge and other things (T7)*
- *It is beyond the control of the child (T8)*
- *Understand his movement as it is a thing out of his control and not intentional (T6)*
- *Understand that the child is not trying to provoke you (T8).*

Ways of dealing (T1; T3; T4; T5; T6; T8):

- *Pay attention to safety precautions… because he might harm himself (T3)*
- *Enquire if the child needs to take any medication: if he takes medication, enquire about the times he takes this medication and whether he takes it at home as well (T3)*
- *Organise a suitable learning environment for them (T4)*
- *The teacher must hold physical activities (T1; T4; T5; T7; T8)*
- *Change your routine every time (T4)*
- *Encourage them (T5)*
- *Ask their friends to support them (T5)*
- *Use rewards (T1; T5)*
- *Avoid sweets and gelatine (T1)*
- *Remove anything that might distract their attention from the classroom (T6)*
- *The teacher's instructions should be firm and fragmented so the child doesn't get distracted (T8)*
- *There should be breaks for the child (T8)*
- *They must be seated in the front (T4; T5; T6)*
- *make her communicate with you and gradually increase the time (T1)*
- *They should stimulate a schedule for the child to improve his attention in a practical way (T8).*

Things to learn (T1; T3; T6):

- About ADHD (T1; T3):
  - *Learn about all the problems of this child (T3; T1).*

- About Interventions (T1; T3; T6):
  - *Learn about medication, the times and dosages and the side effects (T3)*
  - *Learn about the best ways to deal with it so it does not delay the learning process (T6; T1).*

6.4.2.7 Sources of Information Regarding ADHD:

Teachers revealed that they learn and gather information concerning ADHD from different sources that range between personal experience including self-education and media. Their responses are displayed in table 6.18 below.

Table 6.18: Summary of teachers' sources of information regarding ADHD

	T1	T2	T3	T4	T5	T6	T7	T8
University Studies	*	*	*	*	*	*	*	*
Courses and Conferences	*	*			*	*		*
Books	*		*			*		*
Experience	*	*	*	*	*		*	*
TV Programmes							*	
The Internet		*		*				
School Supervisors			*					
Parents of Children with ADHD	*		*					

The above table shows that all teachers agreed on *University Studies* as their foremost source of information regarding ADHD. This was followed by *Experience* where seven out of eight teachers referred to it as their source. While *Courses and Conferences* were stated to be a source for 5 teachers, only two of them stated that *The Internet* is their source. This means that teachers do not have much trust in the internet materials as much as they do with Courses and Conferences. The following source was *Books* with four teachers, and last *TV Programmes and School Supervisors* with only one teacher each.

Furthermore, regarding the availability of the sources for teachers and whether or not they have easy access to these sources, one of the participants (T3) stated, *'there are not many sessions and lectures about the subject, which explains parents' ignorance about the subject and their children' (T3);* this statement was also emphasised by a number of teachers (T1; T3; T4; T5; T6; T7; T8). However, another (T2) said that, *'there are many resources that talk about this problem and explain how to deal with it. Some centres offer training on the subject and invite the*

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mother and the child. Also, some internet forums are formed by the mothers of these children, and also the teachers' (T2). However, one participant (T7) emphasised that there is *'not enough advertisement about courses' (T7).*

6.4.2.8 Individuals' Knowledge of ADHD:

In regard to teachers' feelings as to whether or not they possess adequate knowledge concerning ADHD, opinions differ, with some believing that they have adequate knowledge (T5; T6; T7). However, another of the participants (T6) clarifies that, *'in a meaning, I know the essentials and I do not need the subsidiaries' (T6).*

In addition, the majority of the teachers (T1; T2; T3; T4; T8) hold the belief that they do not have adequate knowledge, the reasons for which include:

- *I don't have any knowledge about the diagnosis process (T1)*
- *Books that explain the programmes that we should use are not available. (T1)*
- *We have activities that we use but we don't know how to apply programmes (T1)*
- *We don't know how to treat the hyperactivity behaviour or attention deficit (T1)*
- *Honestly, I need to learn more (T2)*
- *I feel I have lack of knowledge because I only experienced around four severe cases (T3)*
- *I have not tried to read about it in detail (T4)*
- *Every case is different than the other (T8).*

It was also noted by two of the subjects (T5; T8) that, *'I learned about it by myself, the school did not educate us'.*

Concerning confidence in information, most of the teachers (T1; T2; T3; T5; T6; T8) emphasise that they are confident about their information, and base such confidence on various reasons. In particular, what makes them confident is based on:

- Observations (T1; T3)

- Reading (T3)

- Experience (T5)

- Education: *It comes from my study (T2; T6).*

Furthermore, two (T4; T7) hold the belief that they are partially confident, and add that:

- *Attention 50% and less; hyperactivity 80% (T4)*

- *I might say I am confident by 70% because I got my information from my parents, the community and the teachers... I am not sure about their resources or its accuracy (T7).*

With the above taken into account, teachers show they need to know more about particular concerns surrounding ADHD. Table 6.19 also emphasises such concerns.

Table 6.19: Summary of the topics teachers need to know more about regarding ADHD

	T1	T2	T3	T4	T5	T6	T7	T8
Diagnosis	*							
Intervention	*	*	*	*	*	*	*	*
Medication			*					

The table above shows that all the teachers agreed that they need to know more about *Intervention* regarding ADHD. Of the teachers, 1 expressed his need to learn more about *Diagnosis*, and one teacher needed to know about *Medication*. The lack of knowledge amongst teachers on intervention might be due to the narrow availability of scientific resources on this issue.

However, when considering the above, some teachers (T1; T2; T7; T8) highlighted that, *'the information that we acquire about this disorder is theoretical. We lack the skills of practicing this information... Certainly, the teacher's capability to practice this information has a great impact' (T1).*

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6.4.2.9 Others' Information Regarding ADHD:

The perceptions of teachers differ concerning whether or not others have sufficient information relating to ADHD, with some (T1; T2; T5; T6; T7; T8) believing others do not have sufficient information—*'even the child's parents notice that their child is not normal but they can't deal with him (T5)*—with others (T1; T8) attributing this lack of information to the following reasons:

- *They are not interested (T1)*
- *They don't understand it is a problem (T8)*
- *There are no specialists who are qualified to talk about the problem (T1)*
- *They* (parents) *try to run away from the fact that their child has this disorder (T1).*

However, one participant (T2) believed that:

- *People try to increase their knowledge about it, but their information has not reached a good enough level (T2).*

Furthermore, a couple of the teachers (T3; T4) highlighted that some do have sufficient information relating to ADHD whilst others do not, distinguishing between parents and the teachers in this regard, and further holding the view that:

For parents (T3; T4):

- *This depends on each person—not all people understand the problem. There are parents who refuse to accept the fact, whilst other parents accept the problem and seek knowing how to deal with it (T3)*
- *Definitely, the child's mother and father have enough information if they have a child with ADHD (T4).*

For teachers (T3; T4):

- *Teachers vary depending on their desire to help and make changes in the child (T3)*
-

- *Teachers deal with the students in the wrong way—especially older teachers because they do not know how to deal with the new generation and do not know about the new methods of teaching (T4).*

It was recognised by some of the teachers (T4; T6; T7) that others have a number of ways of dealing with children with ADHD, stating:

- *Teachers go very hard on girls to make them keep quiet, which is wrong because this way scares the girls and we should select the suitable way to discipline the girls according to their age group (T4)*
- *They use harsh methods with the child with ADHD; they punish him or ignore him completely because they think attention deficit is a fault made by the child, and because of the high number of students in the class, this child is the one who will be blamed because he is the one who is not paying attention (T6)*
- *Usually, if a child is hyperactive they hit him, and the teachers kick him out of the classroom (T7).*

6.4.2.10 Disseminating Correct Knowledge and Beliefs

In their view, teachers emphasise that correct knowledge and beliefs can be disseminated through a number of different educational-orientated ways, as well as through increasing awareness, which can be disseminated through a number of different approaches and utilising various parties. Table 6.20 reveals these views.

Table 6.20: Summary of teachers' beliefs concerning how correct knowledge and beliefs can be Disseminated

	T1	T2	T3	T4	T5	T6	T7	T8
Spread awareness (books, pamphlets, brochures, CDs, the internet, 'Imam' of the mosques, Malls and fun fairs)			*	*	*		*	
Media (television programmes, advertising awareness, radio programmes and newspapers)		*	*	*	*	*	*	*
Courses	*	*	*	*	*	*	*	*
Parents (direct the community)	*	*	*					*
Doctors (organise events)			*		*			*
Schools (school day, mothers' council, brochures, involving the parents and a monthly newsletter)	*			*	*	*	*	
Specialist Teachers	*		*				*	*
School psychologists							*	

In this table, it can be seen that *Courses* fall on the top of teachers' beliefs concerning how correct knowledge and beliefs can be disseminated, whilst *School psychologists* came last. Most teachers believe that *Media (television programmes advertising awareness, radio programmes and newspapers)* are means for correct knowledge followed by *Brochures, involving the parents and a monthly newsletter*. Half of them considered *Spread awareness*, *Parents, and Specialist Teachers* to be sources of disseminating correct knowledge and beliefs.

Undoubtedly, teachers' responses provide a range of causes regarding what they consider to be barriers of disseminating correct knowledge and beliefs. Such barriers are described in detail in Table 6.21 below.

Table 6.21: Summary of teachers' beliefs on the barriers of Disseminating correct knowledge and beliefs

	T1	T2	T3	T4	T5	T6	T7	T8
Teachers (lack of skills of practicing this information; a lack of teachers wanting to learn)	*					*	*	
New to our society		*		*				
Lack of reading				*			*	
The number of children with ADHD is not significant					*	*		
Targeted groups are not interested	*						*	
Lack of awareness			*		*		*	*
lack of resources (not enough published information, foreign books, do not provide solutions)	*		*	*		*		*
Courses are not available	*		*	*	*	*	*	*
Parents deny ADHD	*	*	*	*	*		*	
Parents are busy				*	*			
Family problems					*			

This table shows that the vast majority of teachers agreed that *Courses are not available* is the main barrier of disseminating correct knowledge and beliefs. *Parents deny ADHD* came second, followed by *Published information, foreign books, do not provide solutions*. Only one teacher viewed *Family problems* as a barrier.

6.4.3 Section C: Similarities and Differences between Knowledge and Beliefs

This section covers the knowledge and beliefs of the similarities and differences, and connections between people in terms of ADHD.

6.4.3.1 Similarities and Differences:

All of the participants with the exception of one (T7) hold the belief that people have different perceptions about ADHD because they have different experiences, levels of education, and personal mind-sets in regard to this problem. The table 6.22 shows their answers.

Table 6.22: Summary of teachers' beliefs surrounding the reasons behind similarities and differences

	T1	T2	T3	T4	T5	T6	T7	T8
Different levels of ADHD (from severe to moderate)	*		*			*		
Willingness to learn about ADHD			*					
Understanding (level of understanding, different conception)			*		*	*		
The environment				*		*		
Experience		*		*				*
Knowledge (different levels of knowledge, parents' and teachers' awareness)	*		*	*	*			*
Education		*			*	*		

Most teachers' beliefs surrounding the reasons behind similarities and differences are attributed to *knowledge, parents' and teachers' awareness.* Of the teachers, 3 teachers' beliefs are attributed *to Different levels of ADHD, Understanding, Experience and Education*, followed by *The environment*, and last *came Willingness to learn about ADHD*.

One participant (T7) said:

- *Most probably, they are similar—similar to a large extent. I am talking about the society in general. People generally view a child with hyperactivity*

to be naughty, and deserves to be punished. They do not view it as a problem that can be solved if it was tackled early. They think a hyperactive child deserves punishment and a child with attention deficit to be stupid, doesn't understand, and his focus is low, and they keep telling him 'you don't understand', and so on... actually, few people really identify a reason (T7).

In respect to the factors that make some people more knowledgeable than others, the responses of the teachers include a range of aspects, as can be seen in table 6.23 below.

Table 6.23: Summary of teachers' beliefs on the reasons for why some people are more knowledgeable about ADHD

	T1	T2	T3	T4	T5	T6	T7	T8
Experience		*			*			*
Specialisation		*						
Education	*	*	*				*	
Concerning about these children	*	*	*	*		*	*	
The environment			*	*				
Not fearing God					*			

This table shows that the reason *Concerning about these children* achieved the highest rate, followed by *Education*. *Experience* came third and last came *Specialisation* and *Not fearing God*. It can be concluded that teachers' beliefs on the reasons for why some people are more knowledgeable about ADHD are largely based on emotional and educational factors.

6.4.3.2 Connections between People:

Regarding discussing ADHD with others, teachers voiced that they discuss ADHD with various individuals and entities, but most predominantly specialist teachers followed by parents.

Table 6.24: Summary of people teachers discuss ADHD with

	T1	T2	T3	T4	T5	T6	T7	T8
The community	*	*	*	*				
Relatives	*							
Parents	*		*	*	*			*
Specialist Teachers	*	*		*		*	*	*
Friends	*		*					

From this table it can be seen that the vast majority of teachers discuss ADHD with *Specialist Teachers*. Most of them discuss this problem with the *Parents*, followed by *the community*. Two teachers discuss ADHD with *Friends* and only one discusses it with *Relatives*. Apparently, Specialist Teachers and Parents are the most preferable groups for the teachers when it comes to discussing ADHD. Discussing the issue with the children was not stated by any of the teachers.

However, one of the teachers (T7) voiced the following:

- *I am concerned with getting my information from trusted resources, which means I trust buying an academic book on the subject more than discussing the issue with a person whose information is not based on any scientific basis. I don't trust the teacher or the father. I might rely on a specialised teacher in this domain, but not other teachers because I know their qualifications (T7).*

Concerning whether or not they considered that dealing with a child with ADHD is part of their responsibility, all of the teachers (T1; T2; T3; T4; T5; T6; T7; T8) confirmed that this is viewed as being their responsibility, but some teachers (T2; T3; T5; T7; T8) also went on to state that such a problem is not the teacher's responsibility alone; rather, other parties are also responsible, as depicted in table 6.25 below.

Table 6.25: Summary of parties and sectors identified by teachers as responsible for ADHD

	T1	T2	T3	T4	T5	T6	T7	T8
The Community			*					
The School							*	
Parents							*	*
The School Psychologist							*	
The Supervisor					*			
The School Head					*			
Media		*						

It can be seen from this table that the teachers had broadened the responsibility for ADHD to cover different parties and sectors. However, the most responsible parties from the teachers' angle—after themselves—are *Parents*. This does not mean denying the responsibility of other parties and sectors, such as *the Community, The School, The School Psychologist, The Supervisor, The School Head, and the Media*.

6.4.4 Section D: Teachers' of Children with ADHD Perceptions towards Others

This section considers the perceptions of teachers of children with ADHD towards children with ADHD and their parents.

6.4.4.1 Perceptions towards Children with ADHD:

Teachers' perceptions concerning those children diagnosed with ADHD can be divided into two types: the children; and the teachers' needs and reactions.

The children (T1; T3; T4; T6; T7; T8):

- *It is a problem that usually leads to punishing the child (T1; T4; T6)*
- *It is not the child's fault (T3)*
- *They are not aware of their problems (T3)*

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- *It is important that we don't tell him that he has a problem, or otherwise let him feel that he has a problem… We must deal with him very normally and not let him feel that he has a problem because this might reflect on his wellbeing; he might feel that he is different than the others (T7)*
- *These children are under pressure from the community (T8).*

Teachers' needs and reactions (T1; T2; T3; T4; T5; T6; T8):

- *They need a lot of work (T1)*
- *They are very tiring children... my energy is not enough for their needs (T6)... other children learn with less effort (T6; T5)*
- *She takes a lot of our time (T5)*
- *When the movement exceeds the limits, I get annoyed (T4)*
- *Teachers vary when they come across a child like this (T5)... I try not to teach them, or teach not more than one of them (T5; T6)*
- *I'll be glad to teach them (T2)... I'll do my [best] to help them (T2; T3; T8).*

The reasons for holding such perceptions include:

- *My own experience with them (T1; T3; T6)*
- *Because this child is normal... so we must help him to improve his life (T2)*
- *It is wrong to ignore him, especially when researchers say that they can improve (T2)*
- *She distracts me (T4)*
- *She does not help me to help her (T4)*
- *Sometimes I can't control her (T4)*
- *Because other students do their exercises unlike her. She needs a special exercise and to repeat the lesson with her in a simplified way (T5)*
- *Other children will be affected if I lose my energy (T6)*
- *I... read a lot about education and methods of education (T7)*
- *This is a group of society (T7)*
- *Because most students with learning disabilities suffer from this problem (T8).*

Furthermore, there are various factors that are believed to induce both positive and negative perceptions, which can be divided into a number of different categories, as further discussed below.

Teachers' views (T3; T5; T7; T8):

- *It depends on how the teacher views his job, i.e. whether he considers his job to be humanitarian or just a job (T3)*
- *It depends on the teacher and her wish to make an effort (T5)*
- *Accepting: to take an issue as a human case and accept it, whereas the teacher who does not accept it will say it is not their job, they should find them a special place* (classroom or school) *to deal with them (T8)*
- *The first one is knowledgeable and aware of the subject, and the other is not interested and not knowledgeable (T7).*

The teachers' personality (T4; T7):

- *Some are nervous, some are calm, and some like to deal with children and learn more (T4)*
- *This subject depends on how skilful the teacher is in terms of dealing with this case (T7).*

Efforts (T1; T2):

- *They need more efforts (T1)*
- *Teachers are negative when they think how difficult and tiring and boring this group is (T2).*

The curriculum (T1; T4):

- *The curriculum is very hard for them; they need [a] different and more suitable curriculum (T1)*
- *The problem is that teachers are under pressure; they are required to finish the curriculum on time, and so they [are only concerned with whether] the majority is paying attention (T4).*

The improvement of children (T2; T6)

- *Teachers are positive when they think that they can improve to be fine and okay (T2)*
- *I can't see any positivity unless the child gets better (T6).*

The children themselves (T6):

- *From experience, some children do not care much about their education (T6).*

The children's parents (T6; T7):

- *Parents are also not concerned about the education of their children (T6; T7).*

In consideration to the ways in which teachers consider to be in a position to help children with ADHD, their responses contained various suggestions. Some of these suggestions include personal qualities, and others involve particular techniques, as shown subsequently.

Attributes to have (T2; T4):

- *Be patient (T2)*
- *Teachers should have specific characteristics, such as understanding the ways in which children think, and be able to think in their own way and understand their needs (T4).*

Learn about teaching children ADHD (T2; T3):

- *It is important to learn about ways of educating these children (T2; T3).*

Behavioural interventions (T1; T2; T5; T6; T7):

- *Use reward and punishment approach (T2; T6)*
- *Always teach him through practical methods (T7)*
- *Use attractive teaching methods (T6; T1; T2; T7)* (such as) *activities and videos (T2) If a child likes to learn through colouring, I will do all his teaching through colouring (T1)*

- *Ask her friends to support her without making them notice that she is different and vulnerable (T5)*
- *Contain him by engaging him in activities (T7; T5).*

Things to keep in mind (T2; T5; T7):

- *Teachers must accept all kinds of children and know that there are individual differences between them (T5).*
- *Make them trust themselves (T2; T5)*
- *I avoid anything that makes her feel that she is different (T5)*
- *Give her more attention (T5; T7).*

Educational intervention (T1; T5; T6; T8)

- *Seat her in the front (T5; T8)*
- *If a child moves a lot, I will adjust the academic curriculum to a physical one (T1)*
- *Try to remove any distracting object (T6).*

Advise others (T8):

- *Inform teachers of ways to deal with it (T8).*

Work with parents (T5):

- *I will report to her* (the mother) *about the progress of her child (T5)*
- *Speak to her mother and ask her to take part in the learning process (T5).*

6.4.4.2 Perceptions towards Parents of Children with ADHD:

In regard to teachers' perceptions regarding the parents of children with ADHD, few teachers' regarded the role of the parents to be neutral and mostly positive, whilst most of them considered it to be negative. The statements they made are detailed below.

Negative (T1; T2; T3; T6; T7):

- *Parents do not search for solutions... Parents rely only on teacher to find solutions (T1)*

- *they do not take the child to the hospital (T5)*

- *Parents depend on giving the child medication without developing his surroundings or using physical activities. Some children do not need medication but their parents give them the medication. I have an experience with children that were getting better by only doing the suitable activities (T1)*

- *I do not meet them (T6)... most of them depend totally on the school (T6).*

- *They* (parents) *feel that teachers lie; [therefore, they] reject reality and what the teacher tells them (T2)... The mother does not accept hearing bad things about her daughter and that her daughter is different to other girls, and so I do not force the mother to listen. I only speak to her about school progress and levels unless the child did something completely unacceptable... I will not call for the mother unless she comes to ask (T4)*

- *They* (parents) *are unable to deal with them* (children); *few parents know how to deal with them (T7; T2).*

Neutral (T3; T5):

- *Some parents are cooperative and educated... Others are frustrated, and they frustrate the teacher despite the child making progress (T3)*

- *Some of them are interested and listen to our comments about their children... Others are not interested because of ignorance and family problems between the mother and father (T5).*

Mostly Positive (T8):

- *Most parents are cooperative... Most of the time they* (parents) *feel upset and unhappy because the community does not accept them... Mothers complain about the teachers... Mothers complain about the lack of understanding (T8).*

The reasons for holding such views are explained by all of the teachers as following:

- *My experience with them (T1; T2; T3; T4; T5; T6; T7)*
- *They* (parents) *told me (T8).*

There are various factors that can induce both positive and negative perceptions towards parents, as detailed as follows:

Helping teachers (T1; T2; T3; T5; T6; T7):

- *Listen*[ing] *to our comments about their children (T5; T7)*
- *If he follows up the issue with the teacher (T7).*
- *Depends on their cooperation and presence (T6; T3; T1)*
- *they feel that teachers lie and reject reality and what the teacher tells them (T2)*
- *The mother can be negative if she is not taking part with me in her girl's education progress (T5).*

Helping children (T1; T5):

- *The mother can be positive if she helps her child and boosts her self-esteem (T5; T1)*

Being interested (T2; T5; T7; T8):

- *Some of them are interested (T5; T2; T7; T8)*

Environmental factors (T4; T7):

- *Environmental factors (depending on the location of the school: for example, south Jeddah is different to north Jeddah, and people are different in their natures and their ways of thinking (T4; T7).*

Parents themselves (T1; T3):

- *I am negative towards mothers by 50%, and very negative towards fathers because of their absence and lack of interest in their children's nutrition, unlike mothers who are very interested (T1)*
- *Some parents are frustrated and frustrate the teacher, despite the child making progress (T3).*

In terms of suggesting what parents can do to help teachers, it was revealed by the sample that the parents can help teachers through a number of different methods and practices, as below.

Acceptance (T1; T2; T3; T4; T5; T7):
- *Do not give up on her when she is informed by the teacher that her girl is not doing well (T5; T1; T2; T4; T7)*
- *They should consider the issue with themselves and accept that this problem is a fact that we cannot change (T3)*
- *Start looking for the best methods to deal with their child (T3)*
- *Think positive (T3).*

Learn about ADHD (T1; T2; T3; T4; T5; T6; T7; T8):
- *Consult a psychiatrist (T4; T1; T3)*
- *Read and educate themselves about the subject (T4; T1; T2; T3; T5; T6; T7; T8)*
- *Discuss the problem* with teachers *(T7; T2)*
- *Attend courses about the subject (T7; T2)*
- They (parents) *should learn from each other (T5).*

Facilitate treatment for the child (T1; T2; T3; T4; T5):
- *Take her to the doctor (T5; T1; T2; T3; T4).*

At home (T1; T3; T5; T6):
- *They should know that they have a responsibility at home (T1)*
- *Perform the activities that the teacher asks them to do at home (T3; T5)*
- *The communication between parents and children must be based on love because they are their children, after all (T5)*
- *Do more than what the teacher can do because the teacher has many tasks to do (T6)*
- *They must engage the child with sport and physical activities... I am not asking them to do things that they cannot afford (T1).*

At school (T1; T2; T3; T4; T5; T6; T7):

- *It is assumed that parents have solutions that they can pass to the teacher, and not the teacher who gives solutions (T1; T7). Sometimes they give me unreasonable solutions; I break these solutions down and apply them in stages (T1)*

- *Cooperate with the teacher (T6; T1; T2; T3; T4; T5; T7) the teacher will be more encouraged to teach (T2; T1; T3; T4; T5; T6; T7)*

- *Provide the notes they take at home (T3; T5)*

- *Follow up with teachers (T7; T5).*

6.5 Cross-group Analysis of the Interviews Results

As part of this chapter—which has presented the findings of the interviews and analysed groups' responses—this section provides the results' presentation from different standpoints. It considers the data across the groups. After the voices of each group have been presented, a comparison between the responses is vital. Extracting general trends from the three separate groups of participants who answered the same set of questions will be carried out in this section.

6.5.1 Section A: Demographic Information of the Group Participants

The groups of the participants differ in terms of their numbers, where the number of the children with ADHD is four (4), the number of the parents of children with ADHD is six (6), and the number of teachers specialising in learning disabilities is eight (8). Importantly, all of the children were girls, and most of the teachers (six) were females, whilst just two (2) parents were females. The following chart shows the demographic differences between the three groups in terms of their gender.

Moreover, in terms of the type of school, i.e. whether private or public, most of the children with ADHD were found to be from private schools (3 out of 4), whereas just one of the six parents is a parent of a child in a private school, and two of the eight teachers worked in a private school. The next chart shows the differences between groups according to the type of school from which they

The findings include three different sections: Knowledge and Beliefs regarding ADHD; Similarities and Differences between Knowledge and Beliefs; and Perceptions of Children with ADHD, their Parents and Teachers towards Each Other.

6.5.2 Section B: Participants' Knowledge and Beliefs about ADHD

This section covers the knowledge and beliefs of the groups concerning ADHD in terms of a number of key factors discussed herein.

6.5.2.1 Perceived Characteristics:

The responses of the three groups show similarities and differences in terms of their perceived characteristics. The three groups share certain perceptions, whilst there were various factors recognised as shared by two of the groups. The similarities and differences are demonstrated in detail below.

Similarities between the three groups:
- Lack of attention (C1; C4; T2; T4; T5)
- Lack of concentration (C1; C4; P1; P2; P5; P6; T1; T2; T3; T4; T5; T6; T7; T8)
- Lots of movement (C1; C2; C3; C4; P1; P2; P4; P5; P6; T1; T2; T3; T4; T5; T6; T7; T8)
- ADHD is out of children's control (C4; P2; P4; T1; T2; T3; T4; T5; T6; T7; T8).

