



The author of this thesis has granted the University of Calgary a non-exclusive license to reproduce and distribute copies of this thesis to users of the University of Calgary Archives.

Copyright remains with the author.

Theses and dissertations available in the University of Calgary Institutional Repository are solely for the purpose of private study and research. They may not be copied or reproduced, except as permitted by copyright laws, without written authority of the copyright owner. Any commercial use or publication is strictly prohibited.

The original Partial Copyright License attesting to these terms and signed by the author of this thesis may be found in the original print version of the thesis, held by the University of Calgary Archives.

The thesis approval page signed by the examining committee may also be found in the original print version of the thesis held in the University of Calgary Archives.

Please contact the University of Calgary Archives for further information,

E-mail: uarc@ucalgary.ca

Telephone: (403) 220-7271

Website: <http://www.ucalgary.ca/archives/>

UNIVERSITY OF CALGARY

Parental Knowledge, Services and Supports
For ADHD Adolescents in a Substance Abuse Program

by

Cheryl Louise Franceschi

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SOCIAL WORK

FACULTY OF SOCIAL WORK

CALGARY, ALBERTA

NOVEMBER, 2001

© Cheryl Louise Franceschi 2001

ABSTRACT

Involvement, or lack of, by the family, especially the parents, in the diagnosis and treatment processes of Attention Deficit Hyperactivity Disorder (ADHD) in children is an area deserving attention. One negative result of neglected ADHD can be developmental delays, such as substance abuse. The purpose of this study was to identify levels of parental knowledge, what ADHD services and supports had, or are now being accessed by parents and what parents consider are the most troublesome issues arising from ADHD. The non-random convenience sample consisted of 39 parents of ADHD substance abusing adolescents who attended an intake session at Calgary AADAC Youth Services Centre between September 1999, and June 2000. The results of the non-standardized questionnaire revealed, that at least for this sample, ADHD knowledge was not comprehensive, many supports had, or were being, accessed but frustration remained high and behaviour and focus issues were the highest of many parental ADHD concerns.

ACKNOWLEDGEMENTS

A long time coming to fruition, this study is the result of unwavering support and encouragement from many hands, hearts, and brains.

My first thanks must go to my two supervisors, Allan Barsky, who started me on my way, and to Jackie Sieppert, who saw me through to the end. No word of discouragement ever passed my way.

John Scholten and the intake staff at Calgary AADAC Youth Services patiently helped and never mumbled at time passing. Surprise, it actually is finished.

To my dear friend and mentor, April Buchanen, of the Calgary Learning Centre, must go the credit for keeping me organized and moving forward. There is a special place in Heaven for you.

Next, kudos to all my backbenchers: Penelope Jill (sorella mia); my dear dear friends (you know who you be); and, finally, to my Janice, Vittorio, Eugenie, Ian, and Nadia and all the grandkids who are the lights of my life and the inspiration and reason I even started on this venture. May God bless and keep all of you.

DEDICATION

This little affair with words, thoughts and computations is dedicated to four beautiful women: Bonnie Tricker (nee Mitchell), my grade six teacher; Del Koenig, my grade seven teacher, Nancy Loewe, my junior high physical education instructor; and to Norma Stedman (nee Dunsmore), my grade nine teacher, who recently passed away. These kind and long-suffering teachers served their pupils well and still managed time to make a very big difference in the life of one young woman at a major crossroad of life. Thank you, from all the generations and myself that follow (seventeen of us so far).

BIRDS, BEARS, BAGS AND BUNS

The common cormorant or shag
Lays eggs inside a paper bag.
The reason you will see, no doubt,
Is to keep the lightening out.
But what these unobservant birds
Do not notice, is that herds
Of wandering bears come with buns
And steal the bags to hold the crumbs.

TABLE OF CONTENTS

Approval Page	ii
Abstract	iii
Acknowledgements.....	iv
Dedication	v
Poem	vi
Table of Contents	vii
List of Tables.....	viii
 CHAPTER ONE: INTRODUCTION.....	 1
Attention Deficit/Hyperactivity Disorder.....	1
ADHD Definition: DSM-IV	3
ADHD Affects	6
ADHD and Substance Abuse	6
Purpose of Study	7
Personal Connection to Study.....	8
Personal Experience.....	8
Clinical Experience.....	10
Study Synopsis	11
Study Questions	12
The Home Environment	13
Summary	14
 CHAPTER TWO: LITERATURE REVIEW.....	 15
Introduction	15
Overview	15
ADHD Controversies.....	15
DSM-IV	18
ADHD and its Biological Links.....	21
Age of ADHD Diagnosis	22
Comorbidities.....	24
ADHD, Conduct Disorder and Oppositional Defiant Disorder	24
Gender.....	26
ADHD – Substance Abuse Connection	27
Biological Connection	27
ADHD and Abused Substances	28
ADHD Medication and Substance Abuse	32
Psychological Connections.....	33
Social Connections	35
A Conceptual Shift.....	38
ADHD and Education	38
Family and ADHD	40

Summary	43
CHAPTER THREE: METHODS	44
Introduction	44
Study Overview.....	44
Population and Sample	45
Operational Definitions and Instrumentation.....	46
Operational Definitions	46
Instrumentation	47
Ethics	49
Data Collection.....	49
Data Analyses.....	50
Part One	50
Part Two.....	53
Summary	54
CHAPTER FOUR: STUDY RESULTS.....	51
Introduction	55
Instrument Reliability	55
Adolescent Age	55
Questionnaire Results	58
Respondent Scores for Parental Knowledge of ADHD	58
Results from Questionnaire Content Areas	62
Results When Common Knowledge Questions are Included and Removed	63
Summary of Questions 1-10.....	64
Open-Ended Responses.....	65
Question 11	65
Question 12	73
Question 13	76
Summary	79
CHAPTER FIVE: DISCUSSION	80
Introduction	80
Age of ADHD Diagnosis.....	80
Gender	84
Parental Knowledge of ADHD.....	87
Services and Supports	88
The ADHD Family and Support.....	88
Why Support is Necessary	89
Parenting Factors	92
The School System	

Understanding from Others	93
The “Meds” Question	94
Parental and Child Peer Supports.....	95
Limitations of this Study.....	97
Recommendations for Practice and Further Research.....	100
Practice Recommendations	100
Further Research.....	105
Conclusion.....	106
REFERENCES	107
APPENDIX A: Questionnaire on Attention Deficit Disorder.....	127
APPENDIX B: Consent Form.....	129
APPENDIX C: AADAC Thesis Approval	132
APPENDIX D: ADHD Handout.....	133

CHAPTER 1: STUDY RATIONALE

“I will never forget when I was told to get help for my son, eight-year-old Justin’s behavior problem. I obediently made an appointment with my doctor. Justin was diagnosed with Attention Deficit Disorder. The doctor simply stated the diagnosis, and that was it – no sympathy, no information, no hope, no nothing! All I got was a six-month prescription for Ritalin. I didn’t even know how it was supposed to help. When I left the office, I wasn’t even sure if Justin was going to live or not! I had no idea what to expect or how to deal with it.”

(A personal testimony in Anastopoulos, Guevremont, Shelton, et al., 1992, p 505).

Attention Deficit/Hyperactivity Disorder

Attention Deficit Disorder (ADD) has become North America’s number one childhood psychiatric disorder (Hancock, 1996). ADD deeply affects millions of children and their families across North America and, now that it is known that ADD extends throughout one’s life, its implications of negative impact increase. (Maag, Irvin, Reid, Vasa, 1994; Rabiner, 2001). Children with undiagnosed or untreated ADD are “falling through the cracks” and not only face bleak futures themselves but negatively impact all those around. Society owes itself and these children a chance at leading fulfilling and contributing lives. A child also deserves stability, protection and nurturing from the family environment. When ADD is present in the home there is often a high degree of stress that accompanies it. By its nature it also tends to trigger higher stress levels that result from other family problems that may be present.

In order for these families to function in a positive way, the importance of early diagnosis and teamwork interventive strategies that include the family cannot be ignored. Medical, educational and social professions are recognizing this need but interventions can be made difficult through lack of funding, time restraints, accurate knowledge of ADHD etiology/treatment, and, perhaps another difficult yet important hurdle, which concerns the family itself. Ethical issues such as privacy and free agency are part of our country's democratic background. Using these societal laws in appropriate ways, others must realize that parents of ADHD children must be both supported and encouraged in their active and stressful roles, not as part of the problem but as prime interventionists for their children's ADHD diagnosis and treatment. Although not "paid professionals" in their family involvement, these parents are still the major stakeholders in a child's life and the only ones who usually follow the child's development from infancy to adulthood.

Negative developmental outcomes such as the one used in this study, substance abuse, are recognized as distinct possibilities for those children diagnosed with ADHD. Lack of impulse control, hyperactivity, and selective focus are common deterrents for ADHD children when it comes to "fitting in" with societal expectations. An ADHD child that is misunderstood, ridiculed, ostracized, intellectually neglected, or emotionally abused, stands little chance for a normal development from childhood through adolescence and into adulthood.

Diagnosis of ADHD in early childhood, good parental ADHD knowledge and understanding, as well as extensive ADHD services and support systems can make a significant impact for positive developmental outcomes for ADHD children. What are parental concerns in these areas? Do they really understand ADHD and its impact and do they feel they are getting services and supports as they raise their children. What about parents of ADHD children who have grown into adolescents with negative developmental outcomes? Do these parents feel isolated and confused? A myriad of serious questions arise. What about external and internal non-ADHD stresses? Do they exacerbate ADHD and/or visa versa? These questions are examples of the conundrum

faced by the fabric of our society. ADHD is an issue which can't be ignored in our society. The following section looks at the ADHD as it is presently understood today. It is upon these criteria that ADHD diagnosis is made and is accepted as valid in both Canada and the United States.

ADHD Definition: DSM-IV

The American Psychiatric Association Diagnostic and Statistical Manual (DSM-IV) defines ADHD in the following way:

Three subtypes of ADHD are:

1. Predominantly Inattentive Type: if criterion A (1) (see below) is met but not criterion A (2) (see below) for the past six months.
2. Predominantly Hyperactive-Impulsive Type: if criterion A (2) is met but not criterion A (1) for the past six months.
3. Combined Type: if both criteria a (1) and A (2) have been met for the past six months. See below:

For a diagnosis all of the following categories must be present (A – E).

A (1). Inattention: if “six” of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

- 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 to what is being said to him/her; 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 instruction);

- d) Often has difficulties organizing tasks and activities;
- e) Often avoids or strongly dislikes tasks (such as schoolwork or homework) that require sustained mental effort;
- f) Often loses things necessary for tasks or activities (e.g., school assignments, pencils, books, tools, or toys);
- g) Is often easily distracted by extraneous stimuli;
- h) Often forgetful in daily activities.

A (2). Hyperactivity-Impulsivity: at least “four” of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

- i) a) Hyperactivity:
 - (i) Often fidgets with hands or feet or squirms in seat;
 - (ii) leaves seat in classroom or in other situations in which remaining seated is expected;
 - (iii) often runs about or climbs excessively in situations where it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness);
 - (iv) Often has difficulty playing or engaging in leisure activities quietly;
- b) Impulsivity:
 - (i) often blurts out answers to questions before the questions have been completed;
 - (ii) often has difficulty waiting in lines or awaiting turn in games or group situations.

B. Onset of above symptoms must be no later than age seven.

- C. Symptoms must be present in two or more situations (e.g. at school, work, and at home).
- D. The disturbance causes clinically significant distress or impairment in social, academic, or occupational functioning.
- E. Does not occur exclusively during the course of Schizophrenia or other Psychotic Disorder, and is not better accounted for by Mood, Anxiety, Dissociative, or Personality Disorder (American Psychiatric Association, 1994).

It is important to mention that an accurate diagnosis can only be made by a qualified professional who's familiar with an individual's history.

In short, there are three subtypes of ADHD; Predominantly Inattentive Type; Predominantly Hyperactive-Impulsive Type; and Combined Type. Symptoms for any of the three types must have an onset no later than seven years, must be present in two or more situations, must cause significant distress, must not be attributable to any other disorder and must be assessed by a qualified professional familiar with individual's history. In short, diagnosis of ADHD should be made only after all the above are all considered. It is critical to future well being for a child that an ADHD diagnosis is not made in haste in order to satisfy someone's worry over "bad" behaviour. If a child actually has ADHD, it is also important to determine whether it is internally or externally expressed or, in other words, whether the child manifests symptoms by outward behaviour and/or inward thought processes. As the DSM-IV is currently the accepted North American diagnostic tool, its description of symptoms needs to take a primary place in any diagnostic setting.

ADHD Effects

ADHD is a chronic, impairing disability that occurs in 1% to 20% of school-aged children, depending on how rates are defined. Two popular methods of determining ADHD prevalence are population studies and the geographic locales of studies (American Academy of Pediatrics et al, 2000; Wells et al, 2000; Conners & Erhardt, 1998; Barkley, 1996). Actual prevalence rates are, therefore, not “set in stone” and, in fact, are part of a larger controversy surrounding ADHD. This will be discussed in more detail in Chapter Two, under “ADHD Controversies”.

Until recently it was thought that all children outgrew ADHD. It is now known to be a pervasive disorder that can continue throughout a lifetime. Symptoms, such as hyperactivity, may modify over time but the underlying etiology remains the same (American Academy of Pediatrics, 2000).

According to Allen Scoggin, as late as 1998, an estimated 80% of children do not outgrow ADHD. This is an increase from the early 1990s’ when only 30% to 70% were expected to retain symptoms into adulthood (McGee et al, 1991). Whatever the exact percentage, it is obvious that many with ADHD will remain with the disorder throughout their lives.

ADHD and Substance Abuse

With this in mind, the significance of an ADHD/Substance Abuse connection heightens. It becomes alarming when results of studies show that at least 35% to 40% of adolescent substance abusers have been found to have a diagnosis of ADHD. This concern increases when it is considered that many ADHD adolescents with substance abuse issues may also have undiagnosed ADHD.

Two thoughts follow from the above:

A. Would intervention in parental ADHD education and increase of supports have an impact by lowering the high percentage of ADHD children who later substance abuses?

B. Would undiagnosed ADHD be lower if more extensive “screening” of children for ADHD symptomology was promoted and would this help in positive intervention preventing future substance abuse? It has been argued that the earlier the identification of ADHD in a child’s life, the more chance there is for addressing impulsiveness, inattentiveness and hyperactivity. As previously mentioned, all three have also been linked to substance abuse in later years. (McGee et al., 1991; Beitchman et al., 1992; CH.A.D.D., 1993).

There has been an upsurge in research and findings are confirming the link between ADHD and substance abuse. In fact, there is growing evidence that substance abuse is only one of many negative developmental outcomes for ADHD children. Finding and implementing preventive measures that would decrease negative developmental outcomes in these ADHD children is an issue not only for these children, but their families, the educational system and for society in general. For example, those who fund, direct, or operate substance abuse programs, are interested in whether successful preventive measures such as timely recognition and treatment of ADHD could lead to a smaller population coming through their programs.

Purpose of Study

The interest in ADHD and its substance abuse connection has interested the researcher for many years for several reasons. The next two sub-headings explain this interest and they are then followed by the study synopsis, research questions, and a brief explanation of the importance of the home environment in the diagnosis and treatment of ADHD.

Personal Connection to Study

This section describes personal and clinical associations with ADHD in relation to the negative developmental outcome of substance abuse. I understand that ordinarily a quantitative study does not include a section on “personal connection” but I have included this section because of my personal experience with three generations of ADHD and comorbid substance abuse.

Personal Experience

My father displayed many of the symptoms of ADHD, although he was never diagnosed. He was fascinated with prospecting, jewellery making, muscle building techniques, writing, and a myriad of other pursuits. All of these he became expert in and then dropped completely. Impulsive lifestyle, inability to focus on the mundane, as well as “hyperfocusing” on things of interest, all describes my father well. Even though he tried, he was often unreliable and late. Although very bright, he never finished school and eventually sank into alcoholism that claimed his life at 42 years of age. He never had the benefit of understanding why he did what he did and blamed himself for all his misfortune.

I, myself, also never completed school and experienced a myriad of social and psychological problems both in the home and outside. As a matter of psychological survival, I attempted to understand reactions, to my then unknown ADHD behaviors, as related to dysfunctional issues within myself. My childhood home became a place to “escape from” and not a safe refuge. After attempting suicide at 15, I subsequently left home for good at the age of 17.

I am a parent of five living children, ages 14 to 30 years old, who have all been formally diagnosed with ADHD. I, myself, also now have a diagnosis of ADHD.

The two eldest children were not diagnosed with ADHD until their mid-twenties. Neither of these children did well in school, with one completing a non-matriculation program and the other leaving school in the tenth grade. Both experienced substance abuse difficulty with alcohol, tobacco and other drugs in their adolescence. Although this is no longer part of their lives, one remains a heavy smoker.

The next two children, currently 23 and 22 years old, were diagnosed with ADHD in their tenth year of school. Before this, neither had grades higher than an occasional "B". After diagnosis they began a course of treatment consisting of medication, therapy, and in-home support. Both of these children graduated from grade twelve with honours. There has not been any evidence, nor do either of them claim to have used or abused alcohol, tobacco or other drugs in their adolescence.

The youngest child, now 15 ½ years old, was diagnosed while in grade four. Up until this time she had been placed in special help classes in addition to regular classroom work. The same interventions for ADHD given her siblings were provided for her with the same positive results. She is open and communicative and reports from school are always very positive. Well adjusted and a non-substance abuser, she is currently completing grade ten with honours standing.

Using my family history as a microcosm of an ADHD environment, my interest in a study addressing ADHD issues is compelling. My parents, unaware of ADHD, were unable to help them or me. Conversely, for my children, I have

become socially and emotionally supportive and continue to be as informed about ADHD as I can. This has been far from easy. It is often a tiring, frustrating, and lonely road. However, years of grief for my three youngest children have probably been avoided.

Clinical Experience

As a social worker, I have been involved in individual, family and group processes for substance addicted adult and adolescent populations. Several issues concerning ADHD and substance abuse attracted my interest.

Clinically interacting with substance abusing adolescents and their parents, it was not uncommon to work with adolescents previously diagnosed with ADHD. Of concern, was their parent's general confusion about ADHD and the lack of consistent ongoing ADHD interventions.

A few parents intimated that a diagnosis for ADHD had been given "*a few years back*" but that "*nothing had come of it*". It was also not uncommon to hear that parents really didn't know whom to believe when it came to actual treatment of ADHD. Although abuse of medication by these adolescents was a real parental concern, without medication many of these ADHD adolescents were often unable to focus long enough in order to benefit from treatment. They also often disrupted the treatment process for other adolescents in the program.

In one particular case, the client's parents were given information on etiology and treatment of ADHD and then invited to reconsider medication for their son while he was in treatment. A system for safe monitoring and administration of medication was suggested. This was done and the adolescent immediately showed increased interest in treatment, better behavior and a more positive input in-group process.

In treatment programs for adult substance abuse, I experienced several occasions wherein ADHD or a strong suspicion of its presence, interfered, not only with an individual's current substance abuse treatment, but appeared to have had a strong effect on underlying difficulties that led to the substance abuse.

One particular client was diagnosed with ADHD during treatment and seemed to subsequently benefit more from treatment. Unfortunately, he felt and expressed disappointment in his family and the social "system" for having somehow "failed" him.

In the area of substance abuse counseling, my clinical experience has alerted me to the frequent appearance of ADHD symptoms in many who come for help with addiction issues. Not only do several of these people manifest problems with both ADHD and substance abuse, there seems to be a problematic link between these two disorders that hinders effective outcomes. Would diagnosis of ADHD made in early childhood along with effective interventive and support systems have alleviated any of the problems now experienced by these clients?

Study Synopsis

The purpose of this study is to consider relationships between substance abusing adolescents with ADHD; age of diagnosis of ADHD, parental knowledge, services and supports of ADHD. The results of this study will highlight areas that need addressing if negative developmental outcomes such as substance abuse are to be avoided. The study's main focus is on the adolescents and their families. For one specific group of parents of 39 substance abusing ADHD adolescents who attended an intake session at Calgary AADAC Youth Services, this study explores the following: 1) age of ADHD diagnosis; 2) parental ADHD knowledge; 3) troublesome ADHD issues and parental hindsight; 4) and, finally,

how these same parents perceive ADHD services and supports, troublesome ADHD issues and parental hindsight.

The nature of the study is exploratory and has a limited sample of 39 respondents. It also uses a non-standardized questionnaire compiled by the researcher with the help of knowledgeable professionals. The importance of the study lies in the results, which show many consistencies among the questionnaire answers of the 39 parent respondents.

Study Questions

The researcher is particularly interested in the following questions:

1. What are the ages of diagnosis for ADHD among the ADHD adolescent substance abusers?
2. What are the levels of parental knowledge of ADHD and its treatment in the ADHD adolescent substance abusers?
3. What services and supports have parents of these substance abusing ADHD adolescents accessed, what are deemed the most troublesome ADHD issues and, using hindsight, what assistance or knowledge to these parents wish they had access to?
4. What are the linkages between age of ADHD diagnosis, levels of parental knowledge and support?

