AMERICAN UNIVERSITY OF BEIRUT

OVEREXCITABILITIES AND ADHD IN GIFTED ADOLESCENTS IN JORDAN

by
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A thesis
submitted in partial fulfillment of the requirements
for the degree of Master of Arts
to the Department of Education
of the Faculty of Arts and Sciences
at the American University of Beirut

Beirut, Lebanon
April 2016

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ACKNOWLEDGMENTS

First and foremost, I would like to thank God, the Almighty, for the patience and the determination that He has bestowed on me during this exciting journey.

My family has been my greatest and strongest support, and for that I will be forever indebted to them.

Mom, dad, you raised me up to more than I can be…

Without my mother's constant presence by my side, and her prayers and encouragement, this thesis would have remained a dream. Mom, Ghada Zeidan, I owe you my deepest gratitude for always being there and for encouraging me to pursue the dream that I have always longed to achieve. I am blessed to have you in my life.

As for you, Dad, I would like to thank you for always having faith in me and for pushing me, beyond my limits. You taught me to never give up and to never stop until I saw this thesis through. Dreams can come true, with great work ethics and perseverance; two qualities I learned from you. You have always believed in my capabilities, and I hope I made you proud. I will never forget your words "you can do it my angel" and all this is just "because you loved me". I am proud to be Malak ALI Krayem.

Hussein "Hassouna" Krayem, my adorable brother, you were my rock during this interesting challenge. You were one of the main reasons who made me fight my way through the obstacles, overcoming every trial, and reaching my goal. Thank you habibi!

Zahraa "Zouz" Krayem, my lovely sister, I wish you all the best with your beloved Hass! Thanks for supporting me through every step and motivating me my love.

Mariam "Mimz" Krayem, my loveable food buddy sister, thanks for all the nights you spent with me on Whatsapp and Viber, trying to keep me awake. I promise I'll do the same when it's your turn to submit your dissertation!

Hiba “Hamboosee” Krayem, youngest beautiful sister, our future interior designer, thank you for all the caffeine, chocolate, and energy you gave me, and all the overnights you spent with me.

Mahdi, habibi, my precious baby brother, I really hope you get to feel what success means just the way I did and I wish you all the best in life.

Jiddo Abu Ghazi and Jiddo Abu Ali, I will never forget your support and wise words. Teta Rawdah, thank you for your prayers that gave me the strength I needed during this challenging period. Teta Im Ghazi, you are no longer with us, but I know that you were always watching over me and helping me pave a smooth road; may your soul rest in peace.

It is a great honor and privilege to have worked with Dr. Anies Al-Hroub, my professor and advisor. I would like to thank him for his support and encouragement during this dissertation.

I would like to extend my gratitude to Dr. Vivian Khamis and Dr. Saouma BouJaoude. Thank you both for agreeing to be part of this thesis and sharing your crucial and interesting insights and constructive comments; all of which culminated in the successful completion of this manuscript.

Fatima “Fattouma” Salameh, thank you for being the greatest friend I could ever hope for. You were always a shoulder to lean on. Thank you for being my guide through this challenging phase, and thank you for being the faithful friend I’ve come to depend on and could never part with.

Iman Saad, future writer, I’m sure you will be a great author soon, but I do not promise to proof read your books the same way you read my thesis. Layan Al-Khatib, I will never forget the support you gave me throughout this journey, and especially when you graduated and said that I will also do it soon. Thank you for all your motivation in addition to the coffee and our mornings together, of course! We did it!

Administrators, teachers, faculty members and students in Jubilee Institute, I cannot thank you enough for the warm welcoming you gave me and all the help and support throughout my stay in Jordan. Thank you so much!

Finally, and though my list of family and friends may be endless, I cannot possibly have the time or the space to thank every single person who crossed my path. So if you, dear reader, supported me in any way during the completion of my thesis, kindly accept these few lines as a token of my endless appreciation and gratitude: You kept me going!

AN ABSTRACT OF THE THESIS OF

Malak Ali Krayem for Master of Arts

Major: Counseling and School Guidance

Title: Overexcitabilities and ADHD in Gifted Adolescents in Jordan

Gifted students are sometimes extremely energetic, have highly sensitive and emotional temperament and lifelike imaginations (Silverman 1993). Some students can display behavioral characteristics similar to those exhibited by children and adolescents who have been diagnosed with attention-deficit hyperactivity disorder (ADHD), leading to possible misdiagnosis (Rinn & Reynolds, 2012). When a gifted individual is assessed for ADHD, his or her tendency to be overly excited should also be considered. It is difficult to discriminate a gifted child's Overexcitability (OE) from ADHD symptoms (Kyuman Chae, Kim & Noh, 2003). The aim of the current study is two-fold. First, it is to shed light on the misdiagnosis of ADHD with OE in gifted students. It examined the relationship between characteristics of OEs and symptoms of ADHD among gifted adolescents in Jordan. Second, the study investigated teachers' ability to identify whether an adolescent exhibits ADHD or OE symptoms using vignettes that were given to the teachers. The research questions that guided this study were: (a) What knowledge do teachers in Jordan have about ADHD and overexcitability symptoms? (b) What is the relationship between characteristics of overexcitabilities and ADHD among gifted Jordanian adolescent students? (c) How does the gender of gifted students affect the teachers' perceptions of ADHD and/or overexcitability? (d) What are the gender differences in levels of OE in gifted adolescents in Jordan? The participants included 265 gifted adolescent students and 46 teachers from the Jubilee Institute in Jordan. The study implemented a mixed-method approach; adolescents received a Jordanian version of the Overexcitability Questionnaire-Two (OEQ-II) in order to measure the five forms of OE: psychomotor, sensual, imaginational, intellectual and emotional (Bouchet & Falk, 2001; Falk, Lind, Miller, Piechowski & Silverman, 1999). Conners' ADHD/ DSM-V Scales-Adolescent scale was also used to measure symptoms of ADHD in adolescents. Finally, vignettes were given to the teachers, as well as to the adolescent boys and girls, based on descriptions of some symptoms associated with both ADHD and OE in gifted adolescents. The study revealed that none of the teachers could identify the five types of OE. Low significant correlations between psychomotor OE and Hyperactive-Impulsive ADHD were found. Low significant negative correlation was found between Intellectual OE and Inattentive ADHD scores. The limitations of this study were also addressed.

Keywords: Attention Deficit Hyperactivity Disorder, OverExcitability, gifted adolescents, Jordan.

CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The school's primary purpose is to provide children with the opportunity to get involved with tasks that help them learn academic, social and communication skills. Children have a wide range of interests and needs, and every student is a unique individual. Gifted children are more vulnerable due to the asynchronous development of the condition. They have heightened intensity and their cognitive abilities exceed the norm (Silverman, 1993). In the past, children with special needs were removed from the general classroom and taught in more segregated settings. Today, the general education classroom includes students with different abilities and interests (Powell & Tutt, 2007). Given the present context of school systems, all teachers are expected to meet student needs, and each child should be considered as a unique and whole being. Gifted students are no exception; they ought to be integrated and their needs fulfilled. Students are labelled as gifted when they have multiple abilities to solve problems or create products that are valued within one or more cultural setting (Gardner, 2000). In addition gifted students might display unique behavioral characteristics in classrooms. Their desire for gross motor movement, such as moving their bodies around is an example of such characteristics (Rinn & Reynolds, 2012).

Teachers' perceptions of children with movement and ADHD might vary according to the child's gender (Maniadaki, Sonuga-Barke, & Kakouros, 2003). A gender gap in ADHD exists and studies emphasize the role that teachers play in identifying and seeking for ADHD (Ohan & Visser, 2009). Boys with ADHD typically exhibit high levels of hyperactivity, conduct problems, aggressiveness and other

externalizing symptoms, which teachers perceive to be disruptive and stressful (Sciutto, Nolfi, & Bluhm, 2004). Girls with ADHD, however, tend to exhibit lower levels of disruptive behavior and higher levels of inattentiveness, internalizing symptoms, and social impairment (Sciutto et al. 2004).

Dabrowski, a Polish psychiatrist, developed his own view of personality development, which he referred to as the theory of positive disintegration. He noted that when stimulations are altered, overreactions seem to express themselves through some dimensions. He named these reactions overexcitabilities; consistent and overreacted performances with psychomotor, sensual, intellectual, imaginational and emotional dimensions. These reactions might last significantly longer, occur with greater frequency, and be expressed stronger than in the average child (Dabrowski & Piechowski, 1977).

A. Statement of the Problem

According to Gordon (1990), many students are usually referred to therapy for problems with impulsivity, hyperactivity or even sustaining attention, often resulting in a misdiagnosis. When a gifted individual is assessed for Attention Deficit Hyperactivity Disorder (ADHD), his or her tendency to be over excitable should also be considered. It is difficult to differentiate a gifted child's OverExcitability (OE) from ADHD symptoms. For instance, psychomotor overexcitability might be viewed as hyperactivity since the individual displays excessive energy or experiences excitability of the neuromuscular system. There is a potentially very large overlap between ADHD and excitability (Kyuman-Chae, Kim & Noh, 2003).The term overexcitability, rather than just excitability, was chosen to convey the idea that this is a special kind of excitability,

one that is enhanced and distinguished by characteristic forms of expression (Tieso, 2011). "Both groups often possess high activity levels, have difficulty paying attention, act without much forethought, experience problems persisting on certain tasks, and have difficulty following rules" (Hartnett et al., 2004, p. 73).Therefore, it is critical to differentiate symptoms of ADHD from overexcitability in gifted individuals (Kyuman Chae et al., 2003).

Taking the above into consideration, it is possible for gifted adolescents to have attention difficulties or OE features (Rinn & Reynolds, 2012).Therefore, when considering either learning disability as a diagnosis, it is vital that schools perform comprehensive assessments for both. It is also essential that teachers, counselors and parents be aware of and be able to identify gifted adolescents with either ADHD or OE. Nevertheless, there exists a problem in misidentifying gifted children because of the overlap between these two characteristics. In addition, no research or evidence to prove whether teachers who teach gifted students in the Middle East are able to identify students with characteristics of OE or ADHD.

B. Purpose of the study

The purpose of this study is two-fold. First, it is to shed light on the misdiagnosis of ADHD in gifted students with one or more characteristic of OE. It examined the relationship between characteristics of overexcitabilities and symptoms of ADHD among gifted adolescents in Jordan. Second, the study investigated teachers' ability to identify whether an adolescent (boy/girl) exhibits ADHD or OE symptoms using the vignettes given to them. Semi-structured interviews with 12 secondary teachers were conducted.

C. Research Questions

The research questions that guided this study were:

1. What knowledge do teachers in Jordan have about ADHD and overexcitability symptoms?
2. What is the relationship between characteristics of overexcitabilities and ADHD among gifted Jordanian adolescent students?
3. How does the gender of gifted students affect the teachers' perceptions of ADHD and/or overexcitability?
4. What are the gender differences in levels of OE in gifted adolescents in Jordan?

D. **Rationale**

It is imperative to differentiate symptoms of ADHD from overexcitability in gifted adolescents. Overexcitability is often misidentified. According to the Diagnostic Statistical Manual of Mental Disorders (DSM V), there exists a vast difference in the components that rule behavior, impulsivity and hyperactivity. For example, hyperactivity in both cases may be manifested in different ways. A gifted child may show focused energy while a child with ADHD may show largely unfocused energy (Leroux & Levitt-Perlman, 2000).

In 2006, Nelson, Rinn, and Hartnett concluded that "No known empirical data exists to examine the relationship between overexcitabilities and ADHD" (p.247). Rinn and Reynolds (2012) provided empirical support for a relationship between ADHD and overexcitabilities for intellectually gifted adolescents from a summer program in the United States. Teachers' perceptions of children with ADHD might vary according to the

child's gender (Maniadaki, Sonuga-Barke, & Kakouros, 2003).Teachers' tend to be biased when it comes to diagnosing a boy or a girl with ADHD, and this might be a result of unexplored knowledge of ADHD (Bauermeister et al. 2007). One of the major findings by El-Khoury and Al-Hroub (in press) is that gender plays a role in giftedness in Lebanon, yet very limited research has been done to examine whether gifted students, whether girls or boys, are misidentified with ADHD and may be instead exhibiting types of OE.

By using and administering both the OE Questionnaire II and Diagnostic and Statistical Manual of Mental Disorders (DSM V) to students, this study aimed to fill a gap in the literature about the misdiagnosis of gifted Jordanian adolescents with ADHD or overexcitedness. It also aims to add to Rinn and Nelson's study (2009) as it investigates the potential for school teachers misdiagnosing gifted students with ADHD. Furthermore, by adopting a mixed-method approach, the study aims to extend Rinn and Reynold's (2012) findings in the United States to Jordan, at the Jubilee School for gifted students. Since semi-structured interviews with 12 teachers would not be enough, and the use of vignettes which requires use of numbers and SPSS; quantitative research, and since OE questionnaires were given to the gifted adolescents, it was deemed best to adopt qualitative and quantitative research techniques in order for the study to yield more accurate results.

E. Significance of the study

This study is expected to have theoretical and practical implications. The theoretical implications would provide researchers with some exploratory, initial data to initiate a thorough process of studying the correlation between OE and ADHD

characteristics among the gifted, particularly as there exists a dearth of empirical research in this area (Goerss et al., 2006). The practical implications would set more efficient goals towards the diagnosis of gifted children and lessen the misdiagnosis of ADHD in this target group. In addition, the study intends to extend what is known about the diagnostic decision-making processes of educators and school stakeholders; teachers, counselors, special education teachers and diagnosticians. It will also raise awareness among parents. This way, it would be easier for those involved in teacher-education programs to evaluate their course offerings, as "knowledge, or at least awareness, of giftedness is necessary to even begin to make those distinctions, affirming the adage in medicine: 'What you do not know, you do not recognize'" (Goerss, et al., 2006, p. 249). Knowing about the different types of OE enables teachers and parents to identify and deal with overexcited students and minimize conflict among gifted students and their peers, teachers and parents. Being able to better assess and identify those students requires having all the necessary assessment tools to identify a student as OE or ADHD, while taking cultural differences into consideration.

CHAPTER II

LITERATURE REVIEW

This chapter provides a definition for the terms Attention Deficit Hyper Activity Disorder (ADHD) and Over excitability (OE) and explains their relationship to characteristics of giftedness. It also gives an overview of research conducted for gifted students; OE among the gifted, the gifted and ADHD, OE and ADHD, and the cultural and gender differences in the identification of OE and ADHD.

A. Conception of Giftedness

For a heterogeneous classroom to be equitable, all students should have access to grade- appropriate, academically and intellectually challenging curricula, productive communication with the teachers, and equal status interaction with peers (Lotan, 2006). It is important to keep in mind that an inclusive classroom also has students who possess the potential to easily meet grade level requirements. Such students can either be high-achievers or be identified with giftedness. Relevant authorities have provided different definitions for gifted and high-achieving students, which makes it challenging to identify and meet their needs.

The National Association of Gifted Children characterizes giftedness as follows:

> *Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or*

> *achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports) (NAGC, 2008).*

Gifted children are more vulnerable due to the asynchronous development of the condition. They have heightened intensity and their cognitive abilities exceed the norm, which result in producing inner experiences and cognizance that are in essence extremely different from the average. Giftedness is labeled as an asynchronous condition, due to the aforementioned criteria, which intensifies the higher the intellectual ability is. Therefore, these children necessitate tailored parenting and teaching styles, so they can benefit efficiently (The Columbus Group, 1991, p.1) cited in (Silverman, 1993).

Yang and Tsai (2010) explain that gifted children have innate talents that emerge at a very early age. In fact, they are individuals who have qualitative differences apart from the general population in the motivational aspect. According to Philips (2008), high-achievers are students who work hard, as well as achieve top grades when motivated appropriately. Zohar and Dori (2003) define high-achievers as individuals who have the capacity to grasp concepts quickly and are able to apply their understanding to solve different problems. According to Reid (2011), gifted students have "potential and skills which are distinctly above average in one or more areas" (p. 29). The terms gifted students and high achievers can be used interchangeably as both terms have yet to have a conclusive definition and are very similar concepts in meaning.

According to Renzulli (1979), finding and agreeing on a definition for giftedness is difficult for two reasons; first, a definition can "limit or restrict the number of performance areas that are considered in determining the eligibility for special programs" (p.180). A 'conservative' definition might actually limit a student from entering a gifted program purely because the program might consider academic performance only, excluding other areas such as art, drama, music, leadership, public speaking and creative writing. Second, "a definition may specify the degree or level of excellence one must attain to be considered gifted" (p. 180) because the level of excellence attained is not the only factor to judge on whether a person is gifted or not. Therefore, the definition of what exactly determines whether or not a student is gifted has changed significantly over the years.

The modern conceptions of giftedness result from an evolution of ideas. Each generation of theories about the gifted is built on earlier ones, integrating previous generations of research and ideas, and adding different and extra components that reflect the current state of research (Kaufman & Sternberg, 2008). In 1972, a committee formed by the U.S. office of Education proposed a definition of giftedness that included performance as well as academic domains. Children could be considered gifted if they showed high abilities in the following areas: (a) general intellectual ability, (b) specific academic aptitude, (c) creative or productive thinking, (d) leadership ability, (e) excellence in the visual and performing arts; and (f) psychomotor ability (which was excluded in the 1978 statement).

When there is a list of traits, there tends to be an overlap with individual items, and an interaction between and among the general categories and specific traits (Renzulli, 1986). However, Renzulli clearly points out that not all the traits have to be

present in a single individual for him or her to be labeled as gifted. He named his model the *Three Ring Conception of Giftedness* to emphasize the interaction among clusters, above average ability in a particular domain, task commitment, and creativity rather than existence of a single trait on its own. The Three-Ring Conception of Giftedness focuses on imaginative inventive productivity.

Gardner's (1983) Theory of Multiple Intelligences (MI) provides a theoretical foundation for recognizing the different abilities and talents of students as well. His theory acknowledges that while all students may not be verbally or mathematically gifted, children may have an expertise in other areas, such as music, spatial relations, or interpersonal knowledge. Gardner's (1983) theory of Multiple Intelligences describes seven types of intelligence, and an eighth type was recently added. Gardner was opposed to the severe limitations of IQ test scores as they undervalued students' other strengths (Gardner 1999). The types of intelligence described by Gardner are the following: (1) linguistic (verbal) intelligence, which includes verbal comprehension, syntax, semantics, and written and oral expression, (2) logical mathematical intelligence, which includes inductive and deductive reasoning, (3) spatial intelligence, which is the capacity to represent and manipulate three dimensional configurations, (4) musical intelligence, which includes pitch discrimination, sensitivity to rhyme, texture, and timbre, (5) bodily-kinesthetic intelligence, which is the ability to use all or parts of one's body to perform a task, (6) interpersonal intelligence, which is the ability to understand actions and motivations of others and act sensibly based on that knowledge, (7) intrapersonal intelligence, which is a person's understanding of one's own cognition, strengths and weaknesses, thinking style, feelings and emotions (Gardner, 1983), and

(8) naturalist intelligence, which is spiritual, moral, existential, and naturalist intelligence (Gardner, 1999).