Views of characteristics shared by parents and teachers include:

- *It exceeds the normal limits (P6; T2)*
- *Obvious ' attracts the attention of all people' (P3; P4; T7)*
- *Is repeated continually (P3; T7)*
- *Easily distracted (T3; P3; T6).*

Differences between the three groups:

- Disobeying (P1; P4; P5)
- The effects of ADHD on such children and people around them (T3; T6; T7; T8)
- *It lasted for a long time without stopping (P1)*
- *different than other kids at his age (T2; T7)*
- *makes his focus low (P4; P3)*
- *His movement is not normal (P4; P3)*
- *Playing with anything (T5)*
- *Uses every chance to turn away from the lesson (T8; T5)*
- *His movement does not have a target (T4).*

6.5.2.2 Perceived Prevalence:

Whilst the majority of the children (C2; C3; C4) hold the belief that the disorder is not common, half of the parents (P2; P5; P6) and some of the teachers of learning disabilities (T1; T5; T6), on the other hand, believe it is common, whilst the other half of the parents and teachers (P1; P3; P4; T2; T3; T4) respectively believe that it is not. However, when dividing attention deficit and hyperactivity, both teachers and parents groups share the belief that attention deficit is more common than hyperactivity (P2; P5; T7; T8).

In regard to the rates, the parents group believe the percentage of ADHD is between approximately 10% and 30% (P1; P3; P4; P6), which is higher than what teachers

believe; between 10% and 20% (T1; T2; T3; T5). However, teachers believe the prevalence is higher for mentally disabled children, which is between 30% and 50% (T1; T3); nevertheless, when separating the rates of attention deficit from hyperactivity, parents still give a higher percentage for both as the percentage of attention deficit is between 30% and 40% whilst hyperactivity is approximately 20% (P2; P5). Furthermore, teachers believe the percentage of attention deficit is between 15% and 30% and hyperactivity is between 4% and 30% (T4; T6; T7; T8).

6.5.2.3 Perceived Causes:

Figure 6.1 depicts the causes of the disorder, as stated by the three groups.
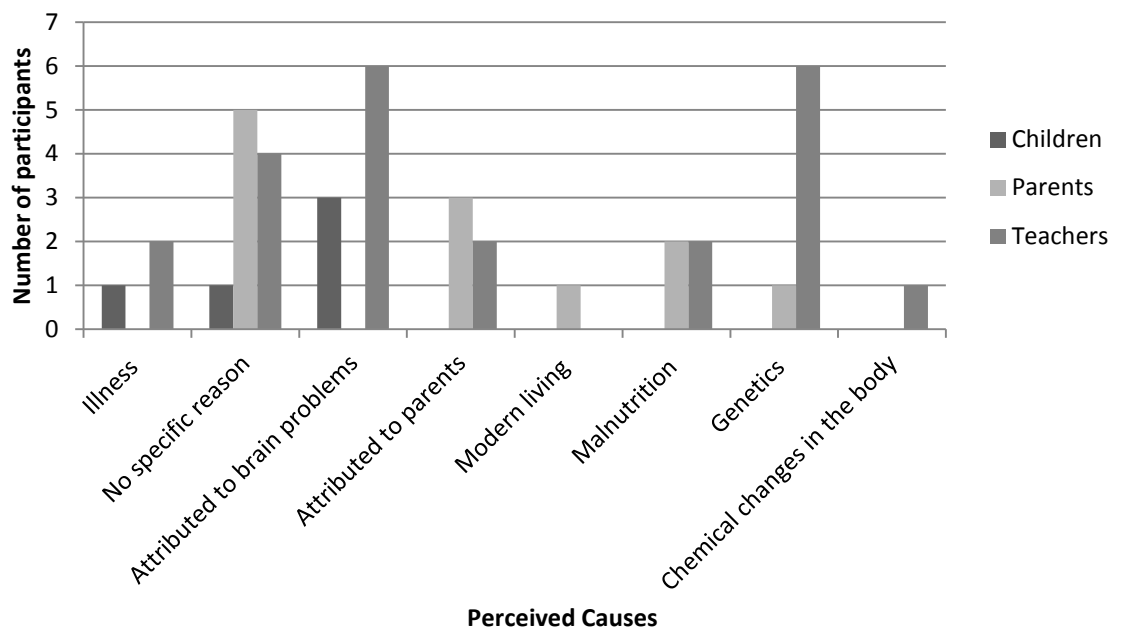
Figure 6.1: Comparison between the children, parents and teachers in terms of the perceived causes of ADHD

The chart reveals that the highest rates given by teachers go to brain problems and genetics, whilst parents' highest rate goes to 'no specific reason'. Children's responses indicate that the causes of ADHD are mostly owing to brain problems.

6.5.2.4 Perceived Interventions:

Figure 6.2 shows the type of interventions, as suggested by the three groups.
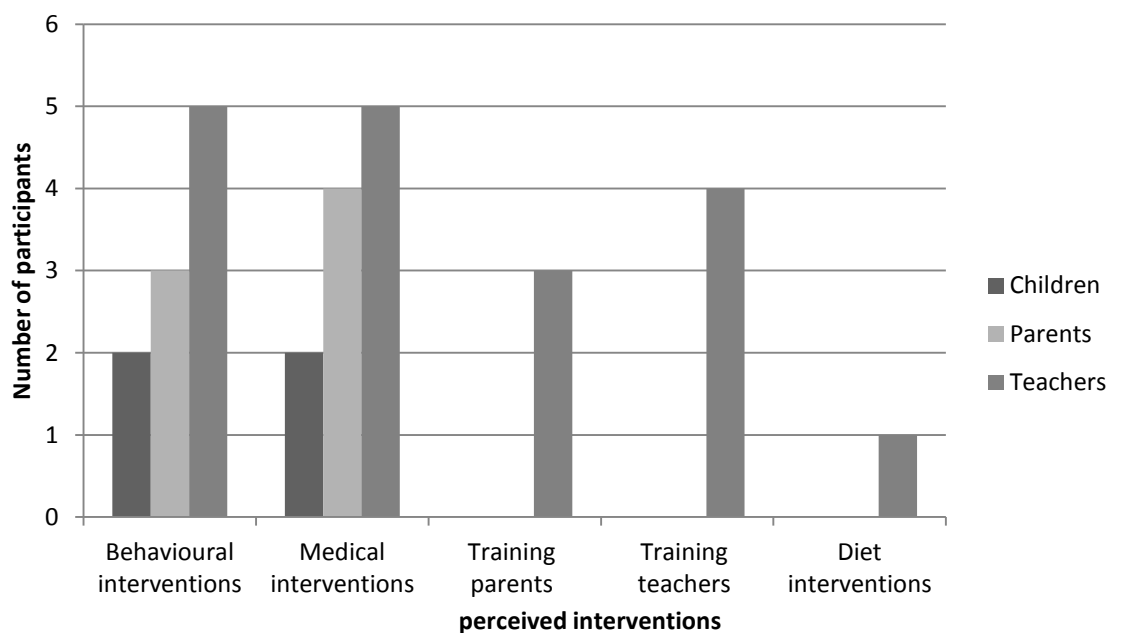
Figure 6.2: Comparison between the children, parents and teachers in terms of perceived interventions

The teachers' highest rates are assigned to behavioural interventions and medical interventions, whilst parents prefer medical interventions as their preferred option. Notably, children's highest rates were recognised as both behavioural interventions and medical interventions.

In addition, most of the participants emphasised the importance of early interventions (C2; P3; P4; P6; T1; T2; T3; T7) and the use of medication when ADHD is recognised as being severe (P1; P2; P3; P5; P6; T1, T3; T5; T7; T8).

6.5.2.5 Perceived Developmental Courses:

Most participants (C1; C2; C3; C4; P1; P2; P4; P6; T1; T2; T5; T6; T7; T8) believe that ADHD will remain but will lessen as the child gets older, although some (P1; T1; T5) believe that ADHD will eventually go away with time. Some of the teachers (P2; P4; P6) believe that ADHD will not go away for all children, but rather state that the disorder goes away in the case of some children but becomes less with others. However, when distinguishing between attention deficit and hyperactivity, some of the respondents (P3; T4) hold the belief that attention deficit might persist or become less severe but that hyperactivity will undoubtedly decrease.

6.5.2.6 What to Say to Others in the Same Situation:

Considering what children would say if they were to be learning alongside a child with ADHD, a range of answers was provided, which can be summarised into two main statements: asking them to be patient (C2), and asking them to stop moving (C1, C3 and C4). The parents of children with ADHD and the teachers would similarly provide a number of ways of thinking about ADHD (P1; P2; P3; P4; P5; P6; T2; T5; T6; T7; T8) in addition to several ways of dealing with ADHD (P1; P3; P4; P5; P6; T1; T3; T4; T5; T6; T8). However, some of the teachers (T1; T3; T6) would ask them to learn about ADHD and its Interventions.

6.5.2.7 Sources of Information Regarding ADHD:

Whilst the children seem not to be taught or have a source of information regarding ADHD, the parents of children with ADHD, as well as teachers, provided a number of sources, as can be seen in Figure 6.3 below.
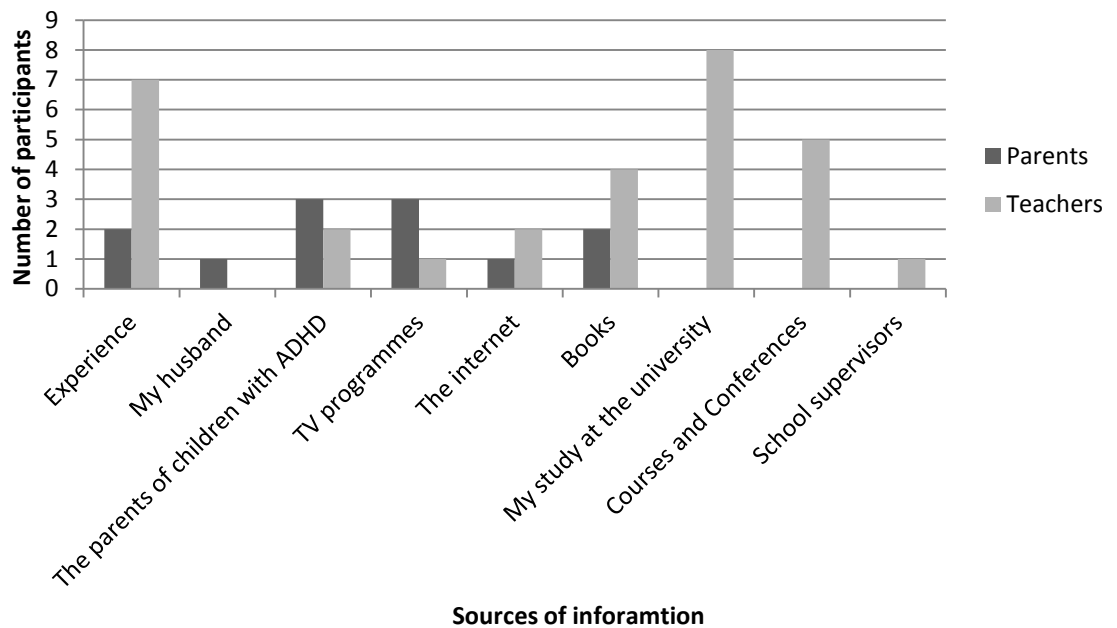
Figure 6.3: Comparison between parents and teachers in terms of the source of information regarding ADHD

The above chart indicates that the highest sources of information for parents of children with ADHD are other parents of children with ADHD and TV programmes, whereas teachers depend highly on their education and experience.

6.5.2.8 Individuals' Knowledge of ADHD:

Although all of the children participants (C1; C2; C3; C4) show a desire to learn about ADHD, there was variation witnessed amongst the parents and teachers with regard to their belief of whether or not they have adequate knowledge. Bearing in mind the number of participants of parents and teachers in the interviews, figure 6.4 reveals that the percentage of teachers who stated they do not have adequate knowledge of ADHD is higher than parents. The figure also shows that the percentage of teachers who have stated they have adequate knowledge is higher than that of the parents.
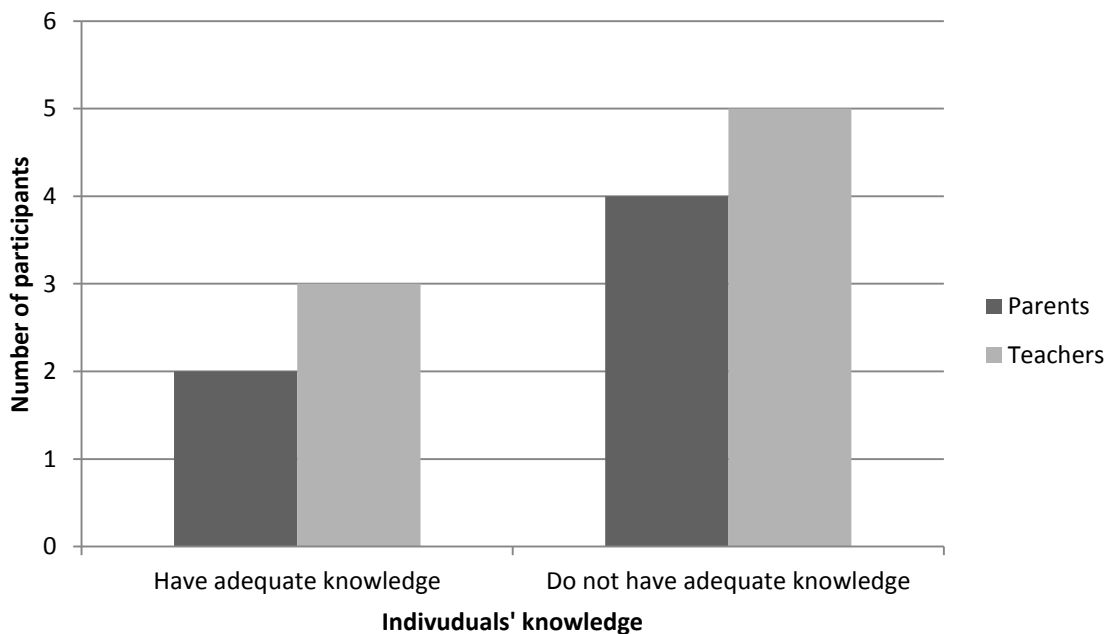
Figure 6.4: Comparison between parents and teachers in terms of Individuals' knowledge of ADHD

Figure 6.5 shows participants' levels of confidence in regard to the information they possess.
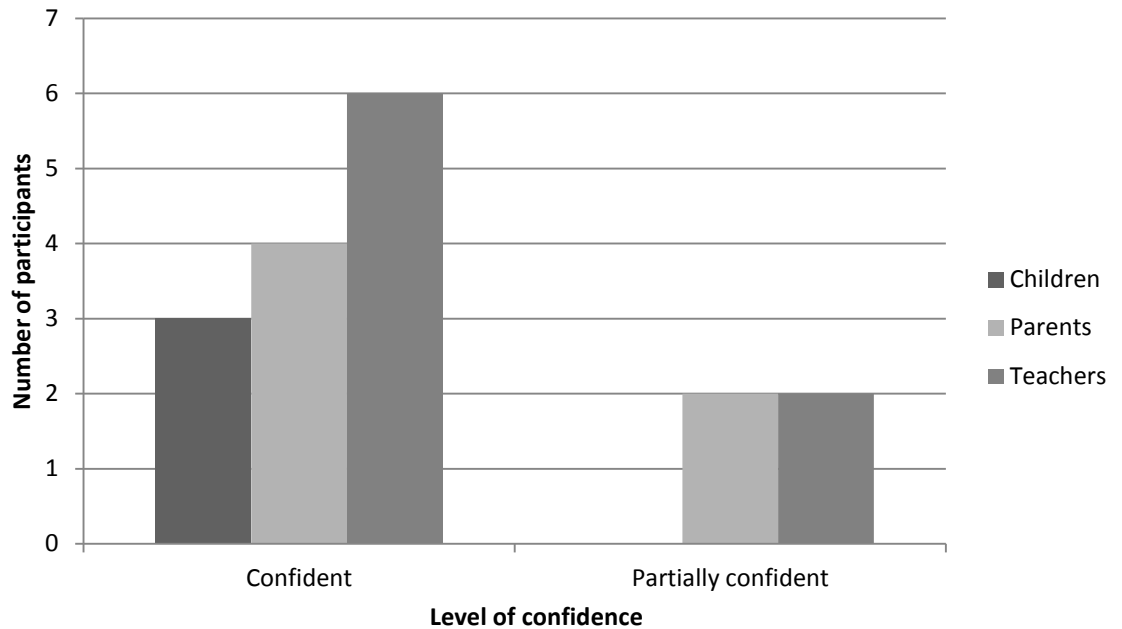
Figure 6.5: Comparison between the children, parents and teachers in terms of the level of confidence in their information regarding ADHD.

Note: the child (C4) did not provide an answer.

By reviewing the above chart, it becomes clear that teachers are the most confident group in terms of their knowledge and the information they possess when contrasted against parents and children. In terms of being partially confident, teachers and parents score equal rates.

However, some of the sample did reveal that they want to know about two aspects, which are:

- *How to deal with an ADHD child (C2)*
- *Who suffers more from it—children or adults? (C3).*

Children, parents and teachers, in relation to ADHD, clarify the topics they need to learn more about, as displayed in Figure 6.6.
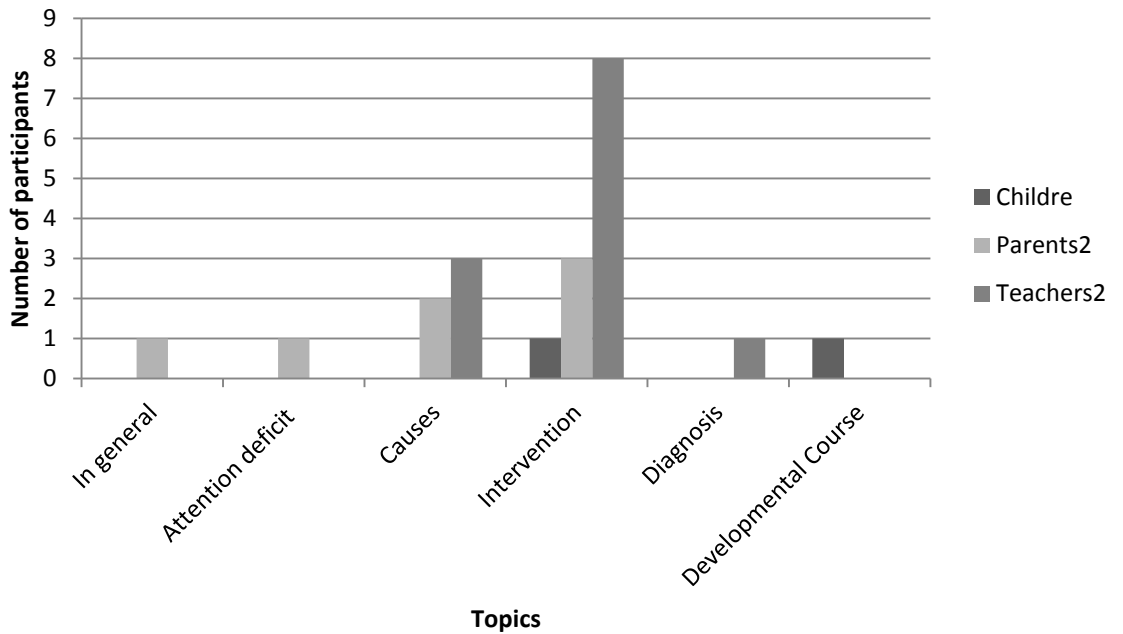
Figure 6.6: Comparison between children, parents and teachers in terms of the topics they need to know more regarding ADHD.

Notes: the children (C1; C4) did not provide an answer.

Children, parents and teachers need to know more about interventions, which is allocated first position. The causes of ADHD came second for both parents and teachers, whilst children reveal greater interest in learning about developmental courses. Furthermore, parents show more interest in learning regarding general information and attention deficit, whilst teachers were interested in diagnosis.

6.5.2.9 Others' Information Regarding ADHD:

The perceptions of children, parents and teachers in terms of ADHD and whether others have sufficient information in this regard can be seen in Figure 6.7.
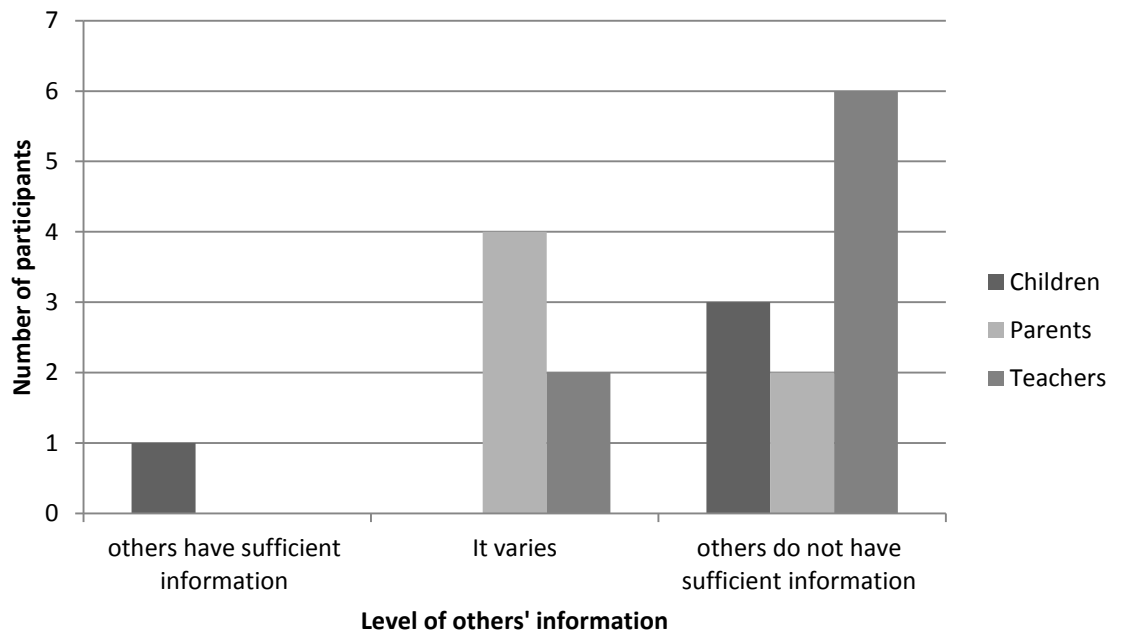
Figure 6.7: Comparison between the children, parents and teachers in terms of others' information regarding ADHD

Teachers' responses are the highest in the 'others do not have sufficient information' category, whilst parents scored the highest in the 'it varies' category. The highest percentage of children's answers falls within 'others do not have sufficient information' category.

6.5.2.10 Disseminating Correct Knowledge and Beliefs:

In the views of the participants, the belief is held that correct knowledge and beliefs could be disseminated through various means (Figure 6.8).
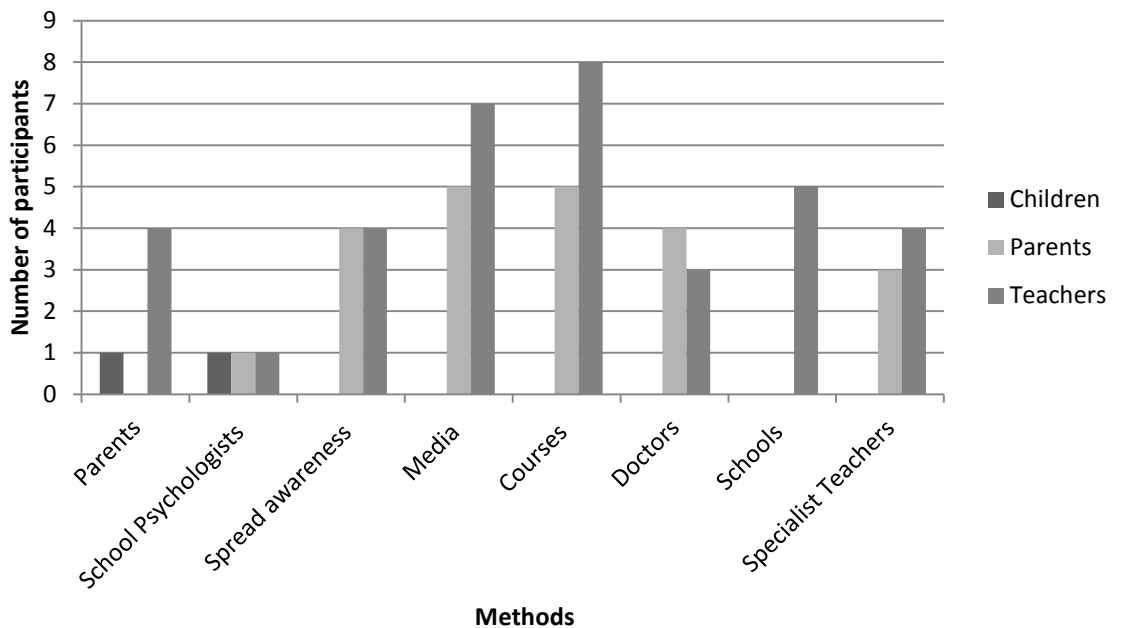
Figure 6.8: Comparison between the children, parents and teachers in terms of Disseminating correct knowledge and beliefs

Notes: The child (C4) did not provide an answer and child (C3) stated, *'telling them that it is about children who move too much; that they get dizzy and fall to the floor' (C3).* Spread awareness includes: scientific lectures, Educating pamphlets, Symposiums, 'YouTube', books, pamphlets, brochures, CDs, the internet, 'Imam' of the mosques, malls and fun fairs.

Children gave the highest percentage to parents and school psychologists, whilst parents view courses and media as being the most important sources. On the other

hand, teachers regard courses as the most important source for disseminating correct knowledge and beliefs.