The Home Environment

Etiology and treatment of ADHD are both focuses of a great deal of current research, however, the source and direction of this research tends to be centered on the medical, therapeutic and educational professions. A few of these groups have done and are continuing to do studies involving families and stress that the direction of interventions needs to include the family of the one with ADHD. There are several parent-centered organizations, which spend much of their time supporting and advocating for parents of ADHD children, but, unfortunately, their contribution to the research base is far less. This difference in the quality and quantity of research may be due to lack of access to direct funding.

There is an urgent need of research on the ADHD home environment from a social perspective as several areas of the social work profession deal partly or exclusively with individuals in the home environment. Both community and clinical social work practices would benefit from research that would provide a deeper understanding of what is needed to assist ADHD families to assist their ADHD children and to function in proactive ways. This would particularly apply to multi-need families, who must deal with ADHD and other difficulties such as substance abuse. These families are at a higher disadvantage. for effecting positive long-term outcomes.

Dysfunctional home systems affect all of society. In order to have an effective impact, it is important for social systems to have insight into what troubled ADHD families know and feel about their adolescents' ADHD. In a sample derived from a Calgary Addiction center, this study explores ADHD issues from this standpoint. Admittedly this task has not been easy, as any home environment is fraught with multiple covariants that allow the "teasing apart" of particular ADHD concerns to become exceptionally difficult.

Summary

In this chapter we looked briefly at ADHD, its DSM-IV diagnosis, affects and the ADHD/substance abuse connection. The researcher's personal and clinical connection to ADHD was included in order to allow the reader insight into the often-critical need for early diagnosis and supportive family interventions. The actual research questions for this study are included to provide study clarity for the reader while a brief overview of the home environment explains why the family is the study focus.

Chapter Two provides a literature review that serves as an overview of ADHD, substance abuse linkages with ADHD and concludes with a conceptual shift from the medical/scientific research to a social enquiry of ADHD and its affects on society, especially the family. Chapter Three discusses methods employed for a successful study and Chapter Four, with the use of tables and charts, includes results from the questionnaire administered to the 39 parent respondents. Chapter Five is a discussion of these results relative to their importance to a family with ADHD children as well as clinical and community social work. A positive approach to ADHD diagnosis and treatment as well as suggestions for further research conclude this chapter.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter provides an overview of research addressing various areas of ADHD relevant to this study: the nature of ADHD, ADHD and substance abuse connections; and a conceptual shift from the medical/scientific perspective to a social viewpoint. This review of relevant literature is meant to provide a framework for understanding ADHD and present a case for the importance of addressing ADHD issues within the home environment.

The nature of ADHD will be discussed with attention to ADHD controversies, genetic influences, comorbidities, gender, age of diagnosis, and ADHD's substance abuse connections. Finally, a conceptual shift will look at ADHD and its impact on the school and, most importantly, on the family.

An Overview of ADHD

As an informative preface to the rest of the literature review, this section is to conceptually facilitate an understanding of ADHD as it is recognized in current research literature. With this in mind, the nature of ADHD will be explored with particular attention to ADHD controversies, age of diagnosis, ADHD and biology, ADHD comorbidities, ADHD and gender, and finally, the connections between ADHD and substance abuse.

ADHD Controversies

ADHD has generated controversy for many years. The term, ADHD, is actually a relatively new term for a long recognized disorder. Dr. G. F. Still, at the turn of the 20th

century, although he used an unfortunate label, Defect in Moral Control, seems to be the first to actually speculate that what we now call ADHD had some biological basis. (ADD Support, 1999). Since this inauspicious beginning, ADHD has “evolved” from Encephalitis Lethargica, at the turn of the last century, to minimal brain injury/damage in 1947, Hyperkinetic Impulse Disorder in 1957 (Hyperkinesis) to ADD/ADHD in the 1980’s. Currently, following the 1994 DSM-IV terminology, the three designates of ADHD are Attention Deficit, with or without hyperactivity, or Combined Type. (Oliverio & Lauderdale, 1996; Rafalovich, A., 2001).

Whatever the current designation, ADHD has been the center of diverse and increasing investigative scrutiny. Major advances have been made in ADHD epidemiology, etiology, clinical procedures, assessments, natural history, outcomes and management (Cantwell, 1996). While ADHD has received this attention in Canada and the United States, especially with ADHD’s inclusion in the American Psychiatric Association’s manual, it has yet to receive either international or complete “homegrown” Canadian/American support as a medical condition.

Although the symptoms of ADHD have long been accepted internationally, ADHD, itself, is still more of a North American disorder. Time Magazine, in its July 18, 1994 cover story, noted that France and England, along with other European countries, had only one tenth as many diagnosed cases of ADHD as the United States. In Japan, ADHD was just beginning to get professional notice. In contrast, the United States had experienced a four-fold increase in cases from 1990 to 1994 (Wallis, 1994).

In North America, ADHD is usually acknowledged as a high profile, easily recognizable, serious psychiatric disorder that is treatable through medication, behaviour therapy, or a combination of both (Oliverio & Lauderdale, 1996). Webber, in Farmer, 1997, postulates that in North America “the bureaucratization of psychiatric care in the interest of efficiency, legality and profit, transformed the vision of humanistic psychiatry into a functional rhetoric which legitimates the industrialization of treatment.” (Webber,

1994). Ms. Webber suggests that those with ADHD are “victims” of this “state of affairs”.

In contrast, across Europe, ADHD is known as Hyperkinetic Disorder. It is also viewed more often a problem with conduct, and medical treatment is limited (Oliverio & Lauderdale, 1996). An increase in recent European research does, however, point to a more medical stance towards ADHD. For instance, in research particularly relevant to this study, a Swedish study by Modigh, Gerggre and Sehlin (1998) provides a good example. Recognizing ADHD as a disorder, they propose that it may be a high risk factor for later substance abuse. Another study concerns an examination of ADHD DSM-IV criteria, using a non-referred German sample, which found a significant increase from 10.9% to 17.8% in the German prevalence rate of diagnosed ADHD when DSM-IV criteria was used instead of the DSM-III-R criteria (Baumgaertel, Wolraich, & Dietrich, 1998). These two studies are an indication of a broadening acceptance of ADHD as a recognized disorder with symptoms previously identified by North American professionals.

Oliverio and Lauderdale argue that ADHD, as a diagnosable mental disorder, is more easily sustainable in North America because of the growth of the “therapeutical state”. This allows the labeling of previously diverse or deviant behaviour as a mental disorder (Oliverio & Lauderdale, 1996). Is it not possible that our society embodies a certain desire to label and categorize that which is not understood? In other, words, any label, preferably scientific, even though it is not strictly correct, is better than an unpleasant immoral connotation or any unknown.

Farmer identifies several North American societal/cultural factors that she hypothesizes help to induce ADHD behaviours.

1. One factor is the “fast paced” living style, exemplified by our mass media, that promotes a short attention span, and creates emotional anxiety which, in turn encourages ADHD like symptoms.
2. There is also the presupposition that ADHD can be defined by a personality type which lies outside the accepted “norm” of our society.
3. Finally, she suggests that the change from the more structured “reading, writing and arithmetic” of former years to a more relaxed approach to education may hinder some children learning early impulse control (Farmer, 1997).

As Farmer, a certified graphoanalyst, is not writing from a medical viewpoint, her views represent those who are diametrically opposed to the medicalization of a set of behaviours that may even have some merit in a different application of societal style.

There have been and continue to be charges of over diagnosis, under diagnosis and misdiagnosis. In North America, treatment of ADHD symptoms is polarized between advocates of medical treatments (e.g. stimulants) versus behavioral interventions, naturalistic treatment (Napoli, M. 1998) or even the celebration of “vive a la difference!” Amidst the North American pro and con-ADHD debate, the DSM-IV is usually a pivotal point.

DSM-IV

The DSM-IV has been instrumental in promoting the ADHD diagnosis and is accepted as the standard for identification of ADHD in Canada, as well as the United States. Controversies, however, often center on the DSM-IV’s limitations, or even whether it is valid in ADHD diagnosis.

Children seen in psychiatric settings comprised the sample type used for most of the development and testing of the DSMIV diagnostic criteria. There is still no empirical

data that supports the number of items needed for diagnosis in each category and gender, as well as lack of standardization for developmental variations. This issue is compounded by the lack of any biological test for ADHD (Azar, 1999). When the subjectivity of the behavioral characteristics in ADHD, which allows for personal interpretation, is also considered, there are evident problems for a consistent diagnosis. In summary, there is still no definitive medical or psychological test that demonstrates the presence of ADHD (American Academy of Pediatrics, 2000).

Another common conundrum concerns the idea that diagnosis covers a spectrum or range of symptoms. Where does one “draw the line” as to whether a client has enough of a subjective behavior to warrant an ADHD diagnosis? Often added to this concern is the reality that many children display some of the symptoms of inattention and hyperactivity some of the time (Leutwyler, 1996). These two arguments “muddy” diagnostic clarity. How far “out of the norm” must a child be in order for his/her behaviour to be deemed part of a bonafied disorder (Gabor Mate, 1999)?

There is also the question whether parents and various teachers can all agree that a child’s behaviour is problematic. Would a child be diagnosed with ADHD if taken to different professionals and different surroundings for a diagnosis? ADHD individuals are known to act differently under different stimulation conditions. Controversy surrounds the concept of an “office diagnosis” as this removes the client from familiar surroundings and places him/her in a sterile clinical environment. Subsequent client reaction can mask or exacerbate symptoms such as impulsivity, inattention and hyperactivity (Patricelli in Nordby, 1994).

Lack of diagnostic consistency necessarily increases when some diagnosticians don’t use the DSM-IV or use it improperly. For instance, the use of “team-based” diagnosis (e.g. parents, teachers, psychologists and other health and mental health specialists) is considered imperative for correct diagnosis but is often replaced by input

from only one or two parties. While this may occur because of expediency, a complete “picture” of the client will be lacking (Azar, 1999).

Argument over who is qualified to diagnose ADHD is frequent. DuPaul (in Azar, p.1, 1999) claims “Psychologists’ unique training in evaluation, diagnosis and treatment of complex mental disorders prepares them to integrate their expertise...to diagnose and treat ADHD.” Others argue that without a complete historical background of the client and the subjective observations of the family involved, no professional has the right to make a diagnosis. On the other hand, general practitioners, or even paediatricians often make ADHD diagnoses that are usually considered valid.

While discussed in greater detail below, comorbidity is part of the controversial ADHD diagnosis. Mentioned in the DSM-IV as a necessary consideration to an ADHD diagnosis, comorbidity has two problems. First, many ADHD symptoms also occur in other disorders such as depression, manic-depressive illness, substance abuse, anxiety and personality disorder. Secondly, ADHD can co-occur with disorders such as Tourette’s syndrome, lead poisoning, Fetal Alcohol Syndrome and retardation (Leutwyler, 1996). When subjectivity is again considered, difficulties in the disorder can be appreciated.

Many consider essential the screening, for social variables and giftedness, while pursuing an ADHD diagnosis (Fine, 2001). They also maintain parents and teachers need to address co-occurring language differences or disabilities, other learning disabilities, retardation or talent/giftedness, before ADHD is considered the dominant disorder (Nordby, 1994).

Finally, the most common criticism of the DSM-IV has been its clinical assumption that ADHD is a disorder of childhood. Since its publication in 1994, there has developed a common credence that ADHD is, or can be, a life long disorder. A

growing body of accepted research on “adult ADHD” attests to this fact. This subject is discussed more fully below.

In spite of the “lively” controversies surrounding ADHD, its etiology and diagnosis, it is generally accepted as a valid psychological disorder and is treated as such by the Canadian and American medical, educational and social branches of government. Alberta Career Development Centre assists those with ADHD by offering counseling, personal coaching, and a myriad of helps that are individually tailored. The Alberta Board of Education also offers counseling, school tutoring, and extra time, quiet surroundings and verbal or other individual helps for examinations. The Alberta Medical Profession has ADHD specialists, group and individual counseling, as well a fairly up-to-date medical information. It also participates in ADHD research, as does the University of Calgary. While it appears there is a lot of services and supports available it cannot be inferred, especially from the medical profession, that all professionals are in agreement over the etiology, diagnosis and treatment of ADHD.

ADHD and its Biological Links

Research generally agrees that the etiology of ADHD has valid biological connections. What is not known is whether these effects are a cause of ADHD, a symptom of ADHD, or comorbid symptoms of other disorders. Several areas are of current interest. Investigations include combinations of scientific fields such as genetics, molecular biology, neurochemistry, hormone research, and immunology (Leutwyler, 1996). Some of the more common areas for ADHD research are included below.

The neurotransmitter dopamine has been the target of much research as its levels can be significantly different between ADHD and non-ADHD individuals. Dopamine appears to be deficient in some ADHD brains thus disallowing the ADHD individual to attend during circumstances when normal attentiveness would be expected. (Barkley, 1990; Campbell & Cueva, 1995). Recently the neurotransmitter serotonin, has been

implicated as a partner of dopamine. A balance between the two may be a necessary mediation point in controlling hyperactivity (Quist, et al., 1998).

There is also a strong family aggregation of ADHD, which strengthens the hypothesis of a genetic condition to ADHD. A recent study, using data from parents of 579 children with ADHD Combined Type and 288 normal control participants, looked at symptom aggregation as a function of biological parent and child gender, and children's comorbid diagnoses. Self-report and significant others' data was used. Biological parents rated themselves as having more problems with inattention or hyperactivity than did the parents of the control group (Epstein, Conners, Erhardt, et al., 2000).

This supports the idea of a genetic link in ADHD. Various studies are cited in Epstein et al. (2000) as a valid basis for this type of research. Cited were family aggregation studies, twin studies and adoption studies. Two studies (1971, 1972) involving parents were particularly stressed as noteworthy as they both found high concordance rates of ADHD diagnosis between child and parents (Epstein et al, 2000). These results compare with a more recent study, also cited in Epstein et al. (2000) that found first degree relatives of ADHD children were at five times greater risk for ADHD than relatives of normal controls. These findings are important to the central research theme of this paper in that they provide an important tie-in that suggests the necessity of strong ADHD family education and support.

Age of ADHD Diagnosis

The importance of an early diagnosis also increases when frustration, poor self esteem, and depression (which may in reality have been initially part of an ADHD "problem"), are later ascribed as only related to substance abuse. If there is a failure to identify ADHD in substance-abusing ADHD adolescent, there is a real danger that no diagnosis of ADHD may ever be made (Schubiner et al, 1995).

The first recommendation made by the ADHD subcommittee for the American Academy of Pediatrics Quality Improvement Committee in 2000, concerned the strong need for the initiation of quick ADHD evaluation for any child who presents with inattention, hyperactivity, impulsivity, academic underachievement, or behavior problems (American Academy of Pediatrics et al, 2000).

Although early diagnosis does not mean that sufficient, or indeed, any intervention takes place, there is more of an opportunity for interventions that will be ongoing and successful. For instance, study by Macdonald and Achenbach (1999) compared attention problems vs. conduct problems as six-year predictors of negative developmental outcomes. The sample consisted of a representative group of 1238 male children and 1241 female children who were divided into four different groups: 1) children who scored high on ADHD symptoms but did not have conduct problems; 2) top 10% of age and gender on conduct problems but not attention problems; 3) children who scored high on both ADHD and difficulty with conduct behaviours; and 4) children scoring high on a variety of other difficulties. Child behaviour ratings were collected from parents at the beginning of the study, midway through the study and at the end of the six-year study. It appeared that comorbidity of ADHD and conduct problems only, were far more likely to have received special education services over the period of six years (MacDonald & Achenbach, 1999). The worry that arises from these results concerns the apparent need for ADHD comorbidity with conduct problems in order to receive help.

In summary, an early diagnosis could help to alleviate many of the biological, sociological and psychological outcomes of ADHD that are also connected to substance abuse in adolescence. This need is evident. The effects of ADHD can be devastating for all concerned, including, of course, the family.

Comorbidities

One of the recommendations recently made by the American Pediatric subcommittee on ADHD addresses the need to consider and test for conditions or disorders that are comorbid with ADHD (American Academy of Pediatrics et al, 2000). Mood Disorder/Depression, Conduct Disorder, Oppositional Defiant Disorder and Tourette's syndrome have all been identified as highly ADHD comorbid (Leutwyler, 1996). Studies, such as MacDonald's and Achenbach's (1999) have shown that ADHD children are at increased risk for developing significant behavioral problems in addition to primary ADHD symptoms. Comorbidity with Conduct Disorder (Conduct Disorder) and Oppositional Defiance Disorder (Oppositional Defiant Disorder), increase this risk substantially.

ADHD and Conduct Disorder or Oppositional Defiant Disorder Comorbidity

Australian researchers, Sheridan and Sanders, in a review of literature concerning the need for effective early behavioral family interventions with ADHD children, focused on the comorbid effects of ADHD with Conduct Disorder and Oppositional Defiant Disorder. They found that a strong relationship existed between ADHD and the development of Conduct Disorder or Oppositional Defiant Disorder (Sheridan & Sanders, 1996).

Of interest were three studies by Barkley, Anastopoulos, Geuvremont, & Fletcher, 1991; Lahey & Carlson, 1991; and N. Lie in 1992 (in Sheridan & Sanders, 1996). Lahey & Carlson described two semi-independent dimensions of ADHD; one involving cognitive disorder and the other, primarily behavioural disorder. This premise was later supported by the DSM-IV criteria published in 1994. Conduct Disorder, on the other hand, is identified by persistent behaviours that violate age appropriate norms or rules

and the basic rights of others while Oppositional Defiant Disorder, believed to be an early precursor of Conduct Disorder, is characterized by negative, hostile and oppositional behaviours.

What unfortunately connects ADHD with Conduct Disorder, as described by Barkley, et al, in 1991, is the often adverse conditions experienced by many ADHD children as they confront an often hostile environment. Co-existing learning disabilities and peer rejection are only two examples. These conditions put many ADHD children at greater than normal risk for development of either Oppositional Defiant Disorder or Conduct Disorder. Corroborating these findings, Lie (1992) clearly established that ADHD behaviours alone, without Oppositional Defiant Disorder or Conduct Disorder, were not indicative of later offending behaviour or future psychopathology. The imperative point, therefore, is that ADHD and Conduct Disorder or Oppositional Defiant Disorder, although often co-existent, are not “one-and-the same”. However, a child with ADHD is at increased risk for developing Conduct Disorder or Oppositional Defiant Disorder (Sheridan & Sanders, 1996).

As further corroboration for the above, Wolraich, Hannah, et al. (1996) propose that 40% to 60% of children and adolescents with ADHD are affected with either Oppositional Defiant Disorder or Conduct Disorder symptoms. A 1998 longitudinal study suggests that ADHD comorbid with Conduct Disorder produces the highest rates (30.8%) of police contacts and self-reported delinquency while ADHD comorbid with Oppositional Defiant Disorder reports a 20.8% rate. ADHD alone produced a 3.4% rate suggesting that when ADHD is comorbid with either Conduct Disorder or Oppositional Defiant Disorder there is a higher likelihood of social misbehaviour that is often strongly comorbid with substance abuse of some kind. Higher rates are found in ADHD subjects with the predominantly hyperactive-impulsive subtype, as well as the combined ADHD subtype (Wolraich, Hannah, et al, 1998). As will be discussed later, these comorbidities have also been tied to a higher rate of adolescent substance abuse.

Gender

There has been and appears to still be, a common misconception that ADHD is strictly a male-dominated condition. The DSMIV hypothesizes that hyperactivity, most noted in a male population, is only one of three symptoms (inattentiveness, impulsivity and hyperactivity). The non-hyperactive category of ADHD is a relatively new diagnostic category. Called “predominantly inattentive type” or “non-hyperactive type”, this new category allows for more girls to be diagnosed. There are also boys who are now diagnosed with this type of ADHD. Children with this diagnosis are likely to show a higher incidence of academic problems with minimal outward “socially disruptive” behavior patterns (Baumbaertel, Wolraich & Dietrich, 1995).

According to Fischer (2001) suggests that hyperactivity is always present but can be internalized. For someone with ADHD a great amount of effort is required in order to become focused and once focused it is equally as hard to become unfocused. Fischer likens this focusing effort to an ocean liner that takes so long to get up to speed and just as long to slow to a stop. An outward display of hyperactivity, such a “clowning around” becomes hard to stop once started. This display may have started in an effort to stimulate the body system enough that it can focus on what a teacher may be saying. Likewise, in other ADHD individuals, listening to a teacher requires just as much effort to stimulate the body system to focus but this effort is internally focused. Females dominate this category. Daydreaming is one internal method used. Unfortunately once the “act” that will stimulate an unfocused system is achieved it becomes very difficult for both these inward and outward “acts” to be stopped. Regardless of the possible explanation, this does not change the fact that more and more girls are slowly joining the ranks of those diagnosed with ADHD.

It is important to note, however, that some girls do include outward hyperactivity as part of their symptomology, and may also have missed being diagnosed. Until recently these girls have been referred for treatment only when there seemed to be severe misbehavior, cognitive or academic impairment, (Hallowell , Ratey, 1994; Pascualvaca,

1989). This new information also supports the argument that if substance abuse is a dysfunctional outcome of ADHD, it is as important an issue to ADHD females as it is to males with ADHD.