Grantham (2003) defines giftedness as an ability to excel at the upper end of any talent continuum. Kaufman and Sternberg (2008) state that "'giftedness' is a label – nothing more" (p. 71). They also state that there isn't one "absolute criteria" one can follow when it comes to defining or labeling a gifted student; "Criteria for such labeling are a matter of opinion" (p. 71) so there is no unified definition for gifted yet.

Françoys Gagné (2004) proposed a theory of giftedness that looked more closely at the talent-development process. According to Gagné, the terms 'gifted' and 'talented' were being interchangeably used, so he proposed a new model called the *Differentiated Model of Gifted and Talented* (DMGT) to distinguish between the two. His aim was to uncover the major environmental influences (such as home, school, parents and activities, etc.), non-intellective variables (such as motivation and temperament), and learning, training, and practicing that transform the genetically determined 'gifts' (intellectual, creative, sensory motor and so on) into talents (such as language, science, mathematics, art, music, leadership, etc.).

For this reason, El-Khoury and Al-Hroub (in press) argue that problems in identifying gifted students exist because there are characteristics and concepts that vary according to the culture, and this gets in the way of agreeing on a single definition. In researching gifted students across multiple schools in Lebanon, El-Khoury and Al-Hroub investigated Lebanese teachers' understanding and perception of giftedness. They also explored the identification procedures undertaken and services offered to gifted students. El-Khoury and Al-Hroub defined giftedness as "a combination of three

parts: high intellectual ability, high academic performance, and social intelligence. High intellectual ability includes high logical thinking and scores of report cards that are t among highest in the class. High academic performance means that gifted students excel in one or more academic or subject area. Giftedness also encompasses social intelligence, which means that the student should be a natural leader, take charge of small groups, and be able to deal with real life situations that are mainly applicable in Lebanon.

Contrary to common belief, giftedness is not solely measured by an IQ score (Winner, 2000). People can still have a high IQ and not necessarily be gifted because giftedness includes broader characteristics like special reasoning, creativity, motivation and thorough interpersonal understanding. What is peculiar about students with giftedness is their innate drive to succeed. They push their limits and challenge themselves by constantly making discoveries and steering their own learning (Winner, 2000).

Gifted children are more vulnerable due to the asynchronous development of the condition. They have heightened intensity and their cognitive abilities exceed the norm, which result in producing inner experiences and cognizance that are in essence extremely different from the average. Giftedness is labeled as an asynchronous condition, which intensifies the higher the intellectual ability is. Therefore, these children necessitate tailored parenting and teaching styles, so they can benefit efficiently (The Columbus Group, 1991, p.1) cited in (Silverman, 1993).

B. Attention Deficit Hyperactivity Disorder (ADHD)

ADHD, short for Attention Deficit Hyperactivity Disorder, is a term used to describe children, adolescents, and some adults who show hyperactive, impulsive, and/or easily inattentive behavior. The task of describing the characteristics of children with ADHD is in some ways a difficult one. Population surveys show that ADHD occurs in most societies, in approximately 5% of children and nearly 2.5% of adults. ADHD is more common in males than females of the general population, with a ratio of approximately 2:1 in children and 1.6:1 in adults (American Psychiatric Association, 2013).

Beginning in childhood, ADHD is described as a permanent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. ADHD must be observed in more than one setting (e.g. home and school, work before proceeding with its diagnosis (American Psychiatric Association, 2013).

Six or more of the inattention symptoms mentioned in DSM V have to continuously occur for at least 6 months to such a degree that it is inconsistent with the child's developmental level. Additionally, six or more hyperactivity and impulsivity symptoms have to be present in order to identify an individual with ADHD (American Psychiatric Association, 2013).

Individuals with ADHD display behavioral inattention: such as wandering off task, lacking persistence, having difficulty sustaining focus, and being disorganized. It is not, however, due to defiance or lack of comprehension. Symptoms of ADHD are identified as extreme motor activity at inappropriate times, excessive fiddling, or chattiness indicate hyperactivity (American Psychiatric Association, 2013). But because

an individual "might be obtaining a specific reward on a regular basis, signs of the disorder might be insignificant" (p.61).

A diagnosis of ADHD is typically made by psychologists or clinicians, most of whom stress the important role parents and teachers can play in this process. Some clinicians consider teachers as experienced judges of typical and atypical behavior, due to their experiences with multiple children across different settings (Kovshoff, William, & Danckaerts, 2012). Teachers need to be aware of the symptoms of ADHD and its subtypes to properly enable them in identifying students with ADHD. Before commencing any intervention or treatment, a correct diagnosis should be made.

Most professionals base their diagnosis of ADHD on the guidelines of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental disorders (Kleynhans, 2005). Teachers are expected to be aware of the symptoms and subtypes of ADHD. However, these diagnostic criteria could also be of benefit when making an appropriate referral.

1. Criteria for the diagnosis of ADHD in DSM-V

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 the 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 the 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 behaves as if “driven by a motor”,

f) Often talks excessively,

Impulsivity

g) Often blurts out answers before questions are completed,

h) Often has difficulty waiting in turn,

i) Often interrupts or intrudes on others (e.g. butts into conversations).

B. Some hyperactive-impulsive behavior or inattentive symptoms that cause impairment were present before age 7.

C. Some symptoms occur in two or more settings (e.g. at school [or work] and at home).

D. There is 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 other mental disorders (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

Arguments against the validity of the ADHD Diagnosis have been discussed since 1997 by Applegate et al. in their report which suggests that ADHD does not meet DSM requirements for validity and it does not meet the requirement for differential diagnosis.

Similarly, according to Hurtig, et al. (2007), ADHD does not meet DSM requirements for validity. ADHD symptoms are not clearly distinguished from normal childhood behaviors, e.g. Hyperactivity, impulsivity, and inattention are normal behaviors for gifted children. There is extensive overlap with findings from other

psychiatric disorders, quite notably studies of Autism Spectrum Disorder (ASD) (Kennedy, Banks, & Grandin, 2011).

The issue of whether or not ADHD is distinct from other disorders naturally emerges due to comorbidity. ADHD is diagnosed with other psychiatric disorders 60 to 100 percent of the times, which raises the question as to how distinct is ADHD from other disorders (Kennedy, Banks, & Grandin, 2011).

Research points at the fact that adults and children with ADHD are more prone to suffer from other psychiatric disorders; a condition known as comorbidity (Watkins, 2002). Sixty five percent of children suffering from ADHD will also be identified with comorbid conditions later in their lives, and their conditions will continue into adulthood. Although data shows that comorbidity is more common in adults than children, it is highly challenging to compare studies, since the characteristics defining ADHD and bipolar disorder are different. Furthermore, the researchers selected their subjects from a variety of populations (Watkins, 2002). The patients in a specialized hospital suffer from a more complex and severe form of ADHD, as opposed to patients interviewed in their homes or in doctors' offices (Watkins, 2002). The illustration below shows some common conditions that often co-exist with ADHD; Oppositional Defiant Disorder (and Conduct Disorder) being 7%, anxiety disorder being 11%, depression being 11%, and other forms of physical illness, learning and communication differences and sleep problems.

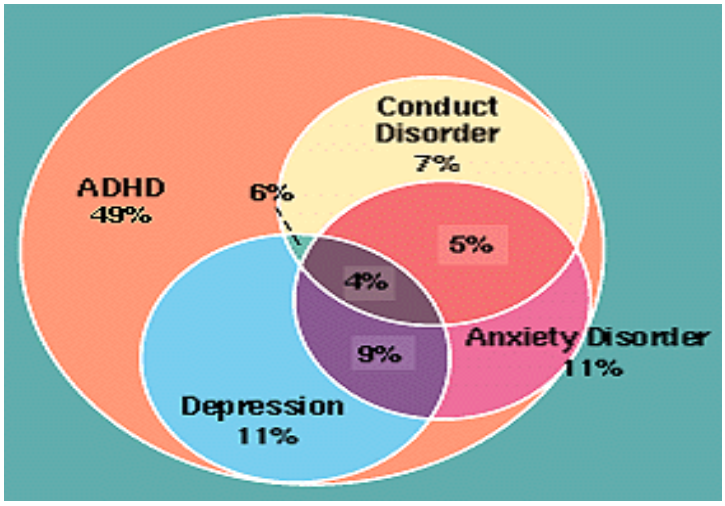

Figure 2.1 Common conditions that often co-exist with ADHD

Note: Illustration from Joseph Biederman and Stephen Faraone, Harvard Mahoney Neuroscience Institute Letter, Winter 1996 Volume 5 Number 1 as cited in Watkins (2002)

2. Prevalence of ADHD

The culture of the teachers and the family plays a pivotal role in the diagnoses and treatment of ADHD, therefore resulting in varied prevalence percentages. For instance, it has been found that 2% to 18% of school aged children can have ADHD, depending on the criteria in the DSM-IV. (Alloway, Elliott, & Holmes, 2010). It has also been found that boys are affected three to six times more (Millichap, 2010).

The diagnosis criteria are another factor that affects the percentage of ADHD prevalence. Not the same diagnostic guidelines are used in all the countries. For instance, the United States uses DSM-IV, the majority of Europe use guidelines that has been based on the DSM, whereas France uses other guidelines completely for diagnosis. The use of different guidelines can be seen in the percentages of the population diagnosed; 8% in the US, and 4% to 5% in Europe (Kelowna, 2007).

Since there seems to be variations across countries on the prevalence of ADHD (Kelowna, 2007), Table 2.1 below shows prevalence of ADHD by age in children, adolescents, and adults in different European and Middle Eastern countries. Prevalence of ADHD diagnosis varied significantly from one country to another and from a low percentage of 1.2% in Spain to a high of 16.4% in China. Interestingly, Lebanon is also mentioned in this study with a percentage of 1.8%. These results varied between having parents reporting from childhood into adulthood, childhood into teen years, and using a developmental definition of the disorder.

Table 2.1

Prevalence of ADHD across Different Countries by Age

	Prevalence of ADHD by Age	
Child	8.7% United States	6.7% United States
	7.8% United States	
Adolescent	16.4% China	8.5% Finland
Adult	4.4% United States	2.8% Italy
	7.3% France	1.9% Colombia
	5.2% United States	1.9% Mexico
	5.0% Netherlands	1.8% Lebanon
	4.1% Belgium	1.2% Spain
	3.1% Germany	

C. Overexcitability

The concept of overexcitability branches from Dabrowski's (1964) theory of positive disintegration, which is a theory of personality development. Dabrowski used

the term overexcitability to emphasize the intensification of mental activity as well as the differential types of responding, experiencing, and acting distinguishable as characteristic forms of expression above and beyond the norm (Piechowski, 1986; Piechowski & Colangelo, 1984). In fact, when many of the characteristics and behaviors of gifted students mirror those of special education students, multiple instances where misdiagnosis occurs have been observed. It is possible that gifted students might have more than one type of overexcitability; if not many (Alias, Rahman & Rosadah, 2013). Dabrowski's theory states five different forms of overexcitability: psychomotor, sensual, imaginational, intellectual, and emotional (Piechowski, 1975, 1977). He states that properly identifying the type of overexcitability helps people become better human beings; instead of trying to change overexcitable children, they should be given coping tools to help them deal with their personalities and manage their emotions (Daniels, & Piechowski, 2009).

1. Psychomotor OE

An individual with psychomotor OE appears very busy and restless. Signs of psychomotor OE can either be extreme energy or nervousness. Nervousness can be noticed when observing an individual act impulsively or display a psychomotor activity such as nail biting or spasms (Mendaglio & Tillier, 2006). A child with ADHD and a gifted child can mirror one another. However, the difference is that a gifted child can focus for longer periods of time, whereas a child with ADHD cannot. An individual with psychomotor OE exhibits a lot of movement and athletic activity. He or she may even be a talker and make many gestures. When upset, the individual may get nervous kicks, become overly competitive or feel the need to organize his or her environment

(Daniels & Piechowski, 2009).

2. Sensual OE

Sensual overexcitability is articulated when experiencing sensory preferences for inner nervousness (Mendaglio & Tillier, 2006). An individual with sensual OE may dislike labels on their clothing, or sometimes prefer standing on a specific rug because of its texture. This individual may have extreme reactions, and may be described as a picky eater who hates certain foods with passion. Such individuals also love to be the center of attention (Daniels & Piechowski, 2009).

3. Intellectual OE

An individual with intellectual OE has a strong need to seek the understanding of the truth. There is always a drive for probing questions and problem solving. Such individuals are pre-occupied with logic and the development of new concepts. They have trouble falling asleep at night because their mind is constantly occupied; they enjoy brainteasers and puzzles. They like to figure things out, especially if they are complicated. They seek out truth and knowledge and are very observant. When upset, such individuals may analyze things in-depth (Daniels & Piechowski, 2009).

4. Imaginational OE

Individuals with imaginational OE experience regular diversion, drifting attention and fantasizing. These occur as a result of free play of the imagination (Mendaglio & Tillier, 2006). Such individuals are creative and love metaphors. They believe in pictures and magic, and have a capacity for living in a world of fantasy (Daniels &

Piechowski, 2009). Gifted individuals with imaginational OE often conduct their activities on their own (e.g., drawing or writing stories) rather than participate in class discussions (Lind, 2001). Here, too, delusions, animistic thinking, expressive images and similes, innovation and fantasy fit (Mendaglio & Tillier, 2006).

5. Emotional OE

Individuals with emotional OE have a strong capacity for building relationships. They may experience an extreme and broad range of emotions; they can be compassionate and caring, form strong attachments to others, be sensitive to and understand others as if they are living the experience. They may have concerns about death, love, loneliness and care deeply about others. When they are joyous, they radiate and light up the whole house (Daniels & Piechowski, 2009). Emotional OE is the most frequently observed form of OE in individuals. Such individuals experience anxieties, fears, feelings of guilt and desperate tempers (Mendaglio & Tillier, 2006).

Signs of high psychomotor, intellectual, and emotional OEs in gifted students might lead to misdiagnosis of ADHD and other behavioral disorders. Gifted students with ADHD may demonstrate behaviors such as daydreaming, excessive talking, the inability to be seated and social immaturity; all prospective features of the diverse signs of OE (Tieso, 2009).

6. Overexcitability and Intelligence

Chang and Kou (2013) summarized findings of OEs correlating with intelligence. A higher intellectual, emotional, imaginational, and sensual OEs were found in gifted individuals in comparison to non-gifted. The OEs also differed based on

the gender. For example, gifted females exhibited more emotional and sensual OEs, whereas gifted males share more imaginational, psychomotor, and intellectual OEs. Another difference presented itself based on the age of the participants. Younger gifted individuals exhibited higher psychomotor and imaginational OEs, and the older gifted individuals showed higher intellectual and emotional OEs.

7. Overexcitability among the Gifted

Several studies (e.g. Ackerman, 1997; Gallagher, 1986; Mika, 2006; Tieso, 2011) have used the various forms of OE as tools to identify gifted, talented, or creative students.

In their article titled *Dabrowski's Overexcitabilities Profile among Gifted Students* (2013), Alias, Rahman and Rosadah report a study that aimed to distinguish the overexcitabilities of gifted students. Dabrowski's concept of OEs is the amplified understanding exhibited through gifted students' behaviors when reacting to stimuli in the environs. In the study, purposeful sampling was made from a group of gifted children on a school holiday camp at a local university in Malaysia. Participants consisted of 305 students with ages between 10 and 15 years. The participants were asked to complete an OE Self-Evaluation questionnaire in the Malay Language; a translated version of the Overexcitabilities Questionnaire II. It was used to assemble data on the respondents' own perception of the statements given. Students who displayed a low level of overexcitability indicated they do not have any overexcitability. A moderate level of overexcitability meant having the drift to react and show some intensity in behavior. A high level of overexcitability shows that the student reacted with intensity.

The findings of Alias, et. al, (2013) show that 88 per cent of the gifted students have at least one domain of overexcitabilities. Being gifted does not mean the individual is highly intense or sensitive in his or her behavior. Nonetheless, individuals who have at least one domain of overexcitability supported Dabrowski's notion that overexcitabilities are prevalent in gifted students (Piechowski, 1999; cited in Alias et al., 2013). Based on the dissimilar features of each profile, the outcome proved that gifted students who have a high level of overexcitability in imagination could be potentially creative beyond the capabilities of an adult (Alias et al., 2013).

The same can be said of students who exhibit plentiful physical energy and have the tendency to move impulsivity in an effort to release their overwhelming inner energy. These students are sometimes labeled as hyperactive or with ADHD because they are very disruptive in the classroom. Nevertheless, such high psychomotor energy can be channeled towards activities that require fast and intense movements such as extreme sports, fast-paced dancing or martial arts (Alias et al, 2013).

Alias and others report that high levels of overexcitabilities in all domains indicates complex personalities due to the fact that the individuals' responses and reactions towards stimuli around them differed according to a stimulus's level of intensity. In contrast, Alias et al, (2013) indicate that there are gifted students who do not possess any overexcitability. This does not mean they are not gifted.

In concluding their analysis, Alias and others (2013) suggested that gifted students who are often considered as difficult because of their severe behavior ought to be assisted in recognizing and handling their overexcitabilities. This would help them control and manage their concentration and sensitivity in a confident and significant

way. As mentioned above, knowing the different types of OEs enables teachers and parents to identify and deal with overexcited students and minimize conflict among gifted students and their peers, teachers or parents.

D. The Gifted and ADHD

In the article titled *Gifted with Attention Deficit*s: *Fact and/or fiction? or, can we see the forest for the trees?,* a variety of perspectives are outlined from which to consider and interpret the behaviors of gifted students who are suspected of having attention deficit. The article suggests observing diverse behaviors can foster a more holistic understanding of the students' needs and thereby increase the school's capacity to meet them; therefore, a course of action needs to be considered (Baum, Olenchak & Owen, 1998).

In his article titled *Misdiagnosis, the recent trend in thinking about gifted children with ADHD*, Edwards (2009) tackles the most noteworthy reasons why misdiagnosis of the gifted as having ADHD occurs, such as how characteristics of ADHD within the DSM V (APA, 2013) relate very closely to those of both the gifted and creatively gifted. The purpose of Edwards's article is to inform educators of such similarities so they can recognize instances when misdiagnosis has occurred. Edwards discusses two crucial contradictory perspectives: the first being "Some children are both gifted with ADHD" (Edwards, 2009), while the second being gifted children could be misidentified as having ADHD (Edwards, 2009).

"Children with ADHD and children who are gifted often engage in similar behaviors" (Hartnett et al., 2004, p. 73). On the other hand, in their article titled *Preservice teachers' perceptions of behaviors characteristic of ADHD and giftedness*,

Rinn and Nelson (2009) found that some gifted students could be misidentified if pre-service teachers are not given adequate training and preparation to distinguish between giftedness and ADHD.