Children's, parents' and teachers' responses provided a variety of what they deemed to be barriers to disseminating correct knowledge and beliefs concerning ADHD, as can be seen in Figure 6.9.
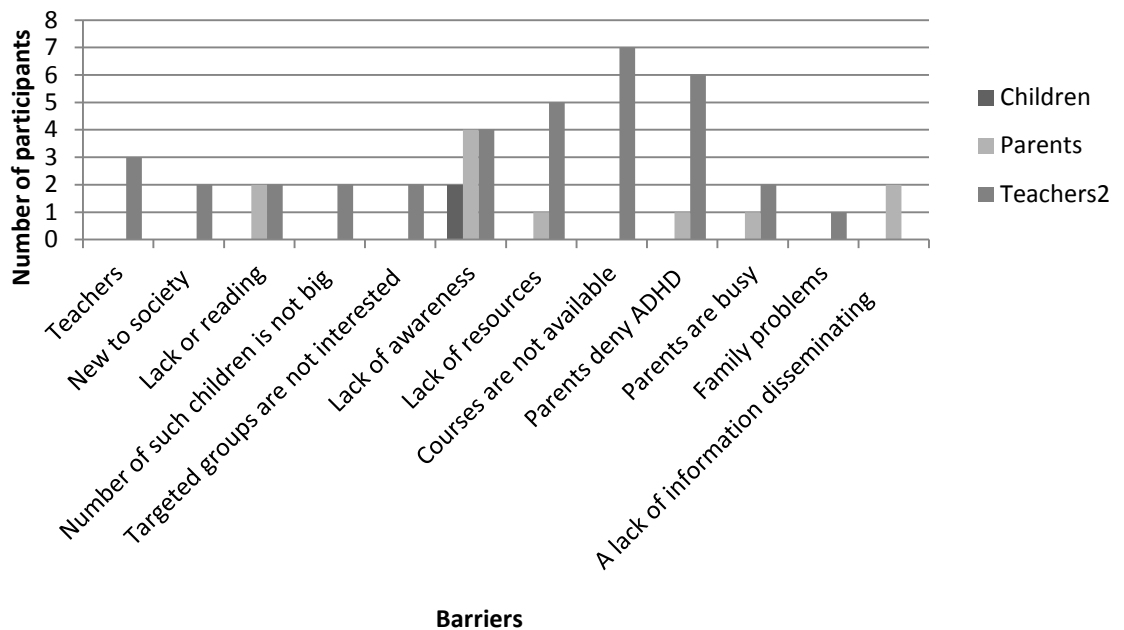
Figure 6.9: Comparison between parents and teachers in terms of barriers to
Disseminating correct knowledge and beliefs regarding ADHD

Notes: the children (C1; C4) did not provide an answer.

The above chart depicts the fact that teachers consider the unavailability of courses to be the highest barrier, whilst children and parents view the lack of awareness as the most notable obstacle.

6.5.3 Section C: Similarities and Differences between Knowledge and Beliefs

This section covers the knowledge and beliefs of the similarities and differences, and connections between people regarding ADHD.

6.5.3.1 Similarities and Differences:

All the participants, with the exception of one (T7), hold the belief that people have diverse perceptions in terms of ADHD. Figure 6.10 reveals their answers.
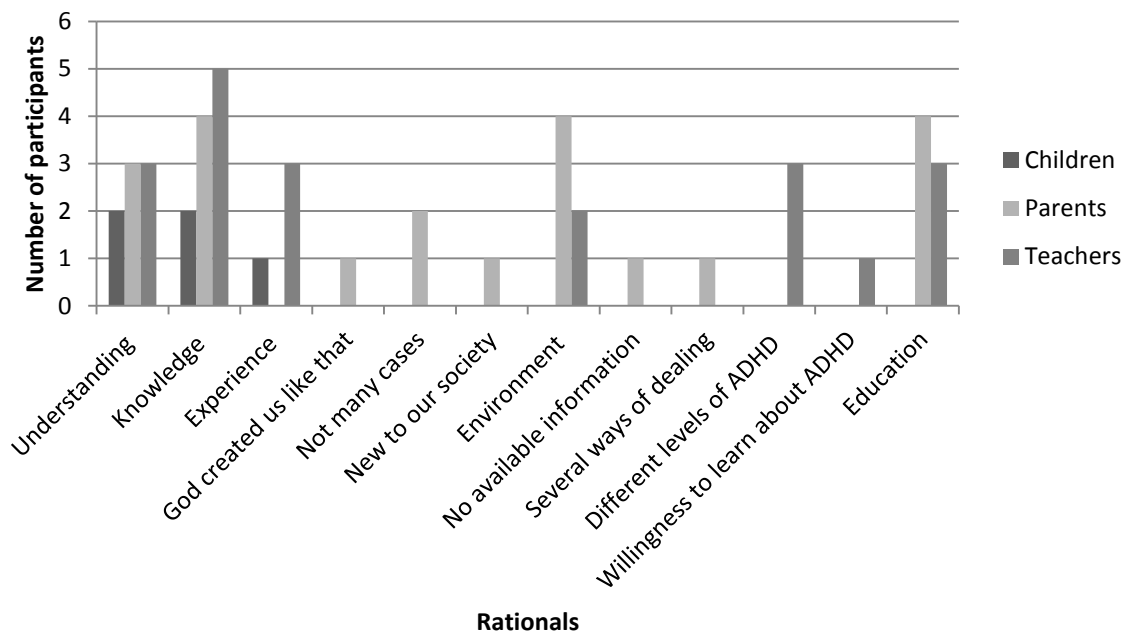
Figure 6.10: Comparison between the children, parents and teachers in terms of the similarities and differences

In general, the above diagram highlights the fact that children, parents and teachers believe different knowledge to be the most important reason, with children also

viewing different understandings to be one of the most important reasons as well. For parents, environment and education are the most important factors contributing to people's knowledge.

In respect to the factors that make some people more knowledgeable than others, the responses of the participants include a range of aspects, as presented in Figure 6.11.
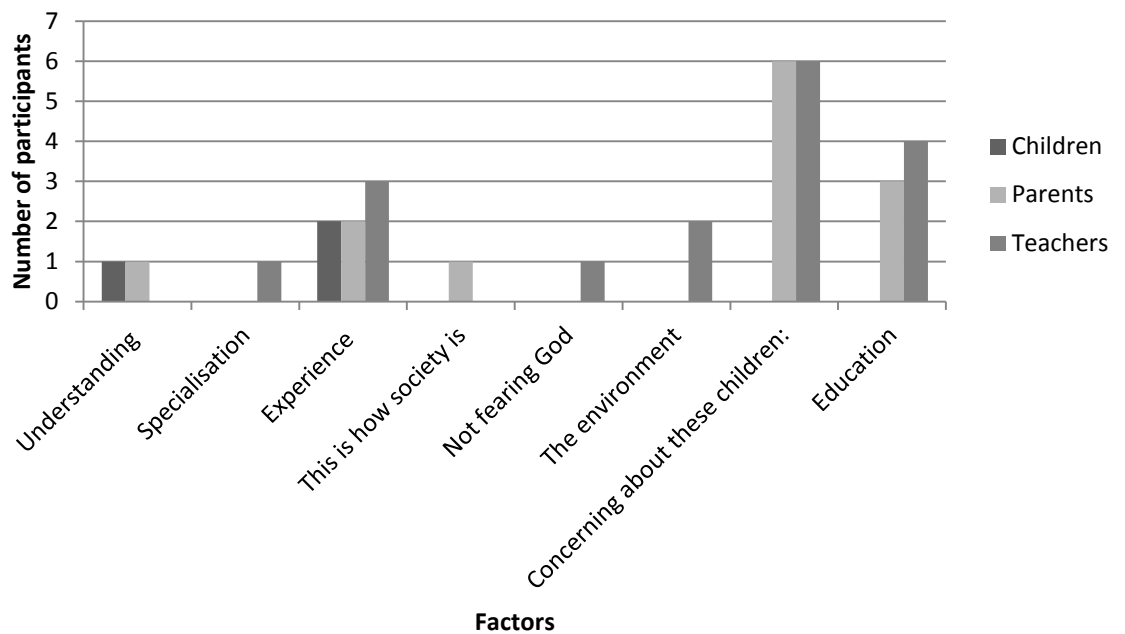
Figure 6.11: Comparison between the children, parents and teachers in terms of the factors that make some people more knowledgeable than others

Notes: the child (C4) did not provide an answer.

For both teachers and parents, 'concerning about these children' is recognised as the most important factor making some people more knowledgeable than others, although children consider 'experience' to be the most important factor.

6.5.3.2 Connections between People:

The children show that they do not talk about ADHD with anybody; however, two children (C2; C4) want to tell people that they are *'normal humans'* (C2) and explain to them *'how to help people with this problem' (C4).* Children highlighted the view that, when requiring assistance, they go to mothers (C1; C2), teachers (C3) and friends (C1; C4), despite the fact that one of them (C1) pointed out that *'she* (mother) *is always busy; she has a lot of things to do' (C1).*

In addition, concerning discussing ADHD with anybody, participants revealed that they discuss ADHD with many parties. The percentage of each party is presented in Figure 6.12 below.
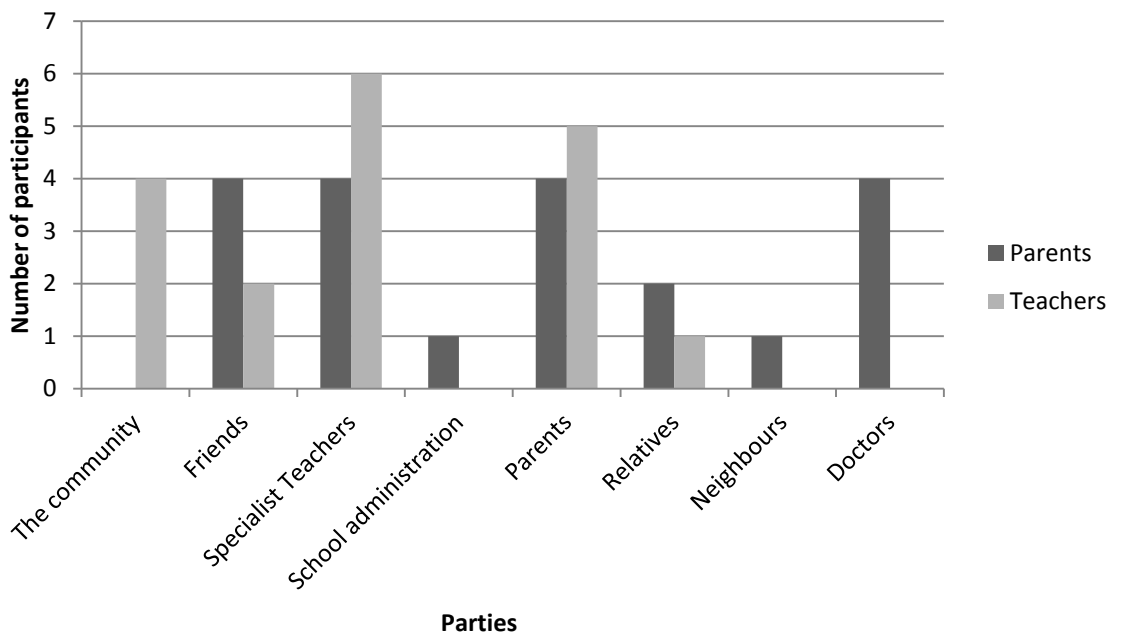
Figure 6.12: Comparison between parents and teachers in terms of discussing ADHD with other parties

The above chart shows that the most preferred parties for parents to discuss ADHD with is specialist teachers, friends, other parents and doctors, whilst teachers' most favoured parties are specialist teachers followed by the parents of children with ADHD.

In regard to who participants believe the responsibility of dealing with this problem should be shouldered by, the participants' responses widened this responsibility to cover many parties and sectors, as shown in Figure 6.13 below.
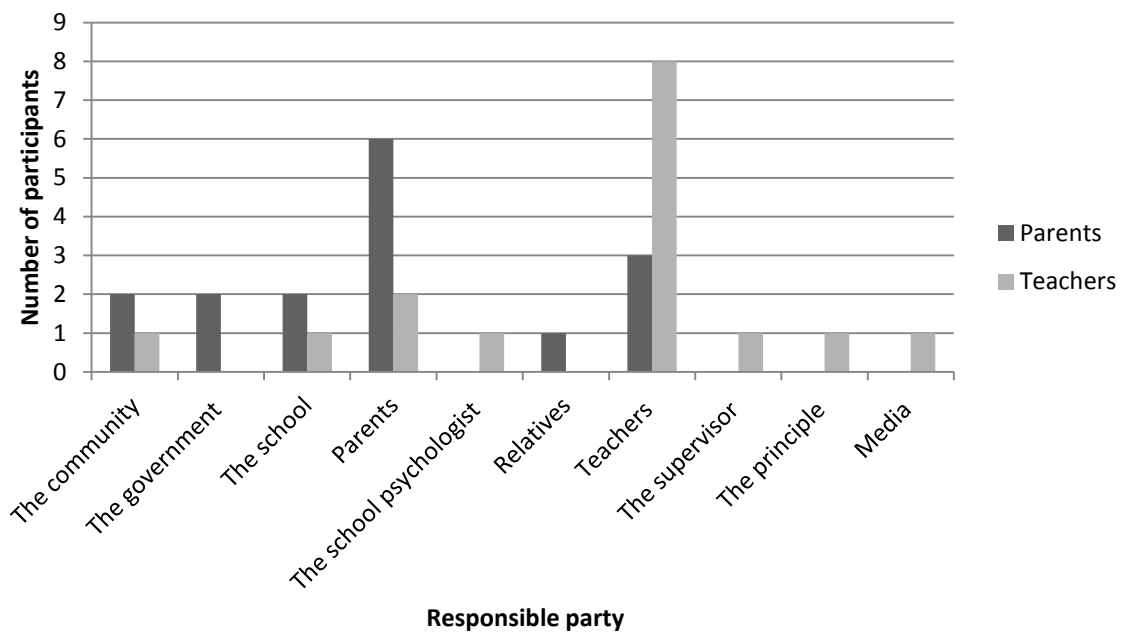
Figure 6.13: Comparison between parents and teachers in terms attributing responsibility

All teachers' answers attribute the responsibility of dealing with this problem to the teachers themselves, whilst 100% of the parents attributed this responsibility to the parents. These high percentages indicate that both teachers and parents hold themselves responsible in terms of dealing with ADHD problem.

6.5.4 Section D: The Perceptions of Children with ADHD, their Parents and Teachers of Each Other

This section includes: Perceptions of Children and Parents of each other; Perceptions of Children and Teachers of Each Other; and Perceptions of Parents and Teachers of Each Other.

6.5.4.1 Children–Parents:

Although most children (C1; C3; C4) perceive parents negatively as using harsh methods, the perceptions of parents of children with ADHD of such children was divided into three parts as following:

- For children: although they are clever and good at playing (P3; P5), ADHD affects them negatively (P1; P4) because of their parents, siblings and the community (P1; P4), although it is temporary and will lessen as they get older (P6) if they are afforded with the right care and attention (P3). Accordingly, parents should take care of them and seek medications if needed (P4).

- For parents: these children are tiring and need full attention from parents (P5), but parents do not know how to deal with them so they may implement violence or hitting children (P4).

- For others: others are annoyed by such children as they are annoying and nobody can bear their hyperactivity (P2; P4).

Moreover, parents believe that the personal factors of parents (P1; P2; P5; P6) and the characteristics of these children (P3; P4) create both positive and negative perceptions towards them.

Children want parents to help them with their studies (C1), such as by talking to them (C2), and assisting, encouraging and developing their hobbies and talents (C2).

In short, they want them to follow-up their cases (C3; C4). Similarly, the parents participating stated that parents can help children with ADHD by talking to them (P5), doubling efforts in teaching them (P5), giving them more attention (P1; P3; P5), and accepting it and not ignoring ADHD (P1; P5). On the other hand, some parents added they can help children with ADHD through establishing structure, keeping them busy, utilising medication and behavioural interventions, bearing things in mind (for example *Making it easier for them, Accepting and not ignoring it*), and making changes to their diet (P1; P2; P3; P4; P5; P6).

6.5.4.2 Children–Teachers:

Although most children (C1; C3; C4) perceive teachers negatively as using harsh methods with them and complaining about them, the perception of teachers of such children was divided into two parts as following:

- For children: teachers believe ADHD is not the fault of such children, and they are not aware of it (T3). Accordingly, it is preferred that the children are not told about it (T7). In addition, ADHD leads to punishing the child (T1; T4; T6) and puts them under pressure from the community (T8)

- For teachers: although they are very tiring children (T6), need a lot of work (T1), teachers try not to teach them (T5; T6), teachers get annoyed with children's hyperactivity (T4), other children learn with less effort of teachers with ADHD children taking up a lot of their time (T6; T5), and teachers' energy is inadequate for their needs (T6), teachers differ when they come across such children (T5); as some reported, they would be happy to direct their efforts and time towards assisting such children (T2; T3; T8).

Teachers believe that their own views (T3; T5; T7; T8) personality (T4; T7), the efforts needed (T1; T2), the curriculum (T1; T4), and the children themselves and their teachers (T2; T6; T7) can induce both positive and negative perceptions towards them.

Children want teachers to assist them, reward them (C1) and provide them with suitable games, coloured pencils and books, and exercises to reduce their activity and attract their attention (C4; C2; C3) in order to make the best use of all of their senses (C2) and gradually guide them (C2). They desire to have merely specialist teachers teach them (C2). Similarly, the participating teachers stated that teachers can assist children with ADHD through the use of a reward approach (T2; T6) and also by adopting attractive teaching methods (T6; T1; T2; T7), such as if children like to learn through colouring then facilitating such (T1). On the other hand, teachers add that they can help children with ADHD through their own attributes, such as through being patient and having specific characteristics, learning about teaching children ADHD, behavioural interventions, keeping various things in mind (such as accepting all kinds of children and making such children trust themselves, educational interventions, advice from other teachers in terms of how to deal with ADHD, and working alongside parents (T1; T2; T3; T4; T5; T6; T7; T8).

6.5.4.3 Parents–Teachers:

Although most parents (P2; P3; P4) and teachers (T1; T2; T4; T6; T7) are negative or mostly negative (P6) towards each other, some are neutral (P1; P5; T3; T5) and mostly positive (T8).

Regarding the factors that induce positive or negative perceptions towards teachers, parents believe that the level of knowledge held by teachers (P3; P6), the level of knowledge held by parents (P1; P5) and the children's progress (P2; P4; P6) are all relevant factors. However, there are various elements that induce positive or negative perceptions of teachers towards parents, which include helping teachers (T1; T2; T3; T5; T6; T7), helping children (T1; T5), being interested (T2; T5; T7; T8), environmental factors (T4; T7), and the parents themselves (T1; T3).

Additionally, in terms of how both can help each other deal with a child with ADHD, all parties want the others to be knowledgeable (P1; P4; P6; T1; T2; T3; T4; T5; T6; T7; T8) and to help each other (P1; P2; P5; T1; T2; T3; T4; T5; T6; T7) and

the children (P1; P2; P3; T1; T3; T5; T6). Parents believe that teachers can help them through informing the school administration (P2) so as to form a team or implement a plan to tackle ADHD in children. In contrast, teachers believe that parents can help them through accepting that ADHD is a fact and subsequently looking for the best methods of dealing with their child (T1; T2; T3; T4; T5; T7) and treating the child (T1; T2; T3; T4; T5).

6.6 Summary

The method of interviewing children with ADHD, their parents, and teachers enables the study to obtain large amounts of data from different persons with diverse backgrounds. The analysis of the data gathered through the interviews with children with ADHD, their parents and teachers, as well as the analysis of the results of the cross-group, indicates that children, parents and teachers have misconceptions and misinformation concerning ADHD, and are also lacking in terms of information. It has been established that various respondents may not be aware of the ADHD subtype applicable to a child, and may not even understand that different ADHD subtypes exist. This could have an effect on the interventions to be utilised. No mention was made of impulsivity or DSM, with several believing that ADHD does not persist into adolescence and adulthood; however, in actuality, this is not the case. Additionally, the impact of the environment has been demonstrated.

Chapter Seven: Cross- Results Analysis

7.1 Introduction

After the voices of each individual group were heard and detailed, along with the similarities and differences between the diverse groups, this chapter examines the similarities and differences between the results of the questionnaires and the interviews data. It will look at the results of the three groups: the children (Section 7.2), the parents (Section 7.3), and the teachers (Section 7.4). After reviewing the results of each group, a comparison will be drawn between the results across these three groups (Section 7.5), followed by a chapter summary (Section 7.6).

7.2   Data Obtained from the Children

This part of the research includes several shared items in both the questionnaires and the interviews. Those are: demographic information of children, knowledge of ADHD of children and the perceptions of Children with ADHD towards others. The provided results contain some similarities and differences regarding the children participated in the questionnaires and the interviews.

7.2.1 Demographic Information of the Children who Participated in the Study

The table below details the distinctions that can be made between the children that partook in the questionnaires and interviews, with consideration directed towards their demographic data.

Table 7.1: Demographic information of the children participated in questionnaires (N = 58) and interviews (N = 4)

Variable		Questionnaires Frequency (%) (N = 58)	Interviews Frequency (%) (*n*=4)
Gender	Boys	33 (57%)	0 (0%)
	Girls	25 (43%)	4 (100%)
School Type	Private	17 (29%)	3 (75%)
	Public	41 (71%)	1 (25%)
School Location	North	28 (48%)	1 (25%)
	South	8 (14%)	1 (25%)
	East	13 (22%)	1 (25%)
	West	9 (16%)	1 (25%)
Diagnosed with ADHD	Yes	33 (57%)	3 (75%)
	No	25 (43%)	1 (25%)
Learning disabilities	Yes	52 (90%)	4 (100%)
	No	6 (10%)	0 (0%)
Taken Medication	Yes	26 (45%)	3 (75%)
	No	32 (55%)	1 (25%)
Type of ADHD	ADHD-I	11 (19%)	1 (25%)
	ADHD-HI	4 (7%)	0 (0%)
	ADHD-C	43 (74%)	3 (75%)

Table 7.1 shows that, although both boys and girls completed questionnaires, boys' participation was higher than the girls'. On the other hand, only girls participated in

the interviews (Section 6.2.1). Furthermore, whilst 71% of the students who participated in the questionnaires came from public schools, only 25% of students from public schools participated in the interviews. In terms of school location, the highest percentage (48%) of the students who completed the questionnaires came from the North, whereas the lowest percentage (18%) came from the south. However, it should be noted that all school locations scored the same percentage (25%) in terms of the interviews participation. Regarding the taking of medication, the results of the questionnaires revealed that 55% of the participants were taking medication, whilst the results of the interviews showed that only 1 participant was taking medication. The table also shows that the highest type of ADHD amongst the participants is ADHD-C in both the questionnaires and the interviews. Finally, most of the participants were diagnosed with ADHD in both the questionnaires and the interviews.

The differences between the children participants of the questionnaires and interviews could have an effect on the research results. For example, all children in the interviews were girls who are less aggressive and assertive than males (Wolraich *et al*., 1998; Arcia & Conners, 1998)

7.2.2 Knowledge of ADHD of Children Participants

Regarding the knowledge of ADHD, the results of the two instrument sets reveal no doubts concerning their relationship strength since the results are recognised as comparable in many respects. Although children in the interviews show that they are knowledgeable about the developmental course of ADHD, they were nevertheless found to be most knowledgeable regarding the causes, prevalence and characteristics of ADHD; however, they were least knowledgeable in terms of treatment, which was a finding derived from both the questionnaires (Section 5.2.2) and the interviews (Section 6.2.2).

The findings also show that children who were clinically diagnosed were more knowledgeable than those who did not have a clinical diagnosis. They also showed

that children studying in private schools are more knowledgeable than those studying in public schools, and children who are taking medication are more knowledgeable that those who are not doing so (Section 5.2.2 and Section 6.2.2). Children in both the interviews and the questionnaires showed positive attitudes relating to the management of ADHD, including the opinions of medication, and psychological and alternative interventions (Section 5.2.2 and Section 6.2.2).

7.2.3 Perceptions of Children with ADHD towards Others

Regarding the perceptions of Children with ADHD towards others, in the results of questionnaires and interviews, some differences were observed. The children showed similar perception towards parents and teachers in both the interviews and the questionnaires. Children who were studying in public schools were negative towards parents and more about teachers although they believe that parents and teachers can help. Besides, children who were not clinically diagnosed and children who were not taking medication were found to hold negative perceptions towards parents and teachers (Section 5.5.3.1 and Section 5.5.3.2). However, this observation was not obvious in the interviews results. In the interview results, most children appeared to be negative toward parents and teachers while believing they can help them (Section 6.2.4).

7.3 Data Obtained from the Parents

This part of the research includes several shared categories in the questionnaires and the interviews which are demographic information of Parents, knowledge of ADHD of Parents and the perceptions of parents of children with ADHD towards others.

7.3.1 Demographic Information of the Parents who Participated in the Study

The results provided some similarities and differences regarding the parents participated in the questionnaires and the interviews. For example, whilst 40 parents (25 fathers, 15 mothers) participated in the questionnaires, only six (6) parents (4 fathers, 2 mothers) undertook the interviews. Table 7.2 shows the detailed differences regarding this category.

Table 7.2: Demographic information of parents of children with ADHD participated in questionnaires (N = 40) and interviews (N = 6)

Variable		Questionnaires Frequency (%) ($N = 40$)	Interviews Frequency (%) ($n=6$)
School Type	Private	12 (30%)	1 (17%)
	Public	28 (70%)	5 (83%)
Home location	North	20 (50%)	2 (33%)
	South	7 (17.5%)	2 (33%)
	East	7 (17.5%)	1 (17%)
	West	6 (15%)	1 (17%)
Diagnosed with ADHD	Yes	27 (67.5%)	2 (33%)
	No	13 (32.5%)	4 (67%)
Learning disabilities	Yes	31 (77.5%)	6 (100%)
	No	9 (22.5%)	0 (0%)
Taken Medication	Yes	16 (40%)	2 (33%)
	No	24 (60%)	4 (67%)

Type of ADHD	ADHD-I	14 (35%)	0 (0%)
	ADHD-HI	6 (15%)	0 (0%)
	ADHD-C	20 (50%)	6 (100%)

Table 7.2 shows that the participation of parents of children in public schools in both the questionnaires and the interviews were higher than the parents of children in private schools. Similar to the children's results, the parents of children in the North scored the highest participation (50%) in questionnaires, with quite a similar number of parents from a different location of Jeddah undertaking the interviews. Whilst in the questionnaires more participants were parents of children who had been diagnosed with ADHD (67%), most of the parents who took part in the interviews (4) were parents of children who were not clinically diagnosed with ADHD. It can be seen from the table that parents of children with learning disabilities and those who take medication were highest in both the questionnaires and the interviews. Furthermore, although parents of children with different Type of ADHD participated in the questionnaires, only parents of children with ADHD-C type participated in the interviews.