Silverthorn, Frick, Kuper & Ott (1996) suggest that it has been historically difficult to obtain as many females as males in ADHD research. In addition, girls sent to clinics for diagnosis have usually displayed a higher severity of symptoms, relative to other girls (Barkley, 1995). Two primary possibilities may explain this. Both refer to the idea that girls, although they may be as acutely ADHD as boys, tend to display more recessive symptoms. Unfortunately, these symptoms can be as disruptive to a young girl's life as the more usual outwardly demonstrative symptoms found in more ADHD boys.

The ADHD- Substance Abuse Connection

Three areas, adversely affected by ADHD, have been associated with later substance abuse in ADHD youth. These areas are biological, psychological and social (Brown, 1994). These three associated areas are discussed in order to secure the ADHD-substance abuse relationship, as these comprise an essential part of the current study.

Biological Connection between ADHD and Substance Abuse:

Optimal Arousal Theory

Optimal Arousal Theory states that those with ADHD are under-aroused and will try to stimulate themselves in order to reach optimum arousal or peak performance level. This theory helps explain why some medication works particularly well for ADHD. Common ADHD medications, such as Ritalin or Dexedrine, are stimulants that help to bring an ADHD person to optimum arousal point. This allows them to focus on "one thing at a time" and control impulsivity (Conte, 1991). These medications may have

bothersome side-effects (e.g., temporary lack of appetite and difficulty in sleep patterns) for ADHD sufferers. Of interest, however, is the fact that they are without addictive or other potentially serious negative properties associated with commonly abused drugs (e.g., alcohol, nicotine, cocaine, heroin, cannabis, etc.) (Van Wormer, k., 1995)..

ADHD and Abused Substances

The substances commonly abused by the general population have been shown to affect those with ADHD in seemingly more severe degree. For instance, Beverley Horner and Karl Scheibe, using a relatively small sample of 14 females and 16 male adolescent substance abusers, found that 50% met the criteria for ADHD. The ADHD subjects were significantly different in seven areas: (1) they began drug use at an earlier age; (2) they had more severe substance abuse; (3) they had a more negative self image prior to substance abuse; (4) they had improved self image with substance abuse; (5) they experienced more negative affective responses related to substance abuse; (6) they experienced more "craving" symptoms; and (7) they experienced more attention difficulties in treatment (Horner & Scheibe, 1997).

Cocaine, tobacco, cannabis and alcohol, are commonly abused substances among the general populations. They are also, however, commonly abused substances among ADHD individuals. In some respects they may be even more central to substance abuse patterns among ADHD individuals. For this reason their biological connections with ADHD are discussed below.

Cocaine

Those with ADHD may experience the illegal stimulant cocaine as a focusing agent. ADHD adolescents may then use cocaine for a functional purpose (focusing) but unfortunately may also suffer the negative addictive properties of this drug. Studies do

suggest that significantly high rates of ADHD (hyperactive type) comorbidity have been found among cocaine users. Kimberly Mountain, in a study concerning ADHD and cocaine interaction, reports that ADHD individuals, in contrast to a non-ADHD population, report six negative conditions of substance abuse more often than a non-ADHD population:

1. An earlier onset of cocaine abuse
2. Used for a longer time span
3. Reported shorter periods of abstinence
4. Average period of previous full-time employment was half of the norm
5. More symptoms of depression and greater number of previous psychiatric hospitalizations
6. Greater number of days in past month troubled by emotional problems (Mountain, 1997).

Another study, in 1998, looked at prevalence of ADHD in cocaine abusers in treatment. In a population of 281 cocaine abusers, 12% met the DSM-IV criteria for childhood ADHD. Of this group, 79% had adult ADHD and prevalent among this group was a history of Conduct Disorder and Antisocial Personality Disorder. This particular subgroup is suspected of being the most difficult to cure of cocaine addiction, especially if an ADHD diagnosis has not been made (Levin, Evans, & Kleber, 1998).

Tobacco

Tobacco, considered by many to be a “soft drug”, contains high quantities of nicotine, a stimulant. The Task Force on Nicotine Dependence: Position Statement on Nicotine Dependence (Official Acts) found that smoking was the most highly correlated substance of abuse with ADHD. It is suggested that smoking might, therefore, be a form of ADHD self-medication as its stimulant effects might produce increased concentration

ability, reduced restlessness and improvement of performance in vigilance tasks (Hartsough & Lambert, 1997). In a study in 1997, ADHD was associated with higher rates and earlier onset of tobacco use in a sibling population (Milberger, Biederman, Faraone, Chen & Jones, 1997).

Another study worthy of mention here involves a look primarily at very early drug use (before age eleven). The sample included 717 ADHD children who were assessed at ages 6 and 11 in a longitudinal study of low birth weight (not uncommon in ADHD children). Of the sample, 137 reported use of either tobacco or alcohol by age 11. Tobacco was used regularly by 10.6% of the total sample and was the highest reported drug of abuse. An interesting side result showed that with ADHD held constant, those with low birth rate emerged as a marker signifying a more likely abuse of substances by age 11. Those with external problems were found in the hyperactive-impulsive and combined-type subtypes showed the highest incidence of abuse by age 11 (Chilcoat, 1999).

These findings are supported in a smaller 1996 study (ADHD smokers = 17, non-ADHD smokers = 21). It also found that ADHD smokers started using tobacco at a significantly younger age. This particular study also suggests that there is exaggerated tendency to thrill seek among ADHD smokers. From this finding, it was postulated that health affects might, therefore, be of less concern to this population than the "high" received from the nicotine (Downey, Pomerleau & Pomerleau, 1996). Early onset of smoking was also the finding of a 1997 study in the American Journal of Addiction. The researchers investigated the relationship between ADHD and cigarette smoking using ADHD siblings and control group families. Not only was ADHD associated with earlier smoking, there was also a significant positive association between smoking and Conduct Disorder (Milberger, Biederman, et al., 1997).

In a letter to the editor of the American Journal of Psychiatry, John Hughes, M.D., berated a recent article by Biederman and colleagues on psychoactive substance abuse

(Biederman, Wilens, Mick, et al., 1995). He was concerned that tobacco had not been included, yet it was the most prevalent and “deadly” substance that is commonly abused by ADHD people. The use of tobacco has the highest mortality rates of all abused substances. In addition, cigarette smoking is on the “rise” in the young “teen” population. This is particularly alarming for people concerned about ADHD, as those with this disorder have been shown to be particularly vulnerable to nicotine. Added to this is the fact that smoking has also been implicated as an abuse substance used by the preteen and adolescent ADHD population (Amen, 1995; Maag et al., 1994; Task Force on Nicotine Dependence, 1995; Van Wormer, 1995).

Cannabis

Few studies are available that exclusively look at the ADHD-Cannabis connection. Cannabis tends to be the “third party” in the trio of most commonly abused substances; tobacco, alcohol and marijuana (Cannabis). In studies of those with ADHD, including adults, who also have conduct disorder, cannabis has frequently been found to be the drug of choice. This may be due to an attempt to “mellow out” anger and anxiety due to conduct disorder. Again, this would be an attempt to self-medicate (Hechtman et al., 1984; Horner & Schriebe, 1997; Pihl & Peterson, 1991; Rhodes & Jasinski, 1990; Wender et al., 1985; and Wilens, Prince, et al., 1995).

Alcohol

It is now known that “ADHD” brains look and function slightly differently from “normal” brains. “ADHD brains seem to use less glucose (e.g. less energy) in the prefrontal-lobe control center for attention and impulsivity. Other tests show less electrical activity in the same zone directly behind the forehead” (Hancock, 1996, p.55). Alcohol, a commonly abused substance, also biologically lowers impulse control and ability to concentrate (Fisher & Harrison, 1996; Lewis, 1994).

In accepting this connection, a point could be made that alcohol could be one substance rejected by those with ADHD. However, alcohol, although a depressant, initially administers the “high” so “needed” by those with ADHD. Unfortunately for the ADHD drinker, this “high” is quickly followed by a “low”, which is detrimental to a possibly already under-aroused ADHD mind. The resulting depression may then be “medicated” by further drinking (Lewis, 1994; Lewis et al., 1994; Fisher & Harrison, 1996).

In the study by Chilcoat (1999), alcohol was second only to tobacco as “drug of choice” for 10.1% of a community sample of 717 ADHD children. This longitudinal study assessed the children at ages six and eleven for neuropsychiatric consequences of low birth weight. Both ADHD children with low and normal birth weight, in contrast to non-ADHD of low or normal birth weight, were found at increased risk of substance abuse by age eleven. Those of the ADHD sample population, who self-reported the abuse of substances before the age of eleven, revealed that tobacco and alcohol were the first substances they had used/abused.

The prevalence of the ADHD-Conduct Disorder connection in substance abusing ADHD populations is discussed in an American Department of Health & Human Services tutorial review concerning a 1998 Swedish research project by Modigh, Gerggren and Sehlin. This study found that ADHD comorbidity with Conduct Disorder and/or Antisocial Personality disorder was correlated to a high level of alcohol abuse. It was also postulated that one in five alcoholics have, or did have, motor control and perception deficits. Further research is needed to determine if these particular problems are common to many ADHD individuals (Modigh, Gerggre & Sehlin, 1998).

ADHD Medication and Substance Abuse

Many pharmaceuticals and combinations of pharmaceuticals, are used in the treatment of ADHD. Ritalin and Dexedrine are presently the most common but are often

complemented by drugs that increase sleep and alleviate depression and/or anxiety. A review of all the pharmaceuticals presently in use for ADHD treatment would be very lengthy and for the purposes of this study it is important only in that an acknowledgement is made of the importance of these drugs in the treatment of ADHD.

Due to the lack of studies on ADHD medication and substance abuse plus the popular notion that use of ADHD medication will lead to future substance abuse, a Harvard group of researchers conducted a study exploring use of medications by ADHD individuals and linkages this formed with substance abuse. Fifty-six medicated adult ADHD subjects were compared with 19 non-medicated adult ADHD subjects and 137 non-ADHD control subjects in a cumulative incident study. Pharmacology for ADHD was shown to be non-predictive of increased risk of substance abuse. It was, however, found that the non-medicated ADHD subjects were at a significantly higher risk for substance abuse in adolescence than the medicated ADHD group. This was found even after correcting for comorbid Conduct Disorder (Biederman, Wilens, et al., 1999).

Another recent study points out that Ritalin, non-addictive orally, may be just as addictive as known abused substances if used in the injected form. Prescribed Ritalin is only in the oral form (Volkow, Wang, Maynard, Gatley, Gifford, & Franceschi, 2001).

The importance of these and other similar studies cannot be underestimated. Also, adding to the general confusion over ADHD and medication is the use of Ritalin and Dexedrine as "street drugs" by a non-ADHD population. However, if the administration of medication to alleviate ADHD symptoms reduces the likelihood of future substance abuse, informed public education becomes important in order to "combat" negative uninformed opinions that may deter parents or caregivers from considering these medications as viable intervention strategies. Given the availability of "street drugs" and the type of knowledge surrounding ADHD medication, important issues arise.

Psychological Connections Between ADHD and Substance Abuse:

Substance Abuse as a "Cover"

As previously suggested, substance abuse by ADHD preteens, adolescents or adults may be the result of a desire to escape from psychological pain. Failure in school, in the home and other social situations and resulting negative self-esteem, are not uncommon "results" of ADHD. When these, or similar situations, occur to someone who already struggles with the inner handicaps common to ADHD, it is easier to understand the pervasiveness of resulting "psychological pain" and a strong desire to relieve it in any way. (Lewis et al., 1994). Self-medication in order to "retreat" from psychological pain is often cited as a major causal factor in substance abuse. This then places ADHD individuals, in trying to "self medicate" their pain, in a high-risk category for becoming substance-abusers (Brown & Bordon, 1986; McCord & Tremblay, 1992).

Similar ADHD and Substance Abuse Comorbidities

ADHD and substance abuse have similar comorbid traits; Tourette's syndrome, sociopathy, Conduct Disorder, and Oppositional Defiant Disorder have been identified as possible comorbid disorders with both ADHD and substance abuse (Amen, 1995; C.H.A.D.D, 1994; Murphy, 1994; Van Wormer, 1995).

As mentioned before, Conduct Disorder in particular, has been strongly associated with ADHD. When substance abuse is present, this can be a common association. Research shows that there are a higher proportion of ADHD males who have been found with Conduct Disorder. ADHD and Conduct Disorder together seem to have a poor prognosis for adaptive functioning. Substance abuse, for these comorbid individuals can either initially take the form of rebellion out of frustration or an "avenue of escape" from

extreme psychological discomfort (Fehon et al., 1997; Mueller, 1993; Pascualvaca, 1989).

Psychological Reactions to Negative Social Interactions

When a person with ADHD experiences low self-esteem issues, that person is more likely to seek a peer group that supports abuse of substances (McCormick, 2000). Negative social interactions, such as peer pressure or family alienation, may lead to several psychological dysfunctions. Some of these dysfunctions have been shown to be active in both substance abuse and in those with ADHD: loneliness; depression; impulsiveness; rigidity of thinking; low frustration tolerance; perfectionism; obsessive-compulsive traits; and of course, low self esteem (Bennett et al., 1998).

The need to escape psychological pain, comorbidity issues, and reactions to aversive social interaction are all found in ADHD individuals. As these are also issues directly related to substance abuse, they are particularly important to an adolescent ADHD substance abusing population.

Social Connections Between ADHD and Substance Abuse

The level of adaptive functioning of persons with ADHD, relative to their supposed ability according to IQ scores, in areas of socialization, communication and daily living, was significantly low. A common characteristic of clinically referred ADHD children seems to be an inability to consistently apply a skill that they have previously learned. Could this mean more of a performance deficit than a skill deficit? In other words, these children theoretically have the skills to perform in a functional manner but are curtailed due to ADHD (Stein, 1995).

This theory is compatible with the higher risk for academic failure experienced by this population. Up to, or more than 30% of ADHD children have been "held back" in at least one grade by the time they reach adolescence. Both poor performance in school and

low social functioning are common precursors of substance abuse difficulty. (Fox & Weaver, 1990; Marfice, 1997).

In addition, several other problematic ADHD symptoms may place ADHD children in socially difficult positions. Impulsivity, inability to “stay on task”, and hyperactivity often place ADHD children in an “out-group” that, at best, is often just tolerated. Family members, teachers, neighbors, other children, or anyone who interacts with the child, are individuals or groups from which the child may experience social rejection (McCord & Trembley, 1992). Adolescents who have ADHD are at relatively high risk for development of juvenile delinquency. Substance abuse is a common factor in adolescent groups who “act out”.

Of interest is a study concerning Learning Disability and substance abuse, Maag Reid and Vasa (1994). They found that self esteem and specific behaviour problems were not strong indicators of substance use. This finding appears at odds with most other studies until it is recognized that the participants in this study were “users” as opposed to “abuser” of substances. Maag et al. also draw a tentative conclusion that low self-esteem may be a byproduct, rather than the causative factor of substance abuse. They do agree that other studies looking at the abuse, rather than the use of substances, find that self-esteem is lower in the ADHD substance abusing population in treatment than ADHD adolescents in general (Maag, et al., 1994).

As previously mentioned in Chapter One, family life with an ADHD member can be abnormally difficult. Due to the complex, often frustrating manifestation of ADHD, families often face issues such as increased stress, anxiety and sometimes, anger. These issues would then directly affect how these families approached society in general. In North American culture, particularly where individualism and self-reliance are highly valued, it can be difficult for some to understand or accept those individuals who manifest some of ADHD’s flawed symptoms, such as poor self control and inattention to routine tasks (Baker & Pisecco, 1998). When an ADHD individual faces distress within

and without the family environment, substance abuse might easily present one avenue of escape (Biederman & Steingard, 1989).

The size of an ADHD child's social circle may be adversely affected by flawed behavior resulting from the child's efforts to "deal with" the symptoms of ADHD. Temper tantrums, emotional lability, argumentativeness, and even passive-aggressive behaviors, may all be outcomes of a frustrated child who does not quite "fit". Rebellious behaviour has not proven to be the only dysfunctional solution to an inability to socialize appropriately. Social withdrawal (e.g., daydreaming), is a common symptom of Primarily inattentive ADHD, and may also contribute to an abusing of substances in order to escape pain (Fox & Weaver, 1990; McCord & Tremblay, 1992; Mueller, 1993).

These difficulties in social functioning, on top of other burdens carried by ADHD children, of course create a vulnerability to low self-esteem, which in turn, produces a greater vulnerability to peer pressure. Adolescence is a time when dealing with peer pressure is an expected but difficult part of developmental growth. How a youth is able to deal with either negative or positive peer pressure can be a major determinant in whether that particular adolescent will, or will not, misuse certain substances (Fox & Weaver, 1990).

From an interactionist perspective, one might say a symbiotic relationship exists wherein ADHD and substance abuse are engaged in a cause, effect and a reciprocal relationship. Does ADHD in a child predispose him/her to dysfunctions such as substance abuse and conversely, does substance abuse heighten and exacerbate symptomatic ADHD behavior (Van Wormer, 1995)? Evidence would suggest that both of these questions have relevance.

A Conceptual Shift

Although ADHD has been extensively studied, research has been mostly in the clinical/medical model. Historically, the focus has been on diagnosis, psychiatric assessment, medications, and comorbidity. Recently, there has been a shift to include more educational concerns such as classroom behavior support and behavioral management techniques. The importance of parental education and support has been addressed as a “tag on” to this research. Inclusion of the family in diagnosis and treatment has been “seen” as one of the solutions, not as a center focus. (Anastopoulos & Barkley, 1990; Reid, Hertzog & Snyder, 1996). ADHD and its education focus is reviewed below as a preliminary or natural “fore-runner” to ADHD and the family. This is followed by look at the literature that has supported the study of family in ADHD.

ADHD and Education

ADHD symptoms are often first identified in a school setting. In the classroom, a child is one of many and must conform to expected rules and behaviours. It is an ideal place for someone (teacher) to discover learning, social or coping differences among the children. Yet Reid et al. found that many teachers did not believe they had received sufficient training to adequately identify or help possible ADHD children (Reid et al., 1994). Assuming the validity of this statement, there is a concern that children with ADHD might be missed or that children without ADHD might be falsely diagnosed as having ADHD. Perhaps these children may even have another disorder that will be confused with ADHD or overlooked. The following report is a local example of interest and inroads that are acknowledging the high risks of learning disabilities, such as ADHD, for negative outcomes. This report is also a good bridge between the educational system and the family.

The Substance Abuse and Learning Disabilities in Youth Project (SALDY)

In 1997, the Calgary substance SALDY project, targeting 13-18 year olds (Junior and Senior High School aged students), focused on joint process (educational and counseling professionals) in addressing substance abuse concerns by considering the possible role of learning difficulties. ADHD is acknowledged as a major concern in this study. This project was encouraged by educational professionals involved with treating substance abuse youth at the AADAC facility in Calgary who had previously found that approximately 40% of youth entering intervention programs have learning disabilities. These difficulties severely impede treatment success and ongoing recovery. Youth self reports indicate that lack of academic success, feelings of isolation and lack of self worth are often initiators of substance abuse.

Prevention, intervention and relapse prevention of substance abuse are major concerns. A site-based (school) problem solving team focused on supporting the ability of teachers to determine and implement appropriate strategies for dealing with substance abuse with concern to the interaction between learning difficulties and substance abuse. According to the substance SALDY Study, four issues bear scrutiny.

Note. The present researcher has taken the liberty of substituting “learning difficulties” with ADHD in order to draw attention to the main focus of the present study. It is acknowledged that the original uses “learning difficulties”.

1. There are many barriers in the school system for identifying, treating and advocating for children with ADHD. A few of these barriers include; delayed contact with parents until “crisis” situation with ADHD occurs; lack of continuity of contact by any one teacher longer than one year, inability of busy teachers to spend “quality” time with an ADHD child (Mueller, 1993).

2. Parents who have been active advocates for their children in the school system have found their personal stress and other emotional effects to be overlooked by this same system (Reid et al, 1996).
3. Parents have reported that some educators seem to infer that parents cannot have an unbiased opinion in regard to their child's potential academic output, the possibility of developmental problems or even their child's method of treatment for already diagnosed ADHD.
4. Of particular interest to this study is the complexity of ADHD's environmental influence. Homes with ADHD children are dealing, not only with a myriad of ADHD related issues and subsequent "crises" but are often trying to handle other difficulties related to life in general. These homes can be in upheaval. Lack of a stable family environment has also been associated with adolescent substance abuse issues (McCord & Tremblay, 1992; & Ross, 1993).

These 4 points serve to demonstrate the centrality of the family in addressing preventative measures for later difficulties, such as substance abuse, in ADHD children.

Family and ADHD

Environmental Influences

Environmental influences can substantially impact whether a child with ADHD does or does not develop a substance-abusing problem later in life (Brown, 1994). Family is one, if not the most important, of these influences. If parents are involved in diagnosis and become knowledgeable about treatment of a child's ADHD, there is an increase in the possibility that the ADHD child will be supported and enabled to functionally address adverse symptoms of ADHD (McCord & Tremblay, 1992).