Webb (2005) represents the analogous behaviors associated with both gifted students and students with Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD) as follows:

Table 2.2

Behaviors associated with ADD/ ADHD and giftedness

Behaviors associated with ADD/ ADHD	**Behaviors associated with Giftedness**
Poorly sustained attention in almost all situations	Poor attention, boredom, daydreaming in specific situations
Diminished persistence on tasks not having immediate consequences	Low tolerance for persistence on tasks that seem irrelevant
Impulsivity, poor ability to delay gratification	Judgment lags behind intellect
Impaired adherence to commands to regulate or inhibit behavior in social contexts	Intensity may lead to power struggles with authorities
More active, restless than normal children	High activity level; may need less sleep
Difficulty adhering to rules and regulations	Question rules, customs, and traditions

Note: Reprinted from Webb, 2005, p.45

Goerss et al. (2006) stated the common characteristics leading to confusion between the different types of ADHD and giftedness whereby some of them overlap (Table 2.3.).

Table 2.3

Common Characteristics Leading to Confusion

Type	Giftedness	ADHD
Hyperactivity	• Has a high level of energy. Limitless verbal & physical energy; talks constantly	• Has high energy & enthusiasm; talks incessantly
Impulsivity	• Misbehaves and acts out; blurts out answers; interrupts others; is impatient	• Acts without thought of consequence; interrupts others; makes careless mistakes; does sloppy work; disrupt others
Inattention	• Daydreams; focuses for long periods on subjects of interest; perseverates on interest	• Is easily distractible; daydreams; may appear not to be listening when spoken to directly; hyper-focuses if motivated; is unable to shift attention

E. OE and ADHD

Gifted, talented, and creative individuals are known to be energetic, enthusiastic, task committed, and strongly sensual, but they are also known to be emotionally vulnerable (Tieso, 2011).Teachers with limited knowledge of overexcitabilities may mistakenly confuse their students' disruptive behaviors for disciplinary problems (Rotigel, 2003). Accordingly, Rotigel explains that the knowledge and understanding of the concept of overexcitabilities in gifted students should help teachers be more aware

in the process of fulfilling their students' social, emotional as well as their cognitive needs during the teaching and learning process.

The OEs described by Dabrowski earlier are observable in infancy and thought to be innate. They represent "expanded awareness and a heightened capacity to respond to stimuli of various types" (Silverman, 1993, p.13). Individuals with the gift of extra physical energy are "doers" – highly active and constantly on the go. Surplus energy is evident through rapid speech and gestures, marked enthusiasm, love of fast games and sports, nervous habits and impulsiveness (Piechowski, 1991).

Hyperactive children tend to lack attention and show misbehavior, such as interrupting a conversation. Gifted children who have high psychomotor energy are simply very active, with few other symptoms of hyperactivity. They are capable of focused attention and intense concentration only when they are interested; aimless activity seems to occur most often when there is insufficient mental stimulation (Silverman, 1993). Having said that, the predominately inattentive type of ADHD also includes symptoms largely related to inattention, such as the inability to concentrate for periods of time, avoiding tasks that require mental effort, losing things and being forgetful, failing to pay close attention to details, and lacking organizational skills (Rinn & Reynolds, 2012).

Sensual OE may be the most elusive of the overexcitabilities to measure and understand. It is marked by heightened experience of the senses, sensualism, sexuality, aesthetic appreciation and the desire for physical admiration. These reactions might lead a person to indicate an above average correspondence to DSM-V criteria for Hyperactive–Impulsive individual with ADHD.

Early signs of Imaginational OE include imaginary companions and mixing of truth and fiction. One child traveled with a family of imaginary mice, for instance. Older children are attracted to science fiction and science fantasy. They frequently express themselves in metaphors. Sometimes, it is difficult for them to express their thoughts in words because they think in images. Children high in imaginational OE may frequently experience nightmares (Silverman, 1993). Imaginational OE maybe mixed up with Inattentive type of ADHD since the individual is constantly imagining things and living in his/ her own world; thus is absent-minded and day dreams without being aware of their surrounding (Rinn& Reynolds, 2012).

The last type is Emotional OE, where the capacity for emotional depth, attachment to people, self-criticism, fear, guilt, and anxiety maybe observable in an individual. Gifted children, adolescents, and adults exhibit high levels of Emotional OE (Silverman, 1993). Again, in the DSM-V Inattentive subscale, the criteria for impulsivity include clear evidence of clinically significant impairment in social, academic or occupational functioning (American Psychiatric Association, 2013). The scale also mentions that 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), which makes diagnosing the emotionally overexcitable child as having ADHD symptoms (American Psychiatric Association, 2013).

To be identified with any type of ADHD, six or more symptoms of either inattention or hyperactivity/impulsivity, as outlined in *DSM-V,* must be present for at least 6 months in two or more settings (e.g., school, home, extracurricular activities).

The onset of most of these symptoms must occur before the age of seven. Consequently, the characteristics of overexcitabilities and the symptoms of ADHD are strikingly similar and may be indistinguishable to the untrained observer where they sometimes overlap (Nelson et al., 2006; Rinn, 2009; Rinn & Nelson, 2009; Rinn & Reynolds, 2012); thus, one should know the symptoms of each before making a diagnosis. When digging deeper, as stated by Silverman (1993), "The overexcitability of gifted children are the seeds of their self-development, the sands in the oysters that create the pearls through irritation" (p.18). In other words, the difference between overexcitability and ADHD can be found.

Giftedness, ADHD, and overexcitabilities: The possibilities of misinformation was written as an answer to Hartnett, Nelson and Rin's study in 2004; a critique of the authors' assertion around misdiagnosis of gifted children with ADHD keeping in mind that there is no indication that gifted children are misdiagnosed as ADHD (Mika, 2006). Forty four first-year graduate students from a counseling program participated in Hartnett, Nelson and Rin's study where they were given a vignette about a child's behavior in the classroom. Following that, students were randomly offered two responding choices: Form A, asking what they think the justification is for this behavior, and Form B asking if they think the behavior is either recognized as ADHD or being gifted and talented (Hartnett et al., 2004, p. 75). The researchers suggest that there exists an overlap between gifted and ADHD kids in the occurrence of these two behavioral qualities; however, no practical records are presented to support this hypothesis (Hartnett et al., 2004). It would be tough not to confuse between behaviors as marks of giftedness along with ADHD (Mika, 2006).

Mika (2006) declares that even if the children are either “only” gifted or gifted with ADHD, we need to go by the ADHD diagnostic criteria in order to comprehend the inattentiveness and restlessness of the children.

To support their contention of a possibility of misdiagnosis between ADHD and giftedness, Hartnett et al. (2004) bring in the concept of overexcitability where they propose a clear discrepancy between psychomotor OE and hyperactivity of ADHD. But in reality, Dabrowski's visions on psychomotor OE entirely overlay with the present notion of ADHD, which was not present at the period when Dabrowski shaped his theory. There exists a high probability that psychomotor OE, like every other OE, is related to high intelligence and special talents (Mika, 2006).

In their book titled *Bright Not Broken*, Kennedy, Banks, and Grandin (2011) reference psychologist Laura Honos-Webb in claiming the positive attributes of ADHD and how they “parallel many of Dabrowski’s overexcitabilities; psychomotor, emotional, sensual, intellectual, and imaginational” (p. 32). Honos-Webb, however, does not equate them with giftedness.

This overlap between overexcitability and ADHD has been examined in a study by Rinn and Reynolds (2012). The study investigated the association amongst features of overexcitabilities and indications of ADHD among the gifted. Their study was expected to offer scholars with some probing, primary statistics in order to initiate a comprehensive course of studying the link between overexcitabilities and ADHD among the gifted. Participants were hired from a summer program for intellectually gifted students at a comprehensive university in the southern United States. One hundred sixteen students (73 males and 43 females) participated in the study. The

results indicated a significant relationship between the psychomotor overexcitability scores and the DSM-IV: Hyperactive–Impulsive subscale scores; between the sensual overexcitability scores and the Conners' ADHD Index subscale scores; and between the imaginational overexcitability scores and the Conners' ADHD Index subscale scores, Inattentive subscale scores, the DSM-IV: Hyperactive–Impulsive subscale scores, and the DSM-IV: Total subscale scores. These relationships were made to clarify that there is a potential relationship between characteristics of overexcitabilities and symptoms of ADHD.

Further, when an OE is expressed to a greater degree, the potential for confusion grows. As Daniels and Piechowski (2009) explain, "More often than not, aspects of intensity are mistaken for indicators of potential pathology rather than signs of a strong developmental potential" (cited in Kennedy et al., Grandin, 2011, p. 15). For instance, a child with psychomotor OE will be more energetic and verbose than his peers, but when this OE is even more noticeable, s/he may distract other students in the classroom, promoting an evaluation for ADHD. This confusion between traits of giftedness and traits of disability often leads to "misdiagnosis, missed diagnosis, and even missed giftedness in twice exceptional children"(Kennedy et al., 2011).

To summarize the discussion the relationships between overexcitability and ADHD, Table 2.4 shows common characteristics of ADHD and each type of OE separately to demonstrate why confusion may arise.

Table 2.4

Common Characteristics of ADHD and OE types

	OE	ADHD
Intellectual	Active minds seeking to gain knowledge Intensely curious, inquisitive Independent thinker and keen observer May become impatient if others do not share their excitement Capable of intense concentration Tend to seek answers and truth	Act without thought of consequence Interrupts others Makes careless mistakes Blurts out answers Always on the move and overactive Hyper focuses if motivated
Imaginational	Drawn to complex, imaginative schemes Rich imagination, fantasy, animistic thinking Daydreaming, dramatic perception May mix fact and fantasy Create vivid imaginary worlds Think visually Use metaphorical language	Is easily distractible Daydreams May appear not to be listening when spoken to Is unable to shift attention
Emotional	Shows concern for and reaction to the environment around them Form strong emotional attachments to people, places and things May become quite angry when they discover that their sensitivity is not shared by others Characterized by intense feelings Increased emotional sensitivity	Has difficulty making and keeping friends Has difficulty reading social cues Gets feelings hurt easily

Sensual	Sensory aspects of everyday life more than others Seeing, smelling, tasting, touching, hearing flicker and buzz of fluorescent lights Odors give them headaches react strongly to the taste or texture of certain foods	Easily distracted by extraneous stimuli When younger, difficulty accepting soothing or holding sensitive to odors sensitive to fluorescent lights in the class
Psychomotor	Have a enhanced excitability of the neuromuscular system capacity for being active and energetic Love movement, and show a surplus of energy Intense physical activity Feels the need for action. When feeling emotionally tense, they may talk compulsively, act impulsively, display nervous habits, show intense drive Misbehave and act out. Never sits still, talk constantly Bodies are likely to fidget in their excitement	Has high energy and enthusiasm Talks incessantly Challenges authority Stubborn, bossy, defiant Has frequent tantrums Often fidgets with hands or feet Often runs about or climbs excessively Often has difficulty awaiting turn Often interrupts or intrudes on others

Source: Webb, 2005, p. 14-16; Kennedy, 2011, p. 20.

F. Culture and Gender Identification in Gifted Students

Giftedness can be found in all cultures and articulated through a variety of behaviors (Baldwin, 2005). However, the process of identifying giftedness has been very complicated, widely argued and filled with controversies (Sarouphim & Maker, 2010). However, a definition of culture needs to be established. A definition that fits this study's purpose is by Shade, Kelly and Oberg (1997) that states: "culture is a social system that represents an accumulation of beliefs, attitudes, habits, values and practices

that serve as a filter through which a group of people view and respond to the world in which they live" (p. 19).

In summarizing the relationship between culture and intelligence, Robert Serpell (2000) provides three perspectives under the umbrella of: culture as a language, culture as a womb, and culture as a forum. Culture as a language means that

> "each human culture constitutes a distinctive system of meanings for representing the mind, within which the concept of intelligence is defined. According to the womb metaphor, different human cultures generate different kinds of nurturing environment for growth of a person that stimulate or mold the development of the individual's intelligence in different ways. According to the forum metaphor, the culture shared by a community gives rise to, and feeds off, debates among its members about such matters as how to organize education and preoccupations of various participants in those debates assign particular significance to intelligence" (p. 549).

As Serpell (2000) noted, "its range of connotations includes not only a particular set of mental functions but also the value-laden concepts of appropriateness, competence, and potential" (p. 549). Perceptions of intelligence can vary significantly across cultures, which is the case when comparing Western and African cultures. English usage of the term intelligence can be clustered around the following characteristics: "clever, sensible, witty, observant, critical, experimental, quick-witted, cunning, wise, judicious, and scrupulous" (Serpell, 2000, p. 45). In the United States and other English speaking industrialized societies, a person with some of the above characteristics is viewed as someone who will very likely succeed in life. In contrast,

some African tribes consider intelligence as having cultural values, showing respect for elders, caring for young children, and showing attentiveness, understanding, trustworthiness and obedience. They place more emphasis on cooperation and responsibility (Serpell, 2000).

Gifted students in schools are underrepresented. Ford and Harmon (2002) explain that the main reason for this underrepresentation is, as they call it, a "deficit perspective" that influences the access of gifted, culturally diverse students into gifted programs. The deficit perspective assumes that students who are economically disadvantaged and belong to minority groups are 'cognitively inferior' because they fail to meet the traditional criteria for placement in gifted programs, i.e. score in the 97th percentile or higher on their placement test. This underrepresentation is estimated to be between30 and 70 per cent relative to their percentage in the population (Gabelko & Sosniak, 2002). This shows that the cognitive deficit hypothesis implies that most schools also use this narrow definition of giftedness and intelligence (Ford & Harmon, 2002).

There is also the issue of inadequate policies and practices, and they also play a role in the underrepresentation of gifted students from minority groups. Some policies in the U.S. for example, require that gifted education screening must first begin with a teacher referral, and this poses a problem because teachers (even culturally diverse teachers) under-refer students for gifted services (Colangelo & Davis, 2003). This is problematic especially if teacher referral is the only screening step, as these referrals are often subjective and rely heavily on the expectations and perceptions of students (Colangelo & Davis, 2003). It is even more problematic if no general consensus

regarding the definition of giftedness exists, and if teachers themselves are unclear about that definition.

One of the major findings by El-Khoury and Al-Hroub (in press) is that gender plays a role in giftedness in Lebanon. Two thirds of the teachers stated that there are more gifted boys than gifted girls. Moreover, the Lebanese society and Lebanese school practices view mostly boys as gifted students (Freeman, 2003). According to Freeman (2003), this is not only a Lebanese problem, but an international one, "two boys are chosen for every girl; a strangely stable gender proportion found all over the world, from Britain to China" (p. 2).As Heller (2005) stated, this is a problem because students who are gifted may feel the continual lack of challenge in their classes and therefore cause major behavioral problems and isolation due to the lack of possibility in meeting other students who are gifted (especially to some girls who are gifted in Math and Sciences).

G. Gender and Cultural Differences in the Identification of ADHD

Cultural differences in the diagnosis and treatment of ADHD are important issues to consider because they depend to a great extent on the cultural background of the family and the teachers' perceptions (AAP, 2011). Variations in the prevalence of ADHD depend on the diagnostic criteria that each country uses (Kelowna, 2007). DSM-IV is highly used in the United States; while Europeans have developed their guidelines for hyperkinetic disorder in accordance with the DSM-IV (Graham, Seth, & Coghill, 2007). However, the French do not use the same system as American psychiatrists (Wedge, 2012). The French Federation of Psychiatry developed the CFTMEA (Classification Francaise des Troubles Mentaux de L'enfant et de

L'adolescent). The aim of CFTMEA is to identify and address root causes of symptoms in children with ADHD (Wedges, 2012). Based on the different tools and guidelines used for diagnosing ADHD children, prevalence among countries varies: ADHD remains higher in the US (8%) under the influence of the DSM-IV while it remains under diagnosed in France and Europe (4-5%) (Kelowna, 2007).

Teachers' perceptions of ADHD children might differ according to the child's gender (Maniadaki, Sonuga-Barke, & Kakouros, 2003). Research indicates that there are about 2.5 boys for every girl with ADHD in the community and about six boys for every girl with ADHD referred to U.S.-based clinics (Ohan & Visser, 2009). A similar gender gap in ADHD gender also exists in Australia. This gender gap emphasizes the role that teachers play in identifying and seeking for ADHD; that is because teachers have different expectations and behave differently toward boys and girls (Ohan & Visser, 2009). Boys with ADHD typically exhibit high levels of hyperactivity, conduct problems, aggressiveness and other externalizing symptoms, which teachers perceive to be disruptive and stressful (Sciutto, Nolfi, & Bluhm, 2004). Girls with ADHD, however, tend to exhibit lower levels of disruptive behavior and higher levels of inattentiveness, internalizing symptoms, and social impairment (Sciutto et al. 2004). Girls are considerably under-recognized by teachers and under-referred compared with boys (Groenewald, Emond, & Sayal, 2009). Remarkably, some studies estimate that as many as 50% to 75% of girls with ADHD are missed (Caralee, 2007). A major reason is a bias in teachers' perceptions of boys' and girls' behaviors, which may contribute to gender differences in ADHD referrals (Sciutto, et al., 2004). Girls with ADHD are less likely to be referred because they cause fewer problems in the classroom, while boys' symptoms of impulsivity and hyperactivity are more likely to be observable to the

teachers (Caralee, 2007). Teachers' bias may also be a result of unexplored knowledge of ADHD subtypes (Bauermeister et al. 2007). Research has shown the difficulties teachers have in recognizing girls with ADHD (Groenewald et al., 2009). They are often seen as the most valuable source of information about a child's behavior and any bias in teacher perceptions may have important consequences for the child and the school (Sciutto et al. 2004). In sum, it is critical to investigate the effects of child gender and ADHD types on teachers' perceptions and referral decisions.

H. Gender and cultural differences in the identification of OE

In her study entitled *Comparing overexcitabilities of gifted and non-gifted school children in Hong Kong: does culture make a difference?* Siu (2010) presents the characteristics of OEs among students in Hong Kong, and compares the profiles of OEs among gifted children across cultures. Gifted students have a relatively low Imaginational OE amongst the five OEs. Imaginational OE is quite low with previous cross-cultural findings (Falk, Yakmaci-Guzel, Chang, Pardo de Santayana Sanz, &Chavez-Eakle, 2008).

Parallel results are revealed in Piirto, Montgomery, and May (2008) for the comparison of OE characteristics between American and Korean children. Teachers in Hong Kong might not value the same creativity characteristics as American teachers. Chinese families, similar to those in Korea, expect their children to learn as many academic subjects and skills as possible. The relatively low score on Imaginational OE could imply that gifted students in Hong Kong are not geared towards fantasy, dreams, or desire for the unusual.

Looking into the cultural differences for the gifted groups, Siu (2010) shows that

Psychomotor OE is higher in the American group. The reasons for this might have more to do with culture than with ability. Furthermore, in relation to Sensual OE, there is a difference between genders for both samples, where males scored much lower than females. Perhaps females are more open to sensual expression. The Psychomotor OE is much lower in the Hong Kong sample compared to that of the Canadian sample in North America.