The differences between the parent participants of the questionnaires and interviews could have an impact on the study results, for example, most children of parents in the interviews studying in public schools. All children of parents in the interviews having ADHD-C type of ADHD.

7.3.2 Knowledge of ADHD of Parent Participants

Regarding knowledge of ADHD in the parents' results, several differences were found in the information provided in the questionnaires and the interviews.

In the questionnaires, parents were found to be most knowledgeable in relation to the characteristics of ADHD, whilst they were found to be least knowledgeable in

regard to the interventions of ADHD (Section 5.3.2). However, this was not the case in the interviews (Section 6.3.2).

Furthermore, the questionnaire data showed that parents who were living in the west were more knowledgeable than those living in the south. In addition, parents whose children were taking medication were more knowledgeable than those whose children were not taking medication (Section 5.3.2). In the interviews' results, this pattern was not reflected as no differences appeared between parents (Section 6.3.2).

7.3.3 Perceptions of Parents of Children with ADHD towards Others

In the results of the questionnaires and the interviews, regarding the perceptions of Parents of Children with ADHD towards others, several differences were observed. The parents showed similar perception towards children and teachers in both the interviews and the questionnaires. Parents of Children with ADHD tended to have negative beliefs associated with ADHD (Sections 5.5.3.1 and 6.3.4.1). They tend to believe that teachers of such children are not aware of ADHD although they can learn, help and they influence them in the way of managing ADHD (Sections 5.5.3.3 and 6.3.4.2). Nevertheless, in the interview results, parents gave more details and reasons that stand behind having positive or negative perceptions (Section 6.3.4).

7.4 Data Obtained from the Teachers

This section includes several items across the questionnaires and the interviews which are Demographic information of teachers, Knowledge of ADHD of teachers, and the Perceptions of teachers of children with ADHD towards others.

7.4.1 Demographic Information of the Teachers who Participated in the Study

The results show some similarities and differences regarding teachers' participation in the questionnaires and interviews. For instance, whilst 58 teachers participated in the questionnaires 28 males and 26 females, only eight (8) teachers undertook the interviews (2 males, 6 females). Table 7.3 shows the detailed differences:

Table 7.3: Demographic information of teachers of children with ADHD participated in questionnaires (N = 54) and interviews (N = 8)

Variable		Questionnaires Frequency (%) (N = 58)	Interviews Frequency (%) (*N = 8*)
Gender	Male	28 (52%)	2 (25%)
	Female	26 (48%)	6 (75%)
School Type	Private	12 (22%)	2 (25%)
	Public	42 (78%)	6 (75%)
School Location	North	24 (44%)	3 (37.5%)
	South	14 (26%)	1 (12.5%)
	East	8 (15%)	3 (37.5%)
	West	8 (15%)	1 (12.5%)
Taught a Child with ADHD	Yes	48 (89%)	8 (100%)
	No	6 (11%)	0 (0%)
Attended Training	Yes	11 (20%)	3 (37.5%)
	No	43 (80%)	5 (62.5%)

Information and Skills	Yes	34 (63%)	6 (75%)
	No	20 (37%)	2 (25%)
	Secondary	2 (4%)	0 (0%)
	Bachelor	47 (87%)	8 (100%)
Qualifications	Higher Diploma	2 (4%)	0 (0%)
	Master	2 (4%)	0 (0%)
	PhD	1 (2%)	0 (0%)

Table 7.3 shows that teachers of children of ADHD in public schools had higher participation in both the questionnaires and the interviews. Similarly, teachers in the North participated more so than in the other locations in the case of both the questionnaires and the interviews. 89% of the teachers that taught a child with ADHD participated in the questionnaires and the interviews, whilst 11% did not teach a child with ADHD and all the teachers undertook the interview. The highest percentage of the teachers who answered the questionnaires (80%) did not attend any training, and 5 of 8 undertook the interview. In terms of qualifications, although different teachers with various qualifications participated in questionnaires, only teachers with bachelor degree participated in the interviews. Although the number of males who participated in questionnaires was more than the females, in the interviews, the number of females was higher, and while the highest number of the teachers who answered the questionnaires was from the north and the south, in the interviews, more participants were from the north and the east.

The differences between teacher participants in regard to the questionnaires and interviews might have an influence on the research results. For instance, most teachers in the interviews were females, who of whom had a Bachelor degree.

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7.4.2 Knowledge of ADHD of Teacher Participants

Regarding knowledge of ADHD, several differences were found in the results of the teachers' answers in the questionnaires and the interviews.

In the questionnaires, teachers were found to be the most knowledgeable in relation to the ADHD characteristics, whilst they were found to be least knowledgeable in regard to ADHD interventions (Section 5.4.2). However, this was not apparent in the interviews (Section 6.4.2).

In addition, the questionnaire data showed that teachers who work in private schools were more knowledgeable than who work in public schools (Section 5.4.2). In the interview results, this pattern was not reflected as no differences are appeared between teachers (Section 6.4.2).

7.4.3 Perceptions of Teachers of Children with ADHD towards Others

In the results of questionnaires and interviews, with respect to the perceptions of Teachers of Children with ADHD towards others, a number of differences were observed. The teachers showed similar perception towards children and parents in both the interviews and the questionnaires. Teachers of Children with ADHD were inclined to believe negative things linked to ADHD (Sections 5.5.3.2 and 6.4.4.1). Besides, they tended to believe that parents of such children are not aware of ADHD although they can learn, help and they influence them in the way of managing ADHD (Sections 5.5.3.3 and 6.4.4.2). Nonetheless, in the interview results, teachers gave more factors and rationales for having such positive or negative perceptions (Section 6.4.4).

7.5 Results Across the Groups of Children, Parents and Teachers

This part of the research includes knowledge of ADHD of children, parents and teachers across questionnaires and interviews. Examining the data reveals that there

are similarities and differences regarding the children, parents and teachers participated in questionnaires and interview regarding the knowledge of ADHD.

The questionnaires data showed that teachers were more knowledgeable than children and parents which were similar to the interviews' results. The questionnaire results revealed that children were more knowledgeable about specific topics such as the causes, the characteristics, the prevalence and the treatment, but less knowledgeable about the developmental course of ADHD. However, parents and teachers were more knowledgeable about the causes, characteristics and developmental course but less knowledgeable about the prevalence and treatment of ADHD (Section 5.5.2). In the interviews' results, this pattern was not reflected as no differences were appeared (Section 6.5.2).

Regarding the perceptions of children, parents and teachers towards each other, children tended to be negative towards parents and teachers, and were found to hold negative beliefs linked with ADHD. Although parents and teachers perceived each other as not being conscious of ADHD, they nevertheless perceived each other as capable of learning about ADHD, and assisting and affecting each other in terms of ADHD management.

7.6. Summary

This chapter has compared the results of the questionnaires and the interview data in terms of the similarities and differences between the results of the three groups—the children, the parents, and the teachers—with a comparison drawn between the results across these three groups. Each group differed in their demographic information, which has an effect on the research results. In addition, the findings of the research instruments revealed no doubts concerning their relationship strength, given that the results were comparable in several respects.

Chapter Eight: Discussion and Recommendations

8.1 Introduction

The main focus of this research was on addressing the knowledge and beliefs of ADHD in the context of children, parents and teachers as well as their perceptions towards each other. This research was designed as a response to five research questions which were mentioned previously in Chapter 1 (Section 1.6), the research questions aimed to explore the following aspects:

1. What are the knowledge and beliefs of ADHD as held by children with ADHD in Saudi Arabia?

2. What are the knowledge and beliefs of ADHD as held by parents of children with ADHD in Saudi Arabia?

3. What are the knowledge and beliefs of ADHD as held by teachers of children with ADHD in Saudi Arabia?

4. What similarities and differences exist between the knowledge and beliefs of ADHD as held by children with ADHD, their parents and teachers in Saudi Arabia?

5. What are the perceptions of children with ADHD, their parents and teachers of one another in a Saudi Arabia context?

The discussion concentrated on addressing the five questions of this research so as to present a discussion framework, founded on the analysis results both questionnaires and interviews.

This chapter discussed and interpreted the main and most important findings to have emerged throughout the study (Sections 8.2, 8.3, 8.4, 8.5, 8.6), thereby highlighting the research strengths (Section 8.7) and limitations (Section 8.8), making future research recommendations, and further highlighting recommendations proposed in the light of those findings (Section 8.9). In addition, a number of implications for

ADHD in Saudi, and ideas for future studies have been proposed (Section 8.10), followed by a chapter summary (Section 8.11).

8.2 Discussion of the Findings: Research Question 1

The first research question asked 'What are the knowledge and beliefs of children with ADHD concerning ADHD in Saudi Arabia?'. Respondents were asked to answer a series of questions, covering diverse aspects related to ADHD such as characteristics, prevalence, causes, interventions, and developmental course of ADHD. In order to answer this question, the findings of the children's questionnaire and interviews have been used.

Having considered the ADHD nature and the way in which it is perceived by adults, the views of children of their own ADHD could be explored. Furthermore, the way in which children experience the disorder is essential to take into account when planning efficient procedures and treatments (Reimers *et al*., 1995). Therefore, this research has involved speaking to children themselves, which is atypical in Saudi Arabia. This was vital given that, it is held throughout this research that children should be given the right to articulate their views in each affair affecting them (Section 3.3.1).

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 (Arora & Mackay, 2004; Travell & Visser, 2006), 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 (Arora & Mackay, 2004), with such a vision also identified in the present research. Views of medication have formerly been reported as mixed (Cooper & Shea, 1998; Travell & Visser, 2006), 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.

Additionally, the questionnaires concentrated on examining children's knowledge and beliefs concerning a diversity of treatments which are evidence-based— counting both pharmacological and psychosocial/behavioural interventions. 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 (Efron, Jarman & Barker, 1998). 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 (McNeal, Roberts & Barone, 2000). Children further stated that medication changes negative behaviours (Arora & Mackay, 2004), and made them feel calm with increased levels of concentration (Arora & Mackay, 2004; Cooper & Shea, 1998), with negative behaviours increasing once medication was stopped (Singh, 2007). Children were also found to illustrate a reliance on medication (Arora & Mackay, 2004).

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 (MacKay & Corkum, 2006). 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 (Altorki, 1986; Al-Ahdal, 1989; Diyab, 2003). 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 (Fadaak, 2010; First Welfare Society, 2007, 2008); however, this was the case for parents but not for children and teachers.

According to MacKay & Corkum (2006), 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 (MacKay & Corkum, 2006). 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 (Levine, 1999). 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 (Levine, 1999). 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.

8.3 Discussion of the Findings: Research Question 2

The second research question was 'What are the knowledge and beliefs of parents of children with ADHD concerning ADHD in Saudi Arabia?' Respondents were asked to answer a series of questions, covering diverse aspects related to ADHD, for example, characteristics, Prevalence, causes, interventions, and developmental course of ADHD. In order to answer this question, the finding of the questionnaire and interviews of parents of children with ADHD have been used.

Families in Saudi Arabia are, in general, comparatively large when compared with typical Western families. For example, in 1996, the average size of Saudi families

was 7.5 (The Eight Development Plan, 2005). However, the commitment of members of Saudi families has altered owing to changes within the socio-economy of Saudi Arabia, with such alterations concerning work commitments and the necessity of Saudi women to work with the purpose of tackling the new living style in Saudi Arabia. Working families are experiencing difficulties in providing children with special needs with suitable care (Heymann & Earle, 2000). Consequently, there is the necessity to support Saudi families in decreasing their stresses by discovering and endorsing the rights and requirements of such.

Accurate parental knowledge and the correct beliefs of ADHD could induce an important affect for positive developmental outcomes for children with ADHD. This study has researched and directly evaluated parents' knowledge of ADHD since it is a vital issue owing to the fact that stability and support for children with ADHD rationally falls with the major stakeholders of children, i.e. their parents. Within Saudi culture, parents have daily and long-term continual contact with children. Thus, identification and intervention with the difficult characteristics of ADHD are essential parts of the future stability of children. Consequently, it is significant that parents of children with ADHD are knowledgeable about ADHD, and are also given plentiful support—emotionally and socially. Parents are in a key position to help their children have a productive life.

Although it is expected for mothers in the Western countries to get better results than fathers in such questionnaires because they are typically more involved in their children's schooling (Redmond, Spoth & Trudeau, 2002), the same result was not anticipated for Saudi Arabia since fathers seem to be more educated and responsible for their children's health and learning. However, the data revealed that mothers were more knowledgeable than fathers regarding ADHD in Saudi Arabia. In addition, lower levels of knowledge of ADHD amongst Saudi parents might indicate that presented sources of information or the educational strategies of ADHD lack cultural pertinence or suitability. Nevertheless, time constraints on visits to doctors make it unlikely that ADHD-related education will be given in this manner by the medical sector. Accordingly, future research ought to investigate healthcare sector roles, the systems of schools, and the campaigns of public education in devising

culturally pertinent ADHD education strategies (Austin & Husted, 1998; McMahon, Browning & Rose-Colley, 2001).

In addition, parents were more prone to attributing the condition to sugar intake, which is a commonplace belief that has not been proved by scientific investigation (Wolraich *et al*., 1994; Wolraich, Wilson & White, 1995). However, belief in this regard might bring about the perception that children with ADHD are less susceptible to sugar intake, and therefore, the condition might be controlled (Hoover & Milich, 1994). Furthermore, Saudi parents were less likely to point out that ADHD is treatable with medication.

The current research has identified a number of variations of culture in the knowledge of ADHD, the consciousness of pertinent school services, and perceptions. On the whole, Saudi parents revealed less aware of ADHD and likely pertinent services of schools, and lesser self-rated knowledge of ADHD. There was some diversity in the consciousness of special school services, although most parents acknowledged they have a child with ADHD, and almost third of individuals considering themselves knowledgeable regarding the disorder, the majority of parents uninformed of the school services—possibly pertinent to children with ADHD. This might partly be a role of their sources of information, i.e. TV programmes used as one of the main sources, with programmes coverage inclined to concentrate on issues of medication; however, probable services of schools for pupils with ADHD was infrequently covered. Parents first need is to be aware of these special services; besides, it is also necessary that they find these special services suitable for their child; receiving services of special education might be regarded as stigmatising and may therefore be opposed or underreported (Coutinho & Oswald, 2000).

Parents who have the resources to register their children at private school are more likely to have a higher income and a higher education level, with such factors potentially contributing to an improved home learning environment (Pederson *et al*., 1990). Indeed, in the present research, teachers stated children are expected to have a better relationship when parents have a higher educational level. Importantly,

parents were found to choose private schools since their beliefs and practices associated with learning were in order with those of teachers, and they acknowledged the high quality value day programme for the future academic achievement of their children.

However, from the researcher's perspective, experience and the findings garnered through this research, the school system can be an outstanding community-based resource for Saudi parents and their children with ADHD. Undoubtedly, it is a natural contact point, a primary source connected with the behaviours of children identified via teachers, treatments, as well as recommendations (Bussing *et al*., 2007). Information sources differ across cultures, with almost no empirical information—as far as the researcher is aware—carried out on the cultural dissimilarity of parents' utilised and favoured information sources regarding ADHD. Nevertheless, Veroff, Kulka & Donovan (1981) performed a help-seeking research for psychological disorders, stating that, for Americans, help sources were diverse, counting spouses, families, friends, psychologists and psychiatrists. Veroff, Kulka & Donovan (1981) propose that those who live in low-income neighbourhoods were less relaxed with their neighbours, and were therefore less likely to converse with them regarding their problems.

For the reason that few research studies have sought to tackle the association of knowledge regarding ADHD and the characteristics of sociodemographics, this paper advances a number of beliefs concerning the results, for example, lower levels of knowledge amongst parents might be a sign of a low position of ADHD amongst the concerns of parents owing to several concerns and needs (Mechanic, 1978). Disparities in ADHD knowledge, beliefs and perceptions by Level of Concern was not unexpected. The research results of parents' data propose that the knowledge of parents concerning ADHD and the seeking of information is diverse with the level of concern of parents concerning behavioural modifications of their children. Parents of children that have been clinically diagnosed with ADHD were more knowledgeable than parents without concerns; this might reflect parents receiving education from intervention providers (Dulcan, 1997). Additionally, it is likely that parents who are more knowledgeable are more likely to follow professional services

for their child who may have ADHD (Bussing & Gary, 2001). The findings of the present study suggest that parents' knowledge concerning ADHD and their seeking information differs in terms of the level of concern of parents regarding the emotional/behavioural adjustment of their children.

It is considered significant to deem the stigma connected to mental disorders (Corrigan, 2004; Corrigan & Watson, 2004; Link *et al*., 1999). Parents whose concerns regarding the adjustment of emotion or behaviour of their children might be reluctant to talk about this with members of their social network owing to the possibility that others might create discrimination and rejection. Most parents highlight that society is very critical and affects them negatively. In much the same vein as Segal (2001) and Harborne, Wolpert & Clare (2004), it has been established that parents are concerned that they sustained an ADHD biological basis; however, they felt that others deemed ADHD to be linked to psychological and social factors. This caused them to experience blame for the difficulties of their children, and also caused emotional distress. A number of parents experience difficulties not merely with the behaviour of their child but also as a consequence of the diagnosis and associated criticism of their parenting abilities. In addition, the social stigma connected to the diagnosis that their child is viewed as being mentally abnormal has an effect on the child as well as the entire family. Nevertheless, a number of parents blame themselves for their children's disobedient behaviours (Sobol *et al*., 1989).

In Saudi culture, the present concepts of behaviour disorders include bad manners and poor capabilities of parents in educating their children. Parents in this research pointed out that they experience a great deal of pressure in relation to their child's behaviours, as well as their own abilities of parenting. Moreover, as found in the analysis, some parents stated that Saudi people believe these parents were not good, adequate parents, and it was their fault that their child was seen to be misbehaving. Furthermore, parents felt pressure that their child was not behaving consistently with suitable acceptable behaviour standards. The expectations of children's behaviours and performance put vast pressure on parents. Markedly, parents attempted to protect their child from people who might respond negatively to the child; they felt somehow alone and overwhelmed since they were continuously being called up to

schools to listen to what trouble their child was in. In addition, they were found to isolated themselves from social gatherings in order to keep away from the constant negative responses from people.

Parents of children with ADHD gave further favourable ratings for non-pharmacological interventions in contrast with pharmacological ones; higher ADHD knowledge was linked to the further favourable belief of non-pharmacological interventions—not pharmacological ones; and enrolment in interventions—either pharmacological and nonpharmacological—was connected to higher ADHD knowledge and further favourable beliefs of medication. The knowledge and opinions of parents of ADHD in specific regard to the available interventions played a vital part in the enrolment of treatments (Corkum, Rimer & Schachar, 1999).

Fundamentally, parents believed that, if their child has taken medication, the home and school situation would then be likely to improve. Parents further noted that the medication did seem to work in that their child appeared calmer, more obedient, and less disruptive. Their child was achieved more academically and socially at school. On the other hand, however, some parents pointed out that they utilised medication mostly for academic purposes, such as to help the child to develop their academic standards at school. However, parents of children with ADHD frequently stated a low confidence level in their capabilities, subsequently impacting the challenging behaviours of their children (Johnston & Freeman, 1997). Owing to the trend for ADHD characteristics to influence parent functioning (Anastopoulos *et al.*, 1993), efficient interventions ought to comprise a component of parental training that educates parents to better tackle and intervene in their child's behaviours.

Therefore, the plan of treatment determined by the parents or the healthcare professionals should be planned so as to serve the best interests of the children with ADHD. Bussing *et al.* (2003) propose a list of guidelines to be considered by healthcare professionals when establishing a treatment. For instance, the overall understanding of ADHD knowledge and the preferences associated with the interventions of parents should be enhanced. As mentioned previously, the perceptions of parents concerning ADHD have an impact on the intervention plan.

The intervention plan is also influenced by the contribution of teachers. Teachers can also help to make the treatment plan successful if they, for example, ensure that medication is taken on time.

Several studies have also considered rationales for poor treatments employment for children with ADHD, and found that a diversity of factors influence use and adherence, counting—but not restricted to—demographics (for example, race, and family composition), as well as concerns regarding the safety of treatment (Stine, 1994). An additional significant factor which has been established to impact the use of treatment is the knowledge of parents of ADHD and their beliefs of the treatments for this condition. In regard to the high media exposure surrounding ADHD and the consequential misconceptions (such as certain dietary factors causing ADHD, stimulant medication misuses, etc.), it is very likely that parents also hold such societal beliefs types, which are unsupported scientifically (Meaux, 2000). Notably, this is significant, owing to the fact that the knowledge and beliefs of parents of ADHD play a vital part in their decisions concerning the use of treatment for their children with this disorder. For instance, it has been found that more knowledgeable parents were more able to enrol their children in both pharmacological and behavioural treatments (Corkum, Rimer & Schachar, 1999).

Parents being well-informed in the area of ADHD is particularly significant given the value of a multimodal approach to intervention (Barkley, 2000). However, it is proposed that cultural variations have an effect on the strategies of parental help-seeking (Pastor & Reuben, 2005). Similarly, also from the analysis, it has become apparent that Saudi parents are less likely to involve school interventions as an element of their wanted plan of intervention of ADHD. A small number of researchers have investigated cultural variations in ADHD understandings (Bussing *et al*., 2003; Bussing, Schoenberg & Perwien, 1998; Bussing *et al*., 1998), as well as regarding the attitudes of parents toward ADHD-related medications (dosReis *et al*., 2003). Furthermore, the analysis also points out less knowledge and more misconceptions concerning ADHD amongst Saudi parents.

As suggested by the literature and the findings, parents—as children's stakeholders, ensuring the fulfilment of their main interests—need to be the most keenly informed concerning the ADHD of their children. McCord & Tremblay (1992) propose that, merely if the parents are involved in the diagnosis process and become knowledgeable regarding the ADHD of their children, children will then be sufficiently supported and facilitated in terms of functionally addressing the adverse characteristics of ADHD. Segal (2001) stressed the significance of early diagnosis along with help-seeking for parents in order to be capable of managing their children.

The present research proposes that online learning is rising in popularity, and is an efficient medium for creating knowledge (Huang & Liaw, 2004). The internet is a medium that is attractive for hosting behavioural interventions since it is capable of delivering to large quantities of people whilst providing treatment or education concurrently (Christensen, Griffiths & Jorm, 2004).

In the literature, the usability of learning tools that are web-based has been researched. It has been revealed that such tools have a positive effect on learning when useful and well-designed, and are efficient in altering behaviours (Storey, 2002; Ritterband *et al*., 2003). This research recommend that future research tackles web-based tools to propose alterations that will develop the way in which web-based systems can support parents in becoming more knowledgeable about ADHD.

Research has established that endeavours to demystify parents on the subject of ADHD—in association with a comprehensive evaluation of ADHD—have introduced significant concerns in enrolment and the adherence of treatment (Monastra, 2005). Odom (1996) has established that demystification—such as psycho-educational workshops for parents of such children—has been efficient in increasing the levels of knowledge and positive beliefs concerning ADHD, as well as the treatments of such, in addition to enhancing the sense of parents of competency and contentment.

Educating parents emerged as decreasing the fears of parents and misconceptions on the subject of treatments for ADHD, meaning increased enrolment and adherence

rates (Monastra, 2005). The increasing knowledge of parents—which was combined with a comprehensive process of evaluation and diagnosis—has been highlighted as being capable of efficiently improving treatment adherence in children, as well as positively affecting parents' performance and their interactions with their children, which then has a positive impact on their children's behaviour, and as a result enhances their children's social and academic outcomes (Batsche & Knoff, 1994; Monastra, 2005).

8.4 Discussion of the Findings: Research Question 3

The third research question was 'What are the knowledge and beliefs of teachers of children with ADHD concerning ADHD in Saudi Arabia?' Respondents were asked to answer a series of questions, covering diverse aspects related to ADHD, for instance, characteristics, Prevalence, causes, interventions, and developmental course of ADHD. In order to answer this question, the finding of the questionnaire and interviews of teachers of children with ADHD have been used.

It is important that the knowledge and perceptions of teachers of ADHD be understood, as this would possibly affect the choices and implementation of interventions for such children (Reid *et al*., 1994). Although teachers have extensive interactions with children displaying ADHD characteristics, no study thus far has been found that has assessed Saudi teachers' knowledge in this area.

The teachers interviewed affirmed that the teacher's adequate knowledge of the neuro-developmental behavioural nature is essential when striving to detect and deal with the various challenges that might occur within classrooms (Barkley, 1994). Such individuals further added that teachers who obtain adequate training and knowledge regarding ADHD and its co-morbidities can help other teachers in terms of delivering an appropriate lesson plan, including creating a flexible classroom environment.

Interviewing teachers was considered since it takes the focus away from parents and instead directs emphasis to the social sphere—especially when considering the fact that teachers spend a large number of their hours with children (Shaywitz & Shaywitz, 1992). Sax & Kautz (2003) reported that teachers and other school staff were frequently the first to propose the ADHD diagnosis. Such individuals were seen to play a fundamental role in working with other professionals within the school environment throughout the process of diagnosing and educating parents regarding better ways of assisting their children in managing ADHD and attaining their full potential (DuPaul & Stoner, 1994). It is crucial, therefore, that teachers have a thorough and correct understanding and knowledge of ADHD (Sciutto, Teresen & Bender-Frank, 2000; Walter, Gouze & Lim, 2006). Teachers spend further time with children with ADHD than others in the school system, and are therefore in a unique position to work with the pupils in managing their ADHD.

Considering the high prevalence of children with ADHD in classrooms (Section 2.4), teachers are likely to educate multiple pupils with ADHD during their careers. Without sufficient knowledge or training centred on ADHD, teachers might feel unprepared to tackle the several challenges associated with such children in classrooms, and might be less probable to look for services or support for their pupils.

As discussed in Section 3.5.2, studies have revealed that teachers frequently hold misconceptions about ADHD, which could bring about less accurate teacher expectations as well as less help-seeking behaviours for children with the disorder. Teachers with low ADHD knowledge and inexperience in working with such children might be at raised risk for higher stress and be exhausted, particularly in schools that under-resourced and/or overcrowded. In order to work efficiently with pupils with ADHD, several factors have to be taken into account. For example, it is necessary that teachers be knowledgeable—not merely concerning the disorder's causes, diagnosis, and prognosis, but also in the ways in which educational interventions that have been revealed to have positive results for pupils with ADHD can be applied.