Promotion of a supportive home environment for an ADHD child may be the best viable alternative to more socially demanding interventions (e.g. the education system). There is also a strong “safety” factor in the home that is especially important for an ADHD child. In school, or other more public environments, the adverse effects of ADHD are “highlighted” as being “abnormal” (Korkman & Peltomaa, 1991; Margalit & Almougy, 1991; and Gordon et al., 1994). When an ADHD child does poorly in school or elsewhere, an ongoing, understanding and supportive family environment seems important in “combating” the development of poor self esteem, a known contributor of substance abuse.

Active family involvement in treatment is also important when medication for ADHD is involved. Ninety percent of children diagnosed with ADHD in the States currently take some form of ADHD medication. Medication can effectively control “troublesome” symptoms in the ADHD child (Reid et al., 1996). For example, one study found that between seventy and 80 percent of children showed improved response to ADHD medication as opposed to a placebo (Schatzberg, & Cole, 1987). However, dealing with appropriate individual dosages and administering schedules for ADHD medication requires ongoing involvement and patience. Parents seem to be the preferred choice for this task as they’re most likely the foremost, continually involved “constant” in a child’s life.

If a family has psychosocial stress, (e.g. ADHD plus loss of employment, sickness, relocation, divorce, etc.) the resulting strain might contribute greatly to an exacerbation of ADHD symptoms in the child. For example, ADHD (hyperactive) boys scored higher on the Children’s Depression Inventory when items dealing with social problems experienced in the home were included (Hoza et al., 1993). There is a higher chance for an ADHD child’s “stability” if his/her supports (e.g. parents) are able to provide care that is not compounded with misunderstanding of ADHD symptoms as well as other psychosocial stresses.

Additionally, the effect of severe ADHD symptoms and/or other comorbid difficulties (e.g. Oppositional Defiant Disorder) on parental stress can be “overwhelming” (Anastopoulos et al., 1992; & Fischer et al., 1993). There is a higher incidence of physical or verbal abuse in families with one or more members with ADHD. It has also been found that some parents suffer from Post-Traumatic Stress Syndrome as they can be subjected to extreme ongoing stress that is beyond the normal realm of experience. Symptoms include: depression; anxiety; sleep disturbance; hyper-vigilance; and re-experiencing of trauma. ADHD siblings are also at risk for psychological difficulty due to living in a “chaotic” environment. They can also feel “left out” or believe that they have to “make up” for difficulties caused by the sibling with ADHD (Richardson, 2001). These are serious issues that many must face. Families, who are socially and emotionally supported and are familiar with ADHD and its treatment, will be in a much better position to effectively handle resultant stress.

Heredity and Family Effects

Lastly, we now know that ADHD can run in families. If a child has ADHD there is an estimated 30% chance that one or both parents have ADHD (Richardson, 2001). For example, a study in 1995, ascertained “children at risk” by looking at children of 84 clinically diagnosed ADHD adults. Of these children, considered “at risk” as one parent had ADHD, 48 (57%) met the criteria for ADHD. Of these 48 children, 36 (75%) of them were being treated for ADHD (Biederman, Faraone, et al., 1995). Since adult ADHD diagnosis is fairly new, it is easy to surmise that there are many ADHD adults who are diagnostically unconfirmed. How many of their children also have ADHD and of these, whether diagnosed or not, are living in home environments negatively affected by their undiagnosed parent?

This researcher did not find any particular study or studies which directly evaluated parental knowledge of ADHD. Yet this is an important issue as stability and support for an ADHD child needs to logically fall with the child’s major stakeholders, the

parents. It is the parents who are emotionally invested and will have daily and long term continual contact with a child. Identification of, and intervention with, adverse ADHD symptoms is an important part of a child's future stability. Therefore, it is important that parents of ADHD children, whether they, themselves, have ADHD or not, are knowledgeable concerning ADHD and are given abundant emotional and social support. Parents in this position will be in a better position to assist their ADHD child in a productive life.

Summary

In this chapter, literature concerning the nature of ADHD has been reviewed in terms of its controversies, need for early diagnosis, genetics, comorbidities and gender issues. This was followed by an examination of ADHD and substance abuse biological, psychological and social connections. Evidence suggests that a strong association exists which allows substance abuse to be used in this study as a major example of negative developmental outcome for ADHD children. In conclusion, supporting a conceptual shift from the medical/scientific emphasis on ADHD, a perusal of research literature confirms an increasing body of work concerning the ADHD environment. However, the school system appears to continue to be the main site for conducting studies. Although the benefits of accessibility, control subjects and funding are evident in a school environment, the family, or home environment, needs to be recognized as most critical to the ultimate positive development of ADHD children.

CHAPTER THREE: METHODS

Introduction

This chapter describes the methods employed in this study. The chapter is laid out in six sections: 1) Study Overview; 2) Population and Sample; 3) Operational Definitions and Instrumentation; 4) Ethics; 5) Data Collection; and 6) Data Analyses. The first section, Study Overview simply provides a brief description of this study and outlines the questions to be answered. The next section, Population and Sample describes how participants for the study were obtained. Operational Definitions and Instrumentation makes clear the definitions used in the study and describes the instrument used for data collection. The Ethics section briefly describes the ethical procedures followed for the study. Data collection procedures are discussed in the next section. The final section, Data Analysis describes the analyses conducted for the study, and provides a rationale for using subsamples as part of the analysis. For simplicity purposes in this chapter, where parents or guardians are mentioned, the word “parent(s)” is substituted.

Study Overview

Consenting parents of a group of 39 ADHD substance abusing adolescents who attended an intake interview at Calgary AADAC Youth Services during a ten month period were the participants in this study. These parents participated in a cross-sectional survey by completing a brief questionnaire designed by the researcher. This questionnaire asked parents ten basic questions that assessed their knowledge of ADHD. Along with basic demographic information, the tabulated results from these questionnaires allowed the researcher to explore the following questions:

- What are the ages of diagnosis for ADHD among the ADHD adolescent substance abusers?

- What are the levels of parental knowledge of ADHD and its treatment in the ADHD adolescent substance abusers?
- What supports have parents of these substance abusing ADHD adolescents accessed, what are deemed the most troublesome ADHD issues and, using hindsight, what assistance or knowledge to these parents wish they had access to?
- What are the linkages between age of ADHD diagnosis, levels of parental knowledge and support?

Population and Sample

ADHD is currently receiving widespread attention. However, the bulk of research seems to be in the formal education system and not in the more private but just as important home front. This study, therefore, focuses on the home environment, as respondents are either parents or guardians of ADHD adolescents. There is also known to be a high correlation between ADHD and substance abuse (Brown, 1994) so the focus on ADHD adolescents who also abuse substances allows for study of ADHD adolescents in difficulty and what knowledge and types of support are found in their homes.

There is in fact ample opportunity to tap into existing, local resources for a study of this type. AADAC Youth Services of Calgary is an example of a locale that provides for the collection of data around ADHD adolescents who also abuse substances. Parents, who are the actual target group of this research, often accompany their youth to initial intake meetings.

The population for this study, therefore, encompasses parents or guardians of substance-abusing adolescents who also have a prior diagnosis of ADHD. The area of interest encompasses central Alberta.

The study's population consists of the entire caseload of the Intake Program of AADAC Youth Services Centre, Calgary, AB, beginning September 1st, 1999 and ending June 31, 2000. From this population a convenience sample was drawn, consisting of parents or guardians who were willing to participate in the study. The sample consists of 39 parents or guardians of substance-abusing adolescents (ages 13 to 17 inclusive) who also have a prior diagnosis of ADHD. These respondents, parents and guardians, were voluntary "walk-ins" who largely came from Calgary but may also have come from the surrounding rural area as far north as Red Deer and as far south as Lethbridge. Because these adolescents are exclusive to this particular Outpatient Program, the participants in this study constitute a non-random, convenience sample.

Operational Definitions and Instrumentation

Operational Definitions

All research studies involve the use of specific language. Without precise definitions outlining the meaning of terms it is easy for misinterpretation and inappropriate generalizations to occur. It is therefore important to outline a few basic definitions that form the core concepts of this study. These basic definitions are shown below.

Substance-abusing ADHD adolescents: Adolescents who fit the following criteria: between the ages of 12 to 18 inclusive; who attended the Intake Program at AADAC Youth Services Centre, Calgary, AB, beginning September 1, 1999; through to June 30, 2000. They are identified by at least one of their parents or a legal guardian as having been diagnosed with ADHD and as having a substance abuse problem.

Parents: Parents or legal guardians of adolescents who enter the Intake Program of AADAC Youth Services Centre, Calgary, AB, and who have consented to take part in this study.

Age of diagnosis of ADHD: The age at which a parent confirms (on the questionnaire) that his/her child was diagnosed with ADHD.

Parental knowledge of ADHD and its treatment: This is determined by the results questions 1 – 10 in a questionnaire completed by parents of an ADHD adolescent that attended the Outpatient Program of AADAC Youth Services Centre, Calgary, AB.

Most troublesome issues, services accessed, and information parents wished they had known about ADHD: These will be determined by parental open-ended responses to questions 11, 12, & 13 of the above-mentioned questionnaire.

Instrumentation

The instrument for this study (see Appendix A) consisted of a non-standardized questionnaire. The researcher originally had a much more extensive questionnaire in mind for use in this study. Severe limitations were imposed on the length of the questionnaire, however, by concerns expressed by the AADAC Youth Services Centre. These concerns revolved around workload issues and time demands placed upon AADAC personnel. Consent for the study was granted on the condition of the researcher developing a very brief questionnaire to administer to respondents.

The author constructed this instrument, with input from two qualified researchers from the University of Calgary, three professionals in the field of adolescent substance abuse treatment, an ADHD expert at the Calgary Learning Centre, and a doctoral candidate exploring ADHD issues. These professionals provided input on question relevancy and “wording” in questions that could enhance clarity for respondents. With this help, the respondent constructed the questionnaire finally used in this study.

The questionnaire was voluntarily pretested by 23 parents of ADHD children at the Canadian Chapter of Attention Deficit Disorder (C.H.A.D.D.) Fair held in Calgary, March 7, 1998. Parents were asked to give suggestions concerning content and clarity of content. The instrument consisted of two parts: Part I was based on questions derived

from current ADHD literature and considered input from professionals aware of ADHD issues; Part 2 consisted of a set of questions about personal perceptions that allowed open-ended responses from parents.

Part #1

2 initial questions concerning age of diagnosis of ADHD.

10 questions designed to determine general knowledge on the etiology and treatment of ADHD.

Part #2

3 open-ended questions concerning parental experience and suggestions with children's ADHD.

The questionnaire's ten questions can generally be broken into three content areas: These areas are the following:

- Medical questions: (items 3, 7, 8)
- Behaviour and Characteristic questions: (items 1, 2, 4, 5 and 9)
- Cure questions: (items 6, 10).

Gender and present-age demographics were obtained verbally from respondents by either the researcher or an intake counselor at AADAC Youth Services Centre, Calgary, AB. This information was considered valuable to the results of the study after the questionnaires had been prepared. Time considerations for the AADAC staff had been one of the prime considerations in the resulting length of the document.

Ethics

Before the beginning of data collection a proposal was submitted to, and approved by, the University of Calgary Ethics Committee. Client confidentiality is maintained as no client files have been used and names of respondents have been deleted from collected data. Service to clients was not compromised as all respondents voluntarily participated in the answering of study questionnaires. See Appendix B for a copy of this study's informed consent form.

AADAC Youth Services Centre, Calgary, AB, provided permission to carry out this study on their premises as well as help to collect data (see Appendix C).

Data Collection

Intake counselors collected data from individually consenting parents of ADHD youth who present at AADAC Youth Services for help with substance abuse issues. The intake counselors initially administered both the consent forms and the actual questionnaires but due to time restraints, the researcher, after receiving signed consents from the intake workers, either phoned or visited in person with respondents in order to collect data. Therefore, with the exception of the five first respondents, parents were contacted twice, once by the intake counselor and once by the researcher. Other than method of contact, the following steps were followed.

The intake counsellor was directed to verbally ask each parent upon intake: "Has your youth ever been diagnosed with ADHD?"

If the answer to this question was positive, each attending parent and youth client was asked to read and sign a consent form (see Appendix B) made available by the intake counselor. Parents who gave voluntary signed consent were asked to fill

out a brief questionnaire or did so later with the writer, either in person or over the phone. At the completion of this questionnaire the parents were offered a brief information sheet on current ADHD research as well as names and addresses of programs that offer ADHD services (see Appendix D).

The collection of this data commenced on or at September 1, 1999, and was discontinued on June 31, 2000.

Data was filed at AADAC Youth Services and was periodically collected by the researcher. It was then entered onto a computer disk under a password and locked, along with the original information, in a filing cabinet in the writer's private home. When data was encoded on disk, any identifying information was modified to ensure anonymity.

Data Analyses

As this study is primarily exploratory in nature, the data analyses conducted were also exploratory. The first two demographic variables, the gender of the adolescent, and the answers to questions 1 – 10 inclusive were entered into the computer using the Statistical Package for Social Sciences (SPSS). As the number of respondents is likely too small for statistically significant differences to be detected using inferential statistics, basic descriptive tests form the basis of analyses for this thesis. For Part 2, which included the 3 open-ended responses, tables or charts were made by hand and individual groupings and comparisons follow.

Part One

Respondents' scores on the questionnaire reflect a measure of their knowledge about ADHD. It is therefore important to explore patterns in this knowledge. For this reason the study's analyses were in part based upon sub-groupings of these parents.

Therefore descriptive statistics were employed to explore means, ranges and to determine comparisons and contrasts in the data.

The respondent's scores are examined using sub-groupings as listed below:

- A. Parents whose child was:
 - Diagnosed at eight years old or younger (<8)
 - Diagnosed at nine years old or older (>9)

- B. Parents whose child was nine years old or older (>9), were further divided into the following subsamples:
 - Diagnosed between 9 & 11 years (9 –11)
 - Diagnosed after 12 years but not diagnosed within the last two years (>12 –PD)
 - Diagnosed within the last two years (PD)

The division of respondents, into subsample groups A and B, although somewhat arbitrary, was made in order to compare any difference in levels of parental knowledge based on when a child had been diagnosed with ADHD. The majority of results will be presented using these sample groupings due to the importance of early diagnosis as it pertains to developmental outcomes, access to service and supports and knowledgeable parenting. There is also an interest in what general ages the adolescents were formally diagnosed with ADHD. With these objectives in mind, the subsamples were determined using the criteria below.

Subsample Group A

Diagnosed at 8 Years or Younger (<8)

Up to approximately eight years of age a child is most easily influenced or taught by her/his parents. In middle childhood a change takes place in that a child's view of self shift from more of an outwardly influenced identity to an increasingly

inward one. With this in mind, the possibility of an earlier diagnosis of ADHD may allow for parental knowledge to have greater impact on the ADHD child (Santrock, 1994).

Diagnosed at 9 years or older (>9)

Considering the above information, it would then be less likely that parental ADHD knowledge would have as great an affect on a child as he/she passes into older childhood and then adolescence.

Subsample Group B.

Diagnosed between 9 years and 11 years inclusive (9-11)

These 3 years encompass ages where parental influence becomes less while, at the same time, these ages are not admitted for substance abuse treatment at Calgary AADAC Youth Services.

Diagnosed at 12 years or later but not in the last two years (12 – PD)

Age 12 is not only the youngest age that AADAC Youth Services Calgary serves; it also marks the approximate time of entrance into adolescence. It is here that group identity with peers seems to take an increasingly dominant role and parental influence may wane. Diagnosis in the last 2 years is removed in order to compare impacts of recent adolescence diagnosis with adolescent diagnosis that is less current.

Diagnosed within the Last Two Years (PD)

This subsample is important in that it allows an examination of the possible effects that newly diagnosed ADHD have on parental knowledge and perception of needs and supports.

Exploration of Subsamples

Data analyses for each of these subsamples were conducted in the following ways. Results in the next chapter will be presented using this outline.

1. Participant Demographics
2. Total and subsample scores (questions one to ten) of the 39 questionnaires and the range of scores and mean score for questions one to ten inclusive for each of the above subsamples
3. Total and subsample scores for each of three categories found in questions one to ten:
 - a. Medical questions: (items 3, 7, 8)
 - b. Behaviour and Characteristic questions: (items 1, 2, 4, 5, and 9)
 - c. Cure questions: (items 6, 10)
4. Consideration of scores with removal of questions 4, 9, 10, which had high scores in all subsamples of questionnaire.

Part Two

Quantitative research in social work has a focus on expansive inquiry while qualitative research deliberately centers on the individual personal experiences of respondents. The scope of this study has been narrowed to a quantitative exploration but included open-ended responses to compliment numbered results. This allows for the addressing of the personal impact of ADHD and its treatment while not neglecting a quantitative emphasis.

Meaning is drawn from the data collected from the last three questions of the questionnaire (11, 12, & 13), which allows for the respondents' personal viewpoints. Although the questions were not operationally defined for each respondent, interesting

comparisons, contrasts and exceptions permit insight not evident in the initial findings in Part One.

Where possible, exploration of the open-ended responses will first look at demographics using the same subsample categories as in Part One and then using the following gender categories:

Female Adolescents (FA)

Male Adolescents (MA)

Summary

This chapter outlined the methodology employed for this study in order to explore parental knowledge, thoughts, and supports, concerning their ADHD substance abusing adolescents. Chapter Four will present the results obtained by this study.

CHAPTER FOUR: STUDY RESULTS

Introduction

In this chapter study results are tabulated following the data analysis outline in the previous chapter. The chapter begins with a brief description of the reliability characteristics of the questionnaire. This is followed by results of the age demographics of the adolescents being addressed in this study, and a quantitative breakdown of the questionnaire's results. Finally, a report on themes identified in answers to the three open-ended questions from the questionnaire will be presented.

Instrument Reliability

The questionnaire adopted for this study is essentially a test of basic knowledge regarding ADHD. Reliability of the test is therefore important. Calculation of Chronbach's alpha, or the reliability of the questionnaire revealed that the ten items on the questionnaire have a combined reliability of .49. This is lower than ideal, particularly if the instrument were to be used for clinical or service decision-making. However, given a limited sample of 39 participants, and the combination of multiple content areas within the items, a reliability of .49 is not surprising. Given that the nature of this study is exploratory, the researcher acknowledges the limitations of the questionnaire and external validity issues that may arise from this reliability.

Adolescent Age

There are two ages relevant to this study. One is the age at which each adolescent was diagnosed with ADHD. The second is the present age of each adolescent. Differences between these may be important in explaining parental knowledge of ADHD, as knowledge might be expected to grow over time once a child has been diagnosed. Comparisons within and between these various ages may therefore help clarify emerging and diverging patterns among the parents and adolescents represented in the sample data.

Table 1 is a summary of age variables used to examine results for questions 1 to 10 in the first part of the questionnaire.

Table 1
Age Characteristics Among the ADHD Adolescents

Variable	Range in Years	Mean in Years	Standard Deviation
Present Ages of Adolescents	13 to 17	15.6	1.25
Age of ADHD Diagnosis of Adolescents	4 to 17	10.4	3.63
Difference Between the Present Ages and The Diagnostic Ages	0 to 10	5.2	3.36

The average age at ADHD diagnosis is 10.4 years while the average current age of the adolescents is 15.6 years. The resulting average length of time since diagnosis is 5.2 years and the range of length of time between diagnostic and current age is 0 to 10 years. Table 2 shows subsample totals.

Table 2
Total Number of Adolescents in Each Age Group (N = 39)

Age Grouping	Total Number of Adolescents in Each Subsample Group
<8	16
>9	23
Sub-Groups of Subsample >9	
9 – 11	8
12 – PD	5
PD	10

More than half of the 39 adolescents represented in the study were diagnosed at age nine or older. Of this group, 8 were diagnosed between age nine and eleven, 5 were diagnosed after they were twelve years old but not in the last two years, while 10 of the adolescents were diagnosed with ADHD in the last two years.

Table 3 shows the various ages of diagnosis in terms of how many males and females, as well as the total number, were diagnosed in each year of age.

Table 3
Number of Adolescents Diagnosed with ADHD in each Age Year (N=39)

Age when ADHD Diagnosed:	Males	Females	Total
4	1		1
5	0		0
6	5		5
7	4	1	5
8	5		5
9	2		2
10	3	2	5
11	1		1
12	2		2
13	2	1	3
14	4		4
15	2		2
16	1	2	3
17	1		1
Gender Totals	33	6	39

Female adolescents were diagnosed at ages ranging from between 7 and 16 years while the male of ages at initial ADHD diagnosis is 4 to 17 years. This suggests that females may be identified as ADHD later than males. The overall average age at diagnosis is 10 years.

Questionnaire Results

This section presents results from the questionnaire administered to the 39 consenting parents of ADHD/substance abusing adolescents at the Calgary AADAC Youth Services. Overall scores for items 1-10 from the questionnaire will be displayed first. Then results from questions 11, 12, 13, which are open-ended responses, will be examined.

Respondent Scores for Parental Knowledge of ADHD

Table 4 on the next page presents the results of parents' scores on each item of the questionnaire. These results are presented as percentages of correct versus incorrect responses for the items. (Note: Incorrect responses and "don't know" responses are grouped together and are weighed as "incorrect" responses).