As to gender difference, studies found that gifted males had stronger Psychomotor OE, Intellectual OE (Treat, 2006; Tieso, 2007; Bouchet & Falk, 2001) and Imaginational OE (Treat, 2006; Bouchet & Falk, 2001) than gifted females. On the other hand, in other studies, it was found that gifted females had stronger Emotional OE (Tieso, 2007; Treat, 2006; Bouchet & Falk, 2001), Sensual OE (Tieso, 2007; Treat, 2006; Bouchet & Falk, 2001) and Imaginational OE (Gross et al, 2007) than gifted males. However, some researches did not report any gender difference among OEs (Gallagher, 1985; Bouchet & Fusun, 2006).

Some studies, discussing the OE patterns between male and female gifted students, report that gifted male students have stronger Intellectual OE and Psychomotor OE than their female counterparts (Chang, 2001; Chu, 2003). However, Chang's study (2005) suggests that there were no different OE patterns between genders.

I. Concluding Summary

Being gifted embraces two very complex and apparently contradictory exceptionalities. On the one hand, there is giftedness with its numerous forms of intelligence, expressions and strengths. On the other, "there is the world of disabilities

with its confounding mix of behaviors, abilities, and difficulties. When these two exceptionalities combine within an individual, the result is a puzzling blend of strengths and weaknesses" (Kennedy et al., 2011, p. 17).

As explained throughout this chapter, there exists a significant overlap between the symptoms of ADHD and OE among gifted students; however, little research has been conducted on the relationship between ADHD and overexcitabilities (Rinn & Reynolds, 2012). Such research is limited in the Middle East, rendering it vital to study this relationship in an Arab country such as Jordan. Teachers' knowledge about ADHD and overexcitability should also be assessed by investigating the level of awareness teachers have on both concepts. Such a study is expected to contribute to the strengthening of knowledge in this domain in general, and in an Arab country in particular. The challenge to parents and educators is to tease out the abilities from the disabilities, even when the behaviors that accompany each are broadly similar.

CHAPTER III

METHODOLOGY

This chapter presents the research questions that guided the study, with a description of the adopted research design, method, population, sample, and participants. A description of the data collection procedures that were used, the instruments, and data analysis procedures are also presented in this chapter.

A. Research Design

The aim of this study is two-fold. First, it is to shed light on the misdiagnosis of ADHD in gifted students with one or more characteristic of OE by examining the relationships among characteristics of OEs and symptoms of ADHD among gifted adolescents in Jordan. Second, it is to investigate teachers' ability to identify whether an adolescent (boy/girl) exhibits ADHD or overexcitability symptoms by using vignettes that were given to the teachers and semi-structured interviews that were conducted with sample teachers. The research questions that guided this study were:

1. What knowledge do teachers in Jordan have about ADHD and overexcitability symptoms?
2. What is the relationship between characteristics of overexcitabilities and ADHD among gifted Jordanian adolescent students?
3. How does the gender of gifted students affect the teachers' perceptions of ADHD and/or overexcitability?
4. What are the gender differences in levels of OE in gifted adolescents in Jordan?

In this study, a mixed-method approach was implemented through a combination of quantitative and qualitative research measures. Gall, Gall and Borg (2010) define a mixed methods research study as "a type of study that uses both quantitative and qualitative techniques for data collection and analysis, either concurrently or sequentially, to address the same or related research questions (p. 461)". The bulk of this research adopts quantitative methods because of its focus on correlation analyses that were used to examine the relationship between overexcitabilities and symptoms of ADHD. In addition, the vignettes that were given to teachers reflected how much they are aware of gifted students' behaviors. Qualitative data was collected by conducting semi-structured interviews to further probe their understanding of the characteristics gifted students may display.

B. Study Site

The study took place at the Jubilee Institute in Amman, Jordan since there are no schools for the gifted in Lebanon. Moreover, conducting this research in Jordan was suitable and convenient, since our preference was to conduct the study in the Middle East, and schools for gifted and talented students exist in Jordan. Since the cultures of Lebanon and Jordan are somewhat similar, the study's findings can apply to Lebanon and potentially other Middle Eastern countries.

The Jubilee Institute is a dynamic and energetic acknowledgment to His Majesty late King Hussein, who believed in the power of education in shaping the future of individuals by offering them the keys to success and means for a tough, dynamic, and creative leadership. The Jubilee Institute spreads both national and local educational standards through the extension of advanced curricula and training programs for public

and private school teachers in Jordan and other Arab countries (Issa, 2013). The Jubilee Institute and the Jubilee Center for Excellence in Education is an initiative by King Hussein Foundation (KHF). The Foundation works to maintain and articulate the late King Hussein's enduring commitment to peace and sustainable development within programs that support education and leadership, community development as well as cross-cultural understanding in Jordan and the Middle East (Issa, 2013).

The Jubilee Institute's 21st anniversary took place on November 14th, 2014. The event was hosted by Her Majesty Queen Noor Al Hussein and His Royal Highness Prince Hamzah. Established in 1993, the Institute graduated outstanding students irrespective of their socio-economic background. The Institute offers academic and leadership excellence for outstanding students from Jordan and beyond with special emphasis on those in need of financial aid from underdeveloped areas.

Today, the Institute believes in social equity and economic development of nations, in line with King Abdullah II's vision on the importance of quality education for a thriving economy. It provides an exceptional atmosphere that promotes innovation, critical thinking, leadership, and conflict-resolution skills.

C. Method

1. Participants

Participants included 265 gifted students at the secondary level. They were randomly selected from grades nine to twelve from Jubilee School for gifted students in Amman (91 girls, 174 boys). Their ages ranged between 14- 18 years. These students filled out a questionnaire. Additionally, 46 out of 60 teachers in the school agreed to

participate in the study, 32 females and 14 males, teaching grades 9 through 12 in Jubilee School participated in this study. Teachers were asked to study five vignettes and reflect on them based to what they have studied and the experience they have had with gifted students. In addition, three teachers per grade level out of the 46 teachers who participated in the questionnaire were interviewed, leading up to a total of 12 teachers. The researcher chose 3 teachers from each grade level randomly to participate in the semi-structured interview.

2. Instruments

For the following study, different instruments were used and administered for teachers and students. For students, an OverExcitability Questionnaire (OEQII), 50 items, was administered on one day. *Conners' 3rd Edition Self-Report Scale* which is a 99-item scale was given on another day. Participating teachers were given a demographic questionnaire available in both English and Arabic to gather information such as age, gender, universities attended, number of courses taken on gifted students, and years of experience. They were also asked to read 5 vignettes that describe characteristics of a gifted adolescent and answer the questions related to the vignette. Finally, 12 teachers were asked to participate in a semi-structured interview.

A. Overexcitability Questionnaire (OEQII).

The questionnaire used was a Jordanian version of the Overexcitability Questionnaire-Two (OEQ-II), that is a 50-item, self-rating questionnaire, measuring OE using a 5-point Likert scale with responses ranging from 1 (not at all like me) to 5 (very much like me) (Bouchet & Falk, 2001; Falk, Lind, Miller, Piechowski & Silverman, 1999, as cited in Al-Onizat, 2013). It is designed to measure the five forms of overexcitability:

psychomotor, sensual, imaginational, intellectual and emotional (ten items randomly distributed that assess each of the five overexcitabilities). For instance, the psychomotor OE score is obtained by adding items 2, 7, 10, 15, 18, 21, 29, 39, 42, 50 and dividing the score by 10. Al-Onizat's study, *The Psychometric Properties of a Jordanian Version of Overexcitability Questionnaire Two, OEQII* (2012) reveals that the Jordanian version of the OE questionnaire II is a valid and reliable tool. The author established its validity by translation and back-translation of the English language version into Arabic, followed by content validity using expert judgment and a pilot study using items in Arabic. Ten experts at Jordan University and Amman Arab University then reviewed the translated Jordanian version of the questionnaire. Their remarks and recommendations were utilized to adapt and enhance the items in the Jordanian version. Factorial validity showed that "Correlation coefficients ranged between (0.30 - 0.69) for the Imagination Overexcitability, and between (0.48 - 0.69) for the Intellectual Overexcitability, and between (0.34 - 0.67) for the Sensual Overexcitability, and between (0.46 - 0.78) for the Psychomotor Overexcitability, and between (0.37 - 0.60) for the Emotional Overexcitability" (Al-Onizat, 2013). Since all these values are acceptable, the questionnaire, therefore, is a valid instrument that can be used in this study. The researcher administered the questionnaire to the students in their classrooms.

The reliability of the questionnaire has been examined in terms of internal consistency (Cronbach-a), and test-retest reliability coefficients ranged from 0.73 for Psychomotor Overexcitability to 0.85 for Imagination Overexcitability. The Internal consistency coefficients ranged from 0.74 for Psychomotor Overexcitability to 0.84 for Intellectual Overexcitability.. All outcomes suggest that the questionnaire is valid and reliable in the Jordanian context (Al-Onizat, 2013).

B. Vignettes.

Teachers' expectations about student gender in accordance with their OE subtype was assessed using the teachers' responses to questions based on five vignettes, including the five types of OE; psychomotor, imaginational, intellectual, sensual and emotional. Vignettes describe five adolescents: Sami, Samia, Samer, Samar and Walid, aged 16 and 17, who show symptoms that clearly meet the criteria for each of the five types of OE. Each vignette addresses an OE type. Two experts in the gifted education field were consulted and asked to study the vignettes and check for content validity. These vignettes enabled the researcher to not only study teachers' knowledge and perceptions of the different subtypes of OE, but also the underlying biases that teachers may show for boys or girls in a Middle Eastern context, specifically in Jordan. All this was used in the quantitative part of the research. For the purposes of this study, Webb's (2005) vignette questions were adopted and modified as needed to support this study. An identical set of seven questions accompany each vignette with only names changed to match the child in the vignette. Teachers provided a rating for each question on a Likert-type scale from 1 to 3, with 1 (not at all), 2 (moderately), and 3 (extremely) (See Appendices A, B, C, D, E & F). The last question was addressed to know if teachers still maintained the same diagnosis if a student's gender were changed.

As previously mentioned, the five vignettes addressed the different types of OE; the first was about Sami, a boy who has Psychomotor OE; the second about Samia, a girl who has Emotional OE; the third about Samer, a boy who has Imaginational OE; the fourth about Samar, a girl who has Intellectual OE; and the fifth and last about Walid, a boy who has sensual OE. Teachers had time to read the vignettes and answer questions about each.

Although the five types of OEs provide an excellent framework for understanding the intensity and sensitivity of gifted individuals, they can also lead to confusion when looking at the gifted and talented adolescent. Each OE can lead to behaviors identical to those found in children with ADHD, Asperger's or autism and related conditions (Kennedy et al., 2011). Therefore, these vignettes were used to gather data and check what teachers are aware of and how these confusions can be dealt with in order not to misidentify a gifted adolescent. These vignettes were validated by two experts from the educational field. They were consulted and asked to study the vignettes and check for content validity. These vignettes enabled the researcher to not only study teachers' knowledge and perceptions of the different subtypes of OE, but also the underlying biases that teachers may show for boys or girls in a Middle Eastern context, specifically in Jordan.

C. Conners' 3rd Edition Self-Report Scale.

Conners' 3 (ADHD/ DSM-V) is the most recent scale for Conners. It is a 99-item self-report scale aimed to measure Attention Deficit/Hyperactivity Disorder (ADHD) and its most common co-morbid problems in children and adolescents aged 8 to 18 years. A 4-point Likert scale is used with responses ranging from 0 (not true at all, never, seldom) to 3 (very much true, very often, very frequent) and results in four subscale scores; Conners' ADHD Index, DSM-V: Inattentive, DSM-V: Hyperactive-Impulsive, and DSM-V: Total, combined inattentive and hyperactive type (Conners, 2008). High results on the Conners self-report scale might indicate the need for special education. Conners self-report scale has proven to be a reliable and dependable tool capable of supporting teachers, counselors as well as psychiatrists in the diagnostic and identification process (MHS, 2014). Conner's ADHD/ DSM V Adolescent scale was

translated to Arabic (see Appendix I) since it is only available in English. Its validity was checked with 10 gifted adolescent students in Jubilee Institute before commencing the study.

D. Semi-structured Interviews.

The purpose of conducting interviews is to "gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena" (Opdenakker, 2006, p. 11). According to Quai (2003), there are three types of interviews: unstructured, semi-structured and structured. Unstructured interviews provide a broad purpose statement that is used in lieu of a guide; respondents determine subject matter. Semi-structured interviews are topic areas, which are used to form a discussion guide outline, yet no specific questions are included. Structured interviews are a defined set of questions (i.e. guidelines) used to guide the discussion" (p. 6).

For this study, semi-structured interviews with open-ended questions were adopted. Open-ended questions allow participants to answer from different angles, giving them the opportunity to express their thoughts and feelings (and perceptions) based on their specific situation (Escalada, 1997). Individual interviews can often provide in-depth context, stories, and discussions related to one or more topic. Although face-to-face interviewing is a more costly and time-consuming method than simply having participants fill out surveys, they allow the Researcher to select the sample of participants, in this case, male and female elementary school teachers teaching different subjects, and with years of experience, to balance the demographic profile of the sample (Kelley, Clark, Brown, & Sitzia 2003).

Interviews generally allow for focused discussions and follow-up questions. In addition, several participants offer more information in interviews than they would in a

group context. The teachers would feel more comfortable discussing the issues when they are one-on-one with the researcher. They might include more recommendations and insight than when discussing the issues in front of their peers. Furthermore, usually, interviews are a great source for stories and context. More importantly, the interviewer can observe the non-verbal behaviors of the interviewee (WBI Evaluation Group, 2007).

Some disadvantages for conducting interviews include the time requirements for interviewers and interviewees, which can be significant. Furthermore, there is the issue of sensitivity, where participants may have some personal issues that they may not want to discuss with the interviewer (WBI Evaluation Group, 2007).

However, in the present study, the advantages outweigh the disadvantages, so interviews were part of our data collection procedure. They were not tape recorded, but teacher's responses were recorded in a notebook as direct quotes.

The interview was divided into four parts, namely: definitions of giftedness, characteristics of ADHD in gifted adolescents, Definition of OE, and overlap and misconceptions between OE and ADHD. Each of these parts pertains to the study's research questions. For the first part of the interview, definitions of giftedness, questions asked were about how the definition the school uses to identify giftedness. The interview then included questions about characteristics that gifted adolescents displayed and the teacher's opinion about the relationship between gifted adolescents and ADHD characteristics. The third part of the interview focused on the definitions of OE and the teacher was asked to name the types of OE, if possible. The last part of the interview was about the overlap and misconceptions between OE and ADHD (See Appendix G).

D. Data Collection Procedures

Data collection took place at the Jubilee Institute in Jordan. The Researcher first obtained the Institutional Review Board's (IRB) approval, and then contacted the Institute's Director to arrange a meeting. During that meeting, the Researcher explained the purpose of the study and asked for permission to access the Institute and distribute surveys among the teachers and students. Participation of the teachers and adolescent students was voluntary. A flyer posted the school bulletin boards were used as a recruitment tool to solicit teachers to participate (See Appendix H).

Teachers and students who agreed to participate in the study then filled out the questionnaires. Parental consent was required for participating students.

As for students, a parental consent form was sent home with all the students in the school, and after a couple of days all the forms were sent back. After the approval of parents, adolescents were given the choice of whether they would like to participate in the study or not. The consent form stated that they will have to participate in an Overexcitability Questionnaire (OEQII) and another 99-item questionnaire; Conner's.

The OE Questionnaire-Two, OEQ-II, was administered to participants in a classroom. The Researcher first explained the purpose and importance of their participation, then distributed the questionnaires and guide them on how to answer the questions. They were informed that all answers will remain strictly confidential and only be used for purposes of this research. Participating students were given a demographic questionnaire to gather information such as gender and age, among other things. Other data on the participating students was gathered from the school itself, including socio-economic background and grade level.

Participating teachers were given vignettes and asked to answer the questions related to the student's behavior. Five vignettes were given to each teacher; including adolescent boys and girls to check for teachers' gender perception. Participating teachers were also given a demographic questionnaire available in both English and Arabic to gather information such as age, gender, universities attended number of courses taken on gifted students, and years of experience. The researcher then conducted semi-structured interviews with twelve teachers.

E. Data Analysis

Descriptive analysis for the semi-structured interviews (qualitative data) was used, whereas in examining the relationship between overexcitabilities and the symptoms of ADHD, a quantitative research approach was mostly adopted because of its focus on correlation analyses. The Statistical Package for Social Sciences (SPSS) software was used to analyze data collected from the demographic questionnaire and Overexcitability Questionnaire II (OEQII). The Conners self-report scale has scoring options that were used for the MHS Online Assessment Center and the MHS Scoring Software; DSM-5: DSM Symptom Scales are scored based on diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) (MHS, 2014). It was used to provide descriptive statistics about the demographic characteristics of the students and teachers participating in the study.

To answer the first research question (What knowledge do teachers in Jordan have about ADHD and overexcitability symptoms?), descriptive analysis was used to examine how many of the teachers had misconceptions about ADHD.

To answer the second research question (What is the relationship between

characteristics of overexcitabilities and ADHD among gifted Jordanian adolescent students?), Pearson correlation was used to compare OE and ADHD symptoms (between both since gifted students may be exhibiting ADHD symptoms). A correlation of 0.5 or above was considered a positive correlation between ADHD and OE among students.

As to the third research question (How does the gender of gifted students affect the teachers' perceptions of ADHD and/ or OE?) teachers' responses to the vignettes and all their answers to how serious the boy or girl's behavior were distributed in a table.

Finally, in order to add on to this research and for further analysis, independent t-test was used to answer the fourth research question:"What are the gender differences in levels of OE in gifted adolescents in Jordan?", to find if there is significant differences between boys and girls in the different types of OEs.

CHAPTER IV

RESEARCH FINDINGS

The results in this chapter are divided into four parts, each addressing one of the research questions that guided this study. The first part focuses on the knowledge of Jordanian teachers on ADHD and OE symptoms; second part concentrates on the characteristics of OEs and ADHD among gifted Jordanian adolescent students on the basis of teachers' perceptions as well as students' responses to the Overexcitability questionnaire and Conner's self-report scale; the third is about Jordanian teachers' perceptions of gifted male and female students with characteristics of ADHD and/or overexcitability; and the fourth part is about levels of OEs in gifted adolescent boys and girls in Jordan.

The results of this study are thematically presented; each section is either about the questionnaires, semi-structured interviews, or a combination of the survey results of teachers and semi-structured interviews. To maintain the confidentially of data provided by participants, neither the students nor teachers' real names are used below.

A. Knowledge of Jordanian Teachers on ADHD and OE Symptoms

During my stay at the Jubilee Institute in Jordan, I interviewed 12 faculty members including teachers, and one counselor. The interviewed participants taught classes ranging from grades 9 to 12. The research question "What knowledge do Jordanian teachers have on ADHD and overexcitability symptoms?" is answered in four different parts: (a) how Jubilee school teachers define the term giftedness, (b) teachers' knowledge on characteristics of ADHD in the gifted adolescents, (c) definition of

overexcitability; and (d) whether teachers think there is an overlap between OE and ADHD characteristics, and the misconceptions they might have about characteristics of ADHD and/ or OE in the gifted adolescents. For this part, the bulk of the findings will be discussed and noted from the qualitative part of the study, the semi-structured interviews with 12 teachers.