Research by Ohan *et al*. (2008) supports the results of Kos (2008), which states that teachers' knowledge of ADHD has an influence, not merely in terms of their perceptions of pupils with ADHD, but also in regard to behaviour towards pupils with ADHD. It has been found that teachers' knowledge could impact their attitudes regarding ADHD (Kos, 2008). The study of Ohan *et al*. (2008) demonstrated that teachers with a greater degree of knowledge concerning ADHD might be further conscious of the risk factors linked to the condition, and thus were more likely to seek support services for these children, which could bring about better outcomes for such children in their classrooms.

The findings of this research support the results of Jerome *et al*. (1994, 1999) and Bekle (2004). However, it was found that, whilst knowledge of ADHD of practicing teachers was reasonably good, on average, teachers are comparatively knowledgeable about a number of ADHD aspects (Kos, 2008). It was also found that they have definite gaps and misconceptions in their knowledge (Sciutto, Terjesen & Frank, 2000; Jerome, Gordon & Hustler, 1994; Kos, Richdale & Hay, 2006; Jerome *et al*., 1999; McLeod *et al*., 2007; Bekle, 2004). Such gaps involve knowledge of the diet function and ADHD, ADHD persistence, and general myths surrounding ADHD (Bekle, 2004). The findings of Kos (2008) showed that, in general, teachers are in agreement that ADHD is a legitimate educational difficulty and medically valid diagnosis. Besides, Kos (2008) revealed that teachers strongly believe that managing the behaviour of pupils with ADHD is not unproblematic, and further strongly disagree with the misconception that the misbehaviour of children with ADHD is due to being naughty (Kos, 2008).

Attitudes of teachers towards ADHD are impacted by their knowledge as well as misconceptions (Kos, 2008). Altering the knowledge and attitudes of teachers might bring about an alteration in behaviour in terms of educational strategies utilised in the classroom (Zint, 2002). A theory that may be able to assist in clarifying the association between knowledge, attitudes, and behaviours is the Reasoned Action Theory (Kos, 2008). This theory affirms that the attitudes of individuals towards the disorder and the perceived impact of subjective norms—which is the perceived social pressures of the individual—affect the intention of the individual to conduct a

certain behaviour (Ajzen & Fishbein, 2002). Derived from this theory, it could be suggested that altering knowledge may bring about an alteration in attitude; this, consecutively, could bring about an alteration in behaviour.

The findings from the questionnaires subscales (Section 5.4) are in agreement with prior literature on teachers' knowledge of ADHD. Teachers in the current sample hold more knowledge concerning items on the *characteristics subscale*. The high score on this subscale promotes the statement of Francis' (1993) regarding the capability of teachers to identify ADHD characteristics. The scores on the *treatment subscale* were significantly lower than on the *characteristics subscale*, which lends empirical promotion to the declaration of Pfiffner & Barkley (1990). Teachers were more acquainted with ADHD characteristics than the treatment domain, which is similar with earlier studies (Sciutto, Terjesen & Frank, 2000; Bekle, 2004; West *et al*., 2005). Provided that school-based research has acknowledged teachers as significant in the management of ADHD (Arcia *et al*., 2000), taking into consideration suggestions for the approach of multimodal treatment, suitable professional development based on truthful knowledge is fundamental (Goldstein *et al*., 1998). Markedly, the findings of this research advocate that teachers need to be conscious of the information they know to be correct or incorrect, and where they might need to look for professional development occasions.

Teachers' knowledge of ADHD indicates what is known by the number of correct answers, misconceptions, and what is acknowledged as being unknown. Whilst 21% of the items were answered incorrectly, merely 47% were answered correctly, indicating that approximately 32% were unknown. These findings are aligned with the results from an earlier research by Sciutto *et al*. (2000), which demonstrated that teachers have an overall knowledge score of 48%. Earlier researchers have revealed mean percentages for correct answers on questionnaires of knowledge of ADHD to range from 48–76% (Jerome, Gordon & Hustler, 1994; Kos *et al*., 2004; Ohan *et al*., 2008; Sciutto *et al*., 2000). Differences in findings might reflect issues of methodologies and measurements linked to development of scales and construct definitions (Kos *et al*., 2006). Although no direct relationship was revealed between knowledge of ADHD treatment and treatment acceptability (Power, Hess & Bennett,

1995), teaching experience of these children has been positively connected to higher knowledge levels (Jerome *et al*., 1994; Kos *et al*., 2004; Sciutto *et al*., 2000).

This research is similar to other studies that have investigated the knowledge of teachers, and found that 50–71% of teachers of children with ADHD believe that problems of attention persist during adolescence (Hawkins, Martin, Blanchard & Brady, 1991; Jerome *et al*., 1994). Research has also reported that 80% of primary school teachers showed accurate responses associations with ADHD prevalence (Jerome *et al*., 1994). Another study has reported that merely 24% of American primary school teachers showed that they believe ADHD might be treated with medication only (Jerome *et al*., 1994), whilst 79% in another research believed that medication is not only adequate to remediate problems linked with ADHD (Hawkins *et al*., 1991).

In a study exploring professionals'—including teachers'—perceptions of ADHD, Maras *et al* (1997) revealed that most participants held the belief that children with ADHD have less control over their behaviours, along with there being a biological foundation for the ADHD. Earlier studies into the perceptions of adults of ADHD are supported by the present research whereby adults believe that such children have minor control over their behaviours (Maras *et al*., 1997), and that even when other factors are taken into account, such as social and diet, there is a biological basis of ADHD.

ADHD causes that have not received studies' support comprise poor parenting, stress of families, and sugar or additives in food (Krummel, Seligson & Guthrie, 1996; Malyn, 1993). Similar to this study, numerous researches have established that 87% of primary school teachers documented a biological or genetic ADHD basis (Malyn, 1993; Jerome *et al*., 1994). On the other hand, these researches have reported that teachers believe other factors, besides main ADHD causes. 66% of primary school teachers believe that ADHD was due to sugar or food additives (Jerome *et al*., 1994). However, in the study of Malyn (1993), approximately 18% of ordinary teachers indicated that food additives contribute considerably to ADHD, with approximately 23% confirming the sugar contribution. Furthermore, over 20%

of primary teachers believe that poor parenting or dysfunctional families were the basis for ADHD (Jerome *et al*., 1994). In general, several teachers hold misconceptions associated with the ADHD causes basis. Such misconceptions are significant amongst teachers as they might relate directly to the intervention choices that teachers advocates and/or adopts. For instance, it has been reported that two-thirds of teachers believe diet causes ADHD, with teachers overwhelmingly believing special diets were useful interventions for ADHD (Jerome *et al*., 1994). Barkley (1998) has further summarised the myths connected to ADHD causes that have been continued by the media; such myths comprise food additives, sugar, yeast, and poor parenting. Possibly the main myth was sugar during a time at which it was considered that children outgrew ADHD. Currently, however, ADHD is recognised as being a pervasive condition that could be maintained during a lifetime. Characteristics, such as hyperactivity, for example, might adjust over time, although the underlying causes stay the same (American Academy of Paediatrics, 2000).

There has been some degree of discrepancy in findings concerning whether or not experience in the form of teaching years is regarded as having an influence on the knowledge of teachers of ADHD. Jerome, Gordon & Hustler (1994) investigated 439 American and 850 Canadian elementary teachers, resulting in there being a significant correlation between years' teaching experience with higher scores of knowledge of ADHD for teachers from Canada; on the other hand, however, the correlation was not significant for American teachers. Compatible with the Canadian results—both in Australian (Bekle, 2004) and North American (Sciutto, Terjesen & Frank, 2000) studies—it has been revealed that teaching experience years is significantly associated with the knowledge of ADHD. On the other hand, in another Australian study conducted by Kos (2004), a link endorsing these consequences was not found. It is considered that one factor potentially connected to experience of teaching is previous exposure of teachers to children with the disorder in a classroom setting. With this in mind, in Sciutto, Terjesen & Frank (2000), it was found that previous exposure to teaching such children was positively associated to scores on knowledge of the ADHD questionnaire. By comparison, these consequences were not obvious in the research of Kos, Richdale & Jackson (2004).

In agreement with the study of Sciutto, Terjesen & Frank (2000), this study has found that teachers' educational level and their professional development concerning ADHD were unconnected to ADHD knowledge. However, Sciutto, Terjesen & Frank (2000) found that the connection between number of pupils with ADHD taught and ADHD knowledge was statistically significant. This was not revealed in the present research; teaching children with ADHD and teaching years were not related to ADHD knowledge. The connection between the diverse variables chosen for exploratory analysis presents the chance for future study topics. Little is known concerning the effects of diverse demographic information aspects and teachers' knowledge: for example, the number of pupils taught who are presently utilising medication for ADHD and knowledge of teachers of medication of ADHD; teacher type and knowledge of ADHD. These topics would be interesting to examine and report on the further.

These results propose that the capability of teachers to identify suitable treatments and likely ADHD causes does not increase with years' experience. One probable justification is that, recently, ADHD has become a great deal more well-studied and a widely recognised disorder than in earlier years. Consequently, contemporary training programmes might be better arranged to instruct teachers in recent years than they did previously. Another probable justification is teachers who are more lately out of the programmes in college are further accepting of the studies supporting ADHD existence. There is no study accessible to support this claim, however, studies have shown that teacher knowledge and confidence in working with students with the disorder has enhanced owing to training (Niznik, 2004).

Regarding the strategies within the classroom, teachers believed sustaining classroom organisation, as well as the curriculum, are the most valuable, and showed positive advantages associated with the emotional support and reinforcement of children (Kos, 2008). Most teachers believed that the diagnosis and medication of ADHD were positive for children. Medication made being in the classroom a lot easier for teachers, since teachers had one less pupil with behavioural challenges to be worried about. Second, medication helped the child

concentrate on the class, stay focused on tasks, and enhance their academic performance.

The analysis of the questionnaires exposed a number of results which might be considered helpful in directing educational interventions. Compatible with prior studies, several teachers in the current sample held misconceptions concerning sugar intake effects (DiBattista & Shepherd, 1993; Jerome, Gordon & Hustler, 1994), and were also less knowledgeable regarding ADHD long-term prognosis (Jerome, Gordon & Hustler, 1994). The research findings guided the researchers (Sciutto, Terjesen & Frank, 2000) in emphasising that future educational interventions ought to concentrate on treatment approaches, misconceptions concerning the disorder, such as diet and ADHD, and ADHD prognosis (Sciutto, Terjesen & Frank, 2000).

It is important to note that teacher misunderstandings of ADHD and its co-morbidities may have a negative influence on the way in which the teacher feels about children with ADHD in the classroom. Actions of a student with Emotional and Behavioural Disorder (EBD), such as a lack of sympathy and irritation, are linked negatively with the teacher's motivation to assist such students (Poulou & Norwich, 2002). Therefore, raising the teacher's awareness about the way in which they should respond to negative actions, and accordingly training them on how to correct the learner negative behaviour, can help in assisting such learners. It is proposed that teachers attending training workshops addressing ADHD or Emotional and Behavioural Disorders can help teachers to respond positively to such learners (Polou & Norwich, 2002). Undoubtedly, training workshops can facilitate educating teachers in terms of how to restrict negative motivations. Learners with ADHD are considered to be a challenge to the teacher's overall competence. Thus, maintaining a positive response, being friendly, available, flexible, and self-confident may improve the teacher's overall practices.

As mentioned previously, a great deal of educational interventions have been revealed to work successfully for pupils with ADHD; nevertheless, such interventions are not utilised by all teachers. Studies have established that the type of intervention and the time and effort required by the teacher in terms of

implementation are issues (Power, Hess & Bennett, 1995). Therefore, determining the reasons teachers do not employ definite efficient interventions can assist alterations to pre-service or in-service programmes. Furthermore, when determining the knowledge of teachers concerning ADHD in addition to interventions types they are likely to employ, as well as the rationales of a number of interventions considered acceptable, school psychologists are able to design and assist teachers applying interventions for pupils with ADHD. There is no doubt that the support teachers provide to students with ADHD is influenced by their perceptions and ability to deliver suitable teaching methods. Strategies of special education might appear impractical or time-consuming, and a number of teachers appear to lack the appropriate knowledge on the ways in which they should respond to challenging situations and how to offer support (Webb & Myrick, 2003). Calhoum, Greenwell-Iorillo & Chung (1997) indicate through their findings that the way in which students with ADHD are treated in the classroom is related to the level of tolerance the teacher shows to ADHD-related behaviours. In order to enhance the overall opportunity of academic achievement for students who exhibit behaviours of ADHD, Glass (2001) proposes that encouraging teaching strategies and non-traditional teaching practices can be used. Non-traditional methods include adjusting the amount of homework, using oral tests instead of written tests, rewarding the student for personal attainment, giving the student plenty of time to complete the assignment or homework, and implementing hands-on activities (Glass 2001).

According to Brown (2000), it is vital to identify what teachers expect from the medication given to the student with ADHD. Therapy or intervention can be more difficult and complex in the case the learner has co-morbidity with ADHD. If more than one medication is prescribed for the student, an intensive intervention will be needed, such as when the learner requires a corrective intervention for both learning and communication disorders. In this case, communication should be ensured amongst all parties, parents, healthcare practitioners and teachers in order to help the student.

The significance of related professional development for teachers has been demonstrated in the current study, with teachers who attended such courses being

more knowledgeable. The value of professional development is underlined by the results gathered by Jerome, Gordon & Hustler (1994), which show that 90% of potential teachers have inadequate opportunities at university to be trained regarding ADHD. Furthermore, Jerome, Gordon & Hustler (1994) state that approximately 97% of teachers articulate a strong desire to acquire additional training relating to ADHD subsequent to graduation. Nevertheless, the findings of this research suggest that merely 20% of the sample of teachers had attended sessions of professional development following graduation. Consequently, it might be that such professional development opportunities are inadequate. Findings further pointed out that teachers expressed having had little opportunity to learn concerning ADHD—both within their education programme context or subsequent to their graduation. Consistent with Sciutto *et al*. (2000), factors that might have an effect on the accuracy of teacher is their knowledge concerning ADHD. The findings pointed out that teachers have a preference of a workshop approach to learning concerning ADHD. A possible rationale for such findings might be that workshops are the most frequent maintaining education modes for teachers. Overall, participants' fourth option of favoured learning mode was the web: whilst they do not favour the web as the major ADHD education mode, it is not the least favoured alternative.

Essentially, the research of West *et al*. (2005) also found that professional development has an effect on the knowledge of teachers in the arena of ADHD. In regard to the Knowledge about Attention Deficit Disorder Questionnaire (KADD-Q), teachers who attended training during the previous 12 months had better scores (M = 40.52) than who did not (M = 34.43). By contrast, teachers with qualifications of special education scored higher (M = 39.04) than those who did not (M = 35.08). These outcomes are in agreement with the Jerome, Gordon & Hustler (1994) and Kos, Richdale & Jackson (2004) studies, which reveal that teachers with specific training surrounding ADHD were further knowledgeable regarding ADHD when compared with their counterparts who are less educated.

In Saudi Arabia, teachers do not have specific training centred on ADHD, but rather complete modules on educating children with SEN as an element of their Bachelor degree of Special Educational Needs. Whilst teachers are involved in professional

development chances that occasionally cover themes, such as ADHD, their practice is predominantly formed from direct interaction with students who have ADHD in the classroom. The importance of the courses and the form they should take are aspects that have been discussed by some participants since there is the belief that they are not qualified and do not get the appropriate training.

However, in research, the significance of teachers' management in regard to children with ADHD has been emphasised, with Arcia *et al*. (2000) reporting that, in connection with ADHD, it has been recognised that understanding and practices of teachers on the subject of identification and management of ADHD, and that which is known, points to frequent misconceptions. Previous studies' results would further support this: for instance, Kasten, Coury & Heron (1992) report that 96% of teachers point out that they had received extremely minor or no training on the topic of stimulant medications of ADHD, with 50% not acquainted with the side effects which may occur as a result of medication, and 21% believing that such medication might give rise to addiction. Additional studies utilising true or false questionnaires—for example, Jerome (1995) and Jerome, Gordon & Hustler (1994)—show that around 66% of teachers incorrectly state that ADHD could be attributable to sugar dietary intake or additives, with 15% not identifying the disorder as biologically based, and that these children most frequently grow out of the ADHD symptoms when they grew into adulthood. For this reason, Barkley's (1995) affirmation that it is 'very unfortunate when so many teachers continue to be uninformed about ADHD and its best avenues of management' (p. 207) appears to be valid. Subsequent studies propose that there are no strong rationales which argue Barkley's previous statement; particularly, researches have revealed that 83% of primary teachers received insignificant formal training concerning Attention Deficit Hyperactivity Disorder as undergraduates, although 90% articulated a strong aspiration for more regular training (Piccolo-Torsky & Waishwell, 1999). Furthermore, it has also been recognised that 41% of primary teachers regarded ADHD as being the consequence of poor parenting and sugar and/or food additives intake, with 64% thinking that medicine—for instance, methylphenidate—ought to be utilised only as a last resort in ADHD treatment (Barbaresi & Olsen, 1998), and

that parents of such children frequently necessitate educating a sequence of diverse school personnel concerning ADHD every year (Reid, Hertzog & Snyder, 1996).

Yasutake (1994) found that teachers began receiving short training about ADHD, and acknowledged the necessity of extra training relating to this. It was found that a lot of teachers did not believe they had given adequate training to sufficiently identify or assist children likely to have ADHD (Reid *et al*., 1994). Considering the presumed validity of this report, there is the apprehension that children with ADHD may be missed, or that children without ADHD may be mistakenly diagnosed as having ADHD. Possibly, such children might even have another disorder which could confused with ADHD.

From the available studies, it has emerged that teachers are not given much training on the subject of ADHD in their college education. 89% of elementary school teachers stated they had no instruction about ADHD throughout their undergraduate education, with 92% having received little training centred on ADHD subsequent to graduation (Jerome, Gordon & Hustler, 1994). Likewise, 96% of mainstream and special education teachers reported that they obtained little to no training in pharmacological interventions of ADHD (Kasten, Coury & Heron, 1992). However, knowledge concerning ADHD for both ordinary and special education teachers is significant as many children with the disorder are in ordinary education classrooms as opposed to isolated special educational classrooms (Reid *et al*., 1994).

The frequent misconceptions in regard to the knowledge of teachers in relation to ADHD are mainly salient when the constant teachers training are considered. With this in mind, it has been concluded by researchers that there is a necessity to educate or re-educate teachers to ensure the accuracy of their knowledge associated with ADHD (Bekle, 2004; Jerome, Gordon & Hustler, 1994; Kos, Richdale & Jackson, 2004; West *et al*., 2005). In understanding the significant potential to do harm owing to misunderstandings, a strategy of preventative is desired—as suggested by participants of this research—such as following up in implementing these sessions, or involving teachers presenting their personal experiences, providing information links for teachers to allow them to inquire into certain things when required, and

organising regular visits to schools in order to facilitate communicating with teachers.

Giving training concerning ADHD to pre-service teachers would indicate that they are prepared from the beginning in terms of becoming aware of, and acting in response to, the children with ADHD, and their needs in the classroom environment. Teacher training and knowledge of ADHD contribute to the role that teachers can play in ADHD diagnosis and management, as will be discussed in the following section.

After a wide literature investigation, only two research studies were found that aimed to alter teachers' knowledge of ADHD employing an intervention (Barbaresi & Olsen, 1998; Syed & Hussein, 2010), and only a single research intended to alter the knowledge of ADHD of teachers and accordingly employ behaviour modification strategies through utilising an intervention (Jones & Chronis-Toscano, 2008).

Barbaresi & Olsen (1998) adopted an educational intervention directed by paediatricians for elementary school teachers of pupils with ADHD. They found that the knowledge of ADHD of teachers raised and stress reduced owing to the intervention. Whilst the finding highlights that the intervention was efficient in terms of positively altering teachers' knowledge concerning ADHD and responds to the stress of teachers as a consequence of ADHD, the researchers made a note that this was merely a pilot study.

Similar to the study of Barbaresi & Olsen (1998), Jones & Chronis-Toscano (2008) revealed that, through employing teacher training regarding ADHD, teachers' knowledge of ADHD positively increased as a result of the intervention. Special education teachers were found to be further likely to utilise behaviour modification strategies considered in the training (Jones & Chronis-Toscano, 2008). More recently, Syed & Hussein (2010) implemented an intervention lasting a week with the objective to alter knowledge of ADHD amongst teachers through a training workshops series. The researchers found that the intervention considerably enhanced knowledge of ADHD of teachers. The researchers made a note that this

was a pilot study and therefore necessitated a larger follow-up research to assess the consequence of enhancing knowledge of ADHD of teachers and their capability to identify children for referral (Syed & Hussein, 2010).

By contrasting the dissimilarity between the mean scores of teachers who indicated that they had obtained no training in comparison to teachers who indicated that they had obtained some training, the scholar reported that the scores of attitude of practicing teachers improved as their volume of training increased (Bekle, 2004).

Studies have reported that there might be a number of characteristics of teachers connected with their knowledge of ADHD. Jerome *et al*. (1994), for example, has reported that primary school teachers with more experience and training are more knowledgeable than other teachers. A similar piece of research examined the relationship between teachers' prior training and teaching experiences to pupils with ADHD, and the confidence of teaching such pupils (Reid, Maag, Vasa & Wright, 1994). This research found that previous training on ADHD and prior experiences of teaching children with ADHD positively impacted the confidence of teachers in terms of teaching such children.

8.5 Discussion of the Findings: Research Question 4

The fourth research question was 'What similarities and differences exist between the knowledge and beliefs of children with ADHD, their parents and teachers concerning ADHD in Saudi Arabia?' In order to answer this question, the findings of the questionnaire and interviews of children with ADHD, their parents and teachers have been used.

The findings were interpreted as follows: correct answers indicate knowledge, whilst uncertain answers represent a shortage of knowledge. Incorrect answers reflect misperceptions. Characteristics were viewed as what ADHD made them behave in the ways they do.

As stated previously, the difference between incorrect beliefs (misconceptions) and the lack of knowledge (uncertain answers) might have significant implications for educational interventions. Although there is the need of empirical data on this subject, it appears that misconceptions regarding ADHD are particularly difficult to alter. The prevalence of misconceptions concerning the impacts of sugar and other food additives is one example that appears to support this principle (Barbaresi & Olsen, 1998; DiBattista & Shepherd, 1993; Jerome, Gordon & Hustler, 1994). It is suggested that a number of participants are reluctant to renounce their beliefs regarding the harmful behavioural impacts of sugar in spite of the wealth of verification to the contrary. For example, several teachers might insist on this belief because of the lack of information, whilst others seem to have a confirmatory bias form, wherein their pre-existing beliefs distort observations of behaviour of children (DiBattista & Shepherd, 1993). Regardless, however, future studies ought to examine the differential results associated with misconceptions, as contrasted to the lack of information.

In Chapter Seven, the children's, parents' and teachers' knowledge and beliefs of ADHD were compared. Of the three subscales inspected within this research, children with ADHD, their parents and teachers were explored as being the most knowledgeable regarding ADHD characteristics and causes and least knowledgeable regarding treatment. From the findings, it has been established that there were several similarities and dissimilarities between parents' and teachers' accounts (Sections 7.3 and 7.4). Possibly, the major similarity was that both parents and teachers similarly oriented to the accountability and responsibility of parents in regard to the difficulties of their children.

Similar to the literature, several characteristics and ways of management of children with ADHD has been mentioned and suggested in the present data. Students with ADHD display less behavioural problems in new or unusual settings (Barkley, 1994), and have also been proven to be more focused and responsive whilst working with new, colourful and stimulating educational materials or content (Barkley, 1994). Students with ADHD need to be stimulated and have their attention attracted

through the use of colours and content which is viewed as being attractive or thought-provoking (Imhof, 2004).

Learning materials should not be very colourful to a degree that might distract the vision of the student with ADHD. Similarly, learners with ADHD usually have a tendency to explore their surroundings with their senses (sensory exploration), which might be disturbing to their class mates (Sonna, 2005). It is suggested that the teacher plans the lesson in advance in terms of contents and activities so as to be colourful and enjoyable with the intention of involving the student (Imhof, 2004). The teacher should also be aware that his/her learning materials are not overly colourful to the extent that can visually distract those students with ADHD (Sonna, 2005). With this in mind, however, introducing such a balanced learning environment might be complex and difficult to apply.

A most important consideration for the early recognition and subsequent efficient ADHD management is the school environment, with the teacher's role recognised as being fundamental. In order for these children to function effectively within the school setting, the helpful development and implementation of suitable interventions are essential. An enhanced consciousness and understanding of ADHD held by teachers allows for the superior performance of such children in classrooms (Barkley, 1998). For such children, an inclusive, more willing rather than exclusive involvement in activities of school, provide the ability to improve upon their self-esteem, as well as resilience, which consecutively could improve their future accomplishment (Barkley, 1998; Rief, 2005). On the other hand, with several pupils with ADHD in the classroom, the difficult behaviours demonstrated by them can cause considerable challenges for teachers in providing the support needed.

Earlier study results (Arcia *et al*., 2000; Sciutto, Terjesen & Frank, 2000) have established that teachers are not adequately versed in the treatment interventions plan and implementation. This is further endorsed by the current research, where scores of school teachers emphasise lower knowledge levels concerning ADHD treatment than causes and the characteristics of such (Section 5.4). When compared with the sample of parents, as their scores were less than teachers' scores—more

specifically with reference to issues of treatment. Regardless, both parents and teachers exhibit considerable gaps in knowledge, as demonstrated by the results which show that 77.5% of parents and 72% of teachers do not know if homeopathic remedies are an efficient ADHD treatment. Additionally, 82.5% of parents and 65% of teachers do not know if Electroconvulsive Therapy (ECT) is an efficient treatment for ADHD. This latter outcome is highly similar to the finding of Sciutto, Terjesen & Frank (2000), who state that 76% of teachers were not aware as to whether or not ECT is an efficient ADHD treatment. It is recognised that approximately half of all teachers and more than half of parents were unaware that children with ADHD can be verbally aggressive and might be very anxious subsequent to stimulant medication.