The total of correct respondent scores for questions 1 to 10 ranges between 10% and 100%. Question 8 was answered incorrectly 69.2% of the time (only 30.8% answered correctly). Two other items were answered incorrectly by a majority of respondents. Question 5 (child's ability to focus) and Question 3 (another Ritalin-related question) were answered incorrectly by 61.5% and 56.5% of respondents respectively. These therefore represent areas of knowledge that may be of particular concern.

There are obviously questions answered correctly by the majority of respondents. Three items in particular stand out. These are Question 10 (the potential for Ritalin to cure ADHD), Question 4 (the potential presence of learning disabilities), and Question 9 (the intelligence of ADHD children in relation to other children). These items were answered correctly by 92%, 87% and 84% of respondents respectively. They therefore represent areas of knowledge that are a strength for these parents.

Table 4
Respondents Scores for Parental Knowledge of ADHD

Question Numbers and Wording	Average Percentage Incorrect	Average Percentage Correct ^a
1. All children who ADHD are unable to sit still.(F)	33.4	66.6
2. Rewards, such as consequences for doing work or behaving well, usually work with children who have ADHD.(T)	46.2	53.8
3. The drug "Ritalin", commonly given for ADHD, is a depressant.(F)	56.4	43.6
4. A child with ADHD may also have other learning disabilities.(T)	12.8	87.2
5. A child with ADHD cannot do just one thing for a long time.(F)	61.5	38.5
6. Children who have ADHD will grow out of it when they are adults.(F)	35.9	64.1
7. If a child uses medication to control his/her ADHD, it is more likely that this child will abuse drugs or alcohol when a teenager.(F)	48.7	51.3
8. Medicine for ADHD, like Ritalin, can make a child sleepy.(F)	69.2	30.8
9. Children who have ADHD are often not quite as smart as other children.(F)	15.4	84.6
10. Medicine, such as Ritalin, will cure ADHD in a child. (F)	7.7	92.3
Total Percents	38.7	61.3

^a(Average = average out of 39 respondents who answered correctly on each question).

Subsample Averages and Ranges

For the results in this and future sections, those diagnosed with ADHD at age nine or older are subdivided into three groups: 1) those diagnosed between ages nine and 11 (9 – 11); 2) those diagnosed at age 12 or later but not diagnosed in the last two years (12 – PD); and 3) those diagnosed in the last two years (PD). The subdivision of the group of adolescents diagnosed at age nine or older, in spite of often low numbers, allows comparisons of parental knowledge for a range of factors. In particular the researcher was interested in how knowledgeable the parents of recently diagnosed ADHD adolescents were about ADHD and how they compared to others parents in the open-ended responses.

In Table 5, questions 1 to 10 are divided into the average of correct answers for each question in each subsample. Table 6 allows comparison of the ranges of subsample correct answers for each question.

Table 5
Percentage Correct Scores for Adolescent Subsamples

Questions Numbers	% Correct for <8 (n=16)	% Correct for >9 (n=23)	% Correct for 9 – 11 (n=8)	% Correct for >12 – PD (n=5)	% Correct for PD (n=10)
1	68.7	62.5	62.5	80.0	60.0
2	62.5	43.5	75.0	00.0	40.0
3	62.5	30.5	25.0	40.0	30.0
4	82.7	82.7	87.5	80.0	80.0
5	31.3	39.2	50.0	00.0	50.0
6	62.5	60.9	37.5	80.0	70.0
7	50.0	52.2	37.5	40.0	70.0
8	37.5	26.1	0.00	60.0	30.0
9	93.8	82.7	75.0	80.0	90.0
10	100.0	91.4	87.5	100.0	90.0

As the previous table shows, subsample averages for correct responses varies from subsample to subsample. Parents for adolescents aged 9–11 had a 0% average for correct responses to Question 8. Conversely, there is a 100% average for Question 10 for

Subsample Averages and Ranges

For the results in this and future sections, those diagnosed with ADHD at age nine or older are subdivided into three groups: 1) those diagnosed between ages nine and 11 (9 – 11); 2) those diagnosed at age 12 or later but not diagnosed in the last two years (12 – PD); and 3) those diagnosed in the last two years (PD). The subdivision of the group of adolescents diagnosed at age nine or older, in spite of often low numbers, allows comparisons of parental knowledge for a range of factors. In particular the researcher was interested in how knowledgeable the parents of recently diagnosed ADHD adolescents were about ADHD and how they compared to others parents in the open-ended responses.

In Table 5, questions 1 to 10 are divided into the average of correct answers for each question in each subsample. Table 6 allows comparison of the ranges of subsample correct answers for each question.

Table 5
Percentage Correct Scores for Adolescent Subsamples

Questions Numbers	% Correct for <8 (n=16)	% Correct for >9 (n=23)	% Correct for 9 – 11 (n=8)	% Correct for >12 – PD (n=5)	% Correct for PD (n=10)
1	68.7	62.5	62.5	80.0	60.0
2	62.5	43.5	75.0	00.0	40.0
3	62.5	30.5	25.0	40.0	30.0
4	82.7	82.7	87.5	80.0	80.0
5	31.3	39.2	50.0	00.0	50.0
6	62.5	60.9	37.5	80.0	70.0
7	50.0	52.2	37.5	40.0	70.0
8	37.5	26.1	0.00	60.0	30.0
9	93.8	82.7	75.0	80.0	90.0
10	100.0	91.4	87.5	100.0	90.0

As the previous table shows, subsample averages for correct responses varies from subsample to subsample. Parents for adolescents aged 9–11 had a 0% average for correct responses to Question 8. Conversely, there is a 100% average for Question 10 for

parents with adolescents diagnosed before the age of eight. Independent t-tests, however, failed to detect significant differences in scores on these items for the two subsamples.

Table 6
Score Ranges (%) for Adolescent Subsamples

Question Number	Range	Subsample with Highest Score		Subsample with Lowest Score	
1	6.2	<8	68.7	>9	62.5
2	19.0	>9	62.5	<8	43.5
3	32.0	<8	62.5	>9	30.5
4	0.0	<8	82.7	>9	82.7
5	7.9	>9	39.2	<8	31.3
6	1.6	<8	62.5	>9	60.9
7	2.5	<8	52.5	>9	50.0
8	11.4	<8	37.5	>9	26.1
9	11.1	<8	93.8	>9	82.7
10	8.6	<8	100.0	>9	91.4
Total	10.5	<8	68.2	>9	57.7

Subsample differences may be somewhat hidden due to the low sample size. It is, however, possible to look for patterns in the data that may translate into significant differences with larger samples. Table 6 does reveal some interesting patterns in this data. The lowest averages of correct answers for each question is attributed to those diagnosed at age nine or later in all but questions two and five and in question four where both main age groupings had the same average score of 82.7%.

Table 7 contains each subsample's range of scores for the total set of questions, 1 to 10, and also gives the average total score for each subsample. It is recognized that the divisions within the nine and over diagnostic subgroup each have low respondent numbers but are still included for internal clarity and interest.

Table 7
Score Ranges and Average Correct Score Based on Subsample Groupings

Subsamples	Range of Scores	Average Score
<8	30 – 100% ^a	66.8%
>9	10 – 100%	57.2%
9 – 11	30 – 70%	53.8%
>12 – PD	30 – 70%	56.0%
PD	10 – 100%	61.0%

^a(each 10% = one question answered correctly)

The average correct score for all 39 parents on all items was 63.6%. Both those diagnosed at age eight or younger and those diagnosed at age nine or older had at least one respondent who answered the questions 100% correctly. However, the parents who had children diagnosed with ADHD at a younger age have a lowest score of 30% while the parents of children diagnosed later have a lower minimum score of only 10%. Of this last group, the parents of recently diagnosed adolescents show the widest range, from a low of 10% overall correct to a high of 100% overall correct.

Results From Questionnaire Content Areas

Based on literature and expert feedback regarding the questionnaire, the questionnaire's ten questions were examined and divided into three themes: 1) medical questions; 2) questions on behaviour and characteristics of those with ADHD; and 3) questions concerning the cure of ADHD. Table 9 looks at these themes in terms of the different subsample correct answer averages.

Table 9
Question Themes and Average Correct Response Percentages For Subsamples

Question Types And Numbers	<8	>9	9 – 11	>12 - PD	PD
Medical Questions 3,7,8	50.0%	36.6%	20.9%	46.7	43.3
Behaviour, Characteristic Questions: 1,2,4,5,9	68.8%	62.3%	72.5%	48.0	64.0
Cure Questions 6,10	81.3%	77.3%	62.5%	90.0	80.0

Questions concerning the curing of ADHD received the highest average number of correct answers for parents with children of all ages. The three medical questions had the lowest correct response for both diagnostic age groups at 50% for earlier diagnosis and only 36.6% for parents with children diagnosed later. All parents answered with an average correct of 65.6% for questions on behaviour and characteristics of ADHD. ANOVA tests failed to detect statistically significant differences between these, again due to a limited sample size.

For parents of children diagnosed at age nine or later, the highest average number of correct responses was found in the group diagnosed after twelve but not in the last two years. This average was 90.0% for the cure questions. The lowest correct average was found at 20.9% for medical questions within the parental group who had children diagnosed between the ages of nine and eleven. Medical questions had a low correct response rate for all subsample groups.

Results When Common Knowledge Questions Are Included and Removed

Another way of considering results from this sample of 39 is to remove the three questions (4, 9, 10) that were answered correctly by a high percentage of each group. These high average percentages suggest that these questions may be “common knowledge” and not indicative of a true test of parental knowledge of ADHD. Table 10 looks at questions 4, 9, and 10 in average percentage of correct answers, as well as how many parents out of group totals answered correctly.

Table 10
Average Scores for “Common Knowledge” Questions (4, 9, 10)

Questions	Average Correct for <8 Subsample	Average Correct for >9 Subsample
4. A child with ADHD may also have other learning difficulties.	93.8%	82.7%
9. Children who have ADHD are often not quite as smart as other children.	87.5%	82.7%
11. Medicine, such as Ritalin, will cure ADHD in a child.	93.8%	91.4%

Eighty-eight percent of all respondents answered questions 4, 9, and 10 correctly. Parents of the younger diagnostic group (<8) answered with slightly higher averages on all three questions than did the parents of children diagnosed at nine or older. Nevertheless, both groups had high correct averages for these questions. When these common knowledge questions were removed parents whose children were diagnosed before the age of 8 averaged only 51.6% correct. Those parents whose child was diagnosed after the age of 9 averaged only 43.8% correct. This results may suggest that parents share some common knowledge of ADHD, but also share a lack of knowledge about specific aspects of ADHD.

Summary of Questions 1 to 10

Parent respondents did not do as well as the researcher expected in answering questions 1 to 10 correctly. Overall knowledge of ADHD appears to be lacking for the majority of the 39 respondents. Parents of children diagnosed with ADHD at age eight or younger scored slightly but consistently higher than parents of children diagnosed at age nine or older. Only in Questions 2 and 5 did the latter group have a higher average of

correct responses. For the other eight questions, parents of the earlier diagnostic group had a higher average of 68.2% compared to the later diagnostic group's average of 57.7%. There is an 10.5% difference of averages correct between the two groups. It may be that this difference suggests that parents of children diagnosed with ADHD at an earlier date are in a better position to gain knowledge of ADHD. T-tests failed to support this conclusion. Low sample size, however, remains a limitation that may directly affect such tests. It must also be remembered that all of the parent respondents have adolescents who are presently abusing substances. Earlier knowledge, in these cases did not appear to be sufficient to offset negative development outcomes for these adolescents.

The next section looks at three open ended responses answered by these parents and helps to shed light on the multitude of difficulties facing parents of ADHD children that either hampers their knowledge or prevents this knowledge from being applied in an efficacious manner.

Open-Ended Responses

Data from three open-ended questions allows for a clearer picture of how the 39 parents of substance abusing ADHD adolescents relate to their child's ADHD and the impact it has had on the family. The same subsamples used for the first results section will also apply here.

Question 11

What have you found the most troublesome with your child's ADHD?

Each respondent's comments for Question 11 were separated, by the researcher, into themes. For different respondents there were various numbers and types of themes found in their written responses. After this exercise was completed, the researcher started placing comments under various themes, adding themes as appropriate. Three major themes emerged from the Question 11 data that identify particularly difficult issues for parents when faced with ADHD in their homes.

Table 11 shows the total number of times each theme is mentioned in respondent comments. It also shows these numbers on the basis of the gender of these adolescents, as it is reasonable to expect male and female adolescents to present different issues to their parents.

Table 11
“Troublesome” Comments Found in Parent Responses (N=80)

Themes	Total N ^a	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
Inability to Focus	26	8	18
Behaviour Issues	31	12	19
Frustration for Adolescent ^b	2	0	2
Frustration for Parent	5	0	5
Other themes	16	2	14

^a(n = total number of comments related to each theme and/or gender out of 80)

^b(Frustration theme is split into frustration felt by adolescent or parent)

Eighty specific comments were made for Question 11 by parents. Behavioural problems appeared 31 times in comments, while there were 26 concerns over parent’s worry over children’s inability to focus. Although a much smaller number, seven out of 39 of the respondents pointed to frustration difficulties. A broad range of other concerns was included in responses 16 times.

Although there are only 6 female adolescents represented in the sample, there were 12 behavioural issues and 8 concerns over their inability to focus. A total of 23 concerns are attributed to parents of only 6 female adolescents. Of the 33 male adolescents represented in the study, there were a total of 58 concerns directly commented on by their parents. Of these, 18 are attributed to focus concerns and 18 comments are about behaviour issues.

The following sections contain quotes that are from actual comments made by parents in answer to the question asking them what they had found the most troublesome about their child's ADHD.

Inability to Focus

There were 26 comments by parents concerning their ADHD adolescent's inability to focus. Eight concerned female adolescents and 18 are attributed to parents of male adolescents. The following four quotes give an idea of how this issue was actually addressed.

It's, like, in one ear and out the other.

The mother of a 17-year-old boy put it this way, *Lack of focus...I have to detail out what I want him to do or he will take what he wants.... Interprets... in any way he wants!* More than half of all responses to question #11 addressed the inability of their ADHD child to focus for any length of time.

One mother, whose son was diagnosed at age 7, while admitting to an *inability to focus on anything important*, did continue on to write. *He could play video games for hours.*

Another mother of a daughter diagnosed at age 10 seems to concur as she writes, *Lack of understanding...which leads to other ways of occupying time - and not necessarily good things.*

Other focus issues also emerged. These included specific comments regarding:

- the need of the ADHD child to have constant repetition (2 responses);
- The lack of awareness of passage of time by the ADHD (1 response);
- Retention difficulties of ADHD child (10 responses);
- An ADHD child's lack of concentration (2 responses); and
- An ADHD child's lack of "follow through"(2 responses).

Again the specific comments or quotes offered by parents are reflective of these issues. The following verbatim comments reflect those offered across all of the questionnaires.

It was very hard to have to repeat everything over to make sure it was done.

She doesn't take in what she reads.

She gets into trouble studying...she constantly roams around and has to be on the go all the time.

He can't finish a task and can't focus for long in school and everything

Although a particular concern over focus might have been the only comment made by a particular parent, this cannot be concluded to be the only focus concern present but was the one that came to mind quickly as the question was answered. Table 12 shows the totals for specific types of focusing issues identified by parents. It also presents a gender breakdown again.

Table 12
"Inability to Focus" Issues Identified by Parents (N=26)

"Inability to Focus" Issues	Total N ^a	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
General Focus Problems	9	4	5
Need for Repetition	2	1	1
Time Issues	1	0	1
Retention Difficulty	10	2	8
Lack of Concentration	2	1	1
Lack of Follow Through	2	0	2

^a (n = total number of individual comments pertaining to general theme or subtheme)

Focus difficulties were mentioned 8 times for female adolescents, while 18 focus concerns were mentioned for males. It is also worth noting that 7 out of 10 fathers in the study felt this was an important issue. The difficulty cited by most parents concerned retention ability and this affected 2 female and 7 male adolescents. This involves the ability to store short-term memory into the long-term memory. Not surprisingly, this appears to be a particularly difficult issue for those with ADHD.

Behavioural Issues

Others did not accept him because he was Always trying to be the center of attention And he was too active. When he went to friends' homes their parents didn't want him back

The above quote is just one example of the many comments made by parents pertaining to their adolescent's behaviours. From the 39 responses to Question 11, 30 comments addressed behaviour as being the most troublesome ADHD "byproduct". The most common of these behaviour worries revolved around impulsivity, hyperactivity, immaturity, outbursts of temper, irresponsibility and finally, a lack of understanding of consequences. Five parents stated that just "behaviour in general" was an important trouble spot. Table 13 looks at the total of concerns over behaviour in general and the types of behaviour comments included in answers to Question 11.

Table 13
Behavioural Issues Identified by Parents

Behavioural Issues	Total N^a	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
Behaviour in General	10	5	5
Impulsivity	5	3	2
Hyperness	6	1	5
Temper	2	0	2
Immaturity	1	1	0
Irresponsibility	3	1	2
Lack of Understanding Consequences	4	1	3
Totals	31	12	19

Behaviour appears to be a major concern for parents, as 10 parents expressed serious concerns over their adolescent's behaviour. Five parents of males and 1 parent of a female adolescent mentioned hyperactivity. As hyperactivity is not always found in females with ADHD it is of interest that the study concurs with this in that 5 of the female adolescents were not cited as having hyperactivity problems. However, 3 impulsivity comments were made for the 6 female adolescents, and this is often found when hyperactivity is also present.

Parents in this study showed a definite interest in their adolescent's behaviour issues. Both female and male adolescents, keeping the different number of each in the study, were cited as presenting many behaviour problems.

Frustration

Frustration was framed as an issue for both parents and male adolescents. All seven responses assigned to this theme concerned male adolescents and female parents. Table 14 lists the frustration issues identified by parents in this study.

Table 14
“Frustration” Issues Identified by Parents (N=39)

“Frustration” Issues	Total N ^a	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
Adolescent Frustration	2	0	2
Parent Frustration	5	0	5

^a(n = general or gender totals for “frustration” comments)

Their own frustration was mentioned as most troublesome by female parents of 5 boys and frustration was attributed to 2 boys by their mothers. There were no frustration problems mentioned by either fathers or mothers of female adolescents. The parent of unknown gender also represented a son but did not include a “frustration” comment.

The quotes below address adolescent’s frustration, a parent’s frustration and frustration on both the mother’s and son’s parts.

Frustration...my son has a lot!

Nobody had any answers and everything I tried didn't work out...frustration!

In the reply of a 13 year old’s mother there is evidence of frustration on both her and her son’s part. “ *Arguments at home...his not being able to understand he was wrong...both at home and at school. When he hit grade 7 he wouldn't take meds*

(Ritalin) I felt it was working but worried about his appetite. I let him quit and he no longer got help."

Other Themes

There were other themes mentioned as illustrated by the quotes below. These issues include ADHD medicine difficulties, diminished self-esteem, depression, conflicting diagnoses, addictions, running away, rejection, and school problems.

Off Ritalin in grade 5 after using 3 years and has restarted in the last couple of weeks.

His diminished self esteem!

His depression he gets from frustration"

I am not sure I agree he has ADHD because of conflicting diagnoses

...Addicted to drugs and artificial colour.

...Goes from one extreme to another when off medicine. She runs away when not on meds.

People rejecting him...

School system points to parents like me...

Along with the above quotes were several others that indicate that there are multiple issues, which are difficult for parents with ADHD children. These included:

- ADHD children's lack of social skills (3 responses);
- ADHD children's lack of self esteem (1 response);
- depression in ADHD children (1 response);
- substance abuse issues (2 responses);

- medication difficulties with ADHD children (3 responses); and
- difficulty dealing with the school system (4 responses).

Social skill deficits were felt by 3 female parents to be an issue for their 3 sons. Female adolescents and male parents were not included in this area. Two male parents did, however, join female parents in comments on medical and school system difficulties.

Overall, the answers provided for Question 11 report that there are many issues that trouble parents of ADHD children. Some of these issues such as “inability to focus”, behaviour difficulties and frustration, trouble several of the parents who answered the 39 questionnaires. Thirty-three comments on adolescent behaviour problems are quite high when only 39 respondents were involved in the study.

Question 12

What services have you used to support treatment of your child's ADHD?

The nature of Question 12 allowed parents to answer in point form. This is what happened for almost all cases. The few exceptions are the 6 responses quoted below that embodies the whole comment per particular parent:

...Great deal of aid at school

Doctor...we're working on it now.

School Board - specialists for in-between classes until grade 8...then withdrew services because of age and lack of facilities, therefore she finished grade 9 with great difficulty...grade 10 more difficult (skipping)...grade 11 she dropped out early (kicked out).... we only later found out special program for ADHD in school but by then she refused help.

Tried natural herbal supplements. Which worked well for a while and then they changed formula for herbs (Alliance Formula 1)

Instead of helping, the school complained”

Physician.... he went first when he was 4 or 5 but the psychiatrist then said he wasn't ADHD.