1. Knowledge of Jordanian Teachers about "Giftedness"

Jordanian teachers were asked: "how do you decide whether a student in [your] school is gifted?" Their responses varied but all agreed that it is neither one teacher nor one grade that determines whether a student is gifted. Rather, they decide if a student is gifted based on a combination of social, emotional and cognitive aspects. Teachers noted that in addition to reviewing students' grades from previous years, students must sit for tests and one-on-one interviews.

Ziad, a grade 12 computer teacher, stated that students do not have to be gifted and talented in every way. Some of them might be gifted in sports, in arts, or even in sciences. Generally, in order to accept a student in Jubilee school, s/he must have a very high grade point average, and must sit for an entrance exam and an interview. Upon acceptance, the student is enrolled in the summer school program for examination of his or her ability to adapt to the school's environment.

Iyad, another grade 12 teacher, said there are certain exams given to gifted students, but that he does not really know the exact characteristics."

Manal, a grade 11 Arabic teacher and a supervisor in Jubilee school mentioned that "special tests" are done to figure out whether or not a child is gifted and talented.

The schools or parents usually refer the children to the Jubilee Institute. Grades are one criterion, and not the only factor of consideration for admittance. She also added that when students are candidates for entry at the school their names are announced in local newspapers, after which they are contacted for interviews.

When a grade 11 teacher, Sanaa, was asked about the definition of giftedness she said, "I guess that a gifted student here must have a wider and broader imagination than a student who is not gifted, aware of all the words s/he is saying, gives unexpected information and ideas, has a sense of responsibility, is aware of everything s/he is doing, is able to work in a group setting as well as being a leader, all this is very important. In addition, of course, time management."

Issam, a grade 11 teacher answered that the school usually has specific standards to decide whether a student is gifted or not. The student sits for an exam and has a scheduled interview whereby the committee can decide on his/her acceptance.

Faten, a grade nine teacher stated that it is not teachers who decide whether a student is gifted; there are certain exams and interviews that students take before the final decision is made. But in general, Faten believes that Jubilee school students differ from other students in regular schools in terms of criteria selection for gifted programs; meaning that it is not only grades that are taken into consideration, but the individual as a whole.

A grade ten teacher, Farouq, stated that a gifted student in Jubilee school has a wide range of information, an ability to reflect, analyze and synthesize information, and has more than one answer or solution to any problem they are presented with.

Nadia, a grade nine teacher, states that the gifted student in Jubilee school grasps information quickly, and generates creative answers. When she works with gifted students in the lab, she expects them to be creative in experimenting, analyzing and synthesizing information, as well as formulating new ideas from the experiments they are conducting.

Furthermore, Mo'az, a grade nine teacher in the school said that "usually giftedness comes from a student who has unique thoughts, unheard of by anyone else before; the student is also very intelligent and grasps ideas quickly."

Finally, Iman, a grade nine teacher and counselor at the school declared they usually have students sit for exams prepared and revised by university professors. These exams test their academic abilities, after which students undertake subsequent tests to examine their social and cognitive abilities. Finally, students are called for an interview upon which the decision for acceptance is made. Once accepted, an English exam is usually given. Although there is no passing or failing; those with the highest grades are considered priority students.

2. Knowledge of Jordanian Teachers about ADHD Characteristics in Gifted Adolescents

Jordanian teachers were interviewed and asked about characteristics of ADHD in gifted adolescents. The findings revealed that at least five of the teachers interviewed were unsure what the term "ADHD" meant. They claimed that gifted students have little self-control especially since they understand and grasp concepts quickly. They may become easily bored and distract others in the classroom, which bothers teachers. Iyad, a grade 12 teacher stated, "Definitely, I notice ADHD being exhibited a lot in the

classroom with gifted students. Some cannot sit still, others constantly feel the urge to change their seats, and sometimes you will see them sitting on the table.

Manal, who has been an Arabic teacher and a supervisor for 18 years in Jubilee school, remarked:

> "Yes, the gifted student grasps concepts quickly and depending on his/her interest, might pay attention to what I am saying. Sometimes the student might react this way because s/he already knows the information I am explaining; that is why we need to be careful when talking about gifted and talented students. Sometimes, the home environment also plays a role affecting students' hyperactivity and behavior as well".

Other teachers argued that characteristics of ADHD are displayed to a lesser degree in gifted students. For instance, Farouq said, "Sometimes a student might be very polite in class, while other times there would be a student who is very energetic and would not even stop talking and/ or moving". So far, and for the past few years, Farouq has noticed a trend. The more polite students are the more gifted and talented they tend to be. He observes that gifted students are listening the majority of the time and not interrupting. They still however do participate and talk in class. This does not mean that they are always silent and they do not talk or participate in class, but he says that they are generally polite.

Similarly, Issam, a grade 11 teacher said, "I can tell you that not every energetic or hyper student I see is considered gifted. Some gifted students want to show everyone what they are capable of, so they get really excited trying to prove themselves in their environment." Issam added that occasionally, teachers understand these students, but at

other times, the students get neglected by their teachers and thus their behavior becomes extreme; students then would say: “I have something to say, but you are not listening to me”.

Nadia, a grade nine teacher, perceives herself as a teacher with “old school thinking” and considers that the behavior she sees in gifted students is the exact opposite of what she has in mind for her idea of gifted. Nadia considers herself to be from the “century old” school that views a gifted student as quiet, a high achiever, a good listener, obeys rules and pays attention in the classroom. She is critical of modern schools that consider other characteristics of gifted students, such as being cool and “having a sense of humor”. She noticed that when one student makes a joke, classmates begin to replicate this behavior especially when they know the student is gifted and talented. Nadia also believes that gifted and talented children cannot have ADHD.

In contrast, Iman, the school counselor believes that some students cannot learn unless they are constantly moving, and teachers at Jubilee School can perfectly deal with “very active” or “hyperactive” students. Iman also noticed that some gifted students at Jubilee school could not study unless they were provided with a reticent environment. According to her, gifted students have different personality traits and characteristics.

3. Teachers’ Knowledge about Overexcitability Characteristics in the Gifted Adolescents

Teachers at the Jubilee Institute were asked about the meaning of “overexcitability”, the majority of which were unable to provide an accurate or clear answer. However, a noticeable finding is that when asked about the term

overexcitability in Arabic, which translates into "al hasaseeyaalfa'eqa الفائقة الحساسية", the teachers answered differently. They emphasized "sensitivity الحساسية"and overlooked hyperactivity as a potential aspect in this term; they just translated the term to Arabic and defined the Arabic term. All participating teachers were unable to state or describe the five different types of OE. Some teachers suggested they receive training on "overexcitability" since it relates to the identification and teaching of gifted and talented students at the school.

Khalifa, a grade 12 Arabic teacher, for instance, said that one of the gifted student's characteristics is sensitivity, and this sensitivity is overreaching. He also added that if you try to give a gifted student a certain criticism, s/he might react negatively towards the teacher. However, Khalifa was unable to identify or describe the types of overexcitability.

Ziad, another grade12 teacher, gave a definition of OE from his understanding of the term in Arabic. He said, "The term implies that the student would be very sensitive and that the environment plays a major role in making this student overstressed and more sensitive". Concerning the types of OE, Ziad said, "The term is not generally used in the school so I do not really know".

Manal, a grade 11 teacher and supervisor believes that OE exists in each person but at different levels, although she does not know the different types of OE. As one who talks to and deals with gifted students, Manal mentions that as teachers and supervisors, they continuously have dialogues about gifted and talented students. One characteristic she pointed out was about gifted and talented students being "perfectionists", which in her opinion points to overexcitability. Students competing

with others, or perhaps competing even with themselves qualify them as perfectionists. Due to this overexcitability, during the first two months of the academic year, staff at the school work hard with students and new teachers to ease the students' transition.

Sanaa, a grade 11 Arabic teacher offered her opinion about OE from a different perspective; in which students with OE are reading and writing in Arabic class sharing ideas and experiences. She stated,

> "Most of the time, students are stubborn and they stick to the ideas they have. They are also very sensitive to every comment or word the teacher says. Even when it is just a joke sometimes, some students take it personally. In return, these students are not really sensitive towards others; they are sensitive about their own personality, belongings and intelligence, etc."

Some teachers have immediately tried to provide answers about the different types of OE, others, like Sanaa and Issam, stated that they have never heard of this term before.

Farouq, a grade 10 teacher, who has been teaching for 19 years, gave examples of OE students even though he was not informed about the different types of OE. He assumed that every gifted student has extremely sensitive and over-excitable qualities, from the simplest problem to the most complex. Farouq brings to my attention a case in which a student asked him "why were you pointing at me?", the student expressing anxiety when the teacher had not meant it in a negative way. Farouq believed that since these students are very intelligent with one look they will understand the message you are trying to convey. The teacher must be careful not to offend them when translating a thought or idea directly to them.

4. Overlapping Characteristics between Overexcitability and ADHD in Gifted Students

During the semi-structured interview, one of the questions asked whether teachers considered if there was an overlap between the characteristics of OE and ADHD. Answers varied between yes and no, the majority agreeing that overlapping characteristics do exist.

Once asked this question, Iman immediately answered, "You are talking to someone who is knowledgeable…of course there is an overlap". But she did not provide any specific information or examples about such an overlap. Khalifa, a grade 12 Arabic teacher, believed that a student with ADHD might show signs of OE characteristics, but not to a striking extent. Noha, a grade 10 German teacher, similarly thought that ADHD characteristics do not necessarily overlap with OEs. Likewise, Iyad, considered that these characteristics do not have a strong overlap. A grade nine teacher, Nadia, also assumed that students with ADHD characteristics take things easily and do not get overexcited automatically. She gave the example of a hyper student she had once asked to stop performing a certain activity in class, and he told her "okay sorry Ms." and continued the said activity as if nothing had happened. She added, "Trust me, they are not sensitive towards what I say at all!"

Conversely, of the 12 teachers who were interviewed, seven teachers believe that there are overlaps between ADHD and OE. Manal specified that 10 to 15% of students displaying OE characteristics might lead to a later diagnosis of ADHD. Moa'az believes that there is an unquestionable overlap between characteristics of OE and ADHD.

Ziad, a grade 12 computer teacher, said that some students are confident and know that they are excelling, in turn they become more vibrant and active. That is how the teachers find that these gifted and talented students are actually hyper and sensitive to everything around them at the same time.

Issam, a grade 11 teacher, believes that there is a complex and strong overlap between characteristics of excitable gifted children and characteristics of ADHD. Issam gave an example about the time a student was listening to what he was telling him and the student saying afterwards that he was listening the entire time when in fact the student had not been listening or paying any attention to what was being said. Another example Issam has encountered is the way some grade 12 gifted and talented girls delay themselves from graduating by one year because of how sensitive they get which in turn affects their grade. Issam deems it very important to discuss and explain such an interesting and outstanding topic. He also added that the terms and strategies are even more fundamental for them to continue applying with these gifted and talented students.

B. Relationship between Characteristics of OEs and ADHD among Gifted Jordanian Adolescent Students

Correlation analyses were used to study the relationship between over-excitabilities and ADHD. Correlations of all variables are shown in Table 4.1 below. Low Significant correlations were found between psychomotor OE and Hyperactive-Impulsive ADHD score (r=0.27); psychomotor OE and Combined ADHD scores (r=0.13). Low significant negative correlation was found between Intellectual OE and Inattentive ADHD scores (r=-0.22). Low significant positive correlation was found between Imaginational OE and Inattentive ADHD scores (r=0.19); Imaginational OE and Hyperactive-Impulsive ADHD scores (r=0.23); and Imaginational OE and

Combined ADHD scores (*r*=0.25). No significant correlation was found between Sensual OE or Emotional OE and the three types of ADHD.

On the other hand, in checking whether a correlation exists between the different types of OEs, a noteworthy finding is the moderate significant correlation between Imaginational OE and Intellectual OE (*r = .42*) as well as Imaginational OE and Sensual OE (*r = .40*). In addition, there is a moderate significant correlation between Sensual and Intellectual OE (*r = .43*). Also, a moderate significant correlation was found between Emotional OE and Sensual OE (*r = .45*) and finally between Emotional OE and Imaginational OE (*r =.45*).

Table 4.1

Relationship between the different types of OE and characteristics of ADHD

	Psyc. OE	Intel. OE	Sens. OE	Imag. OE	Emot. OE	In ADHD	Hyp.-Imp ADHD	Combined ADHD
Psychomotor OE								
Intellectual OE	.28**							
Sensual OE	.20**	.43**						
Imaginational OE	.11	.42**	.40**					
Emotional OE	.07	.21**	.45**	.45**				
In ADHD	-.06	-.22	-.12	.19**	.07			
Hyp-Imp ADHD	.27**	.03	-.02	.23**	.04	.37**		
Combined	.13*	-.11	-.09	.25**	.06	.84*	.82**	

C. Gender Differences in Teachers' Perceptions of Gifted Students with ADHD/OE

Forty-six teachers, 32 female and 14 male, took part in this questionnaire that took about 20 minutes time. The findings revealed that only five teachers out of the 46 had attended ADHD training. Five vignettes were given to the teachers to evaluate their students' behavior and to answer six questions. The first five questions were to be answered on a Likert scale between 1 (not at all) and 3 (extremely). These are: How serious was X's behavior? How much would X's behavior hinder his academic progress? How much of X's behavior is common in the Jordanian culture? How ready are you to face X's behavior in your classroom? How stressful would it be to have X as a student? The last question is: "Is X's case considered a case of ADHD, emotional overexcitability, imaginational overexcitability, psychomotor overexcitability, sensual overexcitability, intellectual overexcitability or something else? Please elaborate."

The first Vignette is about a 16 year old Boy (V1-Psychomotor_M), Sami, who exhibits a surplus of energy, rapid speech, intense physical activity, and interrupts the teacher frequently. When completing his assignment he shows carelessness and is inattentive to details; characteristics typical of Psychomotor OE. The second Vignette is about a 16 year old Girl (V2-Emotional_F), Samia, who takes everything to heart, has strong emotions and can feel a mixture of different emotions all at once; characteristics typical to Emotional OE. The third Vignette is about a 17 year old Boy (V3-Imaginational_M), Samer, who wanders into a kind of imaginary creative world and sometimes mixes between fact and fantasy; characteristics typical of the Imaginational

OE type. The fourth Vignette is about a 17 year old Girl (V4-Intellectual_F), Samar, who possesses an endless amount of information on certain topics and jumping to different facts every minute, while the teacher and the rest of the class contemplate the very first concept; characteristics typical of Intellectual OE. The fifth and final Vignette is about a 17 year old Boy (V5-Sensual_M), Walid, who is easily distracted by extraneous stimuli. He is sensitive to odors such as perfumes. At home, Walid's parents realized that he hates tags on clothes, and unless they are cut from the back of his shirt he refuses to wear them; common Sensual OE type characteristics.

The teachers' answers varied on the last question: some answered correctly while others did not (figure 4.1). Most teachers who were asked to answer have been working in the field of education for over five years, some even with 30 years of experience.

Out of the 46 teachers who participated in answering the vignettes, only 12 stated that Sami has psychomotor OE. The other 34 teachers answered differently. In fact, most of them assumed that Sami's behavior was a case of ADHD. Out of the 46 teachers, 23 correctly answered that Samia, in the second vignette, has emotional OE. 28 out of the 46 teachers could tell that the third vignette, about Samer, indicated that he has characteristics of imaginational OE. Samar, the 17-year-old girl, subject of the fourth vignette, was more obvious for teachers to guess; 20 teachers out of 26 answered correctly that Samar has characteristics of intellectual OE. The last vignette was a case about a 17-year-old boy, Walid, having characteristics of Sensual OE. Figure 4.1 shows that 27 teachers could not identify Walid as having characteristics of Sensual OE, while 19 did answer correctly.

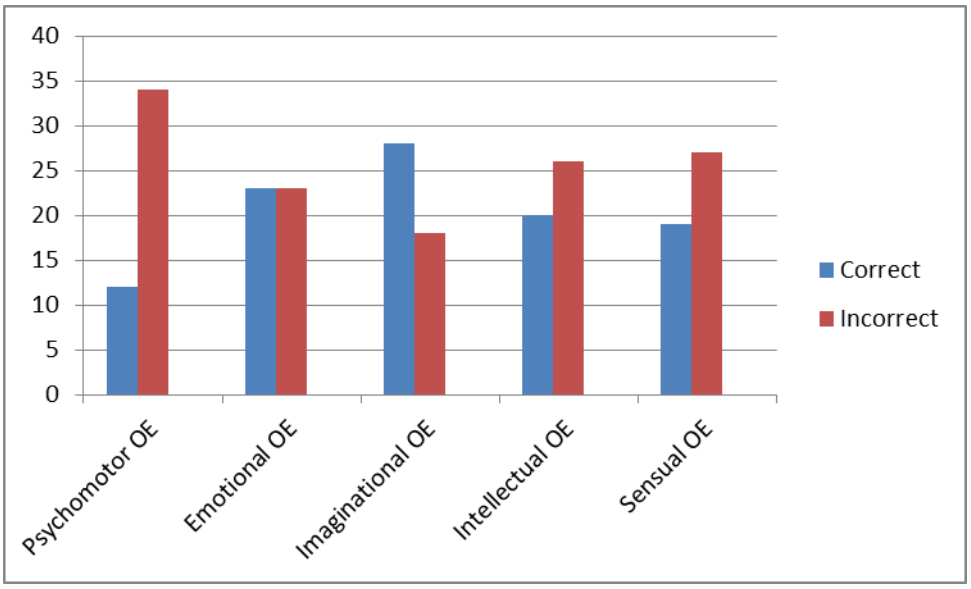

Figure 4.1 Teachers' responses regarding the Vignettes accordingly

Table (4.2) below illustrates the findings what teachers answered for the first question in all the five vignettes; "*how serious is the student's behavior*". Teachers' answers varied and some answered correctly; were able to state what OE the adolescent has, while other did not. In order to examine whether there was a gender bias in the answers referring back to the vignettes, the first question for all five vignettes was compared and analysed. For vignettes that had boy subjects, V1-Psychomotor_M, V3-Imaginational_M and V5-Sensual_M, most teachers answered that the behavior was moderate; i.e. they were not considered extreme behaviors. Whereas for the girl subjects, most teachers found the behavior extreme in one vignette (V2-Emotional_F), while the other was considered moderate (refer to vignettes).

Table 4.2

Teachers' Responses to "How serious is the students' behavior?"

Teachers' Responses on "How serious is the student's behavior?"					
Gender	**Vignette**	**Not Serious At All**	**Moderate**	**Extreme**	**Total**
Male	1 – Psychomotor	4	24	17	45
	3- Imaginational	6	28	11	45
	5- Sensual	6	20	19	45
Female	2- Emotional	3	17	25	45
	4- Intellectual	8	21	16	45

* **Note**: Number of Teachers = 46; Total number of teachers who answered = 45; 1 teacher did not answer all the last questions.