The present research has established that children, parents and teachers have misconceptions and misinformation regarding ADHD, and also lack in terms of information. Some respondents might not know what ADHD subtype a child has or may not even understand that a variety of ADHD subtypes exist. This could influence the interventions that will be used. There was no mention of impulsivity or DSM. Importantly, some believe that ADHD does not persist into adolescence and adulthood, but the reality stands in stark contrast. Furthermore, the influence of the environment has been demonstrated, with two teachers illustrating their natures and their ways of thinking. Some believe one reason behind the similarities and differences between the groups is the environment. Moreover, it has been reported in this research that parents deny the reality that their children have ADHD, with teachers stating that parents refuse to accept negatives viewpoints concerning their child regarding the disorder, and teachers mentioning that parents do not talk about ADHD unless they are asked to. In fact, Saudi parents are frequently embarrassed to state that they have a child with special needs since they might feel this means they have a problem themselves.

Unlike children, parents and teachers might have negative pharmacological intervention perceptions; therefore, health professionals are promoted so as to ask questions regarding attitudes towards medicines and their possible fears concerning pharmacological intervention, thus allowing fears to be expressed explicitly.

After reviewing and considering children's and parents' data and scores, no connection has thus far emerged between the knowledge of children concerning ADHD and that of the knowledge of parents with ADHD. This result is interesting owing to the fact that it reveals that, regardless of how highly educated a parent is in the realm of ADHD, this knowledge is not essentially shifted to their children. Some researchers have contrasted parental perceptions of ADHD with child perceptions of such (for example Efron, Jarman & Barker, 1998; Gerdes, Hoza & Pelham, 2003; McNeal, Roberts & Barone, 2000). It was found that there was little agreement between the perceptions of parents and children regarding effects of medication (Efron, Jarman & Barker, 1998). McNeal, Roberts & Barone (2000) also utilised questionnaires with mothers in addition to children, and reported that mothers viewed medication as being more useful than their children did. They were also found to be more knowledgeable concerning medication than their children. However, in this study, some teachers stated that parents seek medication-related interventions without trying behavioural ones.

Existing research has revealed that children are treated in severe ways (Alizadeh, Applequist & Coolidge, 2007; Drabick, Gadow & Sprafkin, 2006; Gerdes & Hoza, 2006). For example, children accept that, when responding to the question of how ADHD symptoms can be dealt with, a child suggests punishment, which is actually used, as stated by most children interviewed. Even two parents suggesting being forceful in order to manage the child with ADHD, although other parents and teachers stated that the harsh way does not lead to positive results, but rather scares children, worsens the case, and causes the child to become stubborn; however, they agree with the reality that these children are punished for the behaviours associated with ADHD, such as treating the child badly, or kicking him/her out of the classroom, being very hard to make them keep quiet, sending them to the principle, or hitting them—and all in spite of the agreement of participants that it is not the child's fault and they are not aware of their problems. Nevertheless, they stated that most Saudi people regard ADHD and its symptoms as being a fault made by the child.

In Saudi Arabia, persons with special needs regard their disabilities from an Islamic perspective. Consistent with Alshaia (1997), disabilities are considered to be a test from Allah to see whether or not individuals are patient, believe in their destiny, and will express thanks to God for whatever is sent to them. They believe that a person who is patient and bears pain will be rewarded in the hereafter. In addition, because some adopt the medical perspective, parents and teachers see the behaviour of children as being beyond their control, and might, in sequence, view their own resources as insufficient in terms of supporting the children in managing their own behaviours (Kos, 2008). The management strategy's efficiency was sometimes dependent on the children consuming medication, thus compounding the control consequence.

Media was amongst the most important sources of information, ranking first for parents and second for teachers. Dependence on media for information might not offer parents and teachers the most accurate or in-depth knowledge concerning ADHD, which is necessary in order to effectively work with such children. Several popular magazines reporting on recent hot issues might endorse more misconceptions relevant to the causes of ADHD, such as dietary causes, for example (Meaux, 2000). Consequently, a resource bank on ADHD for parents and teachers—comprising video, audio, and printed resources detailing accurate information—should be provided.

There is consensus across children, parents and teachers on the importance that parents and teachers learn about ADHD, thus facilitating dealing with children with ADHD appropriately, although some participants revealed that the basics of ADHD are enough for the whole community, and specialists should teach them. Although some teachers stated that schools do not educate them, and what they studied was theoretical, thus causing them to lack in the skills of practicing this information, certainly, the teacher's capability to practice this information has a great impact. In addition, teachers also stated that the books were generally unavailable, were foreign, and do not provide solutions.

Research participants in the present study as well as in studies relevant to behaviour of children with ADHD in schools emphasise that parents and teachers are required to be play a role in assisting learners in making friends (Heiman, 2005). They support engaging learners in athletic activities as participation constitutes an essential factor in their social environment (Lopez-Williams *et al*., 2005). Participation provides a clear indication concerning the amount of acceptance or rejection that children with ADHD receive from their classmates since there is a strong connection between the increase in the negative behaviours of children with ADHD and an increase in receiving negative nomination from peers.

Research on children, parents and teachers and ADHD is vital for several reasons. First, parents and teachers are a key influence in the formative years of a child's life, and thus it is important that their knowledge and beliefs relating to ADHD be assessed. Second, the information from these assessments must be utilised so as to assist in the targeting needs for courses for parents and professional development.

Parents and teachers who contributed in this present research pointed out receiving limited training programs given by their school local authorities. When inquired throughout the questionnaires whether or not they believed they would advantage from extra training in the ADHD area, for example, 97.3% of teachers pointed to that they could advantage from extra training in this area. This finding is in agreement with Jerome *et al*. (1994) where 98% of American teachers wanted extra training. Most participants of children, parents and teachers in the present research wanted to know and learn more about intervention then about causes.

Demystification workshops for children, training for parents, and professional development for teachers in the area of ADHD are essential. There needs to be the delivery of accurate information since the behaviours associated with ADHD are frequently challenging and demand tolerance in addition to understanding. Opportunities for children, parents and teachers in terms of assessing their knowledge and being given sufficient training in the areas particular to their weaknesses are necessities. Prior to training, assessing children's, parents' and teachers' strengths and weaknesses are recommended. The pre-test permits them to

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recognise their definite weaknesses in their knowledge of ADHD, and also permits specialised training and professional development. This might assist with information excess, which could occur when a great deal of information is being given in a short amount of time. Parents and teachers need to have the capability to identify characteristics frequently associated with children with ADHD.

8.6 Discussion of the Findings: Research Question 5

The fifth research question was 'What are the perceptions of children with ADHD, their parents and teachers relating to each other in a Saudi Arabia context? ' In order to answer this question, the finding of the questionnaire and interviews of children with ADHD, their parents and teachers have been used.

The teacher-child and parent-child relationships are key to ensuring positive outcomes for children. Parents provide support which is social, cultural, and emotional, and needed by children in order to function in schools (Power & Hertzman, 1999). Schools present the opportunity for children to become involved in positive interactions with other key adults in addition to children that play a significant role in their social, emotional, and academic improvement.

Studies suggest that dimensions of the relationships of parent-child predict the early relationship quality between teacher-child (Davis, 2003; Pianta, Nimetz & Bennett, 1997). This might be owing to parents and teachers sharing comparable developmental aims for children's competence in line with peers and other adults (Davis, 2003).

Although issues of disobedience, aggression, and failure at school are frequent main issues for persons with ADHD, characteristics linked to the disorder differ consistent with age and development of children (Barkley, 1998; Weiss & Hechtman, 1993). A consideration of these developmental alterations is vital to the identification and succeeding interventions of children with ADHD. Biological maturation in addition to the altering demands placed on children by diverse environments, such as, home

and school are mainly responsible for the alterations in behaviour (Batsche and Knoff, 1994). Alterations in the relationships between children and their caregivers, such as, parents and teachers might function to both exacerbate and emphasize specific challenging behaviours. For example, eventually, interactions between children with ADHD and their caregiver parents and teachers incline to become increasingly negative, involving raised disobedience and defiance by the children and raised stress and frustration on the caregiver (Batsche & Knoff, 1994). These alterations are noticed if the specified caregiver are parents or teachers or not, representing that the behaviours of children with the disorder influence adults likewise in both school and home environments (Batsche & Knoff, 1994). Consequently, alike interventions are required in both settings.

Saudi Arabia is ruled by the beliefs of the religion of Islam. Theoretically, religion establishes the social relationships of the whole community. In brief, the religion of Islam and its rules affect the perceptions, thoughts and behaviours of individuals. Thus, Saudi people ought to show positive attitudes towards people with disabilities. On the other hand, this statement could be valid only if most Saudi people demonstrate their beliefs through their behaviours. Few empirical studies have been performed with the aim of studying the attitudes of people towards persons with disabilities in Saudi Arabia; however, of the few that have been carried out, it has been reported that people have positive attitudes towards such individuals (Sadek, Mousa & Sesalem, 1986; Musalt, 1987; Dubis, 1987; Alsartawi, 1987; Aldemadi & Alshinawi, 1989). Nevertheless, one of the main barriers to inclusion remains, which is the negative attitudes of people toward persons with special needs (Al-Mosa *et al*., 2006).

Environmental impacts, for example the impact of parents and teachers besides have an effect on the symptoms of ADHD (APA, 2000). Negative parenting, which appeared in the findings, is recognized to worsen underlying symptoms of ADHD (Mckee *et al*., 2004; Daley *et al*., 2009). Environmental factors comprise factors for example techniques of coercive and/or chaotic parenting, inconsistent and/or intrusive style of parenting (Jacobvitz & Sroufe, 1987). When children with biological predisposition to ADHD is grown in such an environment,

symptoms of ADHD could be manifested (Johnston & Mash, 2001); on the other hand the relationship between ADHD and parenting impact is best sight as reciprocal naturally (Daley *et al.*, 2009). In view of the fact that ADHD is genetically related, the likelihood of children with ADHD having parents with ADHD is frequent, which might in addition has an effect on their parenting approach (Daley *et al.*, 2008). The Durston's (2003) results of literature review, in addition to the results from other researches, propose that there are several grounds and origins of ADHD that engage factors of genes, environments, anatomic, and physiologic that each involvement to the symptoms of severity, perseverance and continuation.

Children in this study identified a number of adults who can assist them with handling ADHD, and they believed there were a number of methods capable of assisting in the management of ADHD symptoms. This is a significant outcome as the perceptions of children regarding their ADHD may very well play a critical role in interventions employment. For example, children who are further knowledgeable of both the causes and characteristics of ADHD might be more capable of making well-informed decisions concerning how they could advocate on their own behalf. The questionnaires and interviews were partly intended to also identify whether or not children are capable of identifying the number of adults in their lives who are capable of assisting them in the management of their ADHD symptoms, and the number of ways in which they could assist themselves in managing their own symptoms of ADHD. This is a significant outcome as it reveals that children are constructing a sense of consciousness as to which environments might be mainly difficult for them and those who might be capable of assisting them in several different situations. More specifically, children are capable of identifying more assisting adults than their parents and teachers (such as school psychologists and learning disabilities teachers). These results are mainly pertinent for them provided that they will be encouraged to seek assistance independently.

From the present findings, it is apparent that children with ADHD experience a lot of challenges at home and school. Parents and teachers have a vast responsibility to make sure that the child is understood and feels accepted as well as loved. When a

child has ADHD, it is frequently hard to view their positive traits while children do not listen, disrupt and constantly appear to be against parents and teachers. It is extremely hard to stay calm and act in response positively. In the meantime, these children need teachers' understanding, support along with encouragement extra than the others in the classroom. Children are desperately attempting to fit into a conformed sitting that is extremely confusing and hard for them (Copeland & Love, 1995).

A child with challenging behaviours often finds it difficult to fit in to the society social structures. This frequently means that they will spend lots of time being punished (Neuville, 1995). The behaviours individuals display are significant factors in the way others relate to and perceive him/ her. Every child is anticipated to behave to a particular standard. Children participated in this research however did not frequently adhere to such standards. Children who find sitting still for long time hard or who do not concentrate as others, might find school an unfriendly and even difficult environment (DeGrandpre, 2000). The negative feedback received by children with ADHD from home and/or school during their developing time negatively influences their self-esteem even into their young adulthood (Hectman, Weiss & Perlman, 1980).

Undoubtedly, teachers play an important part in the emotion regulation process through assisting children in properly managing and expressing experienced emotions within the class environment (Pianta, 1999). Pianta & Steinberg (1992) also reveal that the quality of the relationship between the teacher and child affects developmental results from the time at which the child enter schools. Ratings of conflict of teachers were associated with troubles in behaviour and learning, and greater retention instances.

Primarily, what concerns teachers is the behaviour of the student (Section 3.5), although it is essential to consider the learner as a whole. The aspects that the teacher should focus on when dealing with pupils with ADHD are multi-faceted. In addition to ADHD behaviours, teachers should also direct attention to other aspects, such as the student's cognitive ability in terms of achieving academically, in

addition to the social functioning, comprising his/her skills to perform social behaviours—whether at personal or community levels (APA, 2000). Taking all these factors into account, the teacher's capability to successfully manage the classroom then becomes a significant aspect, which either helps or hinders the overall process of teaching and learning.

Parents' perceptions of misbehaviour could help to establish how carers provide support and try to establish treatments for their children (Bussing *et al*., 2003). The perceptions of parents of a child with ADHD might have an effect on how the children are capable of applying themselves at school. For instance, parents who do not admit that their children have ADHD might not report it to the teachers; thus, such children might go to school and misbehave and/or be inattentive for the duration of the class, which ultimately hinders their overall learning. Those teachers that have not been aware of children having the condition might not be capable of intervening and helping children as and when required.

Many participants including children, parents and teachers stated that parents are busy and have no time for the children and do not concern about their ADHD and education, as well as lacking of knowledge regarding ADHD. Dever and Burts (2002) pointed out that parents are frequently busy providing the fundamental needs for their children, that cause them to leave less time to help them with their school work. This finding was in agreement with other studies which showed short of time as a main barrier to involvement in family-school partnership (Christenson, 1995). Children appeared they not talk concerning ADHD with anyone, with a child given a rationale for that by revealing that she is afraid to ask her parents since they will shout at her and teachers will say they will not repeat the lesson because she is not paying attention.

When children with ADHD bring about problems in the parents, it ought to be looked at seriously, since parents might lose confidence and might punish their child excessively which could cause the child resenting their parents, leading to long-term relationship problems (Green & Chee, 1997). Children need to feel they are accepted as well as loved; this is the similar in the classroom with teachers (Green & Chee,

1997). Teachers have as a great deal power and at times even more than parents in determining the children long-term achievement and happiness. When people make a decision to be teachers, they are not merely responsible for the children's academic performance, however in addition for their emotional as well as social development and psychological long-term well-being (Copeland & Love, l995).

Parents want to assist their children to learn; though, there are home environment aspects that frequently make it hard for them to do so (Finn, 1998). It is significant to understand these aspects since literacy interaction between parents and children is vital for the reason that it connected with children's achievement in school (Leseman & de Jong, 1998; Purcell-Gates, 1996). Teachers have to besides learn to understand the home environments their pupils come from to present strategies and communication methods that meet each family needs (Dandridge, Edwards & Pleasants, 2000). The difficulties that children with ADHD have relating their academic achievements have been documented (Barkley, 1990; DuPaul & Stoner, 1994). Academic underachievement was a vital issue for the parents and teachers participated in this research, because they felt that the children were not attaining their full educational potential.

The literature on parenting of children with ADHD, parents-children relationship is frequently disrupted and parents have a reduced self-efficacy sense and role-specific ability (Johnston & Mash, 2001). Parents of children with ADHD engage in further conflict (Danforth *et al*., 1991; Smith *et al*., 2002). When parents interact with their children with ADHD, they tend to be further negative, controlling and harsh (Buhrmester *et al*., 1992; Johnston & Jassy, 2007). Regarding their relationships with their children, parents of children with ADHD more negatively perceive their relationships comparing those with children without the disorder (Gerdes, Hoza & Pelham, 2003). The study does constantly demonstrate that severity of children with ADHD characteristics and parental depression are positively connected to parenting stress (for example Baker & McCall, 1995; Podolski & Nigg, 2001; van der Oord *et al*., 2006). There is in addition research to propose that social support is linked to parenting stress (McCleary, 2002).

It is possible that perceptions teachers of pupils with ADHD have an effect on their behaviour with them (Glass & Wegar, 2000; Kos *et al*., 2006). Factors associated with the teacher—such as classroom behaviours tolerance, training level, and treatment acceptability, for example—have been revealed to have an effect on learning and social outcomes for pupils with ADHD (Sherman, Rasmussen & Baydala, 2008). If teachers hold the false belief that children are in control of their behaviours, they might anticipate children to display a level of classroom behaviours that is further than their ability in the absence of suitable supports. The establishment of this unrealistic anticipation for children with this disorder could contribute to low self-esteem for the children and frustration for their teacher.

It is stated that, with the purpose of addressing the educational achievements of pupils with ADHD, it is significant that teachers and parents deal with their educational difficulties (Purdie, Hattie & Carroll, 2002). This could be attained if they know how to tackle educational difficulties, taking into account the challenges facing a child with this particular disorder. Most of the children that participated in the interviews dislike schools; they spend a school day being reprimanded for poor academic performance and difficult behaviour. Parents and teachers have demonstrated the significance of having a connection between children with ADHD and their teachers but they revealed several difficulties.

Consistent with the literature, it can be seen that there are a number of reasons why a variety of interventions are not applied within the classroom, owing to the lack of time and resources, which has been mentioned frequently (Elliot, 1988; Reid *et al*., 1994; Reimers, 1987). In this study, obstacles of teaching pupils with ADHD were in addition stressed. Kos (2008) put them as themes comprising: time, equity inside the class, size of classes, and involvement of parents. The obstacles were categorised as preventing teachers from effectively applying methods for pupils with ADHD, and were consistently stated by approximately 50% of the sample (Kos, 2008). The over-crowding of classrooms in addition has serious implications for the applications of definite strategies of behaviour management (Johnson, 1999).

Previous findings recommended that teachers found children with ADHD further stressful to teach than other children without ADHD (Greene *et al*., 2002). Teachers pointed out that children with ADHD consume more time from the teachers than other children and have inclined to over-identify pupils with disruptive behaviours as having ADHD, particularly since class size increased (Glass & Wegar, 2000; Havey *et al*., 2005). Even though children with ADHD might consume much of teachers' time, a lot of teachers obtain little training concerning ADHD (Barbaresi & Olsen, 1998; Bussing *et al*., 2002; Jerome, Gordon & Hustler, 1994). As such, they might have incorrect knowledge and beliefs concerning ADHD or perception that might discourage them from wanting to apply a behaviour management with the children. For instance, if teachers hold the belief that a child will not stay seated purposely, then that they might be more possible to respond with harsh criticism for leaving his or her seat rather than labelled praise when the child is sitting properly. Some teachers interviewed stated that they try not to teach them or not to teach more than one child with ADHD.

Teachers might feel inadequate to accommodate children with special needs (and particularly children with ADHD) in their classrooms because of their lack of training and experience (Cook, Semmel & Gerber. 1999; Salend & Duhaney, 1999). Teachers who are eager to assist are encumbered by large size of the classrooms, curriculum demanding, and time limited. Teachers are attempting to deal with the requirements and demands of implementing the curriculum (Fisher *et al*., 1999).

Teachers in Saudi Arabia are given support with the Guide for Teachers of Learning Disabilities (Abdulelah, 2003), which provide teachers with advice on how to include all students within the classroom environment. The Guide involves specific instructions for applying the school curriculum, and drafting plans for lessons (Abdulelah, 2003). Unfortunately, however, these guidelines do not comprise methods for including students with ADHD within the classroom. As such, it is recognised that teachers should be supported with certain guidelines and training in order to be able to include students with ADHD.

Consistent with the ecological model of Bronfenbrenner (1979, 1986, 1999), connection between home and school improves development when the child is safe and has a home environment that supports the development of socio-emotional and cognitive ability. Communication between parents and teachers within the school can help in constructing a shared understanding of ADHD. It is important that the parent of those children with ADHD feel comfortable enough to share information about their child concerning ADHD with the school; this will help parties, i.e. the teacher, the parent and the learner, to construct a shared understanding of ADHD meanings, building a partnership between the family, teacher and school will ensure priority is given to the treatment of those students with ADHD.

As seen in the findings, having a child with ADHD often raises interactions between parents and teachers, be it through phone calls of teachers to the parents complaining in relation to the behaviours of a child, or otherwise by parents seeking additional school services to assist with the problems of their child (Bussing & Gary, 2001). Parental awareness concerning learning disabilities is the duty of teachers, as explained in 'Guide for Teachers of Learning Disabilities' (Abdulelah, 2003), which plays a significant role in the process of this interaction, although this has not yet been formally researched.

It is essential for teachers to be aware and to understand that parents might feel this pressure. Teachers could then work to establish a relationship that permits parents to feel comfortable working in their home (Nieto, 2004). Consequently, parents ought to receive apparent objectives and instructions from teachers on the ways in which they can assist their children with learning in the home (Rasinski & Stevenson, 2005). Via such efforts, teachers can ensure that parents are comfortable in terms of helping their children with learning activities.

From the interviews, it is clear that teachers want parents to be involved in the learning process in order to learn from each other, with teachers stating that they will report to parents concerning the learning progress of their child; however, some teachers stated that they will not call for parents except if they come to ask owing to several reasons, such as parents do not accept hearing bad things about their children

and that their children are different to others, unless the child does something entirely unacceptable. Teachers regard parents as incapable of coping with their children, and further believe that few of them know how to manage their behaviours. Some parents are interested and hear teachers' comments regarding their children, although other parents are not interested owing to ignorance and family problems between mothers and fathers. Furthermore, several parents are frustrated and thus frustrate teachers in spite of their children making progress; therefore, teachers want parents not to give up when they are informed by teachers that their children are not doing well. On the other hand, parents regards teachers as not knowledgeable, and thus as not listening to and/or believing them.

Teachers want the communication of parents to be based on love since they are their children, after all, and it is supposed that parents may have solutions that they can pass on to teachers—not just teachers who give solutions. Sometimes, however, parents give teachers unreasonable solutions, and so teachers may be able to break down these solutions and apply them in stages. In addition, parents may want teachers to provide comments and advice in an appropriate way, with some parents revealing that the way in which teachers deal with them made them uncooperative.

One teachers pointed out that the extent of the willingness of parents to learn concerning children's difficulties will form a cooperative team. It is important that parents consider it important that parents accept this problem and live with it. Teachers need parents to be involved for several reasons, such as being under pressure, having a high number of students, and completing the curriculum. In this regard, teachers pointed out that, from their experience, several children do not care a lot about their education, and their parents are also not concerned regarding the education of their children.

On the other hand, parents believe that many teachers do not choose to work in the teaching domain for teaching and educating purposes, whilst teachers revealed that they themselves differ in the ways they view their job—whether they consider it to be humanitarian or just a job. They also vary in their desires to make the effort, although there is the view of a parent that teachers are not responsible for these

children: all they need to do is to inform their parents. Therefore, although some teachers see parents as a source of delivering and spreading awareness about ADHD, some parents do not regard teachers as such because of their lack of knowledge regarding ADHD.

Consistent with Baker (2003), the dilemma with parent–teacher collaboration is that teachers frequently suppose that parents know how to assist their children with activities. In actual fact, Baker (2003) argues that parents might not know how to assist their children. There are several home environment aspects that have an effect on the way the child performs in schools (Dandridge, Edwards & Pleasants, 2000). In this regard, it is vital for the home and school to have a positive relationship in order for children to gain the most from their learning (Lynch *et al.*, 2006; Neuman, 2000).

Leseman & de Jong (1998) are in agreement that teachers have to assist parents in learning how to take part in activities at home. Additionally, Handel (1999) supports the view of Steinberg (1996) that teachers have to attempt to understand families better. Consequently, it is significant that teachers do not presume that parents know what to do (Baker, 2003). Baker (2003) believes that teachers should give guidance, establish confidence, and permit parents to visit their classroom. Teachers ought to give advice to parents. Nevertheless, parents ought to give advice to teachers regarding their own children (Baker, 2003).

One problem associated with the involvement of parents is that parents and teachers have dissimilar views or perceptions on what the involvement of a parent is (Hughes & MacNaughton, 2000; Lawson, 2003), and a variable of culture could alter ideas on the involvement of parent (DeMoss & Vaughn, 2000). Owing to the conflicting visions surrounding the involvement of parents, teachers believe that parents are not involved in their children's schooling; however, when conversing with parents, they stated they were involved owing to items they are doing with their children that teachers are not conscious of or do not personally consider to be relevant in terms of parent involvement. Besides, it is vital for teachers to understand the home

environment from which their pupil comes, facilitating their capacity to make a better relationship between home and school (Edwards, 1995).

Based on the findings of this research, it appears that there is a necessity to present programmes for teachers that assist them in understanding and developing approaches for functioning with parents (Linder & Foote, 2003).

Teachers played a critical role in connecting parents with resources to help them in managing the difficult behaviour of their child. However, teachers in this study mentioned that they suggest parents have their children examined by a health professional. It is broadly documented that the school frequently makes the initial proposition to parents in relation to having a child reviewed by a health professional in order to investigate the likelihood of ADHD (Ingersoll, 2003). Medical dialogue dominates the point of view of teachers, who primarily point out to parents that the challenging behaviours of the child can be owing to biological factors. The teachers recommend parents to seek professional health support since they were conscious of the difficulties parents experience at home, and agree concerning the stress parents are under. However, teachers were not merely worried concerning the behaviour of the child, but rather that the child could have learning disabilities. The children were neither capable of continuing on with the tasks in the classroom, nor of generating any sort of schoolwork. Therefore, teachers believe that professional support is the most suitable action.

From the findings and also according to the ecological model, it has been found that, within the microsystem where parents or teachers and children with ADHD interactions take place— parents and teachers come into direct contact with children with ADHD. Within the home and classroom settings, children with ADHD and the complexity that might co-morbid with it is displayed to parents and teachers. A shortage of knowledge on ADHD might contribute to such individuals feeling that they need further support and help from others, as well as from specialists.

Within the mesosystem, teachers encounter parents of the children with ADHD who contribute to the teaching as well as learning which occurs in classrooms which is reflected in parents helping children with ADHD with their homework, looking for

remedial education when required and searching for health care professionals who are able to present extra treatment and care when required. However, for parents and teachers to be achieving in their teaching and learning of children with ADHD, it is necessary for them to communicate with each other. They cannot teach children with ADHD in isolation, devoid of knowing and getting support from each other. Therefore, parents and teachers need to be capable of working as counterparts.

The meso-, exo- and macrosystems might provide the children, parents and teachers with specialised knowledge and training concerning ADHD. For instance, the parents and the Department of Education might affect teacher's knowledge of children with ADHD. Parents could support teachers with further information about the children whilst helping them with homework, whereas the Department of Education could provide them with the necessary training that improve their teaching skills and practices. Furthermore, within the school environment, teaches may ask for support and help from their colleagues, the Head Department, and the Principal or Head Teacher.