Four services were cited as used most often as supports for parents with ADHD children. Again, as these services can be grouped in various ways, some of them are listed more than once in particular answers. Total responses may therefore add up to more than the total of 39 completed questionnaires. Table 15 lists the total for these four services as well as a category for all other services mentioned by only a few parents. These services included:

- Parent support group (3 responses)
- Calgary Learning Centre (4 responses)
- Herbs (3 responses)
- In-home support (3 responses)
- Books (2 responses)
- ADHD Society, New Directions, AARC Treatment Centre, AADAC Youth Centre, summer camp, brochures, chiropractor, kinesiologist, private schools, hospital lectures, anger management courses and self help (1 response each)

One respondent accounted for 11 responses. A mother of a son diagnosed with ADHD at 6 years listed these many different avenues in which she had sought support.

Counseling, in-home support, herbs, books, summer camp Angus, brochures, chiropractor, kinesiology, checked out private schools, hospital lectures, anger management course...

Table 15
General Totals for Services accessed As well as Gender Category Totals

Themes	Total N ^a	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
Counselling	25	4	21
Physicians	24	3	21
School	12	2	10
Medication	9	1	8
Other Helps	25	1	24
Totals	95	11	84

^a(The total N will be greater than 39, as multiple responses were possible on each questionnaire).

From all 39 respondents there are a total of 95 types of services that have been, or are being accessed. For the 6 female adolescents a total of 11 services are reported as accessed while for the 33 males there are a total of 84 different services accessed. Twenty-five of services in use now or in the past by the adolescents or their parents involve counselling and 24 involve physicians of some type.

There are 2 respondents not mentioned in the table, both mothers, who stated that they had accessed no services in the past 1.5 to 2 years. By their comments it appears that this has not always been the case.

Not specifically in last 1-½ years.

Nothing last 2 years.

Taking into consideration the two mothers mentioned above, there is a 100% parent use, at some time, of some type of service regarding their ADHD children. This is a high amount that may represent a great deal of effort and/or frustration on the part of

both parents and children. This might be especially so as the adolescents represented in the study all enter intake at AADAC youth services for help with addiction problems.

Question 13

What information about ADHD and how to deal with it do you wish you had known when you first realized your child was having difficulties?

... What about Ritalin? It was not offered as a suggestion. Also more understanding about ADHD ... therefore what you see is not the child but the condition ...

Four parents expressed no wish for information. Of these, 1 mother mentioned that she had researched ADHD with help of her doctor, and 3 respondents left their answers blank. There was still, however, 32 parents who felt they lacked what they needed when it was first realized that their children had difficulties. There were 6 basic areas that parents identified as important areas where information or other help is desired: information about ADHD (18 responses);

- an early diagnosis of ADHD (9 responses);
- help and understanding from the school system (14 responses);
- the understanding of others about the condition ADHD (11 responses);
- help with parenting (9 responses); and
- more knowledge about medication (4 responses).

Along with the knowledge issues listed above, parents offered comments that illustrate the kinds of assistance they would find useful. Some of these comments are shown verbatim below.

...That children were born with this and it ran in families."

...That medication is only the "band-aid" but the real healing or

understanding to learn to cope is through counseling along with medication."

Correct information...I have too many opinions about ADHD given to me...."

No one believed he had ADHD."

It would have been nicer if we could have identified the problem."

I had no clue she had ADHD. In retrospect...she did not perform as well as she should have."

It even took the school 2 or 3 years of behavioral problems to get things going."

The school system refused to have her diagnosed...they just labeled her as "bad"..."

Also important not to say "ADHD" out loud..."

All you get is "finger-pointing" and be made to feel guilty that your child isn't meeting expectations of grade."

How to deal with behaviour...worst...trying to help with homework and child would get frustrated and give up...she felt she was stupid and wouldn't believe her parents when they said she could do it...

That Ritalin wasn't a good drug after all."

Finally, a small number of other areas that respondents felt they lacked in include the following:

- knowledge of link between depression and ADHD (1 response);
- knowledge of link between substance abuse and ADHD (1 response);
- more media information about ADHD (2 responses); and
- more resources to help with ADHD (2 responses).

Table 16 below summarizes the knowledge of information issues identified by parents who responded to the questionnaire.

Table 16
Information Issues Identified by Parents

Information Issues	Total N	Female Adolescents (Total Comments)	Male Adolescents (Total Comments)
Knowledge about ADHD	18	3	15
ADHD Diagnosis	9	1	8
Medication Help	4	1	3
School Help	14	5	9
Parenting Help	9	3	6
Understanding From Others	11	2	9
Other Types of Help	6	0	6
Totals	71	15	56

Parental knowledge of ADHD commanded 18 responses from parents while 9 parents would have liked an earlier diagnosis of ADHD for their children. This is promising as the general average of parental knowledge of ADHD for this particular group of parents was only 63.6% even with the three “general knowledge” questions included.

Four mothers wished that their daughters had more help from the school system, as did 8 mothers for their sons. One half of the female adolescents had parents to whom help with parenting was important, as did 6 parents of male adolescents. Eleven parents thought that things would have been easier on their families if other people had exhibited more understanding of their children's disability.

Summary

Although this study lacks statistically significant results due to the small sample size of 39 respondents, there are many internal consistencies and patterns evident in the data. These are found in the areas of parental ADHD knowledge, concerns, services, supports and issues parents "wished" had been addressed when their children first experienced difficulty with ADHD.

Chapter 5 will discuss these results with emphasis on age of diagnosis, parental ADHD knowledge, services previously or currently accessed, and parental "wishes". This is followed by further discussion in the areas of importance of study, study limitations, and future research areas. These future directions are emphasized as important in either arresting or decreasing negative developmental outcomes of ADHD, such as substance abuse, and will be of benefit to families with an ADHD member as well as the profession of Social Work.

CHAPTER FIVE: DISCUSSION

Introduction

Negative developmental outcomes, such as substance abuse, have a strong connection to troublesome early ADHD behaviours (Cohen et al, 1993). In this study, the 39 substance abusing adolescents with ADHD support this claim. A perusal of the study results will highlight some areas that, if addressed effectively, may help to prevent a replication of the negative developmental outcomes experienced by adolescents in this study.

The discussion first covers the nature of ADHD. This section includes controversies, age of diagnosis, biological links, comorbidities, gender associations, and the ADHD/substance abuse connection. This last topic is broken down into several areas; biological, psychological, and social connections. Next there is a conceptual shift from a medical/science model to a social model of ADHD and its negative developmental outcomes. Educational issues are followed by a look at the ADHD family, which is the primary focus of this study. Limitations and recommendations for social work practice and further research are also included.

Age of ADHD Diagnosis

Twenty-three of the study's adolescents were not diagnosed with ADHD until age 9 or later. For this group, intervention, that may have been helpful in combating ADHD symptoms, came too late. This number represents slightly more than half of the total study adolescent group. These results support the longitudinal study by McGee et al, in 1992, that found three-quarters of a mixed gender group with ADHD related problems, were not diagnosed with ADHD until age 11 or older.

Out of the 23 not diagnosed until 9 years or older, eight were between 9 and 11, six were 12 years or older but not diagnosed in last two years, while 9 adolescents had been diagnosed in the last two years. The parents of these three groups scored less than an average of 50% when questions four, nine, and ten (common knowledge) were removed. Of these groups, parents of adolescents recently diagnosed with ADHD (PD), received the highest average percentage at 49.2%.

By the time a late diagnosis is made there are often multiple issues facing a family. A household already stressed by raising an undiagnosed child with ADHD has now added the additional stress of substance abuse issues. Original stresses can include discord, disharmony, low self-esteem for some or all members, poor parent/child relations, parental substance abuse, maternal depression, marital conflict, separation and divorce. Parents are usually completely overwhelmed by the time an adolescent with both ADHD and substance abuse issues reaches treatment. (Biederman, Faraone et al, 1995; Hoza et al, 1993; Richardson, 2001; Wells et al. 2000). In this study, the low parental knowledge, yet apparently high concern for adolescents ADHD issues, as seen in parent respondents, supports this view of the “overwhelmed” parent.

Although the average number of questionnaire items answered correctly does not differ greatly between any one of the subgroups (i.e. 13.05% between <8 and 9 to 11 subgroup), the knowledge of parents of recently diagnosed adolescents was higher than parents who had children diagnosed after age 9 but not in the last two years. It might be interesting to consider whether PD parents are displaying an initial willingness to try and understand their child’s ADHD. Is this before more frustration sets in as they become aware of the much needed long-term support for the comorbidity of ADHD and substance abuse?

For the 16 ADHD/substance abuse adolescents that were diagnosed at age 8 or before, it would seem that the parents would have had more time, as opposed to those with children diagnosed at later ages, for interventions that could have blocked the

negative substance abuse outcome. When looking at the study results, even admitting to many unknown intrusive variables such as divorce and financial stresses in a family, the question still arises of whether there were significant and ongoing interventions to assist the ADHD child. In the discussion of the three open-ended responses, this is addressed.

It is important to remember that all the adolescents represented in this study had entered Intake at AADAC Youth Services for help with substance abuse.

Gender

Albeit, this is a convenience sample, only six of the 39 cases included in this study concerned female adolescents. This is in keeping with Hallowell and Ratey (1994) who point out that the behavioural hyperactivity found in most ADHD boys, often when comorbid with Conduct Disorder or Oppositional Defiant Disorder, is a precursor for substance abuse. This often excludes ADHD girls who often exhibit more recessive internal hyperactivity.

Research in 1994 by Greenblatt, and by Silverthorn et al. (1996), found that schools tend to refer more boys for diagnosis while parents refer more girls. Greenblatt (1994) also found that girls were more often inaccurately assessed when hyperactivity was present. Given these discrepancies in diagnosis it is a possibility that ADHD girls who entered the AADAC intake program were not available for this study because of lack of an ADHD diagnosis. Both genders were possibly under-assessed when hyperactivity was not a factor. Therefore, non-hyperactive boys with ADHD may also have been omitted from the study for similar reasons.

Also, ADHD comorbid with Oppositional Defiance Disorder or Conduct Disorder, has been identified with higher rates of substance abuse and some research shows that more ADHD males than females have either ODD or CD (Fehon et al, 1997). Since higher rates of ADHD/CD comorbidity have been found in hyperactive-impulsive ADHD subtype, which is, so far, a predominantly male diagnosis, this may be a reason

why a higher proportion of adolescent ADHD males, versus females, have substance abuse issues. As stated, females tend to be diagnosed with predominantly inattentive type ADHD that appears to have more cognitive than behaviour problems and, therefore, less opportunity for comorbidity with Oppositional Defiance Disorder or Conduct Disorder (DSM-IV, 1994; Lahey & Carlson, 1991).

If more male adolescents enter substance abuse treatment due to ADHD/Conduct Disorder or Oppositional Defiant Disorder, are these comorbidities being recognized and treated properly along with the substance abuse? Dealing with all three comorbidities may substantially increase the ability to impart successful substance abuse treatment and, in a broader scope, preventing the handicapping of these adolescents in all aspects of life.

Diagnosis with a particular ADHD subtype does not seem to alter two negative pressures to abuse substances which ADHD adolescents face. One is the desire to escape from psychological pain that results from school failure, poor social skills and inner confusion (Lewis et al, 1994). These reasons to escape psychological pain can be corroborated in question eleven of the open-ended responses although it is not known if this was the reason for the represented adolescents to substance abuse. Parents sited negative behaviour 31 times as being the most troublesome ADHD side-effect. The other concerns the use of stimulants as help in reaching an "optimal arousal point". ADHD adolescents who are not using ADHD medication (stimulants) have a higher rate of abusing other stimulants such as tobacco, cocaine, etc. (van Wormer, 1995). Both of these pressures are common to all ADHD subtypes and, it follows, are not gender biased.

It is also important to note here that the study can only accept this as a possible theory. Results contain no information on parental belief as to why their adolescents started abusing substances.

It is not easy to "tease apart" gender differences in relation to ADHD/substance abuse. In discussion that follows, gender will be mentioned only as it illuminates

particular points of interest. It is assumed that the study's gender balance may not be accurate for adolescents who entered intake at AADAC Youth Services in Calgary.

Parental Knowledge of ADHD

The ten questions meant to assess general knowledge of parents with ADHD. Content of the questionnaire, although non-standardized, was judged to be knowledge that anyone dealing with ADHD would quickly acquire. The questionnaire content was agreed upon by the researcher and those professionals who were consulted. Parents, being the child's stakeholders with the biggest interest, should be the most informed about their child's ADHD. McCord and Tremblay (1992) suggest that only if the parents are involved in diagnosis and become knowledgeable about their child's ADHD will a child be adequately supported and enabled to functionally address adverse ADHD symptoms.

The results of the questionnaire do not support the premise that parents of ADHD children are the most informed about their children's ADHD when it involves these parents of substance abusing adolescents with ADHD. The average score for all respondent parents was 62%. When three common knowledge questions were removed from the total, <8 parents had a 51.6% average and >9 parents had only a 43.8% average. Knowledge of only half or slightly more than half of the questions one - ten is insufficient for any major stakeholder of a child with ADHD.

In a survey using a sample of 380 American pediatricians out of a possible 1000, results showed that there is a wide range of reported physician behaviour with respect to ADHD cause, diagnosis and treatment. The study concluded that greater care and attention be paid in providing educator training and the provision of accurate ADHD information (Kwasman, Tinsley & Lepper, 1995).

In view of these findings, the parental knowledge of ADHD for the population as a whole would seem to be in jeopardy. When professionals lack understanding of the correct diagnostic procedures for ADHD as well as its treatment, the low levels of knowledge found in this study's sample might apply to a wider population of parents with ADHD children. For instance, in the open-ended response question involving services accessed, only 24 parents mentioned physicians. It is interesting that for a formal ADHD diagnosis, which each parent attested to, it is necessary to have consulted a physician of some type. One would also hope that diagnosis would be made through a physician who is particularly knowledgeable in the area of ADHD. Fifteen parents did not mention the medical profession as a service they had accessed. Could this be because it was not a current, or maybe even a positive, experience? For those with ADHD it is important that medical contact not only be current, but also an ongoing positive intervention.

Parents in this study seemed quite aware of their need for more knowledge about ADHD. In the open-ended response section of this study, out of the 39 total respondents, question #13 produced 18 responses indicating that parents desired, but did not get, sufficient accurate information about their child's ADHD.

In the first part of the questionnaire, question nine asked whether children with ADHD were generally as smart as other children. An average of 85.1% answered this correctly – that ADHD children are at least as intelligent as other children. In verbal discussions, held at completion of the questionnaire, many, if not all parents, emphasized that they thought their children, in spite of the ADHD, were very intelligent. While admitting that many parents may naturally assume their own children to be bright, there is a body of literature that supports this tendency for high intelligence in many children with ADHD. These studies claim that, although ADHD children do not think in the linear, logical ways that suit the structured educational environment, they are often gifted in creative, divergent ways of thinking (Hallowell & Ratey, 1994; Murray, 1999; Neuwirth, 1996).

One particular study discussed by Murray (1999), involved 121 first-and-second graders. The children who showed higher levels and quality of fantasy play and expressed more emotion scored higher on a test for divergent thinking which involved brainstorming. They also scored higher on a test measuring problem solving ability in stressful situations. A second study also discussed in Murray (1999), involving 31 of the same children when they were in the fifth-sixth grades, established that they continued to have better than average problem-solving ability in stressful situations and had become better divergent thinkers over time (Murray, 1999). Children with ADHD fall in the category of often having high levels and quality of fantasy play and are known to express more emotion. This is true for children with the predominantly inattentive type ADHD as well. Their internal fantasy world and inwardly felt emotion is very high.

This study has insufficient information to gauge adolescent ability but the idea that children with ADHD have potential for high creativity increases the tragic consequence of the substance abuse experienced by the respondent adolescents. Loss of potential for personal creative success not only affects the individual, and those close to him/her, but society in general. Perhaps the parents in this present study answered question 9 intuitively, realizing that, while their children are burdened with negative ADHD symptoms, these same children are very capable in many other ways. Unfortunately, these children's growth potential, regardless of parental thoughts on children's abilities, could very well have been hampered by insufficient parental ADHD knowledge, access to positive services and support systems.

Only one parent, a mother of a son, wrote that she felt she knew enough about ADHD and, indeed, did get 100% on questions one – ten. Her son had been diagnosed before age eight yet was still having substance abuse issues. This example is an indicator that early diagnosis and parental knowledge are not all that may be necessary to help these children. Supports can also be a real concern.

Services and Supports

Out of a sample of 39 parent respondents, 95 services were reported as having been or presently being accessed for help with their children's ADHD. For this particular group there seems to have been a good deal of effort spent in acquiring outside support. One parent had accessed, at one time or another, 11 different services for her ADHD child. Including two parents who reported no use of services in the last one and one-half to two years, there was still a 100% response rate of having used one or more services.

This is surprising when there are several factors that could deter parental action:

1. Frustration in finding competent services (Anatopoulos et al., 1992)
2. Monetary considerations (Hoza et al., 1993)
3. Current negative social opinions of ADHD (Korkman & Peltomaa, (1991)
4. Other family concerns or crises that are common in ADHD families and result in feelings of social isolation (Hoza et al., 1993)
5. The very real chance that one or both of the parents may be suffering from ADHD as well. This last factor is important as ADHD individuals have difficulty with "follow-through", a necessary component in seeking and sustaining any outside services. Also, when a child's primary caregiver also has ADHD, the child's crisis with ADHD is not necessarily the "center of family attention" (Richardson, 2001).

Barkley (2000) cautions that outside services for an ADHD child, such as school, physicians, counselors, etc., should not necessarily be given precedence over a focus on the whole family. He states that not enough is known about the etiology of ADHD to determine whether a child's reactions to his/her ADHD are not environmentally induced or, at least, environmentally affected. The family is the setting for much of a child's early life. Barkley also suggests that outside interventions by different services might be

ineffectual. At the very least, outside services need to employ extensive, time-consuming and, therefore, often expensive means to bring about positive results (Barkley, 2000).

Along with the above study, an interesting British study points out that general practitioners and parents of children with ADHD varied significantly on views concerning ADHD. General practitioners were unsure whether hyperactivity was a medical disorder that warranted a specific treatment or label and often saw ADHD as a passing phase related to stress in the family. Parents, on the other hand, viewed their child's ADHD as long-lasting, biologically-based and, therefore, in need of proper diagnosis and treatment (Klasen & Goodman, 2000).

While the above study was not North American and may, therefore, represent a nation more reluctant to recognize ADHD, it does question efficacy of some outside services as possible successful treatment options. This brings to mind again, the failure of 15 parents to mention medical services as having been accessed although it is probable that these services were accessed at some point by all parents in the study. The Klasen & Goodman study also agrees with respondent conversations after they had finished the questionnaire. These parents were frustrated with the present outcomes of their children's ADHD and expressed "relief" that someone was able to empathize. The researcher did not find this difficult. Unfortunately, until ADHD has wider acceptance and a more concrete etiology appears, this will continue to be the case.

The ADHD Family and Support

Why Support is Necessary

As valuable and necessary as services are for an ADHD child, there is a strong need for accompanying support for both the child and the parents. This comes in many forms, not least of these is committed support given to the family as a whole.

Negative family interaction has been shown to promote deviant child behaviour while intensive parental training and support has resulted in improved parental behaviour, reduced maternal stress and reduces oppositional child behaviour (Danforth, 1998; Loeber, Drinkwater, Yanming, et al., 2000). Again, noting that children with ADHD are prone to negative developmental outcomes such as substance abuse, this attention to family becomes crucial.

Parenting Factors

Parent factors should be primary in treatment planning and, as parents of children with ADHD are already at high stress levels, first levels of intervention, including a child's diagnosis of ADHD, should include, if not center, on the family. Actual family "life" as it pertains to the respondents of this study, is hard to determine accurately but it is known that stress factors are high as evidenced by the total of 80 troublesome ADHD issues included in responses to question eleven. When it is considered that there are only 39 total respondents a clearer picture of frustration these parents feel can be developed. These same parents accessed, or are accessing, a total of 95 different services. They also "wished" that they had help much earlier with their children's ADHD. Seventy-one responses, concerning different areas of help that were not forthcoming when needed, attest to this.

This sounds frustrating and overwhelming in itself. Several studies concerning parent-child interaction in the ADHD home assist in shedding "some light" on some of the issues that may be present in these homes. It is not, however, clear whether the following issues are precursors or effects of the child's ADHD.

1. There are significant associations between index of parental conflict and several measures of psychopathology and psychosocial functioning in children with ADHD (Biederman, Milberger, Faraone, et al., 1995).

2. Long term treatment for a child's ADHD is affected by an interaction between: (one) a child's severity of symptoms, comorbidity, and IQ and (2) parental parameters such as parental pathology, socioeconomic status, and family adversity (Hechtman, 1999).
3. After adjusting for effects of Conduct disorder and parental mental health, results showed that poor parent coping and the use of aggressive discipline methods were significantly associated with hyperactivity (Hecht, 1998).
4. In contrast with mothers with no children with ADHD, mothers who had one or more children with ADHD and had ADHD themselves, there were noted significant differences in levels of neuroticism, conscientiousness, neuropsychiatric disorders, alcoholism in family of origin, and atypical sexual events (Weinstein, Apfel, & Weinstein, 1998).
5. Compared with normal controls, parents of children with ADHD viewed inattentive-overactive and oppositional defiant behaviours as internally caused, less controllable by a child, more stable and the parents had more negative reactions to these behaviours. Alternately, these same parents viewed pro-social behaviours as less internal and less stable (Johnston & Freeman, 1997).
6. Parents with children with ADHD were found to use more negative-reactive and fewer positive parenting strategies than control parents (Johnston, 1996).