D. Gender differences in levels of OEs in gifted adolescents in Jordan

A total of 265 students participated in the OE questionnaire, 91 female and 174 male. The average of both male and female responses was computed, analyzed and presented in table 4.3 below. The independent sample *t* tests indicated that there were significant differences in psychomotor and intellectual OEs.

Independent *t* test was deployed to find the significant differences between boys and girls in the different types of OEs for the fourth research question. Results for psychomotor OE showed significant differences between boys and girls [t (263) =2.80, $p < .01$] in favor of boys, while significant differences were shown in favor of girls for the Sensual, Imaginational, and emotional OEs as shown in the table. No significant gender differences were found in the intellectual OE. [t (263) = 0.06, $p<.01$] for girls. For the other three OEs, there was no significance observed. For

Sensual [*t* (263) = -5.2, p>.01], Imagination [*t* (263) = -2.02, p>.01], and Emotional OE [*t* (263) = -8.19, p>.01] correspondingly.

Table 4.3

Gender significance in the different types of OE

Type of Overexcitability	***T***	**Sig. (2-tailed) df = 263**	**Mean Difference**
Psychomotor OE	2.80	.01**	0.25
Intellectual OE	0.06	0.96	0.01
Sensual OE	-5.2	.00**	-0.47
Imagination OE	-2.02	.05*	-0.19
Emotional OE	-8.19	.00*	-0.7

*Significant at the 0.05 level (2-tailed).

** Significant at the 0.01 level (2-tailed).

E. Summary of Findings

The purpose of this study was to investigate the teacher's ability at the Jubilee Institute in Jordan to identify whether an adolescent (boy/girl) exhibits ADHD or OE symptoms. Only five teachers out of the 46 who participated in the study had attended previous ADHD training.

The teachers interviewed shared similar ideas when asked to define the term giftedness and how to identify giftedness in students, based on exams. However, as a school, they do not seem to have a common definition for the term giftedness.

The study revealed that while some of the teachers were unable to provide accurate information for the term ADHD, similarly none could provide precise information about the term OE. Instead, all of the teachers provided what they believed

to be characteristics of ADHD and OE, and illustrated their understanding with classroom examples. Some teachers simply translated the word ‘Overexcitability’ to Arabic and defined the Arabic term ‘al hasasseeya al fa’eqa’. Not a single teacher could identify all five types of OE. When provided with concrete examples, in form of vignettes, half of the teachers were able to identify the right type of overexcitability associated with each subject.

During the semi-structured interview, one of the questions asked whether teachers considered there to be an overlap between the characteristics of OE and ADHD. Answers varied between yes and no, the majority agreeing they overlapped without a clear justification as to why.

Statistically, it can be said there exists low significant correlations between psychomotor OE and Hyperactive-Impulsive ADHD. Low significant negative correlation was found between Intellectual OE and Inattentive ADHD scores (r=-0.22).

CHAPTER V

DISCUSSION CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is three-fold: discussing the results obtained, drawing conclusions grounded in the participants' perspectives and connecting them to the literature, and providing implications for research and practice.

A. Discussion

The first part focuses on what Jordanian teachers know about ADHD and OE symptoms. For this part of the question, teachers were interviewed and given vignettes to answer and explore their knowledge.

Teachers' responses varied for defining the term "giftedness" in their school, but the majority agreed that it is neither one teacher nor one grade that determines whether a student is gifted or not. Rather, they decided what qualifies to be considered gifted from a combination of social, emotional and cognitive aspects. In researching gifted students across multiple schools in Lebanon, El-Khoury and Al-Hroub investigated Lebanese teachers' understanding and perception of giftedness. They also explored the identification procedures undertaken and services offered to gifted students. El-Khoury and Al-Hroub (in press) also stated that problems in identifying gifted students exist because there are characteristics and concepts that vary according to the culture, and this gets in the way of agreeing on a single definition. At the end of their study, they define giftedness as "a combination of three parts: high intellectual ability, high academic performance, and social intelligence. High intellectual ability includes high logical thinking, and that the gifted student's scores on the report cards be the highest among

the class. Qualifying for high academic performance means that gifted students excel in one or more academic or subject area. Giftedness also encompasses social intelligence, which means that the student should be a natural leader, take charge of small groups, and be able to deal with real life situations that are mainly applicable in Lebanon" (El-Khoury & Al-Hroub, in press, p.128).

For admission to its program, the Jubilee School employs rigorous selection criteria based on outstanding academic achievement over the last five school semesters—the sixth grade, seventh grade, and one semester of eighth grade. The students start the school in ninth grade and proceed through twelfth grade. The school has its own examination, the Jubilee Scholastic Aptitude Test (JSAT), which measures verbal, mathematical, and logical reasoning abilities. They take the students with the highest scores. Students must reflect leadership potential and positive characteristics, which are assessed on the basis of a personal interview. Each year, about 100 students from private and public schools are selected to join the Jubilee School (Jouaneh Shahin, 2010). However, research must also be done in Jordan and teachers, administrators as well as counselors need a common definition they can refer to.

When asked about characteristics of ADHD in gifted adolescents, the findings revealed that at least five of the teachers interviewed were unsure what the term "ADHD" meant. They claimed that gifted students have little self-control especially since they understand and grasp concepts quickly.

Some teachers did not know what the term ADHD exactly meant. This is something the school administration must take into consideration. Workshops, seminars or even professional development programs must be implemented on a regular basis to

ensure that the teaching team and faculty members know what behaviors or aspects they may encounter upon meeting a gifted adolescent. Berri and Al-Hroub (2016) also found that no common concept of ADHD was particularly agreed on amongst Lebanese teachers, and many debates occurred during the focus group discussion in their study.

Teachers at the Jubilee Institute were asked about the meaning of "overexcitability", the majority of which were unable to provide an accurate or clear answer. As a first glance Over sensitivity and Over excitability are not the same terms; there is a discrepancy in both terms when it comes to English and translating them to another language. Excitability synonyms include affection, desire, excitement, happiness and joy; whereas sensitivity synonyms include awareness, nervousness, sympathy and consciousness. I expected to have 2 categories of teachers; a group who would have insight about the given OE term and another group who would be trying to speculate the given OE term. Unfortunately, none of the teachers was able to give me one clear definition about the term OE and its different types.

All participating teachers were unable to state or describe the five different types of OE. Some teachers suggested they receive training for "overexcitability" since it relates to the identification and teaching of gifted and talented students at the school.

As mentioned earlier, it is vital to have seminars or workshops about the meanings of all these terms including ADHD and OE and how to be able to differentiate and clarify between these characteristics.

I expected that a fresh graduate teacher would have more ideas about dealing with gifted students if their course load included classes on ADHD and/or OE.

Moving on to the five vignettes that were given to the 46 teachers who participated in the study, only 12 of them stated that Sami has psychomotor OE. The other 34 teachers answered differently. In fact, most of them assumed that Sami's behavior was a case of ADHD. This by itself is an indicator that some teachers got confused between psychomotor OE and ADHD keeping in mind that they do not have a precise definition of either term, relying mostly on what was written in the text.

Out of the 46 teachers, 23 correctly identified that Samia, in the second vignette with emotional OE. This result shows that exactly half of the teachers were aware of Samia's emotional OE. Twenty-eight out of the 46 teachers were correctly judged that Samer in the third vignette has characteristics of imaginational OE. This is more than half of the teachers who participated in the study. Samar, the 17-year-old girl, was the fourth vignette assigned for the study. 20 teachers correctly identified Samar with intellectual OE while the remaining 26 did not answer correctly. Most of the teachers were not able to correctly judge that Samar has intellectual OE. The last vignette was a case about a 17-year-old boy, Walid, with characteristics of Sensual OE. Twenty seven teachers could not identify Walid as having characteristics of Sensual OE, while 19 did answer correctly.

Some of the vignettes had descriptive terminology inscribed within the text which made it a bit easier for the teachers to answer the questions; for instance, in the vignette about Samer, the 17 year old boy, explicit mention of "imaginative creativity" and "rich imagination", made it easier for educators to state that he has imaginational OE, rather than select from the other options (See appendix D).

Some teachers might have looked at the choices that they had to choose from beforehand. Since the choices for all vignettes were the same in the last question; Is X's case considered as a case of ADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? , it would have been easier for the teacher to select the right answer.

During the semi-structured interview, one of the questions asked whether teachers considered an overlap between the characteristics of OE and ADHD. Answers varied between yes and no, more concurred that there are overlapping characteristics.

Once was asked this question, Iman immediately answered, "You are talking to someone who is knowledgeable…of course there is an overlap". But she did not provide any specific information or examples about such overlapping.

It is very important to discuss and explain such ambiguous topic especially when it comes to the gifted and talented adolescents. The terms and strategies are even more fundamental for teachers to learn in order to continue to deal appropriately with these gifted and talented students.

From the interviews and questionnaires, it is obvious that teachers lack background knowledge on OE and they do not have solid knowledge about characteristics of ADHD either which makes it hard for them to identify the differences between both of these terms.

1. Relationship between Characteristics of OEs and ADHD among Gifted Jordanian Adolescent Students

Correlation analyses were used to study the relationship between over-excitabilities and ADHD. Low Significant correlations were found between psychomotor OE and Hyperactive-Impulsive ADHD; psychomotor OE and Combined ADHD. The relationship between psychomotor OE and ADHD scores (Hyperactive-Impulsive and ADHD Combined scores) is not surprising, especially since there is an overlap between characteristics of ADHD and psychomotor OE which provides direct evidence for a possibility of misdiagnosis.

Low significant negative correlation was found between Intellectual OE and Inattentive ADHD scores. The relationship between intellectual OE and inattentive ADHD scores showed to have a significant correlation because a student with intellectual OE is intensely curious and inquisitive. Low significant positive correlation was found between Imaginational OE and Inattentive ADHD scores; Imaginational OE and Hyperactive-Impulsive ADHD scores; and Imaginational OE and Combined ADHD scores. Most interestingly was the relationship between Imaginational OE scores and the three types of ADHD. According to these findings, individuals with an imaginational OE are most likely to display characteristics of ADHD, which would therefore increase the likelihood of an ADHD misdiagnosis.

No significant correlation was found between Sensual OE or Emotional OE and the three types of ADHD. Sensual OE did not show a significant correlation with characteristics of ADHD. Although a student with ADHD might display sensitivity to fluorescent lights in the class, it still does not mean that there is a significant correlation.

It is one of the characteristics that students with ADHD might display but it is one of many. Thus, even if a child reacts strongly to a certain taste or texture of certain food or displays any of the sensual OE characteristics, it does not mean that it is correlated with characteristics of ADHD.

No significant correlation was found between emotional OE and ADHD characteristics. Individuals with emotional OE display noticeable and familiar expressions like anxieties, fears, feelings of guiltiness and desperate tempers (Mendaglio & Tillier, 2006). A student displaying ADHD characteristics might have difficulty making and keeping friends, or might have his feelings easily hurt, but these reasons did not prove to be related to emotional OE, or vice versa.

On the other hand, in checking whether there exists a correlation between the different types of OEs, a noteworthy finding is the moderate significant correlation between Imaginational OE and Intellectual OE as well as Imaginational OE and Sensual OE.

In addition, there is a moderate significant correlation between Sensual and Intellectual OEAlso, a moderate significant correlation was found between Emotional OE and Sensual OEand finally between Emotional OE and Imaginational OE.

2. Gender Differences in Teachers' Perceptions of Gifted Students with ADHD/OE

The third question was about Jordanian teachers' perceptions of male and female gifted students with characteristics of ADHD and/or over excitability.

Forty six teachers, 32 female teachers and 14 male teachers took part in this questionnaire that took about 20 minutes. The findings revealed that only five teachers

out of the 46 had attended ADHD training. Only five teachers out of the 46 who participated in the questionnaire had attended ADHD training. This is only 10.9 % of teachers, a very low percentage which might explain why the majority of teachers did not answer the questions correctly, although most of them have been teachers for more than 5 years; ranging from 1 to more than 30 years of teaching.

The findings showed that teachers' answers for the first question in all vignettes; "*how serious is the student's behavior*" that used boys, FVB, TVB and FVB, most teachers answered that the behavior was moderate; i.e. the teachers thought the behaviors that the boys displayed in the vignettes were not considered extreme behaviors. Whereas for the girls' vignettes, most teachers found the behavior extreme in one vignette (SVG).There exists a general bias towards girls that their expected behavior is calm. So any behavior that is not calm is considered by teachers to be extreme for a girl. Whereas for boys, teachers assume that rough behavior is in their nature and their behavior is expected to be more challenging than girls. Therefore, they would not call it extremely bad behavior, but instead moderate.

The different tools and guidelines used for diagnosing ADHD in children among different countries varies: ADHD remains higher in the US (8%) under the influence of the DSM-IV while it remains under diagnosed in France and Europe (4-5%) (Kelowna, 2007).

Research indicates that there are about 2.5 boys for every girl with ADHD in the community and about six boys for every girl with ADHD referred to U.S.-based clinics (Ohan & Visser, 2009). A similar gender gap in ADHD gender also exists in Australia. This gender gap emphasizes the role that teachers play in identifying and seeking for ADHD; that is because teachers have different expectations and behave differently

toward boys and girls (Ohan & Visser, 2009). Boys with ADHD typically exhibit high levels of hyperactivity, conduct problems, aggressiveness and other externalizing symptoms, which teachers perceive to be disruptive and stressful (Sciutto, Nolfi, & Bluhm, 2004). Girls with ADHD, however, tend to exhibit lower levels of disruptive behavior and higher levels of inattentiveness, internalizing symptoms, and social impairment (Sciutto et al. 2004). According to Berri and Al-Hroub, results showed that teachers in Lebanese schools tend to identify boys more than girls as students exhibiting external behaviors or ADHD. Finally, as for programs and services, no structured program seems to exist in Lebanon and in schools (2016).

3. Gender differences in levels of OEs in gifted adolescents in Jordan

A total of 265 students participated in the OE questionnaire; 91 female and 174 male. The average of all means of both male and female was computed and analysed. The independent sample *t* tests indicated that there were significant differences in psychomotor and intellectual OEs.

Studies found that gifted males had stronger Psychomotor OE, Intellectual OE (Treat, 2006; Tieso, 2007; Bouchet & Falk, 2001) and Imaginational OE (Treat, 2006; Bouchet& Falk, 2001) than gifted females.

Chang (2001) and Chu (2003) also reported that gifted male students have stronger Intellectual OE and Psychomotor OE than their female counterparts which support the findings in this study.

B. Conclusion, Implications and Recommendations

This study is to shed light and help prove that ADHD and OE characteristics overlap, but one study is not enough at all. Research and speculations on this topic will and ought to continue. It is an important step because many educators, counselors and even parents do not know about these terms. Both, ADHD and OE characteristics need to be clarified and further assessments need to be done according to cultures.

This issue, which has been confirmed in Jordan, is considered controversial, and since we are inclined towards negative thoughts sometimes, OE characteristics should be considered as positive. Once a teacher, counselor, administrator, or even parents are aware of these characteristics, they will immediately shift to being more tolerant, patient and understanding. It is vital to trigger these characteristics in gifted adolescents for them to achieve and produce something better, while others might think that it is rudeness or inappropriate behavior.

Based on what research shows, many people might mix up characteristics of ADHD with something else. For that reason, and in order not to immediately identify a gifted student, we need to know about this. Teachers with limited knowledge of overexcitabilities may mistakenly confuse their students' disruptive behaviors for disciplinary problems (Rotigel, 2003). Having said that, and with the implications and recommendations that will be discussed below, the author of this study finds it important that Jubilee Institute and all other schools take this research findings into consideration to better serve the gifted students.

1. Implications for Practice and Planning

Many teachers admitted that they never gave giftedness much thought before, so at least now they are aware of Overexcitability. Now that the perceptions of teachers are clearer, we can go on from here and provide more workshops and seminars in order to make more teachers aware of gifted students characteristics and identification procedures. More importantly, we should cater the needs of gifted students as best as we can, using cultural factors and tools that are culturally sensitive, while at the same time nurturing the needs of these students.

2. Implications for Further Research

In this study, we gathered teachers' perceptions of giftedness. There is no one common. Since this study has helped conceptualize the current views on giftedness, the next research studies could include more in depth analysis of identification procedures. This study was very general, as it asked the participants to define giftedness, and how they identify gifted students in their classrooms. Services and programs were said to not exist. However, perhaps there are a few programs, but teachers were not aware of them. Perhaps the future studies could also survey all available programs for the gifted students in Lebanon. Further study is needed to learn about giftedness from students' and parents' perspectives as well, in addition to other school stakeholders (e.g. counselors and principals). In addition, further studies could target other school levels, for example, middle and secondary schools.

3. Recommendations

Many teachers have admitted that they have never thought about Overexcitability and some have never heard of it until now. They enjoyed the topic and said that they are willing to set up meetings for this for the next academic year. In addition, some of the teachers talked about the need for having seminars of even workshops around this topic in order to be able to cater for gifted students and understand them better. This was a recommendation done by some of the teachers. Awareness campaigns for gifted education could be initiated, along with keeping more up-to-date on the current gifted literature.

Additionally, below are strategies that are specifically for each kind of OE, whether psychomotor, imaginational, emotional, sensual, or intellectual (Mika, 2002 & Lind, 2001). Jordanian educators, administrators and counselors will definitely need to adjust to what will fit into their curriculum and Jordanian culture. The same applies to other Middle Eastern countries.

a. Psychomotor Strategies

- Allow time for physical or verbal activity, before, during, and after normal daily and school activities-these individuals love to "do" and need to "do."
- Build activity and movement into their lives.
- Be sure the physical or verbal activities are acceptable and not distracting to those around them.
- Provide time for spontaneity and open-ended, free-wheeling activities. These tend to favor the needs of a person high in Psychomotor OE.

b. Imaginational Strategies

- Sometimes imaginational people confuse reality and fiction because their memories and new ideas become blended in their mind. Help individuals to differentiate between their imagination and the real world by having them place a stop sign in their mental videotape, or write down or draw the factual account before they embellish it.

- Help people use their imagination to function in the real world. Often those who do not want to follow the paths of others are expected to just fit in. Instead, encourage them to use their path to promote learning and productivity-instead of the conventional school organized notebook, have children create their own organizational system.

c. Sensual Strategies

- Whenever, possible, create an environment which limits offensive stimuli and provides comfort.

- Provide appropriate opportunities for being in the limelight by giving unexpected attention, facilitating creative and dramatic productions which have an audience.

- Provide time to dwell in the delight of the sensual and to create a soothing environment. Remember to allow time to just lounge in a warm bath, listen to rain, or just be present in a lovely garden.

d. Intellectual Strategies

- Show how to find the answers to questions. This respects and encourages a person's passion to analyze, synthesize, and seek understanding.

- Provide or suggest ways for those interested in moral and ethical issues to act upon their concerns

- This enables people to feel that they can help, in even a small way, to solve community or worldwide problems.