The community, which might comprise the district local authority of Education, educational specialists and the professionals of health care, might contribute to the support of the children, parents and teachers. The Education Department and the professionals of health care might contribute to the treatment and care of children with ADHD. The association between the systems of health care and the public schools necessitate to be enhanced in order for children with ADHD to obtain the appropriate care and treatment. The meso- as well as exosystems within the ecology of homes, schools and communities influence the experiences of parents and teachers within homes and classrooms, the matter that will have an impact on children with ADHD.

Even if the linkages between parents, teachers (the mesosystem) and macrosystem occur, it is necessary that they are strengthened through the communication and the support that take place between them and the other involved parties, such as the Education Department, educational specialist, professionals of the health care. In addition, the relationship between parents and teachers has to strengthen with the

community in order for them to get the necessary support. As mentioned previously, the exosystems, which is the Education Department, educational specialist, the professionals of health care might provide parents and teachers with specialised knowledge and training concerning ADHD that is not presently being sufficiently given.

8.7 Strengths of the Study

The strengths of this research are emphasised in two main areas: theory and methodology.

8.7.1 Theory

- There is an association between this research findings and previous findings in researching knowledge and beliefs of ADHD. Since the research confirms previous findings in a diverse cultural context, it ecologically validates previous theoretical suggestions. Nonetheless, the research presents diverse findings that are unique and exclusive to this exact context, which provide a culturally situated dimension, and which must be added to the broad international studies based on the knowledge and beliefs of children, their parents, and teachers regarding ADHD.

- The ecological model (Bronfenbrenner, 1979, 1986, 1999) has strengthened the research, which has guided the researcher in deciding and choosing to concentrate the study on children with ADHD, as well as on their parents' and teachers' knowledge and beliefs surrounding ADHD, since they considerably contribute to the successful process of learning in addition to development of such children, and assist in terms of obtaining a general understanding concerning the problem of the research and a clearer picture of the present situation of ADHD in KSA.

- This research, to the best of the researcher's knowledge—is the first attempt to investigate the knowledge and beliefs of children, parents, and teachers in Saudi Arabia in the context of ADHD. In Saudi Arabia, there is no data of research in the field of understanding and determining the knowledge and beliefs of ADHD, as well as their valued people, concerning the disorder.

- The conclusion of the research pointed to several research areas, and brought about a number of recommendations that would be useful and helpful in terms of enhancing knowledge and beliefs concerning children with ADHD in KSA (Sections 8.9, 8.10).

8.7.2 Methodology

- This study involved speaking to children themselves, as well as their parents and teachers, concerning their knowledge and beliefs, and their social experiences of ADHD. This was important since, the researcher believes children ought to be given the right to articulate their views in every matters influencing them and that it is the parents who usually know their children best. This was obvious considering that parents can compare and contrast teachers, which parents had found to be efficient for their children.

- When comparing other studies investigating the same matter and conducting a contrast with most SEN educational research in Saudi Arabia, which are located within the positivistic quantitative paradigm of research (for example Al-Mosa *et al*., 2006), this research is seen to be distinctive for the reason that it has utilised multiple sources of data and triangulation with the objective to document and verify data interpretations. The data was collected from several groups in order to give a voice to several parties. This research is underpinned by a careful research design wherein a mixed-method follow-up explanations model has been followed, starting with questionnaires, followed by semi-structured interviews. Quantitative data presented a preliminary point from which qualitative interviews were collected in order to gather more understanding and insight into children's, parents' and

teachers; knowledge and beliefs concerning ADHD; therefore, this research utilised a range of methods and sources from which information was gathered; this presented a comprehensive description and complete understanding of the topics under examination. A variety of sources and methods of data-gathering (questionnaires and interviews) assist methodological as well as participants' (children, parents and teachers) triangulation.

- The participants involved in this research varied in terms of their demographic details: for example, children differed in their gender, school type, school location, whether or not they had been diagnosed with ADHD, learning disabilities, medication consumption, type of ADHD, and the qualifications of their parents. Their parents differed in their gender, school type, home location, whether or not they had been diagnosed with ADHD, learning disabilities, medication consumption, type of ADHD, qualifications, attended training, and holding the required information and skills. Finally, teachers differed in their gender, school type, experience of teaching, school location, experience in teaching a child with ADHD, attended training, holding the required information and skills, and their qualifications. Thus, it can be stated that the sample emerges representative of the wider population of Saudi children, parents, and teachers.

8.8 Limitations of the Study

Although this research produces significant outcomes that might be considered a base for future studies, there are nevertheless various limitations that ought to be acknowledged prior to the drawing of conclusions; therefore, prior to making any proposing any implications in the future and recommendations for further studies, the limitations of this research need to be considered. This means that the findings of the current research need to be interpreted in light of the number of limitations demonstrated through this section, in addition to those mentioned previously. The limitations needing to be acknowledged in this section include the following:

8.8.1 Data Collection Methods

- The data collection approach adopted during the course of this research contains questionnaires and interviews. Essentially, the techniques of questionnaires and interviews are self-report measurements designed to query the respondents in terms of themselves, their practices, and their perceptions in regard to the relevant context (Creswell, 2003). This sort of measurement could be likely sources of unreliable responses for three reasons: the participants might exaggerate in order to shed extra light on the subject and present it as a critical and serious topic so as to draw more attention to it; they might be embarrassed to mention their true answer; or they might forget the true account.

- In the case of the children's questionnaires, the format of the true-false questionnaire might have inflated the respondents' scores owing to the fact that there is the possibility that respondents provide the correct answer by guessing (Sciutto, Terjesen & Frank, 2000).

- A greater number of 'I don't know' answers were attained from teachers more so than parents, which can be indicative of a further cautious answering pattern amongst teachers given that teachers may be more reluctant to reveal their true beliefs and perceptions regarding sensitive issues in an attempt to avoid blame or responsibility. This might explain their lower scores using the KADD-Q.

8.8.2 The sample

- An additional limitation is associated with the small number of children, parents and teachers that participated in the research interviews, which may provide less representative results. Without doubt, conducting the research with sometimes no differences between groups in terms of demographic

characteristics, owing to the fact that some subgroups did not participate, might lower the overall capability of generalising the findings, especially when it is not possible to determine whether or not those who participated were dissimilar from those who did not participate, either because they are busy or not confident enough. This limited the ability to identify any significant differences between the groups. In this same vein, owing to recruitment difficulties, there was an over-representation of males in the questionnaires, whilst females were over-represented in interviews. For example, the children interviews sample gained for this research contained only girls, which therefore limited the analyses performed and thus decreased the possibility to detect gender-related results in terms of differences. It is doubtful that some findings gained through this research might be gender-biased.

- Although a more representative sample was intended, the sample was mostly located on the north quarter of Jeddah city because most schools for children with ADHD are in the north quarter; thus, the findings might not represent participants in other quarters. There might have been a self-selection bias where participants who decided to take part might have more motivation, experience, or knowledge than participants who declined involvement. A further limitation is the uncertainty surrounding the severity of the ADHD-related characteristics displayed by the children in the homes and schools of contributing parents and teachers. If parents and teachers had merely had experience with children with milder symptoms, they may not believe that several interventions are essential or suitable.

- The diagnosis process is problematic. As a medical label with no reliable biological indications, diagnosis is given to a child on account of an expert view, and the gathering of subjective reports concerning the symptoms of a child (Nylund, 2000). Accordingly, it is likely that a number of children are given the label 'ADHD' when they do not actually have the condition (Stein, 2007). The inconsistency of the diagnoses of ADHD is another limitation owing to the fact that children with ADHD have been diagnosed by diverse doctors—namely paediatricians, psychologists, psychiatrists, etc.—at various

institutions, perhaps utilising dissimilar diagnostic instruments and procedures of assessment.

8.8.3 Reliability

- The reliability of children's accounts might be questioned. Being interviewed by a school psychologist, where the questionnaire questions had been read to the children by their parents or teachers, it could be argued that children would express purely positive or biased perceptions concerning teachers. Nevertheless, this limitation does not apply to this research as the children interviewed exposed negative incidents and conceptions based on their own experiences, which is consistence with questionnaire findings.

- The findings might be open to participants' inclination to provide socially desirable answers and therefore reproduce the dominant discourse of ADHD. Participants' caution against a social desirability bias affecting information towards further positive answers (Dosreis *et al*., 2003). With this in mind, the findings are limited by the measures utilised in gaining views concerning medication, and perhaps suffer from biases of social desirability. Efron *et al*. (1998) admitted that children in their research might have given socially suitable responses, or repeat their parents' remarks about their manners.

8.9 Suggestions for Future Research

It is recognised that further studies are needed owing to the lack of researches on the subject of this study within the context of Saudi Arabia. Thus, based on the findings of the current research, and with the purpose of overcoming the limitation of this research, this study proposes various areas to be taken into account in future studies and research. These are considered below.

8.9.1 Data Collection Methods

- The collected qualitative data in this research could offer a foundation for quantitative instruments development in the future.

8.9.2 The sample

- There is shortage of studies involving children with ADHD in Saudi Arabia. Consequently, studies focusing primarily on caring for children with ADHD are significant for supporting decision-makers in the country with the necessary information required for drawing national development policies.

- The sample or the participants in this research were from Jeddah city where, as stated previously, people from different social classes and Saudi regions are distributed; however, further investigations covering other populations from different cities for the purpose of verifying the results of this research would be required. A study covering populations living in remote areas far away from cities, such as villages and deserts, is also required, as such people are considered disadvantaged and do not get much attention owing to a lack of services and resources; thus, a future study is required to extend results from this research to other samples with further varied characteristics.

8.9.3 The Focus

- Future studies need to look at other ways of allowing children, parents and teachers to obtain accurate information concerning ADHD and the management methods. With the shortage of suitable ways, children, parents and teachers, as appeared in this study, might depend on information from the media where there is a potentially high risk of misunderstanding.

- Parents and teachers are the main significant factors relevant in the management of ADHD in homes and classrooms (for example Ysseldyke & Christenson, 2002). Evidently, there is a need for research documenting the

advantages of parents' training and professional development, correcting parents' and teachers' misconceptions, and assisting both parties in their practices. Training teachers on the subject of ADHD at an undergraduate and/or graduate level might, in addition, be an area for future studies centred on assessing the quality and comprehensiveness of existing ADHD training. This investigation could consider the university curricula and in-service workshops for teachers. Importantly, it is considered that strengthening multiple levels of training may help in reducing misinformation concerning ADHD and to thereby raise knowledge in areas of ADHD (Bekle, 2004).

- More studies are essential in order to determine whether or not the increasing knowledge and resolving misconceptions of children, parents and teachers relating to ADHD might impact their beliefs of the conditions and evidence-based interventions—eventually having an effect on their choice and adherence of treatment.

- Whilst the results of this research concentrate on theoretical factors, such as the knowledge and beliefs of children with ADHD, their parents and teachers, further studies could be carried out for the purpose of drawing a wider view concerning practical factors, including the process of implementation, in addition to various relevant factors that may either positively or negatively affect the success of the implementation process.

- Research necessitates considering the ways in which parents and teachers of children with ADHD can come to an enhanced understanding of the meaning and significance of parental involvement; it would be more helpful for parents and teachers to come together jointly to share their perspectives on the form parental involvement should take.

8.10 The Implications of the Study

This research has shaped a set of significant implications. Whilst several theoretical, political and practical implications have previously been recommended during the course of this chapter, the research findings nevertheless propose a number of

implications addressed in relation to children, parents and teachers, in addition to schools that ought to be considered in relation to the aim of enhancing ADHD situation in Saudi Arabia. However, it is important to note that the beliefs from other countries might be considerably different to those in Saudi Arabia; thus, expanding the implications of the findings of such research to other countries ought to be done with substantial caution. The implications in this section include those considered in the following section.

8.10.1 Theoretical Implications

- According to the ecological mode, there is a need to ensure that the voice of children is heard whilst performing a research—even when this is not the focus of the research (Sugden, Kirby & Dunford, 2008). Children ought to be provided with the right to articulate their views freely in every matter influencing them, and also be afforded the opportunity to be heard concerning their views (UN 1990). In actual fact, as in Saudi Arabia, children experience little opportunity to state their views in school in affairs influencing their lives. As an alternative, the educational system views them as children, and therefore every decision concerning them is taken by adults in authority, whether parents or teachers (Marshall, 1996). In reality, schools function mostly in an adult-centred framework, with little influence on the status of children (Rose & Shevlin, 2004). Hamill & Boyd (2002a) note that several children stay silent and are not in a position to impact 'policies and practice that form their lives' (Hamill & Boyd, 2002a, p. 111). Children could be very valuable respondents in structured as well as unstructured data collection methods, such as questionnaires or interviews (Scott, 2008: 88). They are capable of providing insights into a world that adults cannot access without their insights. When utilising children as participants, however, it is vital to take their age and cognitive capability into account, and thus make sure a suitable methodology—for instance, a good level of language and comprehension—is taken into account (Greig & Taylor, 1999).

- Consistent with the ecological model, the views of parents and teachers are deemed significant, and could have a considerable influence on the way in which a child behaves, as well as their corresponding beliefs (Robinson, 2000). Therefore, by supporting parents' and teachers' in viewing ADHD as socially constructed, it might be possible that their beliefs can be moved on to viewing displayed behaviours as manageable and alterable. Moreover, owing to the reality that several children with ADHD show challenging behaviours (Section 3.3.3), parents and teachers need to be able to recognise their individual needs and the general nature of ADHD because if they believe that ADHD is caused by poor parenting or sugar, they might then be less supportive and willing to assist in the home and classroom setting; on the other hand, however, if they develop awareness of ADHD on a biological basis, they might then become more supportive and familiar with individual differences, and therefore give more suitable support to each other.

- In agreement with the ecological model, the differences in knowledge and beliefs between children, parents and teachers might influence each other and might need to be known by each other (bi- tri-directional). For example, within the mesosystem, discrepancies between teachers' and parents' knowledge and beliefs might bring about tension between them, and consequently may have a negative effect on children (Section 8.6). In this regard, children might notice or feel this tension between their parents and their teachers, which could lead to confusion and/or stress for them (Section 8.6). Moreover, if parents and/or teachers are dissatisfied with each other, they might subsequently talk badly to children concerning the other, which might then cause trouble for children (Section 8.6). As a result, it is important for parents and teachers to arrive at a better understanding concerning the involvement of parents. It is considered that parents are supposed to be respected, as the main guardians of their children, and consequently promoted to peruse and maintain a chief role in their child's management.

- The ecological model which addresses the impacts of reciprocal interactions amongst diverse subsystems within a child environment (Bronfenbrenner,

1979; 1986) can present the essential foundation for designing and implementing effective approaches of intervention and service delivery for children with ADHD. However, the differences in knowledge and beliefs between children, parents and teachers might alter views and practices in the future. This can also impact at a meso and macro level influencing government, education etc who provide children, parents and teachers with specialised knowledge and training regarding ADHD. Thus, for example, the support that teachers receive from these systems (for instance parents and the Department of Education) may influence their knowledge of children with ADHD.

8.10.2   Political Implications

8.10.2.1 For Children:

- Children with ADHD necessitate to be learnt as well as supported in all aspects of ADHD (Section 8.2).
- Motivating children to discuss means in which they be able to manage ADHD, as well as encouraging conversation and discussions with parents and teachers relating to any difficulties and challenges they experience.
- Children should be given the right to articulate their views freely in any affair affecting them (UN, 1990), and to play a role in the multidisciplinary team intervening ADHD.

8.10.2.2 For Parents:

- Parents of children with ADHD need to be educated as well as supported in all ADHD aspects (Section 8.3).

- Motivating parents to read and discuss ways in which they can manage ADHD, as well as encouraging dialogue and discussions with the child concerning the importance and benefits of the interventions methods.

8.10.2.3 For Teachers:

- Since teachers are frequently the first ones to identify ADHD characteristics (Snider, Busch & Arrowood, 2003), it is necessary for them to draw upon an updated and accurate knowledge base as they interact with parents and physicians.
- There is the need to intensify the efforts of teachers to encourage parents' collaboration with schools. Establishing a partnership between parents and teachers is recognised as being essential (Section 8.6).

8.10.2.4 For Educational Local Authorities:

- Schools, as wanted by parents, need to have an open-door policy, meaning parents believe that they are capable, and invited to be at schools whenever needed. Through this study, it has become apparent that some parents do not feel welcome at their children's schools, and so schools need to brainstorm on methods that may help to make parents feel welcomed at schools. Importantly, if parents feel comfortable and valued at schools, they are more likely to respond attentively to what is stated by such educational establishments.
- Parents and teachers need to be supported by selecting reading materials that reflect information on the subject of ADHD which is well researched, validated, and also aimed at different levels of understanding (Section 8.3, 8.4). The information sources concerning ADHD that parents and teachers mentioned—mainly in this research—are significant for educational local authorities and training programmes to take into account. Notably, parents

and teachers seemed eager to learn further about ADHD, and showed a true will to do so with 80% of the present sample stating an interest in further training.

8.10.3 The Practical Implications

8.10.3.1 For Children:

- Children with an ADHD need to attended a workshop of demystification in order to gain knowledge concerning ADHD (MacKay & Corkum, 2006). The demystification object ought 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 (Levine, 1999). 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 (Section 8.2).

8.10.3.2 For Parents:

- Parent training ought to concentrate on encouraging pro-social in addition to self-regulating behaviours, managing disruptive behaviours at home, and decreasing parent-child conflicts (Section 8.3). Intensive parental training and support have led to enhanced parental behaviour, reduced maternal stress, and decreased oppositional child behaviours (Danforth, 1998; Loeber *et al.*, 2000). Drawing on Teeter (1991), education and training programmes for parents are vital to the process of achieving social and academic results for children with ADHD. Overall, parent-training interventions seek to positively influence the functioning of parents and parent-child interactions so that, sequentially, the child's behaviours are positively influenced. More specifically, programmes centred on parent training are most frequently designed to assist parents in developing an understanding of the likely causes

behind their child's behaviours in order to recognise and manage the stress of parents caused by such behaviours, thus facilitating their capacity to cope with disobedience and teach obedience, and to thereby raise the quality of parent-child interactions (Batsche & Knoff, 1994; Rasinski & Padak, 2004).

8.10.3.3 For Teachers:

- Teachers ought to be given pre-service and in-service training about ADHD, in addition to behavioural management and academic interventions pertaining to children with ADHD (Section 8.4). Such training ought to be supplemented with on-going consultation and/or support. Pre-service teachers also ought to be offered the chance to work with children with ADHD throughout their practical teaching, and may be better able to apply the skills and strategies gained through their recent education. This suggestion is based on the findings obtained in this research (Section 8.4) and the study by Sciutto (2000), which denote that the actual knowledge of teachers is associated with exposure of these children.

8.10.3.4 For Schools:

- The implications suggested to schools in this research are similar to what has been stated in the literature concerning the schools concerned in involving parents (Section 8.6). Thus, schools should engage parents and teachers in meetings and discussions, which assist both groups in exchanging ideas concerning the involvement of parents. Teachers need to understand as well as learn to accept the broader outlook of parents in terms of their involvement (Section 8.6). This implication is derived from the findings concerning the agreement of both parents and teachers on the importance of parents' involvement; however, there is discrepancy concerning the way in which this would manifest. As a result of this discrepancy in terms of parents' involvement, an additional disagreement has become apparent between parents and teachers concerning the satisfaction level both have in relation to the amount and level of parental involvement.

- Schools should be aware of the barriers restricting parents in getting involved (for example Harris & Goodall, 2007). As shown through this study, teachers are not conscious of the barriers faced by parents. In this regard, schools ought to plan events and meetings around the schedules of parents; thus, parent meetings need to be held at flexible times of the day, perhaps on several days, and children's interests necessitates being available at all events and meetings. It is significant that parents be kept informed about the chances to be involved and of the activities carried out in the school. From the researcher experience, although parents might not be present at school, they might be active and interested in the education of their children. Part of the teacher's role in the Guide for teachers of learning disabilities is ensuring the parents are kept informed of what is happening in schools and of any opportunity to be involved (Abdulelah, 2003). Accordingly, parents ought to be reminded continuously via notes, calls, and daily conversations that they are required and wanted at the school if they are truthfully needed, as well as what opportunities of involvement there are at the school.

8.11 Summary

With the purpose of connecting the discussion with the research study results, this chapter has revisited the research study questions connected with the key results in order to draw attention to issues connected with the knowledge and beliefs of children, parents, and teachers regarding ADHD in a Saudi context. The analysis—in conjunction with the major findings—acts as the foundation for discussing the research outcomes. The discussions of the results are supplemented with the base of literature, in addition to the research implications and recommendations for further studies on this subject. The conceptual frameworks and methods of data collection contribute to the researcher being capable of responding to the questions of the research.

Chapter Nine: Conclusion

9.1 Introduction

This research has examined children with ADHD, their parents' and teachers' knowledge of, and beliefs surrounding, ADHD, in addition to their perceptions toward each other with regard to the disorder using a mixed method approach. The clarity and logic study enables findings to be contextualised and understood.

This chapter commences through providing an overview of the research and emphasising the key conclusions, and continues by highlighting its contributions (Section 9.2).

9.2 Overview of the Study

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most worldwide widespread childhood behavioural disorders, and it is estimated that approximately 16% of children in Saudi have the condition (Al-Hamed *et al*., 2008). It has been agreed that the statistics that propose that 1–2 children in each classroom has ADHD (DuPaul & Stoner, 2003) is very probable, with parents and teachers experiencing challenges associated with capability helping a child with ADHD. If parents and teachers are to efficiently help such children, they need to build and sustain knowledge associated with ADHD.

ADHD is, at present, understood mostly through a medical viewpoint, and from that perspective, the treatment suggested is stimulant medication. It is a mental health label diagnosed consistent with the categories worded in the Diagnostic Statistical Manual.

Thus far, there are no medical examinations to be undertaken that can demonstrate whether or not a child has ADHD; therefore, this study concentrates on an

alternative perspective of ADHD. Focusing on children's, parents' and teachers' experiences of ADHD argues that behaviour is socially constructed and affected.

In Saudi Arabia, it is since inadequate attention has been assigned to the children's, parents' and teachers' 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. As the ADHD classification is based on a behaviour analysis, the ADHD diagnosis is subjective, to some extent, and consequently inaccurate. In this regard, there is a difference between children who, in fact, have ADHD, and those who show symptoms of ADHD, either as a means of gathering attention or as a consequence of emotional and/or behavioural difficulties. Therefore, the label might be suitable to a number of cases, but not so in the case of others. This study has considered the effects associated with ADHD. By enabling children, parents and teachers to express their knowledge and beliefs surrounding ADHD, a perspective on this issue is provided.

The motivation behind pursuing this PhD study was to learn how to contribute to the field of knowledge and beliefs of ADHD of children, parents and teachers in Saudi Arabia. This process has promoted a great deal of growth in the researcher's professional role as a researcher and a teacher. Not merely have the researcher learned from his own research the situation of ADHD in Saudi Arabia, but undertaking his own study has evolved his intellectual interest and encouraged him to look beyond his daily routine to enquire questions concerning why such knowledge and beliefs exist and how to correct them, as well as the characteristics of effective workshops for children, parents and teachers. Whilst the researcher has at all times had an appreciation for the research community worth as a rich source of more efficient practices, the researcher, at present, can enter discussions with other researchers and policymakers more contentedly and confidently.

Having defined and deemed ADHD in a Saudi context, as well as the significance of children's voices and recent studies conducted in this arena, it can be seen that there is a study area that would be interesting to explore. The significance of this particular research is already clear since it might throw light on the ways in which things may be enhanced in home and school in relation to ADHD. Establishing the views of children with ADHD, their parents and teachers could create an understanding of how their needs can be fulfilled. Through specifically considering their perceptions towards each other whilst examining whether or not there are differences in terms of several variables, the researcher suggests that rich data would be generated, which would help to shed light on the views of enhancing the situation of ADHD in Saudi Arabia. Importantly, it is expected that the findings of this study may be utilised to promote consciousness and knowledge of ADHD in the Saudi Arabian society.

The significance of this study stems from diverse considerations. This research, to the best of the author's knowledge, is the first attempt to investigate the knowledge and beliefs of children with ADHD, and the parents and teachers of such children, in the Saudi Arabian context. It has been established that, in the Kingdom of Saudi Arabia, there is no data from research in the field of children with ADHD learning in schools, particularly in terms of understanding and determining their knowledge and beliefs, in addition to their values and thoughts surrounding the disorder. This research has involved speaking to children themselves, which is unusual in Saudi Arabia. This was important since this research believes children ought to be given the opportunity to articulate their views in every matter that affects them.

Parents and classroom teachers are the most beneficial resources with regard to the diagnosis of ADHD, purely because of their daily contact with children where high demands are placed on children's regulatory skills and in an environment where the notable symptoms of the disorder are demonstrated. In addition, they play a significant role in the multidisciplinary team managing ADHD; therefore, there ought to be studies and access to the plethora of studies in order to deepen understanding of the notable interactions of the cognitive, biological and

psychological factors of ADHD, so as to better help in the identification and treatment of ADHD in the home and school environments.

In this research, in contrast with most SEN educational research in Saudi Arabia located within the positivistic quantitative paradigm of research (for example Al-Mosa *et al*., 2006), a mixed-method research approach was implemented in order to investigate children's, parents' and teachers' knowledge and beliefs concerning ADHD in Saudi Arabia. The quantitative data from the questionnaires provided a first data set. The questionnaires findings probe led to make interviews data in order to present insights into knowledge and beliefs of children, parents and teachers ADHD in Saudi Arabia. During the interviews, the researcher in addition sought to determine if the questionnaires' items were interpreted consistently and the participants had rationales for their answers. Utilising qualitative data place the researcher in a better situation to understand the quantitative data more accurately and be aware of perceptions and feelings of the participants concerning several aspects surrounding ADHD. The participants' interviews were in general consistent with their knowledge and beliefs as illustrated in the questionnaires. Interviews had presented a plausible justification, suggesting additional support for the questionnaires validity. Counting the data of the interviews was fundamental for making sense of the findings of the questionnaires.

When the researcher takes an active role in the research process, he/she must ensure a deeper perceptive of the chosen social phenomenon to be studied (Silverman, 2000). A researcher forms a vital element of the process through bringing his unique experiences and perceptions to the research process, observing and partaking in the data collection. The researcher contributed through ensuring efforts to understanding, discovering and empathising with the participants; therefore, there is not a great dependency on quantitative facts (Parker, 1994).