Of the six studies just mentioned, only number four exclusively studied parents who, themselves, have ADHD. How many of the parents involved in the other five studies also have ADHD? Of this number it can be questioned whether their own ADHD

and lack of treatment as children were a significant factors in parenting difficulties and perceptions.

Parental concerns of their children's behavior issues and focusing problems numbered 31 (38.8%) and 26 (32.5%) responses respectively. It is not known from this research if some parents considered focus issues as negative outcome behaviours or not, nevertheless, out of 39 respondents, these are major items in dealing with ADHD in their children. Male parents, while only 10 in number stressed behaviour issues 15 times. Clearly fathers are bothered by this particular problem. This is emphasized in a 2000 study finding that fathers tend to blame noncompliant behaviour on their child's ADHD. This was found as a significant factor in variance of child treatment outcomes (Hoza et al., 2000)

Mothers in the above study were also concerned about behaviour and focus issues, with 23 and 16 responses respectively, but it was maternal lack of self-esteem in this case that was the best predictor for negative treatment outcomes. (Hoza et al., 2000). Clearly when working with parents, they cannot necessarily be viewed as one unit in all treatment interventions.

Poor school performance and low social functioning are common precursors of substance abuse difficulty (Fox & Weaver, 1990; Marfice, 1997). With this in mind, it comes as no surprise that, in the area of school and society, there was a high parent response for what they "wished" would have taken place very early in their child's life. Out of the total responses concerning "wishes" as to what "could have been", concerning the help given to the families of the represented adolescents, there were 14 (35.9%) responses expressing disappointment in the lack of help and understanding from the school system and 11 (28.2%) responses pointing out lack of empathy from others in general. Both of these types of responses were second only to the expression of the wish that they, the parents, had been given or had learned about ADHD when their children were "just starting out in life". These last responses totaled 18.

The School System

The school setting is encumbered with numerous difficulties in dealing with ADHD (see page 38 on ADHD and Education) and parents can be daunted at efforts to intervene on behalf of their children. SALDY (1997) points this out in its four issues of concern (see page 38). Reid and Hertzog (1996) agree in study results that found, on an individual level, parents felt they had to yearly educate the teachers on their child's ADHD, and on an organizational level, they had to actively struggle to maintain continuity of necessary services for their child. The researchers also found that, for most parents, a positive outcome was more desired than realized.

Considering the Optimal Arousal Theory, ADHD children benefit from active, self-paced and hands-on learning situations (Armstrong, 1998; Van Wormer, 1995). Although these are promoted in school there are still many times when children are expected to sit still and learn from lectures and board work. Because this is reality, class and homework strategies become essential. If both school personnel and parents understand "what works and what doesn't" for a particular child, a happier, less stressed child could replace one that is frustrated and transfers this to negative behaviour (Gregg, 1999). Fourteen of the parent respondents in this study specifically mention school as having been a problem. Although not specifically part of question 11, school was mentioned 11 times in relation to focus, behaviour, frustration and other issues.

Gardner's Theory of Multiple Intelligences (1983), although not new, stresses that intelligence exists in all individuals but is stronger in some areas for each person. Each individual deserves to be able to identify areas of strength and to be acknowledged for this strength. This would allow for recognition of each child's particular strengths. Armstrong proposes that this theory may be a good holistic assessment instrument for ADHD (Armstrong, 1998).

Armstrong proposes that this theory may be a good holistic assessment instrument for ADHD (Armstrong, 1998).

In private practice the researcher has observed a teacher employing this method with a client with excellent results. Animals fascinated this boy and he was made the class “animal expert”. Confidence blossomed, especially when the teacher pointed out his skill in calming a frightened animal. This approach ignored negative behaviours and may have benefited this child long-term.

Teachers who are willing to help are encumbered by large classroom size, demanding curricula, and limited time. School counselors carry large caseloads and are often relegated to administrative duties in handling student distress. Principals and other administrative staff are concerned about budgets and equality and fairness of services. A parent of a child with ADHD, although there may be others, will find it difficult to get sufficient attention to meet all of a child’s needs. Of credit to the Alberta School System, there are stipulations in place that allow those with professionally diagnosed ADHD to receive special accommodations, such as extra time on exams. As commendable as this is there remains, for reasons mentioned above, a lack of necessary individual attention to a child’s ADHD needs. Parents need to be key players in promoting and sustaining accommodations for their children with ADHD. Answers to this dilemma may be difficult but they need to be seriously addressed in order for many children with ADHD to receive a fair chance to succeed academically.

Understanding from Others

*I wished I would have known...”(how it is) ...
important to learn not to say “ADD” out loud.”*

Societal opinion has a wide variance where ADHD is considered. In question 13, concerning the desires parents had about what could have been better about their

addressed “understanding from others’ directly. In the conversations held with respondents after the questionnaires were completed, frustration at lack of outside understanding by blaming parents with children with ADHD, lacking patience with the child’s difficulties, and offering, often contradictory advice on cures and handling of the ADHD. Parents also mentioned many professionals that they felt were condescending and uninformative to parents, “shoved” medicine at the child and assured parents that was all that was needed, and some who were lacking any knowledge of ADHD.

The “Meds” Question

Albeit that the DSM-IV (1994) has included ADHD as a “bonafide” disorder, it is still not known whether it is the result of one or many biological or environmental factors or combinations of both. “Skeptics suggest that psychiatrists (professionals) are too ready to diagnose a range of behavioral problems as ADHD and to dismiss them with a quick chemical fix (Leutwyler, 1996, p1).

Several common misconceptions are still around. The six mentioned below have all been personally heard several times by the researcher.

1. Giving children ADHD medication is just an excuse to not deal with “bad” behaviour.
2. What if we “drugged” all children who had behaviour difficulties?
3. Behaviour falls on spectrum and who can say where the line is drawn that says one person has ADHD and another does not?
4. In our society, a person is expected to “fix” things themselves and relying on counseling or medication is a sign of weakness.
5. There is a conspiracy by the drug companies to convince the public that negative behaviour can be cured by medication.
6. Drugs for ADHD will turn your child into a drug addict

This last belief is very common. In this study alone, only 51.3% of the 39 respondents knew that the use of ADHD medication didn't lead to future substance abuse. It is not known how many of these knew that proper use of ADHD medication in childhood has been shown to actually be a deterrent to future substance abuse (Biederman, Wilens, Mick, et al., 1999). Considering study results, of only 43.3% correct average for parental knowledge about ADHD medicine, as well as acknowledging lack of ADHD knowledge attested to by the above six misconceptions, there appears to be a lack of ADHD medical information reaching beyond immediately concerned professionals.

Parental confusion over ADHD medication carries very real risks to the future well-being of their children. It is known, that even for those who employ medication as a form of treatment for their children's ADHD, constant monitoring and adjusting of dosage, as well as dealing with annoying side effects, can deter accurate or ongoing use of this medication. All of this parental stress created over whether or not to use medication or how to use it, is only increased when those around them are critical and unsupportive of their efforts.

Parental and Child Peer Supports

One wonders about "holdover" perceptions of ADHD, even those of professionals. These perceptions come from various places such as an older 1988 study that addresses ADHD symptoms in the following way.

1. Instability and restlessness
2. Behaviour impulsivity such a lying, cheating, arguing, etc.
3. Social failure due to "difficulty in reading social situations"
4. Delinquent or antisocial behaviour
5. Aggressiveness (Coleman & Levine, 1988).

The very nature of some of these negative symptoms of ADHD would allow presumption of negative peer issues. For behaviour attribution clarity it seems necessary to make sure a particular behavioural-challenged ADHD child is not also suffering from comorbid disorders such as Conduct Disorder, Oppositional Defiant Disorder or Tourette's Syndrome. These disorders alone may account for much negative behaviour (American Academy of Pediatrics et al., 2000). Unfortunately, this study was not expansive enough to have determined whether any of the represented adolescents had comorbidity issues. All that can be said about this study's results is that 65.6% was the average of correct answers given by parents to behaviour questions and that behaviour issues were one of the dominant troublesome behaviour characteristics mentioned by these same parents.

For parents already overstressed by dealing with their children's difficulties within the home and educationally, criticism from relatives, friends, or even strangers, does little but add to stress levels. Again, the questionnaire's results are perhaps indicative of high levels of stress being experienced by these parents of ADHD adolescents who are now also substance abusing. Overall response levels for each of the three open-ended response questions, totaled well over the actual count of 39. respondents: 11) Responses for the most troublesome ADHD issues totaled 80; 12) Responses regarding services accessed or being accessed totaled 95; and 13) Responses concerning "wishes", about ADHD information and how to deal with it, totaled 71. Also, relief, such as someone willing to "really listen to their side", was a common impression the researcher received in talking to respondents after they had completed the questionnaire. Most left their address in order to receive the follow-up after completion of the study.

Although there is a large public awareness of ADHD, there appears to be contradictory information about all aspects of the disorder. When parents and their children suffer effects of ADHD, positive support would be of far more help than much of the negative input received by several of this studies respondents.

Ongoing research and projects such as SALDY (1997) are making headway in breaking down barriers by including the “parent factor” in ADHD treatment. The researcher believes that parents should not only be participators in a child’s ADHD treatment, but should be primary in any treatment approach. This is verified for the respondents of this small study by results showing that, at least for these parents, society has not been effective in helping to alleviate the anguish of parents now suffering with their children’s dual diagnosis of ADHD and substance abuse. In the sample of 39 parents, there were 246 responses to the open-ended questions, or a 630.8% response rate. If a larger population can be found to have similar internal consistency it could expose a crisis that is endemic and one that cannot be ignored.

Limitations of this Study

Non-random convenience sampling necessarily introduces the inability of this study to generalize findings to a larger population. Substance abusing ADHD youth who seek treatment at AADAC Youth Services in Calgary are not truly representative of the larger population of every ADHD youth who abuses substances.

The reliability of the questionnaire is lacking in a number of ways. First, the Chronbach’s alpha is only .49. This is low, but again may be influenced dramatically by the low sample size. The instrument is also very brief, ten quantitative items, which limits levels of reliability. As this is an exploratory study this is not unexpected. Future, more rigorous studies would have to find a standardized instrument or construct an instrument that measured at a much higher alpha. In this study the use of a non-standardized instrument (questionnaire) jeopardizes validity, particularly in three areas:

1. Criterion validity is compromised through lack of comparison of questionnaire scores with another outside source that purports to study age

of diagnosis of ADHD in substance abusing youth and/or knowledge obtained by parents of the same group.

2. Concurrent validity is in question as particular questions on the questionnaire might evoke different answers depending on the mood of the parent at the time. For instance, the question asking parents to share the most troubling aspect of their child's ADHD, may answer that substance abuse is the most troubling. Is this because of the currency of the substance abuse problem or is it momentarily masking other, equally or more difficult ADHD issues?
3. Construct validity may be somewhat of an issue in that the questionnaire has not been proven to accurately measure the research questions. This study can only assume that the discriptives measured are reasonably representative of the sample studied.

Normative data, essential to the scoring and interpretation of an instrument, is compromised in four ways:

1. The 23 sample subjects used to pretest the questionnaire did not all have the same characteristics as the proposed sample for the actual study. The sample subjects, although all parents of ADHD children, did not all have adolescents who were presently abusing substances.
2. The limit of 23 sample subjects is far below the general rule of at least one hundred subjects in a sample pool.
3. As only one group was used in testing the instrument, there is a certain paucity of ability to determine if the testing sample has better relevance to the study population than any other group.
4. Steps have been taken to limit collection errors but it is recognized that there may be incidences occurring beyond the writer's control. For instance, an intake worker may have been too busy to ask certain clientele if they would care to participate in this research. The writer recognizes that this study is

not the primary area of concern to those who have agreed to administer collection of data (Grinnell, 1993)

Several steps were taken, however, to reduce error where possible. Expert opinion was sought at several pertinent professional levels, as well as a pretest of the instrument (Appendix A).

Finally, several extraneous variables also pose threats to both external and internal validity:

1. Unwillingness of some parents of ADHD youth to participate in the study may have possibly limited the sample size.
2. The lack of verification of accurate diagnosis of ADHD was checked as parent's "yes or no" answer, for efficiency purposes, are considered sufficient in order for the next stage of the study (consent and questionnaire) to be pursued or not.
3. No provision was made for identification of ADHD adolescents who came for substance abuse treatment but had not yet been formally diagnosed as having ADHD.
4. It is acknowledged that ADHD is often part of a dual diagnosis and the contributions of these other disorders are not included in the results of this study.
5. It must also be noted that there is no acknowledgement of involvement in ADHD treatment by third parties (e.g. school system) and, therefore, no measurement of this involvement and its effects are included in the results.
6. The definition of substance abuse used in this study makes little provision for the recognition of the many different types and degrees of substance abuse.

Although the above limitations are recognized, this study still offers and opportunity to contribute to a clearer perception of the relationship between ADHD, age of diagnosis, parental ADHD knowledge and their associations with substance abusing adolescents. The open-ended response part of the questionnaire serves to enrich our understanding surrounding parental concerns about their substance abusing ADHD adolescents.

Recommendations for Practice and Further Research

Practice Recommendations

Clinical Practice

In the realm of social work, it is unlikely that clinical practice touches ADHD children who have not displayed some severe negative symptoms. When referrals are made, these clients tend to be at or near a crisis condition. The exception would probably occur when ADHD is secondary to a primary referral such as a family-based one. The following recommendations for clinical treatment are compilations of the researcher's own opinions and may be ones that coincide with other professionals.

1. Parents of the child with ADHD need to be educated and supported in *all aspects* of ADHD.
2. Practitioners should be aware that every ADHD child needs to be tested for comorbidities such as Tourette's Syndrome, Conduct Disorder and Oppositional Defiant Disorder.
3. Diagnosis should be made using a variety of instruments and informants. This is corroborated by a study, which shows that behaviour reports, by mothers and teachers concerning a child with ADHD, have been shown to be widely disparate (Smalley, et al., 2000)
4. Parents need to be respected as a child's primary stakeholders and, therefore, encouraged to assume and maintain a major role in treatment.

5. A practitioner should be aware that the family might have more than just one member with ADHD. Genetics does not seem to differentiate between subtypes of ADHD and there is often more than one subtype present in one family. This is particularly important if a parent or parents have ADHD. This could directly affect continuous organized implementation of interventions
6. A practitioner should be cognizant that there may be multiple layers of problems that might be present in the family, due to genetics, comorbidity, or life under stress in general.
7. The whole family, including siblings, should be a target of counseling and needed support.
8. A practitioner should be prepared to be a strong liaison between parents, teachers and physicians.
9. Treatment for ADHD is a long term commitment for all involved. The shifting focus and impulsivity inherent in ADHD demands a variety and often changing modes of intervention. According to Fischer (2001), in order for someone with ADHD to incorporate change the information must be presented in stimulating yet short sequences. Patience on the part of a practitioner is required and a relaxing of time-limits in interventions.
10. Conventional coaching may not work in an ADHD situation. It tends to be repetitious and, therefore, quickly boring to an ADHD individual. Making lists is often encouraged but the ADHD mind often forgets to look at lists. Fischer (2001) again posits that a secretarial service that works around and with the individual with ADHD may show great promise. Periods of intensive help interspersed by small moments of reminding seems suited to the ADHD mind
11. Emphasis needs to be placed on helping children do what they already know, such as performing skills already in their repertoire in a setting where they are really useful. Weekly clinic-based therapy hours could be replaced by behaviour programs in actual life-settings. Practitioners would

then be able to switch roles from direct therapist to more of a parental consultant role.

12. If ADHD is biologically based, behavioural therapy or other psychosocial treatment methods may not be very successful. According to Barkley (1996) an ADHD child's self-regulation is preceded and overshadowed by impulse. Medication to overcome impulsivity may be the only alternative although once medication "takes effect" behaviour modification therapy may be successful.
13. Many studies point to the efficacy of ADHD medication and proper dosage as important ways to help regulate negative ADHD symptoms (Barkley, 1996; Conte, 1991, Van Wormer, 1995). Support from a practitioner becomes essential as parents become frustrated with finding the right dosage and medical "side effects", such as lack of appetite and sleep loss, disrupt routine. In this study, medical problems were reported as concerns in all three open-ended questions and they were also the questions in numbers one to ten that were answered incorrectly the highest percentage of time (56.7%).
14. Clinical Social Workers employed in substance abuse treatment services need to cognizant of any symptoms relating to ADHD in their clients. Although not the center of treatment, unrecognized ADHD may jeopardize positive treatment outcomes.
15. Systematic follow-ups and monitoring are important. These should include on the stakeholders in each case. Parent's input is paramount.

Community Practice

Few children with ADHD access the help of a clinical practitioner outside of the clinical therapy office. This is one important reason why complete, up-to-the-moment information concerning ADHD must continually be made available to four particular groups:

1. Families, including child, parents and siblings
2. Education Professionals
3. Medical Practitioner
4. The child's peer group. This would probably be accomplished best in a school setting.

Professional medical and education seminars, parent and family support groups, dissemination of educational ADHD material, in-school student presentations, walk-in and phone-in supports are just some of the possible approaches. Another intervention efficacious due to the large number of children missing a proper ADHD diagnosis would be a screening of all children in the 2nd grade. The researcher suggests the 2nd grade because this would allow one year for the school to observe each child in an organized setting with a large group of children for comparison. Standard screening need not only include ADHD, but it should be a major object of early identification.

Community social work practitioners may be ideal candidates for a beginning promotion of such an implementation. Until all children are allowed the same chance at educational and social stability, there are limited ways to curb negative developmental outcomes such as substance abuse. On a final note, there is an approach that is gaining popularity, especially among older individuals diagnosed with ADHD as well as some parents of children with ADHD.

A Positive Approach

There are two ADHD themes, presented as factual, that predominate both popular and research literature:

1. The set of behaviours termed ADHD are the results of an underlying disorder.
2. There is a presumption that ADHD is the result of a neuropsychological dysfunction that is probably heritable and inherent in an individual with ADHD (Reid, 1999).

Suppose that the above themes are only part of the bigger picture or even misleading. There is a theme that places ADHD in a more positive light. This theme even suggests that “deficit” and “disorder” should be removed from the vocabulary (Scholten, 1999). The ideas behind this methodology regard ADHD as not necessarily a disorder of attention, but access to a wider degree of ability to “tune-in” or “tune-out”. It is, admittedly, an approach to life that does not fit well with our linear, organized and categorized society.

This goes back to Question #9 that asks whether children with ADHD are as smart as others. As mentioned, a total of 88.2% of parents believed that their children were smart. As also previously suggested, these answers may have been intuitive as the researcher, in one quick search in the search-engine ERIC on the Internet, was able to find many articles and studies claiming a gifted/ADHD correlation (Freed & Parsons, 1997; Janove, 1997; Silverman, 1998, Ramirez-Smith, 1997, Wodd & Lazzari, 1997, Halperin, 1997, Delisle, 1995).

Proponents of a more positive approach to ADHD advocate for internal control over symptoms, instead of just the external controls of behaviour modification and medication. The “wellness” paradigm replaces the disease-based model. Focus is more on the discovery of a child’s strengths than a fixation on faults. Using a holistic approach

to ADHD, one example of the ADHD dilemma embraces these two sides: the belief that a child is behaving negatively when hyperactive or he/she is simply full of vitality that can be ultimately redirected in very positive ways. Armstrong believes that cutting-edge technologies such as hypertext and multimedia are examples of future vocations that would maximize some ADHD strengths (Armstrong, 1998).

Further Research

At the completion of this study, there arose, naturally, several ideas that, if employed would expand on the study's results. It is realized that these improvements could probably not be employed all at once but are, nevertheless, still critical to a clearer understanding of family support needs. These include:

1. A larger sample drawn from a larger population base
2. A control group consisting of adolescents with ADHD who are not abusing substances
3. A control group of non-ADHD adolescents
4. Additional questions in the questionnaire enquiring about comorbidity, parental ADHD, other stress issues, etc.
5. A follow-up qualitative piece that allows for more depth of answers to the open-ended responses.
6. A section that allows the adolescent with ADHD to discuss reactions to the ADHD, substance abuse, and supports.

Areas of research arising from this study are varied. Apart from the efficacy of an expanded replication of the study, several other questions deserve answers:

1. How do parents obtain and assimilate their knowledge about ADHD?
2. From whom and where is this information most available?
3. Is this information correct?

4. What are some successful approaches to family-school liaisons?
5. Who asks for a child's diagnosis for ADHD the most, parents, teachers, or others?
6. What is the average amount of time a parent remains with a particular ADHD service?
7. How high are stress levels in families with ADHD?
8. What are the most common stressors found in a home with an individual who has ADHD?
9. What are the effects of ADHD upon other life stresses?
10. How many ADHD families are "intact" (i.e. with both mother and father present)?
11. What are important sources of support for ADHD families and which supports are the most effective in alleviating stress?
12. What is the accurate etiology of ADHD? There is a need to move beyond speculation in order to develop a solid base from which ethical treatment can be given.