- If individuals seem critical or too outspoken to others, help them to see how their intent may be perceived as cruel or disrespectful. For example, telling someone "that is a stupid idea" may not be well received, even if the idea is truly stupid.

C. Limitations of the Study

There were various limitations in this study. One limitation is that the study was based on one school only, not having students from other schools for gifted. Stemming from this limitation, the number of female students was less than male students, which does not make equal number in gender, so this might have influenced the results. Another limitation is the fact that I did not include principals and parents in the study, as they are important school stakeholders as well. One more limitation is that I only aimed at studying grade 9 to 12 students. Although we stated before that the reason for choosing grade 9 to 12 students in our study is because Jubilee school is for gifted students within these grade levels, it will be helpful to investigate the students at elementary and middle school levels as well even if it was in a school in the Middle East; outside Lebanon.

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APPENDIX A-M

Appendix A

Demographic Questionnaire for Teachers

1. Gender :

   ----- Male ----- Female

2. Which grade level(s) do you teach?

   ---------- Grade

3. How long have you been teaching?

   ---------- years ---------- months

4. What is your highest level of education?

   _____BA _____BS _____ MA

   _____ TD Other (please specify: _____)

5. What did you major in?

   _____

6. Have you received previous training related to ADHD at school?

   _____ Yes _____ No

If yes, please specify regarding what:

_____

Appendix B

Sample Vignette – Boy 1

Sami is a 16-year old gifted boy. Sami's teacher describes him as showing a surplus of energy that is often manifested in rapid speech, intense physical activity and a need for action. Sami has difficulty restraining his desire to talk in the classroom and interrupts his teacher frequently. When doing his work, he shows usually shows carelessness and persists to be messy and inattentive to details. Sami's teachers and parents often want to tell him to sit down and be quiet.

1. How serious is Sami's Behavior?
   1----------2----------3
   not at all moderately extremely

2. How much would Sami's behavioral hinder his academic progress?
   1----------2----------3
   not at all moderately extremely

3. How much of Sami's behavior is common in the Jordanian culture?
   1----------2----------3
   not at all moderately extremely

4. How ready are you to face Sami's behavior in your classroom?
   1----------2----------3
   not at all moderately extremely

5. How stressful would it be to have Sami as a student?
   1----------2----------3
   not at all moderately extremely

6. Is Sami's case considered as a case of ADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? Please elaborate.

   _____

   _____

Appendix C

Sample Vignette – Girl 1

Samia is a 16-year old girl. Samia's teacher describes her as taking everything to heart; her strong emotions move her to tears. She can feel a mixture of different emotions all at once. Concerning relationship feelings, Samia says that she has emotional ties and attachments. She has difficulty adjusting to new environments; tense stomach, sinking heart, blushing, flushing.

1. How serious is Samia's Behavior?
   1----------2----------3
   not at all moderately extremely
2. How much would Samia's behavioral hinder her academic progress?
   1----------2----------3
   not at all moderately extremely

3. How much of Samia's behavior is common in the Jordanian culture?
   1----------2----------3
   not at all moderately extremely

4. How stressful would it be to have Samia as a student?
   1----------2----------3
   not at all moderately extremely

5. Do you think that you need to provide Samia with more attention than others?
   1----------2----------3
   not at all moderately extremely

6. Is Samia's case considered as a case of ADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? Please elaborate.

Appendix D

Sample Vignette – Boy 2

Samer is a 17-year old boy. In class, his mind wanders into a kind of imaginative creativity world where he clearly visualizes events. Samer's teacher claims that he has rich imagination to an extent where he may become so entranced with his thoughts in a book that he truly does not hear what others say. Samer's teacher adds that sometimes, he mixes between fact and fantasy. At home, Samer's parents realize the same thing.

1. How serious is Samer's Behavior?
   1----------2----------3
   not at all moderately extremely
2. How much would Samer's behavioral hinder her academic progress?
   1----------2----------3
   not at all moderately extremely

3. How much of Samer's behavior is common in the Jordanian culture?
   1----------2----------3
   not at all moderately extremely

4. How stressful would it be to have Samer as a student?
   1----------2----------3
   not at all moderately extremely

5. Do you think that you need to provide Samer with more attention than others?
   1----------2----------3
   not at all moderately extremely

6. Is Samer's case considered as a case ofADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? Please elaborate.

Appendix E

Sample Vignette – Girl 2

Samar is a 17-year old girl. Samar is a good student with an endless amount of information on certain topics. Samar was in class when the teacher listed several famous individuals on the board. The teacher asked, "Who can tell me something about any one of these people?" Samar listened as others offered simple comments and generally accurate information about the people, but then felt very excited and compelled to add some less well-known details of one artist's life. After she gave a true but little-known fact, the teacher said that she would have to check into it, because she was not sure it was correct. Minutes later, Samar asked the teacher a question that seemed irrelevant to the topic because apparently she has been thinking of ways it might apply to other situations.

1. How serious is Samar's Behavior?
   1----------2----------3
   not at all moderately extremely
2. How much would Samar's behavioral hinder her academic progress?
   1----------2----------3
   not at all moderately extremely

3. How much of Samar's behavior is common in the Jordanian culture?
   1----------2----------3
   not at all moderately extremely

4. How stressful would it be to have Samar as a student?
   1----------2----------3
   not at all moderately extremely

5. Do you think that you need to provide Samar with more attention than others?
   1----------2----------3
   not at all moderately extremely

6. Is Samar's case considered as a case of ADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? Please elaborate.

Appendix F

Sample Vignette – Boy 3

Walid is a 17-year old boy. Walid's teacher states that extraneous stimuli easily distract him. He is sensitive to odors, such as perfumes and he is one of the students who are keenly aware of the noise and flicker of fluorescent lights in the classroom. At home, Walid's parents realize that he hates tags, and unless they are cut out of the back of his shirt he refuses to wear them.

1. How serious is Walid's Behavior?
   1----------2----------3
   not at all moderately extremely
2. How much would Walid's behavioral hinder her academic progress?
   1----------2----------3
   not at all moderately extremely

3. How much of Walid's behavior is common in the Jordanian culture?
   1----------2----------3
   not at all moderately extremely

4. How stressful would it be to have Walid as a student?
   1----------2----------3
   not at all moderately extremely

5. Do you think that you need to provide Walid with more attention than others?
   1----------2----------3
   not at all moderately extremely

6. Is Walid's case considered as a case of ADHD, emotional overexcitability, Imaginational overexcitability, Psychomotor overexcitability, sensual overexcitability or Intellectual overexcitability or something else? Please elaborate.

Appendix G

Teacher Interview Protocol

Good morning, and welcome to our interview session on teachers' perceptions of characteristics of giftedness. Thank you for taking the time to come here. Thank you for taking the time to come here.

My name is Malak Krayem and I am a Master student at the American University of Beirut. I would like to understand your views on giftedness, and what characteristics, in your opinion are related to giftedness. Remember, there is no right or wrong answer, but rather your perceptions. Please feel free to share your point of view even if others share a different perception or outlook. Before we start, allow me to remind you to please talk one at a time, and to keep in mind that I am interested in everything you have to say, whether it is positive or negative. All comments are helpful.

Our session will last about half an hour. Before we begin, I would like to get to know more about you. Hello, please tell me your name and how long you have been teaching.

Definition of Giftedness

– How does your school define giftedness?

Characteristics of ADHD and the gifted adolescents

- What are the characteristics that you look for when identifying a student as being gifted?
- What sort of behavior do you expect your gifted student to have?

- What, in your opinion, is the relationship between ADHD characteristics and a gifted adolescent?

Definition of Overexcitability

- Can you give me a simple definition of overexcitability?
- How many types of OE are there?
- How are characteristics of overexcitability related to gifted children?

Overlap and misconceptions between OE and ADHD

- Is there a relationship between overexcitability and ADHD in the gifted?
- Do you think a teacher might find overlapping characteristics with ADHD or overexcitability? Why?
- How can you relate overexcitability to ADHD and giftedness?

Appendix H

60 VOLUNTEERS NEEDED For A RESEARCH STUDY

OVEREXCITABILITIES AND ADHD IN THE GIFTE ADOLESCENTS IN JORDAN

➢ The purpose of this research is to:

1- Shed light on the characteristics of ADHD with Overexcitability in gifted students

2- Examine the relationship between characteristics of OEs and symptoms of ADHD among gifted adolescents

For grade 9-12 gifted adolescents teachers of Jubilee Institute.

- Are you A secondary Teacher?
- Are you teaching gifted students in jubilee institute?
- Are you ready to fill a survey about characteristics of gifted adolescents?

The survey will only take 20 minutes and it consists of a vignette and 6 questions

- **Teachers' participation in this study does not involve any physical risk or emotional risk to them beyond the risks of their daily life.**
- **Participant teachers have the right to withdraw your consent or discontinue participation at any time for any reason.**
- **The findings of this study could be used by policy makers to enhance training and workshops for teachers that are encountering stress.**

***Please note that no monetary reward will be provided for participating in the study.**

Appendix I

Conner's Scale – Arabic Versionالتعليمات

فيما يلي بعض الأمور التي يمكن أن يقولهاالأطفال والمراهقون. أخْبِرْنا، بحسب رأيك، إن كانت الأمور التالية تعبّر عنكَ. إقرأ كلّا منها بعناية، وضع إشارة صح في الخانة المناسبة، حتى تبيّن مدى حصول هذه الأمور خلال الشهر الماضي.

0= خلال الشهر الماضي، هذا الأمر لا يعبّر عني بتاتا. لم يحصل هذا الأمر أبدا.

1= خلال الشهر الماضي، كان هذا الأمر يعبّر عنّي بدرجة محدودة. وكان يحصل في أوقات متباعدة جدا.

2= خلال الشهر الماضي، كان هذا الأمر يعبّر عنّي إلى حد ما. لقد تكرر حصول هذا الأمر في أوقات متعددة

3= خلال الشهر الماضي، كان هذا الأمر يعبّر عنّي إلى حد كبير. لقد تكرر حصول هذا الأمر بشكل كبير

يرجى تحويق (رسم دائرة) حول رقم واحد فقط. إنه أمر مهم جدا أن نجيب عن كل بند، وفيما خص البنود التي تجدها صعبة، حاول أن تحدد الإجابة الأقرب إلى الواقع

اسم التلميذ	.....		
العمر	السنة	الشهر	
الجنس	ذكر	أنثى	
تاريخ الولادة	الشهر	اليوم	السنة .....
تاريخ ملء الاستمارة	الشهر	اليوم	السنة .....

الرقم	السلوك				
1	أقوم بما يطلبه منّي والداي أو البالغين	0	1	2	3
2	أشعر بالتوتر والقلق	0	1	2	3
3	أرغب بإزعاج الآخرين	0	1	2	3
4	أتفوه بأول ما أفكر فيه	0	1	2	3
5	أضيّع الأمور التي أحتاج إليها	0	1	2	3
6	أقاطع الآخرين أثناء كلامهم	0	1	2	3
7	أنا دائم الحركة	0	1	2	3
8	أنا أهرب من المنزل	0	1	2	3
9	أجيب عن السؤال قبل انتهائه	0	1	2	3

10	يعجبني أن يتحدث الناس عني بشيء إيجابي	0	1	2	3
11	أنا أستمتع بالقيام بأنشطتي المفضلة	0	1	2	3
12	أنا أعاني كي أكمل المهام الصعبة	0	1	2	3
13	أنا أسرق من الآخرين (نشل، سرقة حقائب، سرقة مسلحة)	0	1	2	3
14	يلاحظ والداي سلوكي السلبي فقط	0	1	2	3
15	أنا أتعلم بشكل أبطأ من الذين هم في مثل سني	0	1	2	3
16	أنا أكذب كي أتهرب من القيام بعمل ما أو كي أحصل على أمر أريده	0	1	2	3
17	أواجه مشكلات في إنهاء الأمور	0	1	2	3
18	أنا أكسر الأشياء عندما أكون غاضبا	0	1	2	3
19	أنا أجيد القيام ببعض الأمور	0	1	2	3
20	أنا أركض وأتسلق أشياء حتى عندما لا يفترض بي القيام بذلك	0	1	2	3
21	أنا أواجه مشاكل في البقاء منظما	0	1	2	3
22	أنا أتعرض لمشاكل مع الشرطة	0	1	2	3
23	والداي قاسيان جدا عندما يعاقباني	0	1	2	3
24	أنا أجادل والداي	0	1	2	3
25	أنا أتسلط على الآخرين أو أهددهم	0	1	2	3
26	يصرخ والداي عليّ	0	1	2	3
27	يصعب عليّ انتظار دوري	0	1	2	3
28	لا أستطيع القيام بالأمور بالطريقة الصحيحة	0	1	2	3
29	عندما أشعر بالتوتر، تصبح الأمور مزعجة بالنسبة لي	0	1	2	3
30	أنا أبدأ بأشياء كثيرة لكني لا أنهيها	0	1	2	3
31	إنه أمر صعب للغاية أن أنتبه للتفاصيل	0	1	2	3
32	أنا الأشياء	0	1	2	3
33	أنا أتغيب عن الصفوف	0	1	2	3
34	أنا أتكلم كثيرا	0	1	2	3
35	أنا متراجع في أعمالي المدرسية	0	1	2	3
36	أنا أشعر بأني لا قيمة لي	0	1	2	3
37	أنا أقول الحقيقة، حتى إنني لا أكذب كذبات صغيرة	0	1	2	3
38	أنا أبدأ المشاجرات مع الآخرين	0	1	2	3
39	أنا أرتكب أخطاء سهوا	0	1	2	3
40	أنا سعيد ومرح	0	1	2	3
41	يحب الناس أن يبقوا بالقرب مني	0	1	2	3
42	أنا أعاني في إبقاء ذهني مركزا على ما يقوله الآخرون	0	1	2	3
43	أنا أنسى ما يجب أن أقوم به	0	1	2	3
44	أنا لم أعد أرغب في القيام بالأمور التي كنت أستمتع بها	0	1	2	3
45	أنا أجد صعوبة في الرياضيات	0	1	2	3
46	أنا أجد صعوبة في السيطرة على الأمور التي تقلقني	0	1	2	3
47	أنا قاس مع الحيوانات	0	1	2	3
48	أنا أتصرف كالملائكة	0	1	2	3
49	أنا أستسلم بسهولة عندما أعمل على أمر صعب	0	1	2	3
50	أنا أصرف طاقة كبيرة كي أبقى هادئا	0	1	2	3
51	أنا لا أرغب بالقيام بأمور تتطلب مني أن أفكر كثيرا	0	1	2	3

52	أنا أسرق أشياء مهمة عندما لا يراني أحد	0	1	2	3
53	يصعب عليّ الانتقال من عمل لآخر	0	1	2	3
54	أنا سعيد حتى إن كنتُ أنتظر خلف مجموعة كبيرة من الناس	0	1	2	3
55	أحب أن أنتقل من مكان لآخر أكثر من رغبتي في البقاء في مكان واحد	0	1	2	3
56	أنا أعاني من مشكلة في القراءة	0	1	2	3
57	أنا أقوم بأشياء قبل أن أفكر في نتائجها	0	1	2	3
58	أنا بحاجة لمساعدة في إنجاز فروضي المنزلية	0	1	2	3
59	أنا أستخدم سلاحا مثل عصا، حجر، زجاج مكسور، سكين أو مسدس لأخيف الآخرين أو لإيذائهم	0	1	2	3
60	إنه أمر صعب بالنسبة أن أبقى ساكنا في مكاني	0	1	2	3
61	أنا أعاني صعوبة في اتباع التعليمات	0	1	2	3
62	أنا ألوم الآخرين على الأمور الخاطئة التي أقوم بها	0	1	2	3
63	يصعب عليّ أن أركز على ما أقوم به	0	1	2	3
64	أنا أقوم من مكاني عندما لا يفترض بي القيام بذلك	0	1	2	3
65	أنا أعاني من صعوبة في الإملاء	0	1	2	3
66	أشعر وكـأن مولدا يحركني	0	1	2	3
67	أنا أفقد أعصابي	0	1	2	3
68	أنا أشعر بالحزن، أو الكآبة أو الانزعاج لمدة عدة أيام	0	1	2	3
69	والداي يكثران من انتقادي	0	1	2	3
70	أنا أعاني من صعوبة في فهم ما أقرأ	0	1	2	3
71	أنا أعاني من صعوبة في البدء في المهام أو المشاريع المطلوبة مني	0	1	2	3
72	أنا أحب أن أشعل النيران	0	1	2	3
73	العقاب في منزلي هو غير عادل	0	1	2	3
74	أنا أنزعج بسهولة من الآخرين	0	1	2	3
75	أنا متميز في كل شيء	0	1	2	3
76	أنا أنسى الأشياء التي تعلمتها	0	1	2	3
77	أنا أتشتت بسبب ما يحصل حولي	0	1	2	3
78	أن أقتحم البيوت أو المباني أو السيارات للسرقة	0	1	2	3
79	لا أستيطع أن أركز لفترة طويلة	0	1	2	3
80	أشعر وكأنني لا طاقة لي	0	1	2	3
81	أنا أعاني من صعوبة في التركيز	0	1	2	3
82	أن أدمر أشياء تخص أشخاص آخرين	0	1	2	3
83	يتوقع مني والداي الكثير	0	1	2	3
84	يصعب عليّ اللعب أو القيام بأمور بشكل هادئ	0	1	2	3
85	أبواي حازمان جدا معي	0	1	2	3
86	أنا أقوم بأشياء تؤذي الآخرين	0	1	2	3
87	يشعرني الناس بالغضب	0	1	2	3
88	أنا أصبح متحمسا أو ذا حركة زائدة	0	1	2	3
89	لا يهتم والداي بي	0	1	2	3
90	أنا أقلق حول أمور كثيرة	0	1	2	3
91	أنا أخرج من المنزل في ليال كثيرة حتى إن لم أكن مسموحا لي	0	1	2	3

	القيام بذلك				
92	أنا أصدر أصواتا من دون انتباه إلى أن يخبرني أحد أنني أقوم بذلك	0	1	2	3
93	أنا أرتكب أخطاء	0	1	2	3
94	عندما أغضب من أحدهم فإنني أنتقم منه	0	1	2	3

فكر في إجاباتك حتى الآن، بعدها أجب عن الأسئلة التالية

95	أنا أعاني من مشاكل تجعل المدرسة أمرا صعبا بالنسبة لي	0	1	2	3
96	أنا أعاني من مشاكل تجعل إنشاء الصداقات أمرا صعبا جدا بالنسبة لي	0	1	2	3
97	أنا أعاني من مشاكل تجعل الحياة في المنزل أمرا صعبا جدا بالنسبة لي				

أسئلة إضافية

98 هل هناك تعاني من أي مشاكل إضافية ؟

_____

_____

_____

99 ما هي نقاط القوة عندك أو المهارات التي تملكها؟

_____

_____

_____

Appendix J
School Principal Consent Form

American University of Beirut

Department of Education

Direct Approaching

Study Title: Overexcitabilities and ADHD in the Gifted: Misdiagnosis and Dual Diagnosis in Jubilee School for Gifted and Talented in Jordan.