In agreement with the previous studies, children, parents and teachers were, to some extent, knowledgeable regarding ADHD characteristics, but notably less informed concerning treatment. In this regard, descriptive contrasts between children, parents and teachers propose there were a number of similarities, as well as several

dissimilarities, in regard to which was well-known, as well as which was not. Parents and teachers were found to hold to a certain extent similar visions, although the former, in general, stated being less confident in their information and skills when attempting to handle children with ADHD. Participants presented an insight into the challenges faced in both the home and school environment. Uniquely, this research—besides involving some individuals with a formal diagnosis of ADHD, as provided by a medical profession—also comprised pupils in schools wherein the teachers used this label about some children, including in communications with the parents. Accordingly, in the case of both groups, the label has been used with the family by one or more professional: using both routes provided a more representative sample.

Most demographic variables were not related to the knowledge of ADHD of children, parents and teachers. The researcher was eager to establish whether knowledge and beliefs would be different or similar across diverse socio-economic quarters of the city of Jeddah; however, this was applied to parents only. The finding that mothers are more knowledgeable than fathers was unexpected, even though it is expected in the Western countries, as fathers seemed to be responsible for such cases.

Derived from the presented information, children, parents and teachers necessitate supplementary courses and knowledge in the ADHD area and interventions for ADHD with the aim of successfully assisting children with the condition as well as equipping them for dealing with this disorder in home and school environments. Dissimilarities in ADHD in regard to understanding between parents and teachers highlight the value of developing a collaborative stance within the school environment. Most respondents reported workshops as providing helpful education, as well as an efficient way of sharing information relating to ADHD.

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Appendices

Appendix A: Participant Consent Form

Title of Research Project: THE KNOWLEDGE AND BELIEFS CONCERNING ADHD HELD BY CHILDREN, PARENTS AND TEACHERS IN SAUDI ARABIA

Name of Researcher: MOHANED ABED

Initial the box if you agree with the statement to the left

1   I confirm that I have read and understand the information sheet dated *[insert date]* explaining the above research project and I have had the opportunity to ask questions about the project.

2   I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.

3   I understand that my responses will be kept strictly confidential. I give permission for the researcher to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.

4   I understand that the Lead researcher of this study will attempt, as far as possible, to avoid any risks of psychological harm or upset associated with discussing such a difficult topic.

5   I agree for the data collected from me to be used in future research.

6   I agree to take part in the above research project and will inform the principal investigator should my contact details change.

_____   _____   _____
Name of participant   Date   Signature
(*or legal representative*)

_____   _____   _____
Name of person taking consent   Date   Signature
(*if different from lead researcher*)
To be signed and dated in presence of the participant

_____   _____   _____
 Lead researcher   Date   Signature
To be signed and dated in presence of the participant

Copies:
Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be kept with the project's main documents which must be kept in a secure location.

Date: _____   Name of Applicant: _____

Appendix B: DSM-IV-TR Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder

The following diagnostic criteria for ADHD are specified in the DSM-IV-TR:

A. Either (1) or (2):

   1. six (or more) of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

      Inattention

      a. often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

      b. often has difficulty sustaining attention in tasks or play activities

      c. often does not seem to listen when spoken to directly

      d. often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

      e. often has difficulty organizing tasks and activities

      f. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

      g. often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)

      h. is often easily distracted by extraneous stimuli

      i. is often forgetful in daily activities

   2. six (or more) of the following symptoms of **hyperactivity-impulsivity** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

      Hyperactivity

      a. often fidgets with hands or feet or squirms in seat

      b. often leaves seat in classroom or in other situations in which remaining seated is expected

      c. often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

      d. often has difficulty playing or engaging in leisure activities quietly

      e. is often "on the go" or often acts as if "driven by a motor"

      f. often talks excessively

      Impulsivity

      g. often blurts out answers before questions have been completed

      h. often has difficulty awaiting turn

      i. often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

The DSM-IV-TR specifies a code designation based on type:

314.01 **Attention-Deficit/Hyperactivity Disorder, Combined Type:** if both Criteria A1 and A2 are met for the past 6 months

314.00 **Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type:** if Criterion A1 is met but Criterion A2 is not met for the past 6 months

314.01 **Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type:** if Criterion A2 is met but Criterion A1 is not met for the past 6 months.

Coding note: For individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, "In Partial Remission" should be specified.

314.9 **Attention-Deficit/Hyperactivity Disorder Not Otherwise Specified:** This category is for disorders with prominent symptoms of inattention or hyperactivity-impulsivity that do not meet criteria for Attention-Deficit/ Hyperactivity Disorder. Examples include:

1. Individuals whose symptoms and impairment meet the criteria for Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type but whose age at onset is 7 years or after

2. Individuals with clinically significant impairment who present with inattention and whose symptom pattern does not meet the full criteria for the disorder but have a behavioral pattern marked by sluggishness, daydreaming, and hyperactivity

Appendix C: Children's ADHD Knowledge Questionnaire

Section A: Knowledge

Instructions: Please listen to each of the following statements and answer True if you agree with the statement, or answer False if you do not agree with the statement.

		True	False
(1)	All kids with ADHD are hyperactive	❒	❒
(2)	The only treatment for ADHD is medication	❒	❒
(3)	There are more boys than girls diagnosed with ADHD	❒	❒
(4)	Most kids have ADHD	❒	❒
(5)	Kids with ADHD sometimes act before they think	❒	❒
6)	ADHD happens because you are allergic to something in the air	❒	❒
(7)	When kids with ADHD become teenagers their problems automatically go away	❒	❒
(8)	Medication will cure ADHD	❒	❒
(9)	Parents and teachers can learn how to help kids with ADHD	❒	❒

(10) Treatment for ADHD is only needed for kids, not ☐   ☐
      adolescents or adults

(11) ADHD is due to differences in the way kid's brains work ☐   ☐

(12) Only boys (not girls) can have ADHD ☐   ☐

(13)   ADHD is caused by troubles at home ☐   ☐

(14) Very few kids have ADHD ☐   ☐

      (e.g., only 1 or 2 kids in my school)

(15) Unless things really grab their attention, kids with ADHD ☐   ☐
      find it hard to concentrate

Section B: Opinions

Instructions: Please listen to each of the following statements and rate whether you agree or disagree with the statement. You will need to pick one of the following answers: Strongly Disagree (this means that you really do not agree with the statement), Disagree (this means that you sort of disagree with the statement), Agree (this means that you sort of agree with the statement), or Strongly Agree (this means that you really agree with the statement). Try to answer as many as possible.

(16)   ADHD can be treated with message therapy

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(17)   Medication helps kids with ADHD pay attention

        1   2   3   4

Strongly Disagree   Disagree   Agree   Strongly Agree

(18)   Medication helps kids with ADHD control their behavior

        1   2   3   4

Strongly Disagree   Disagree   Agree   Strongly Agree

(19)   ADHD can go away if you eat a certain type of food

        1   2   3   4

Strongly Disagree   Disagree   Agree   Strongly Agree

(20)   It's OK for teachers to give kids with ADHD extra help in school

        1   2   3   4

Strongly Disagree   Disagree   Agree   Strongly Agree

(21)   I believe everything I hear bad about medication for ADHD

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(22)   Doctors know that medications for ADHD are safe

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(23)   Learning information about ADHD would be helpful to me

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(24)   Medication helps kids get along better with their friends and family

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(25)   My parents can help me with my ADHD

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(26)   Medication can help kids get better grades in school

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(27)   Parents can take classes to learn how to help their kid with ADHD

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(28)   You can learn ways to help yourself control ADHD

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(29)   There are ways that kids with ADHD and their teacher can work together so
        schoolwork gets done without so much trouble

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

(30)   There are vitamins you can take that make ADHD go away

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Section C: Impact

Instructions: Please listen to each of the following statements and put a checkmark in all the boxes that apply.

(31)   ADHD makes it hard for me to get along with:

- ☐ Mom
- ☐ Dad
- ☐ Brothers/sisters
- ☐ Friends
- ☐ Teachers
- ☐ Sport Coaches
- ☐ Other _____

(32)   ADHD makes it hard for me to concentrate:

       ☐ In school

       ☐ At home

       ☐ During sports

       ☐ Playing with friends

       ☐ Other _____

(33)   ADHD makes it hard for me to stay out of trouble:

       ☐ In classroom

       ☐ At home

       ☐ During sports

       ☐ Playing with friends

       ☐ Other _____

(34)   The following adults can help me with my ADHD:

       ☐ Teacher

       ☐ Parent

       ☐ School Psychologist

       ☐ Resource Teacher

       ☐ Sports Coach

       ☐ Doctor

       ☐ Other _____

(35) I can learn ways to control my ADHD on my own when I am:

❒ At Home
❒ At school
❒ With friends
❒ During sports
❒ Other _____

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!!!

Appendix D: Parents' Questionnaire

The KADD-Q (Knowledge about Attention Deficit Disorder Questionnaire)

<u>MYTHS AND BELIEFS ABOUT ATTENTION DEFICIT DISORDER QUESTIONNAIRE</u>

<u>UNLESS SPECIFICALLY STATED IN THE QUESTION ALL STATEMENTS REFER TO CHILDREN WHEN THEY ARE *NOTON* MEDICATION</u>

Please read the following statements and then place a tick (V) under the TRUE column if you believe the statement to be true or place a tick (V) under the FALSE column if you believe the statement to be false. If you are unsure or don't know if the statement is true or not then please place a tick (V) in the DON'T KNOW column. DO NOT GUESS YOUR ANSWERS.

		TRUE	FALSE	DON'T KNOW
1	Following stimulant medication, children with an Attention Deficit Disorder may become highly anxious (e.g. crying or worrying excessively)			
2	Children diagnosed with an Attention Deficit Disorder, who take stimulant medication are less likely to become addicted to other drugs			
3	Providing a child with a firm male role model is an effective treatment for Attention Deficit Disorder			
4	Children diagnosed with an Attention Deficit Disorder tend to talk excessively in class			
5	Children diagnosed with an Attention Deficit Disorder tend to be accident prone			
6	Following stimulant medication, children with an Attention Deficit Disorder may experience mood swings			
7	Stimulant medication increases a child's ability to follow rules			
8	Stimulant medication increases IQ			
9	Attention Deficit Disorder is caused by an allergic reaction			
10	Stimulant medication causes insomnia or disrupted sleep patterns			
11	Children diagnosed with an Attention Deficit Disorder tend not to finish their assignments			
12	Following stimulant medication, children diagnosed with an Attention Deficit Disorder are more able to pay attention			
13	Special diets (e.g. reduced sugar, wheat free, milk free, additive free) are an effective treatment for Attention Deficit Disorder			
14	Dietary supplements such as fish oils are an effective treatment for Attention Deficit Disorder			

15	Attention Deficit Disorder occurs in approximately 5% of all school-aged children			
16	Children diagnosed with an Attention Deficit Disorder tend to have difficulties reading other people's social cues (e.g. body language, facial expressions)			
17	Children diagnosed with an Attention Deficit Disorder tend to blurt out answers in class			
18	Attention Deficit Disorder is caused by family problems			
19	Currently, a combination of medication and behavior management is a highly recommended form of treatment for Attention Deficit Disorder			
20	Attention Deficit Disorder is caused by ineffective discipline at home			
21	Special parenting techniques are an effective treatment for Attention Deficit Disorder			
22	Children diagnosed with an Attention Deficit Disorder frequently are also diagnosed with another disorder			
23	Attention Deficit Disorder runs in families			
24	Children with an Attention Deficit Disorder experience difficulties in establishing strong family bonds			
25	Following stimulant medication, children with an Attention Deficit Disorder tend to experience improvements in their relationships with peers, parents and teachers			
26	Social skills training is an effective treatment for Attention Deficit Disorder			
27	Children with an Attention Deficit Disorder experience difficulties in forming adult relationships			
28	In order for a child to be diagnosed with an Attention Deficit Disorder, symptoms of the disorder must have been present in the child prior to the age of 7 years			
29	Children diagnosed with an Attention Deficit Disorder tend to have coordination problems			
30	Attention Deficit Disorder is caused by the inconsistent application of rules and consequences			
31	Children with an Attention Deficit Disorder tend to have difficulties following rules			
32	Following stimulant medication children with an Attention Deficit Disorder may experience tics (motor movements and uncontrolled vocal sounds)			
33	Children diagnosed with an Attention Deficit Disorder tend to engage in dangerous activities			
34	Stimulant medication works for all children diagnosed with an Attention Deficit Disorder			
35	Children diagnosed with an Attention Deficit Disorder tend to have poor handwriting			
36	Attention Deficit Disorder is caused by neurological Impairments			
37	Stimulant medications is the single most effective treatment for Attention Deficit Disorder			

38	Attention Deficit Disorder can be treated effectively by structuring a child's environment (e.g. making lists or having a routine)			
39	Electroconvulsive Therapy (ECT) is an effective treatment for Attention Deficit Disorder			
40	Children diagnosed with an Attention Deficit Disorder tend to be disorganized			
41	Biofeedback is an effective treatment for Attention Deficit Disorder			
42	Stimulant medication reduces or suppresses appetite			
43	Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking)			
44	Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behavior			
45	Stimulant medication is addictive			
46	Slow-release stimulant medication needs to be taken only once during the school day			
47	Children diagnosed with an Attention Deficit Disorder tend to be quarrelsome			
48	Children diagnosed with an Attention Deficit Disorder tend to be inattentive			
49	Attention Deficit Disorder is caused by excessive exposure to environmental substances such as lead			
50	All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go			
51	Children diagnosed with an Attention Deficit Disorder tend to have poor concentration			
52	Stimulant medication works within five minutes of taking it			
53	Attention Deficit Disorder is caused by inoculations			
54	Stimulant medication increases concentration			
55	Adults with an Attention Deficit Disorder are more likely to experience difficulties holding down a job			
56	Homeopathic remedies are an effective treatment for Attention Deficit Disorder			
57	Adolescents with an Attention Deficit Disorder are more likely than adolescents without an Attention Deficit Disorder to receive a driving conviction			
58	Children diagnosed with an Attention Deficit Disorder tend to have poor body posture (e.g. they appear to slouch, slump in their chair or sprawl across their desk)			
59	Children with an Attention Deficit Disorder have more behavioural problems in new situations than in familiar ones			
60	Attention Deficit Disorder is caused by a diet high in junk food			
61	The effects of a single dose of stimulant medication lasts for six to seven hours			
62	Attention Deficit Disorder is caused by food sensitivities			
63	Attention Deficit Disorder is caused by inconsistent parenting			

64	Attention Deficit Disorder occurs in over 10% of all school-aged children			
65	Children diagnosed with an Attention Deficit Disorder tend to be verbally aggressive			
66	Children diagnosed with an Attention Deficit Disorder tend to experience difficulties in forming and maintaining friendships			
67	Children diagnosed with an Attention Deficit Disorder tend to make careless errors			

Section B: Please read each of the following statements. Circle the number that best represents what you believe.

1. ADHD is related to teachers' use of poor discipline strategies.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

2. Training teachers in behavior management is a useful treatment for ADHD.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. ADHD results from teachers being inconsistent with rules and consequences.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. Teachers of ADHD students influence how I would manage a child with ADHD

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Appendix E: Teachers' Questionnaire

The KADD-Q (Knowledge about Attention Deficit Disorder Questionnaire)

MYTHS AND BELIEFS ABOUT ATTENTION DEFICIT DISORDER QUESTIONNAIRE

UNLESS SPECIFICALLY STATED IN THE QUESTION ALL STATEMENTS REFER TO CHILDREN WHEN THEY ARE *NOT ON* MEDICATION

Please read the following statements and then place a tick (V) under the TRUE column if you believe the statement to be true or place a tick (V) under the FALSE column if you believe the statement to be false. If you are unsure or don't know if the statement is true or not then please place a tick (V) in the DON'T KNOW column. DO NOT GUESS YOUR ANSWERS.

		TRUE	FALSE	DON'T KNOW
1	Following stimulant medication, children with an Attention Deficit Disorder may become highly anxious (e.g. crying or worrying excessively)			
2	Children diagnosed with an Attention Deficit Disorder, who take stimulant medication are less likely to become addicted to other drugs			
3	Providing a child with a firm male role model is an effective treatment for Attention Deficit Disorder			
4	Children diagnosed with an Attention Deficit Disorder tend to talk excessively in class			
5	Children diagnosed with an Attention Deficit Disorder tend to be accident prone			
6	Following stimulant medication, children with an Attention Deficit Disorder may experience mood swings			
7	Stimulant medication increases a child's ability to follow rules			
8	Stimulant medication increases IQ			
9	Attention Deficit Disorder is caused by an allergic reaction			
10	Stimulant medication causes insomnia or disrupted sleep patterns			
11	Children diagnosed with an Attention Deficit Disorder tend not to finish their assignments			
12	Following stimulant medication, children diagnosed with an Attention Deficit Disorder are more able to pay attention			
13	Special diets (e.g. reduced sugar, wheat free, milk free, additive free) are an effective treatment for Attention Deficit Disorder			
14	Dietary supplements such as fish oils are an effective treatment for Attention Deficit Disorder			

15	Attention Deficit Disorder occurs in approximately 5% of all school-aged children			
16	Children diagnosed with an Attention Deficit Disorder tend to have difficulties reading other people's social cues (e.g. body language, facial expressions)			
17	Children diagnosed with an Attention Deficit Disorder tend to blurt out answers in class			
18	Attention Deficit Disorder is caused by family problems			
19	Currently, a combination of medication and behavior management is a highly recommended form of treatment for Attention Deficit Disorder			
20	Attention Deficit Disorder is caused by ineffective discipline at home			
21	Special parenting techniques are an effective treatment for Attention Deficit Disorder			
22	Children diagnosed with an Attention Deficit Disorder frequently are also diagnosed with another disorder			
23	Attention Deficit Disorder runs in families			
24	Children with an Attention Deficit Disorder experience difficulties in establishing strong family bonds			
25	Following stimulant medication, children with an Attention Deficit Disorder tend to experience improvements in their relationships with peers, parents and teachers			
26	Social skills training is an effective treatment for Attention Deficit Disorder			
27	Children with an Attention Deficit Disorder experience difficulties in forming adult relationships			
28	In order for a child to be diagnosed with an Attention Deficit Disorder, symptoms of the disorder must have been present in the child prior to the age of 7 years			
29	Children diagnosed with an Attention Deficit Disorder tend to have coordination problems			
30	Attention Deficit Disorder is caused by the inconsistent application of rules and consequences			
31	Children with an Attention Deficit Disorder tend to have difficulties following rules			
32	Following stimulant medication children with an Attention Deficit Disorder may experience tics (motor movements and uncontrolled vocal sounds)			
33	Children diagnosed with an Attention Deficit Disorder tend to engage in dangerous activities			
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35	Children diagnosed with an Attention Deficit Disorder tend to have poor handwriting			
36	Attention Deficit Disorder is caused by neurological Impairments			
37	Stimulant medications is the single most effective treatment for Attention Deficit Disorder			

38	Attention Deficit Disorder can be treated effectively by structuring a child's environment (e.g. making lists or having a routine)			
39	Electroconvulsive Therapy (ECT) is an effective treatment for Attention Deficit Disorder			
40	Children diagnosed with an Attention Deficit Disorder tend to be disorganized			
41	Biofeedback is an effective treatment for Attention Deficit Disorder			
42	Stimulant medication reduces or suppresses appetite			
43	Most children diagnosed with an Attention Deficit Disorder act impulsively (they do things without thinking)			
44	Attention Deficit Disorder is caused by a child not trying hard enough to control his/her own behavior			
45	Stimulant medication is addictive			
46	Slow-release stimulant medication needs to be taken only once during the school day			
47	Children diagnosed with an Attention Deficit Disorder tend to be quarrelsome			
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50	All children diagnosed with an Attention Deficit Disorder appear to be constantly on the go			
51	Children diagnosed with an Attention Deficit Disorder tend to have poor concentration			
52	Stimulant medication works within five minutes of taking it			
53	Attention Deficit Disorder is caused by inoculations			
54	Stimulant medication increases concentration			
55	Adults with an Attention Deficit Disorder are more likely to experience difficulties holding down a job			
56	Homeopathic remedies are an effective treatment for Attention Deficit Disorder			
57	Adolescents with an Attention Deficit Disorder are more likely than adolescents without an Attention Deficit Disorder to receive a driving conviction			
58	Children diagnosed with an Attention Deficit Disorder tend to have poor body posture (e.g. they appear to slouch, slump in their chair or sprawl across their desk)			
59	Children with an Attention Deficit Disorder have more behavioural problems in new situations than in familiar ones			
60	Attention Deficit Disorder is caused by a diet high in junk food			
61	The effects of a single dose of stimulant medication lasts for six to seven hours			
62	Attention Deficit Disorder is caused by food sensitivities			
63	Attention Deficit Disorder is caused by inconsistent parenting			

64	Attention Deficit Disorder occurs in over 10% of all school-aged children			
65	Children diagnosed with an Attention Deficit Disorder tend to be verbally aggressive			
66	Children diagnosed with an Attention Deficit Disorder tend to experience difficulties in forming and maintaining friendships			
67	Children diagnosed with an Attention Deficit Disorder tend to make careless errors			

Section B: Please read each of the following statements. Circle the number that best represents what you believe.

1. ADHD is related to parents' use of poor discipline strategies.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

2. Training parents in behavior management is a useful treatment for ADHD.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. ADHD results from parents being inconsistent with rules and consequences.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. Parents of ADHD children influence how I would manage a child with ADHD.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Appendix F: Children's interview Schedule

The Knowledge and Beliefs Concerning ADHD Held by Children, Parents and Teachers in Saudi Arabia

Date of interview:

Length of interview:

Name of interviewee:

1) What do you know about ADHD?
Do many children have ADHD?
Why do some children have ADHD?
Are there any things that can support children with ADHD?
When children with ADHD become adults, what will they be like?
Imagine you will be learning alongside with a child with ADHD, what would you say to him/her?

2) Where did you learn about ADHD?
Are there any other places or people where you learned about it?

3) Do you think you need to know more about ADHD?
How sure are you about what you know?
What more do you want to know?
How much do you think other grownups and children know enough about ADHD?
Some people do not understand ADHD properly. How can we teach them about it?
Why do you think some people do not understand ADHD properly?

4) Is it true that some people think different things about ADHD?
Why do some people think different things regarding ADHD?
Why do some people know more about ADHD than other people do?

5) Have you talked about ADHD with anybody?	
	If you have, who did you talk to and what did you talk about? If you haven't talked about it, why didn't you?
	Do you think you need to tell people about ADHD? If so, what would you tell them?
	Where do you go for help?

6) How do parents treat children with ADHD?	
	What do they do to help them?
	What more can be done by parents to help these children?

7) How do teachers treat children with ADHD?	
	What do they do to help them?
	What more can be done by teachers to help these children?

Ending Question:

- Is there something you want to say on in relation to what we have talked about during the interview?

Note: some other questions might be asked throughout the interviews in order to further probe or to otherwise clarify some responses.

Appendix G: Parents' interview Schedule

The Knowledge and Beliefs Concerning ADHD Held by Children, Parents and Teachers in Saudi Arabia

Date of interview:

Length of interview:

Name of interviewee:

1) What does ADHD mean to you?
What do you know of its prevalence?
What causes ADHD?
What are the treatments?
What do you know of its prognosis?
Imagine you meet a parent whose child has recently been diagnosed with ADHD, what would you say to him/her?

2) Where did you learn or gather information concerning ADHD?
Please list the specific names of the sources, i.e. magazine articles, journals, professional development programmes, etc.?

3) Do you feel you have adequate knowledge regarding ADHD?
How confident are you in them?
What more do you need to know?
Do you think others have sufficient information relating to ADHD?
In your view, how can correct knowledge and beliefs be delivered?
What do you consider to be the barriers?

4) Do you believe there are differences in beliefs between people regarding ADHD?
What do you think are the reasons for this?
What factors, from your view of point, make some people more knowledgeable than others?

5) Do you discuss ADHD with anybody?
If so, who and why? If not, why not?
Do you feel it is part of your responsibility? If not, whose responsibility is it?

6) As a parent, tell me about your perceptions regarding children with ADHD?
What has caused you to hold such perceptions?
What factors make positive or negative perceptions towards them?
What can you do to help them better?

7) As a parent, tell me about your perceptions regarding teachers teaching children with ADHD?
What has caused you to hold such perceptions?
What factors make positive or negative perceptions towards them?
What can teachers do to help you better as a parent?

Ending Question:

- Is there something you want to say on in relation to what we have talked about during the interview?

Note: some other questions might be asked throughout the interviews in order to further probe or to otherwise clarify some responses.

Appendix H: Teachers' interview Schedule

The Knowledge and Beliefs Concerning ADHD Held by Children, Parents and Teachers in Saudi Arabia

Date of interview:

Length of interview:

Name of interviewee:

1) **What does ADHD mean to you?**
What do you know of its prevalence?
What causes ADHD?
What are the treatments?
What do you know of its prognosis?
Imagine you meet a new teacher who will teach children with ADHD, what would you say to him/her?

2) **Where did you learn or gather information concerning ADHD?**
Please list the specific names of the sources, i.e. magazine articles, journals, professional development programmes, etc.?

3) **Do you feel you have adequate knowledge regarding ADHD?**
How confident are you in them?
What more do you need to know?
Do you think others have sufficient information relating to ADHD?
In your view, how can correct knowledge and beliefs be delivered?
What do you consider to be the barriers?

4) Do you believe there are differences in beliefs between people regarding ADHD?	
	What do you think are the reasons for this?
	What factors, from your view of point, make some people more knowledgeable than others?

5) Do you discuss ADHD with anybody?	
	If so, who and why? If not, why not?
	Do you feel it is part of your responsibility? If not, whose responsibility is it?

6) As a teacher, tell me about your perceptions regarding children with ADHD?	
	What has caused you to hold such perceptions?
	What factors make positive or negative perceptions towards them?
	What can you do to help them better?

7) As a teacher, tell me about your perceptions regarding parents of children with ADHD?	
	What has caused you to hold such perceptions?
	What factors make positive or negative perceptions towards them?
	What can parents do to help you better as a teacher?

Ending Question:

- Is there something you want to say on in relation to what we have talked about during the interview?

Note: some other questions might be asked throughout the interviews in order to further probe or to otherwise clarify some responses.