Principal Investigator: Dr. Anies Al-Hroub
Address: American University of Beirut (AUB)
Associate Professor of Educational Psychology & Special Education
Phone: (01) 350 000 Ext: 3053
Email: aa111@aub.edu.lb

Co-Investigator: Malak Krayem
Address: American University of Beirut (AUB)
Beirut – Lebanon
Phone: (70) 646265
Email: mak44@mail.aub.edu

Dear School Principal,

We are asking for the school's participation in a **research study**. Participation is completely voluntary. Please read the information below and feel free to ask any questions that you may have.

A. Project Description

3- This research examines the relationship between characteristics of overexcitabilities and symptoms of ADHD among gifted adolescents in Jordan. Another purpose is to investigate teachers' ability to identify whether an adolescent (boy/girl) exhibits ADHD or OE symptoms using vignettes that will be given to teachers. This study is being conducted for the purpose of a Master's thesis study in Educational Psychology - School Guidance and Counseling at the American University of Beirut. No personal or sensitive questions will be asked as part of this study. The estimated time to complete this study is three months. The expected number of participants is 300 secondary-aged gifted students (150 boys and 150 girls) as well as 60 teachers (fifteen teachers from each grade level, if possible). Semi structured interviews will also be conducted with 12 teachers (three from each grade from grades 9-12). The estimated time for data collection at the school is one month. The results of the questionnaire will be

published in the form of a thesis report and will be available by the AUB Library electronically and in printed form.

4- Teachers that are teaching gifted students will be asked to complete a demographic questionnaire as well as respond to questions based on five vignettes and are free to choose to answer the English or Arabic version of the survey. The questions are intended to collect descriptive data only and answers will be descriptive and exploratory. "When the vignettes are answered, and the demographic questionnaire is filled, it should be submitted in a sealed envelope in a box that will be placed in the school secretary's office."
5- Both, demographic questionnaire and vignettes should take around 20 minutes and will consist of a set of scales and few open-ended questions to collect information strictly needed to answer the research questions of the study.
6- Semi-structured interviews with 12 teachers will be made individually (3 teachers from grades 9 through 12). Each interview will take between 20 to 30 minutes. Teacher's responses will be recorded in a notebook as direct quotes.
7- If the principal agrees, the co-investigator will be provided with a quiet room that will be empty in order to conduct the interviews with teachers.
8- If the principal agrees, the co-investigator will place flyers on the school board as an advertisement about the study for teachers.
9- After the principal's approval, the co-investigator will decide on a time where she will be able to meet with the teachers (after school or maybe in a school meeting) to briefly explain the purpose of the study and what is asked from the teachers as well as the students. Teachers will then have the choice whether they would like to take copies of both consent forms (questionnaire and semi-structured interviews) in whatever language they choose. The forms will be distributed on a table in an organized way (labeled for each form and the language it is in).
10- Concerning students, the co-investigator will take permission from the principal in order to be able to talk to all adolescents (either each class at a time) or as a group if they have a time where they can gather all students of a specific grade level at a time. The co-investigator will explain the purpose of the study and will then tell students that they will be given parental forms first, if parents approve, they will be given another student consent form for them if they agree to participate. Each student will get a hard copy that she/ he will be able to give to his/her parent.
11- Consent forms will be sent to parents checking whether they accept their children's participation in the study or not.
12- After parents' consent, students will be asked to fill in an overexcitability questionnaire. The questionnaire consists of 50 items to measure overexcitability; 10 items measuring each of the 5 overexcitabilities.
13- Students participating in this study will also be given Conner's ADHD/ DSM IV Scales-Adolescent self-report scale to measure symptoms of ADHD. The scale consists of 99 items using a 4-point Likert scale with responses ranging from 0 (not true at all) to 3 (very much true).
14- The students will be brought together (each grade at a time; grades 9 through 12) to one room to fill the questionnaire on one day and Conner's self-rating scale on

another day. Students will be given 20 to 30 minutes to fill the questionnaire on one dat and self report scale on the other day.

15- If you agree that the teachers and students at your school will participate, you will receive a copy of this signed informed consent.

16- Participants will receive the survey on **mm/dd/yy** and have the duration of one week to complete it.

B. Risks and Benefits

Teachers' participation in this study does not involve any physical risk or emotional risk to them beyond the risks of their daily life. Participant teachers have the right to withdraw your consent or discontinue participation at any time for any reason. Teacher's decision to withdraw will not involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in the study will in no way affect your relationship with the school or with AUB. In addition, refusal to participate in the study will involve no penalties of any kind or affect the principals' or teachers' relationship with AUB. The school will receive no direct benefits from participating in this research; however, the outcome of this study is expected to have theoretical and practical implications. First, the theoretical implication is to provide researchers with some exploratory, initial data in order to begin a thorough process of studying the correlation between OE and ADHD among the gifted.

C. Confidentiality

If you agree that the teachers will participate in this research study, the information will be kept confidential. Records will be monitored and may be audited by IRB without violating confidentiality. Principals, teachers, and/or the school's name will never be attached to your answers. The data is only reviewed by the Principal Investigator and the Co-Investigator working on this project. Participants' contact information will be shredded as soon as data analysis is completed.

D. Contact Information

1) If you have any questions or concerns about the research, you may contact Dr. Anies Al-Hroub at 01-350000 ext. 3053 or by email: aa111@aub.edu.lb or Ms. Malak Krayem at 70-646265 or by email: mak44@mail.aub.edu.
2) If you feel that your questions have not been answered, or if you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the following officer at AUB: Social and Behavioral Sciences Institutional Review Board at 01- 350000 or 01- 374374, Ext: 5445 or by email: irb@mail.aub.edu.

E. Participant Rights

Participation in this study is voluntary. There are no monetary rewards for participation in the study. You are free to leave the study at any time without penalty. Your decision not to participate is no way influences your relationship with AUB. A copy of this consent form will be given to you. Teachers and/ or students may skip any questions that they may wish not to answer. Your decision will not result in any penalty or loss of

benefits. If you have any questions regarding your rights, you may call: Institutional Review Board (IRB) on 01- 350000 ext. 5445.

If you agree to permit Secondary Teachers and secondary- aged gifted students in your school to participate in the study, please sign below:

Consent of the school principal: _____

Date: _____

Time: _____

Location: _____

Co-Investigator's Signature:

Appendix K
Teachers Semi-structured Interview Consent Form

American University of Beirut

Department of Education

Teachers Semi-structured Interview Consent Form

Direct Approaching

Study Title: Overexcitabilities and ADHD in the Gifted Adolescents in Jordan.

Principal Investigator:	Dr. Anies Al-Hroub
Address:	American University of Beirut (AUB) Associate Professor of Educational Psychology & Special Education Phone: (01) 350 000 Ext: 3053 Email: aa111@aub.edu.lb
Co-Investigator:	Malak Krayem
Address:	American University of Beirut (AUB) Beirut – Lebanon Phone: (70) 646265 Email: mak44@mail.aub.edu

Dear Teacher,

We are asking for your participation in a **research study**. Participation is completely voluntary. Please read the information below and feel free to ask any questions that you may have.

F. Project Description

1. This research examines the relationship between characteristics of overexcitabilities and symptoms of ADHD among gifted adolescents in Jordan. Another purpose is to investigate teachers' ability to identify whether an adolescent (boy/girl) exhibits ADHD or OE symptoms using vignettes that will be given to teachers. This study is being conducted for the purpose of a Master's thesis study in Educational Psychology - School Guidance and Counseling at the American University of

Beirut. No personal or sensitive questions will be asked as part of this study. The estimated time to complete this study is three months. The expected number of participants is 300 secondary-aged gifted students (150 boys and 150 girls) as well as 60 teachers (from grades 9-12). Semi structured interviews will also be conducted with 12 teachers (three from each grade from grades 9-12). The estimated time for data collection at the school is one month. The results of the questionnaire will be published in the form of a thesis report and will be available by the AUB Library electronically and in printed form.

2. Teachers that are teaching gifted students will be asked if they accept to participate in a semi structured interview that will also be conducted with 12 teachers (three from each grade level if possible).
3. Semi-structured interviews will be made individually (3 teachers from grades 9 through 12). Teacher's responses will be recorded in a notebook as direct quotes.
4. If the principal agrees, the co-investigator will be provided with a room that will be empty in order to conduct the interviews with teachers.
5. The semi-structured interview will take around 20 to 30 minutes.
6. If you agree to participate, you will receive a copy of this signed informed consent as well as the semi-structured interview either in Arabic or in English (according to your preference)
7. Participants will receive the survey on **mm/dd/yy** and have the duration of one week to complete it.

G. Risks and Benefits

Your participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life. You have the right to withdraw your consent or discontinue participation at any time for any reason. Your decision to withdraw will not involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in the study will in no way affect your relationship with the school or with AUB. In addition, refusal to participate in the study will involve no penalties of any kind or affect the teachers' relationship with AUB or the school. You receive no direct benefits from participating in this research; however, the outcome of this study is expected to have theoretical and practical implications. First, the theoretical implication is to provide researchers with some exploratory, initial data in order to begin a thorough process of studying the correlation between OE and ADHD among the gifted. On the other hand, this research is important for practical reasons in setting more efficient goals in identifying gifted children and lessening the misdiagnosis of ADHD in the target population.

H. Confidentiality

If you agree to participate in this research study, the information will be kept confidential. Records will be monitored and may be audited without violating confidentiality. Your name and/or the school's name will never be attached to your answers. Data provided will not be shared neither by another teacher, nor the school principal. The data is only reviewed by the Principal Investigator and the Co-Investigator working on this project. Participants' contact information will be shredded as soon as data analysis is completed.

I. Contact Information

3) If you have any questions or concerns about the research, you may contact Dr. Anies Al-Hroub at 01-350000 ext. 3053 or by email: aa111@aub.edu.lb or Ms. Malak Krayem at 70-646265 or by email: mak44@mail.aub.edu.
4) If you feel that your questions have not been answered, or if you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the following officer at AUB: social & Behavioral Sciences Institutional Review Board at 01- 350000 or 01- 374374, Ext: 5445 or by email: irb@mail.aub.edu.

J. Participant Rights

Participation in this study is voluntary. There are no monetary rewards for participation in the study. You are free to leave the study at any time without penalty. Your decision not to participate is no way influences your relationship with AUB. A copy of this consent form will be given to you. You may skip any questions that you may wish not to answer. Your decision will not result in any penalty or loss of benefits. If you have any questions regarding your rights, you may call: Institutional Review Board (IRB) on 01- 350000 ext. 5445.

Teacher's signature: _____

Date: _____

Time: _____

Location: _____

Co-Investigator's Signature: _____

Appendix L

Parental Permission

AUB Social & Behavioral Sciences Parental Permission Template

Permission for Child to Participate in Research

Study Title: Overexcitabilities and ADHD in the Gifted Adolescents in Jordan.

Researcher: Malak Krayem

This is a permission form for your child/child for whom you are legal guardian to participate in a research study. It contains important information about this study and what to expect if you decide to permit your child/child for whom you are legal guardian to participate.

Your child's participation is voluntary.

Please consider the information carefully before you decide to allow your child to participate. If you decide to permit participation, you will be asked to sign this form and will receive a copy of the form.

Purpose: This research is mainly to examine whether we can find a connection between gifted adolescent students who tend to be excited, have extra energy, display extreme emotions, or extreme reactions to certain things and those who have severe inattention/ hyperactive problems.

Procedures/Tasks: After your consent, students will be asked to complete a questionnaire. The questionnaire consists of 50 items to measure what is called overexcitability; having extra energy, displaying extreme emotions, or even being sensitive to certain things.

Students participating in this study will also be given an Adolescent self-report scale to measure symptoms of in attention and/ or hyperactivity. The scale consists of items with responses ranging from 0 (not true at all) to 3 (very much true).

Your child will be pulled out during class time whereby the co-investigator will agree on a suitable time with the teacher so that s/he is not giving any new material and the student does not miss out class time; non-participating students will be in their classrooms while their friends are filling out the questionnaires.

After the study, all the questionnaires and information filled by the students will be destroyed.

Duration:

If involved in the study, your child will be sitting for two sessions; 20 minutes each in order to answer the questions. The first will be to fill in the overexcitability questionnaire, while the next session will be for the adolescent self-report scale.

Your child may leave the study at any time. If you decide to stop your child's participation in the study, there will be no penalty to you, or your child and you will not lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship, or that of your child, with AUB.

Risks and Benefits: Students' participation in this study does not involve any physical risk or emotional risk to them beyond the risks of their daily life. Participants have the right to withdraw your consent or discontinue participation at any time for any reason. Parents' decision to withdraw will not involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in the study will in no way affect your relationship with the school or with AUB. In addition, refusal to participate in the study will involve no penalties of any kind or affect the principals', teachers' or students relationship with AUB. You will receive no direct benefits from participating in this research; however, your consent will help researchers better understand the connection between gifted students who tend to be excited, have extra energy, display extreme emotions, or extreme reactions to certain things and those who have severe inattention/ hyperactive problems

Confidentiality:

Efforts will be made to keep your child's study-related information confidential. All data from this study will be maintained in a secure locked drawer in a locked office or on a password protected computer. Data will only be reported in the aggregate. No names of individual children will be disclosed in any reports or presentations of this research. However, there may be circumstances where this information must be released. For example, personal information regarding your child's participation in this study may be disclosed if required by law. Also, your child's research data may be reviewed by the following groups:

- The AUB Institutional Review Board or Office of Human Research Protections;
- The sponsor, if any, or agency supporting the study.

After the conclusion of the study, the Principal Investigator will retain all original study data in a secure location for at least three years to meet institutional archiving requirements. After this period, data will be responsibly destroyed.

Participant Rights:

You may refuse to allow your child to participate in this study without penalty or loss of benefits to which you are otherwise entitled. If you are a student or employee at AUB,

your decision about whether or not you allow your child to participate in this research will not affect your grades or employment status.

If you choose to allow your child to participate in the study, you may discontinue his/her participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights you or your child may have as a participant in this study.

The Social & Behavioral Institutional Review Board responsible for human subjects research at AUB has reviewed this research project and found it to be acceptable, according to applicable Lebanese and U.S. federal regulations and AUB policies designed to protect the rights and welfare of participants in research.

Contacts and Questions:

For questions, concerns, or complaints about the study you may contactDr. Anies Al-Hroub at 01-350000 ext. 3053 or by email: aa111@aub.edu.lb or Ms. Malak Krayem at 70-646265 or by email: mak44@mail.aub.edu.

For questions about your child's rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the AUB Social & Behavioral Science Institutional Review Board at 01- 350000 or 01- 374374, Ext: 5445 or by email: irb@mail.aub.edu.

Signing the consent form

I have read (or someone has read to me) this form and I am aware that I am being asked to give permission for my minor child (or child under my guardianship) to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to give permission for my child/child under my guardianship to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form**.**

Printed name of subject	
Printed name of person authorized to give permission for minor subject/participant	**Signature of person authorized to give permission for minor subject/participant (when applicable)**
Relationship to the subject	**Date and time** **AM/PM**

Investigator/Research Staff

I have explained the research to the parent or legal guardian of the child subject/participant before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the parent/legal guardian of the child participant/subject.

Printed name of person obtaining permission	**Signature of person obtaining permission**
	Date and time **AM/PM**

Principal Investigator: Dr. Anies Al-Hroub

Address: American University of Beirut (AUB)

Associate Professor of Educational Psychology & Special Education

Phone: (01) 350 000 Ext: 3053

Email: aa111@aub.edu.lb

Co-Investigator: Malak Krayem

Address: American University of Beirut (AUB)

Beirut – Lebanon

Phone: (70) 646265

Email: mak44@mail.aub.edu

Appendix M
SBS Child Assent Form Template

AUB Social & Behavioral Sciences Assent to Participate in Research

Study Title: Overexcitabilities and ADHD in the Gifted Adolescents in Jordan.

Principal Investigator:	Dr. Anies Al-Hroub
Address:	American University of Beirut (AUB)
	Associate Professor of Educational Psychology & Special Education
	Phone: (01) 350 000 Ext: 3053
	Email: aa111@aub.edu.lb
Co-Investigator:	Malak Krayem
Address:	American University of Beirut (AUB)
	Beirut – Lebanon
	Phone: (70) 646265
	Email: mak44@mail.aub.edu

- **You are being asked to be in a research study. Studies are done to find better ways to treat people or to better understand how kids think about things or how kids and adults may behave at different times.**
- **This form will tell you about the study to help you decide whether or not you want to participate.**
- **You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide.**
- **It is okay to say "No" if you don't want to be in the study. If you say "Yes" you can change your mind and quit being in the study at any time without getting in trouble.**

- **If you decide you want to be in the study, an adult (usually a parent) will also need to give permission for you to be in the study.**

1. What is this study about?

This research is mainly to examine whether we can find a connection between characteristics you display, as a gifted adolescent student who tends to be excited, have extra energy, display extreme emotions, or extreme reactions to certain things and if you have inattention/ hyperactive problems.

2. What will I need to do if I am in this study?

You will need to fill out two questionnaires. The first is a questionnaire to know more about the characteristics you display and it is 5o items. The second one is another scale you will have to fill for the researcher to check whether you show any inattention or hyperactive acts. It consists of 99 questions that you will need to rate from 0 (not true at all) to 3 (very much true). You have the option of filling them either in Arabic or English.

3. How long will I be in the study?

If involved in the study, you will be sitting for two sessions; 20 to 30 minutes each in order to answer the questions. The first will be to fill in the overexcitability questionnaire, while the next session will be for the self-report scale.You will be brought together (each grade at a time) to one room in order to fill the questionnaire on one day and the other on another day.

4. Can I stop being in the study?

You may stop being in the study at any time.

5. What bad things might happen to me if I am in the study?

No anticipated risk and nothing bad might happen if you participate in the study.

6. What good things might happen to me if I am in the study?

Other than helping the researcher in this study, no good things might happen if you participate in the study.

7. Will I be given anything for being in this study?

Nothing will be given in-hand, but of course, the researcher will thank all the students who agree to participate in this study.

8. Who can I talk to about the study?

For questions about the study you may contact Dr. Anies Al-Hroub at 01-350000 ext. 3053 or send him an email: aa111@aub.edu.lb . You can also contact Ms. Malak Krayem at 70-646265 or by email: mak44@mail.aub.edu.

To discuss other study-related questions with someone who is not part of the research team, you may contact the AUB Social & Behavioral Science Institution Review Board at 01- 350000 or 01- 374374, Ext: 5445 or by email: irb@mail.aub.edu.

Signing the assent form

I have read (or someone has read to me) this form. I have had a chance to ask questions before making up my mind. I want to be in this research study.

AM/PM

Signature or printed name of subject	**Date and time**

Investigator/Research Staff

I have explained the research to the participant before requesting the signature above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

Malak Krayem

Printed name of person obtaining assent	**Signature of person obtaining assent**

AM/PM

Date and time

This form must be accompanied by an IRB approved parental permission form signed by a parent/guardian.