Conclusion

Although much is still not known about negative outcomes of ADHD, such as substance abuse, one thing that seems to be clear is that a more positive approach to a child's ADHD, along with medication and behaviour therapy, may enable the harnessing of a valuable resource for societal renewal. If ADHD in a child is diagnosed, treated and supported successfully, a great resource may be protected rather than just "the solving and elimination of a problem". Several historical figures were known to have been "educational failures" who displayed hyperactivity and behaviour problems. Winston Churchill, Albert Einstein, Florence Nightingale, Emily Dickinson, Steven Spielberg and Thomas Edison are not considered "fixed problems".

REFERENCES

ADD Support (2001). The past, the present and the future: The history of attention deficit hyperactivity disorder. Retrieved Online 12 January, 1999, from www0.delphi.com/ADD/history.html.

Amen, D. G. (1995). Healing the chaos within: The interaction between ADD, alcoholism and children and grandchildren of alcoholics. Bridges to a Brighter Future. Symposium conducted at the meeting of the Learning Disabilities Association of Canada, Saskatchewan.

American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Attention-Deficit/Hyperactivity Disorder (2000). Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder (AC0002). Pediatrics, 105(5), 1158-1170.

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Washington, DC: American Psychiatric Association. 1994;78-85.

Anastopoulos, A.D., Guevremont, D.C., Shelton, T.L., & DuPaul, G.J. (1992). Parenting stress among families of children with attention deficit hyperactivity disorder. Journal of Abnormal Psychology, 20(5),503-520.

Armstrong, T. (1996). To empower, not control! A holistic approach to AD/HD. National Educational Service – Reaching Today's Youth. 3–5.

August, F.J., & Garfinkel, B. D. (1993). The nosology of attention-deficit hyperactivity disorder. Journal of the American Academy of Child & Adolescent Psychiatry, 32(1),155-165.

Azar, B (1999). Some clinicians misusing ADHD diagnosis tools, report says. APA Monitor Online, 30(2). Retrieved Online 16 March, 2001, 9:10PM from <http://www.apa.org/monitor/feb99/adhd.html>.

Baker, D. B., & Pisecco, S. (1998). Building a parent support program and learning network. Reaching Today's Youth: The Community Circle of Caring Journal, 2(2), 6-9.

Barkley, R. A. (1990). Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment. New York: Guilford Press.

Barkley, R. A. (1995). Sex differences in ADHD. The ADHD Report, 3(1), 1-4.

Barkley, R. A. (1996). Attention-deficit/hyperactivity disorder. In E. J. Mash & R. A. Barkley (Eds.), Child Psychopathology (pp. 63-112). New York: Guilford.

Barkley, R. A. (2000). Commentary on the multimodal treatment study of children with ADHD. Journal of Abnormal Child Psychology, 28(6), 595-604.
Recovered Online 16 March 2001, 7:46 PM from <http://isis.lib.ucalgary.ca.32888/2001031>.

Barkley, R. A., Anastopoulos, A. D., Geuvremont, D. C., & Fletcher, K. E. (1991). Adolescents with ADHD; Patterns of behavioural adjustment, academic functioning, and treatment utilization. Journal of the American Academy of Child and Adolescent Psychiatry, 30, 752-761.

Baumgaertel, A., Wolraich, M. L., & Dietrich, M. (1995). Comparison of diagnostic criteria for attention deficit disorders in German elementary school sample. Journal of American Academy of Child & Adolescent Psychiatry, 34, 629-638.

Beitchman, J.H., Inglis, I. A., & Schachter, D. (1992). Child Psychiatry and Early Intervention: 1V. The Externalizing Disorders. (Review). Canadian Journal of Psychiatry - Revue Canadienne de Psychiatrie, 37(4), 432-438.

Bennett, R., Knorr, W., & Copans, S. A. (1998). Which of these children has ADD/HD? The answer might surprise you.... Reaching Today's Youth: The Community Circle of Caring Journal, 2(2), 6-9.

Biederman, J., Faraone, S.V., Mick, E., Spencer, T., Wilens, T., Kiely, K., Guite, J., Ablon, J.S., Reed, E., & Warburton, R. (1995). High risk for attention deficit hyperactivity disorder among children of parents with childhood onset of the disorder: A pilot study (Abstract). American Journal of Psychiatry, 152(3), 431-435.

Biederman, J., Milberger, S., Faraone, S. V., Kiely, K., Guite, J., Mick, E., Ablon, J. S., Warburton, R., Reed, E., & Davis, S. G. (1995). Impact of adversity on functioning and comorbidity in children with attention-deficit hyperactivity disorder. Journal of American Academy of Child Adolescent Psychiatry, 34(11), 1495-1503.

Biederman, J., Newcorn, J., & Sprich, S. (1991). Comorbidity of attention deficit hyperactivity disorder with conduct, depressive anxiety, and other disorders. (Review). American Journal of Psychiatry, 148(5), 564-577.

Biederman, J. & Steingard, R. (1989). Attention-Deficit Hyperactivity Disorder in Adolescents. Psychiatric Annals, 19(11), 587-595.

Biederman, J., Wilens, R., Mick, E., Spencer, T., & Faraone, S. V. (1999). Pharmacotherapy of attention-deficit/hyperactivity disorder reduces risk for substance use disorder. Pediatrics 104(2). Retrieved Online 16 March, 2001, 10:34 PM from <http://www.findarticles.com/cf 1/m0BUY/110/62276738/print.jhtml>.

- Brown, R.T., & Borden, K.A. (1986). Hyperactivity at adolescence: Some misconceptions and new directions. Journal of Clinical Child Psychology, 15(3), 194-209.
- Brown, T.E. (Fall, 1994). The Many faces of ADD: Comorbidity. Attention, 1(2), 29-36.
- Campbell, M., & Cueva, J. E. (1995). Psychopharmacology in child and adolescent psychiatry: A review of the past seven years. Part 1. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 1124-1132.
- Cantwell, Dennis P. (1996). Attention deficit disorder: A review of the past 10 years. Journal of the American Academy of child & Adolescent Psychiatry 35(8), 978-987.
- Cantwell, D. P., & Baker, I. (1991). Association between attention deficit hyperactivity disorder and learning disorders. Journal of Learning Disabilities, 24, 88-95.
- CH.A.D.D. (1993). Medical management of attention deficit disorder. (Brochure). Ottawa, ON: CH.A.D.D.
- C.H.A.D.D. (1993). The Disability named ADD. [Brochure]. Ottawa, ON: C.H.A.D.D.
- C.H.A.D.D. (1994). Attentional Deficit Disorder – Not just for Children. [Brochure]. Ottawa, ON: C.H.A.D.D.
- C.H.A.D.D. (1996). It's a Neurobiological Thing. [Brochure]. Ottawa, ON: C.H.A.D.D.

Chien, I., Gerald, D.L., Lee, R.S., & Rosenfeld, E. (1964). The Road to H. New York: Basic Books.

Chilcoat, H. D., (1999). Pathways from ADHD to early drug use. Journal of the American Academy of Child and Adolescent Psychiatry, 38(11), 1347- 1358. Retrieved Online 16 March, 2001, 10:30PM, from <http://www.findarticles.com>.

Claude, D., & Firestone, P. (1995). The development of ADHD boys: a 12-year follow-up. Canadian Journal of Behavioral Science, 27, 226-249.

Cohen, P., Cohen, J., & Brook, J. (1993). An epidemiological study of disorder in late childhood and adolescence-II. Persistence of disorder. Journal of Child Psychology and Psychiatry, 34, 869-877.

Coleman, William L., & Levine, M.D. (1988). Attention Deficits in Adolescence: Description, Evaluation, and Management. Pediatrics in review. 9(9), 287-297.

Conners, C. K., & Erhardt, D. (1998). Attention-deficit hyperactivity disorder in children and adolescents. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), Progress in Behavior Modification. Pacific Grove, AS: Brooks/Cole Publishing Co.

Conte, Richard (1991). Attention disorders. In B. Wong (Ed.), Learning about learning disabilities. (59-96). San Diego: Academic Press.

Danforth, J. S. (1998). The outcome of parent training using the behavior management flow chart with mothers and their children with oppositional defiant disorder and attention-deficit hyperactivity disorder. Behavior Modification, 22(4). 443-473.

Delisle, J. (1995). Add gifted: How many labels can one child take? (Abstract)(EC611021). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

Diaz, D. (1997). Dr. Barkley's ADHD Seminar Notes. Mercurial Madness. Retrieved Online 30 January, 1998, from <http://www.mindspring.com/~hugman/madness/add/barkleynotes.htm>.

Downey, K. K., Pomerleau, C. S., & Pomerleau, O. F. (1996). Personality differences related to smoking and adult attention deficit hyperactivity disorder. Journal of Substance Abuse, 8(1), 129-135.

DuPaul, G. (1999). Some clinicians misusing ADHD diagnosis tools, report says.(in Azar). APA Monitor Online, 30(2), p.1. Retrieved Online 16 March, 2001, 9:10PM from <http://www.apa.org/monitor/feb99/adhd.html>.

Epstein, J. N., Conners, C. K., Erhardt, D., Arnold, L. E., Hechtman, L., Hinshaw, S. P., Hoza, B., Newcorn, J. H., Swanson, J. M., & Vitiello, B. (2000). Familial aggregation of ADHD characteristics. Journal of Abnormal child Psychology, 28(6), 585-594.

Faraone, S.V., Biederman, J., Mick, E., Williamson, S., Wilens, T. Spencer, T. Weber, W. Jetton, J., Kraus, I. Pert, J., Zallen, B. (2000). Increase in ADHD and comorbid disorder seen in families of girls with ADHD. American Psychiatric Association. Retrieved Online 26 November 2001 from <http://www.adders.org/research10.htm>.

Farmer, J. (1997). Why is attention deficit disorder so prevalent in the US? Retrieved Online 11 June, 1997; 12.26PM, from <http://pages.prodigy.com/djfarmer/rational.htm>.

Fehon, D. C., Becker, D. F., Grilo, C. M., & Walker, M. L. (1997). Diagnostic comorbidity in hospitalized adolescents with conduct disorder. Comprehensive Psychiatry, 38(3), 141-145.

Fergusson, D.M., & Lynskey, M.T. (1993). The Effects of Maternal Depression on Child Conduct Disorder and Attention Deficit Behaviors. Social Psychiatry & Psychiatric Epidemiology, 28(3), 116-123.

Fine, L. (2001). Research: Diamonds in the rough. American Education's Newspaper of Record. Retrieved Online 26 November, 2001, from <http://www.edweek.com>.

Fischler, M. Barkley, R.A., Fletcher, K.E., & Smallish, L. (1993). The adolescent outcome of hyperactive children: Predictors of psychiatric, academic, social, and emotional adjustment. Journal of the American Academy of Child & Adolescent Psychiatry, 32(2), 324-332.

Fisher, G.L., & Harrison, T.C. (1996). Substance abuse: Information for school counsellor, social worker, therapists and counsellors. Boston: Allyn & Bacon.

Forehand, R. Wierson, M., Frame, C., Kempton, T., & Armistead, L. (1991). Juvenile delinquency entry and persistence: Do attention problems contribute to conduct problems? Journal of Behavior Therapy & Experimental Psychiatry, 22(4), 261-264.

Fox, C. J., & Weaver, F. I. (1990). Unlocking the Door to Self Esteem. Rolling Hills Estate, CA: Jalmar Press.

Freed, J., Parsons, L. (1997) Right-brained children in a left-brained world: Unlocking the potential of your ADD child (Abstract)(EC902766). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

Gordon, M., Mettelman, B.B., & Irwin, M. (1994). Sustained attention and grade retention. Perceptual & Motor Skills, 78(2), 555-560.

Greenblatt, A. P. (1994) Gender and ethnicity bias in the assessment of attention deficit disorder. Social-Work-in-Education, 16(2), 89-95.

Gregg, S. (1999). ADHD – Building academic success. Based on work by Office of Educational Research and Improvement (OERI). Control No. RP91002002. Retrieved Online 21 January, 1999, from <http://aelvis.org/rel/policy/adhd3.htm>.

Grinnell, Richard M. Jr. (1993). Social Work Research and Evaluation. (4th ed.). Itasca, Illinois: F. E. Peacock.

Hallowell, E. M., & Ratey, J. J. (1994). Driven to distraction: Recognizing and coping with attention deficit disorder from childhood through adulthood. New York: Pantheon Books.

Hallowell, E.M. & Ratey, J.J. (1994). Parts of the elephant: Subtypes of ADD. Driven to distraction. (pp. 151-194). New York: Pantheon.

Halperin, L. (1997). Pay now or pay later: The importance of strong parent-educator partnerships (Abstract)(EC616066). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

- Hancock, L. (1996). Mother's little helper. Newsweek, March 18, 51-59.
- Hartsough, C. S. & Lambert, N. M. (1997). Pattern and progression of drug use among hyperactives and controls: a prospective short-term longitudinal study. Journal of Child Psychology and Psychiatry, 28, 543-553.
- Hecht, G. M. (1998). ADHD as a disorder of adaptation. Journal of the American Academy of Child and Adolescent Psychiatry, 37(8), 799-800.
- Hechtman, L. (1999). Predictors of long-term outcome in children with attention-deficit/hyperactivity disorder. Pediatric Clinics of North America 46(5), 1039-1052.
- Hechtman, L. Weiss, G., & Perlman, T. (1984). Hyperactives as young adults: Past and current substance abuse and antisocial behavior. American Journal of Orthopsychiatry. 54(3), 415-425.
- Horner, B. R., & Schreibe, K.E. (1997). Prevalence and implications of attention-deficit hyperactivity disorder among adolescents in treatment for substance abuse (Abstract). Journal of the American Academy of Child & Adolescent Psychiatry. 36(1), 30-36.
- Hoza, B., Pelham, W.E., Milich, R., Pillow, D., & McBride, K. (1993). The self-perceptions and attributions of attention deficit hyperactivity disorder and non-referred boys. Journal of Abnormal Child Psychology, 21(3), 271-286.
- Janove, C. (1997). Zipper, the kid with ADHD (Abstract)(EC306141). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

Jensen, P.S., Shervette, R.E., Xenakis, S.N., & Richters, J. (1993). Anxiety and Depressive Disorders in Attention Deficit Disorder with Hyperactivity: New Findings. American Journal of Psychiatry, 150(8), 1203-1209.

Johnston, C. (1996). Parent characteristics and parent-child interactions in families of nonproblem children and ADHD children with higher and lower levels of oppositional –defiant behavior. Journal of Abnormal child Psychology, 24(1), 85-104.

Johnston, C., Freeman, W. (1997). Attributions for child behavior in parents of children without behavior disorder and children with attention deficit-hyperactivity disorder. Journal of Consulting for Clinical Psychology, 65(4), 636-645.

Klasen, H., & Goodman, R. (2000). Parents and GPs at cross-purposes over hyperactivity; a qualitative study of possible barriers to treatment. British Journal for General Practitioners, 50(452), 199-202.

Klein, R.G., & Mannuzza, S. (1991). Long-term outcome of hyperactive children: a review. Journal of the American Academy of Child & Adolescent Psychiatry, 30(3), 383-387.

Korkman, M., & Peltomaa, K. (1991). A pattern of test findings predicting attention problems at school. Journal of Abnormal Psychology, 100(4), 451-467.

Kottman, T., Baker, D. B., & Roberts, R. S. (1995). Parental perspectives on ADD/HD: How school counselors can help. The School counselor, 43, 142-150.

Kwasman, A., Tinsley, B. J., Lepper, H. S. (1995). Pediatrician's knowledge and attitudes concerning diagnosis and treatment of attention deficit and hyperactivity disorders. A national survey approach. Archival Pediatric Adolescent Medicine, 149(11), 1211-1216.

Leutwyler, K. (1996). Paying attention, the controversy over ADHD and the drug Ritalin is obscuring a real look at the disorder and its underpinnings. Scientific American. Retrieved Online 21 January, 1999, 11:40AM from <http://www.sciam.com/0896issue/0896infofocus.htm>.

Levin, F. R., Evans, S. M. & Kleber, H. D. (1998). Prevalence of adult attention-deficit hyperactivity disorder among cocaine abusers seeking treatment. Drug and Alcohol Dependence, 52(1), 15-25.

Lewis, Judith A. (1994). Addictions: concepts and strategies for treatment. Maryland: Aspen.

Lewis, J. A., Dana, R. Q., & Blevins, G. A. (1994). Substance Abuse Counseling: An Individualized Approach (2nd ed.). Pacific Grove, CA: Brooks/Cole.

Lie, N. (1992). Follow-ups of children with attention deficit hyperactivity disorder (ADHD): Review of literature. Acta Psychiatrica Scandinavica, Supplementum, 368, 1-40.

Loeber, R., Drinkwater, M., Yanming, Y., Stewart, J. A., Schmidt, L. C., & Crawford, A. (2000). Stability of family interaction from ages 6 to 18. Journal of Abnormal Child Psychology, 28(4), 353-380. Retrieved Online March 16, 2001, from <http://isis.lib.ucalgary.ca32888/2001031>.

Logan, S.E., McRoy, R., & Freeman, E.M. (1987). Current practice approaches for treating the alcoholic client. Health & Social Work, 12, 178-186.

Lynskey, M.T., & Fergusson, D.M. (1995). Childhood conduct problems, attention deficit behaviors, and adolescent alcohol, tobacco, and illicit drug use. Journal of Abnormal Child Psychology, 23, 281-302.

Maag, J. W., Irvin, D. M., Reid, R., & Vasa, S. F. (1994). Prevalence and predictors of substance use: A comparison between adolescents with and without learning disabilities. Journal of Learning Disabilities, 27(4), 223-234.

MacDonald, V. M., & Achenbach, T. M., (1999). Attention problems vs. conduct problems in 6-year predictors of signs of disturbance in a national sample. American Academy of Child and Adolescent Psychiatry, 38, 1254-1261.

Mate, G. (1999). Scattered Minds. Toronto: A.A. Knopf.

Mannuzza, S., Gittleman Klein, R., & Addalli, K. A. (1991). Young adult mental status of hyperactive boys and their brothers: A prospective follow-up study. Journal of the American Academy of Child and Adolescent Psychiatry, 30, 743-751.

Mannuzza, S., Klein, R.G., Bonagura, N., Malloy, P., Giampino, T.L., & Addalli, K.A. (1991). Hyperactive boys almost grown up: A replication of psychiatric status. Archives of General Psychiatry. 48(1), 77-83.

Margalit, M. & Almougy, K. (1991). Classroom behavior and family climate in students with learning disabilities and hyperactive behavior. Journal of Learning Disabilities, 24(7), 406-412.

Marfice, M. A. (1997). Teacher's knowledge and practices regarding students with attention deficit hyperactivity disorder. Unpublished master's thesis, California State University, Long Beach, CA.

McCord, J., & Tremblay, R. E. (eds.). (1992). Preventing antisocial behavior: Interventions from birth through adolescence. New York: the Guilford Press.

McCormick, L. H. (2000). Improving social adjustment in children with attention-deficit/hyperactivity disorder. Archives of Family Medicine, 9(2), 191-194.

McGee, R., Partridge, R., Williams, S., & Silva, P A. (1991). A twelve-year follow-up of preschool hyperactive children. Journal of the American of Child and Adolescent Psychiatry, 30, 224-232.

McGee, R., Williams, S., & Feehan, M. (1992). Attention deficit disorder and age of onset of problem behaviour. Journal of Abnormal Child Psychology, 20(5), 487-502.

Milich, R., & Okazaki, M. (1991). An examination of learned helplessness among attention-deficit hyperactivity disordered boys. Journal of Abnormal child Psychology, 19(5), 1184-1187.

Milberger, S., Biederman, J., Faraone, S. V., Chen, L., Jones, J. (1997). Further evidence of an association between attention-deficit/hyperactivity disorder and cigarette smoking. Findings from a high-risk sample of siblings. (Abstract). American Journal of Addiction, 6(3), 205-217.

Mitchell, S. (2001). Experts say schools have role to play in management of mental disorder. WebMD Medical News. Retrieved Online 26 November, 2001, from <http://WebMd.com>.

Modigh, K., Berggre, U., Sehlin, S. (1998). High risk for children with motor control and perception deficits (DAMP)/ADHD to become addicts later in life [Abstract]. Lakartidningen 95(47), 5316-5319. Retrieved Online January 30, 2000, from

Department of Health & Human Services, LinkOut, Books, Related Articles, PMID 9855731.

Mountain, K. C. (1997). Complications of attention deficit hyperactivity disorder among cocaine abusers: Psychosocial dysfunction, drug use severity, and neuropsychological status (Doctoral Dissertation), Allegheny University of Health Sciences, 1997). Dissertation Abstracts International. 58-O8B, 4462.

Mueller, Charles M. (1993). Attention deficit hyperactivity disorder and school social work practice. Social Work in Education, 15(2), 104-111.

Murphy, K. (1994). Interpersonal and social problems in adults with ADD. Attention. 10-12.

Murray, B (1999). Imaginative youngsters become creative problem-solvers, study finds. APA Monitor Online, 30(10). Retrieved Online 16 March, 2001, 9:50 PM, from <http://apa.org/monitor/nov99>.

Napoli, M. (1998). How to treat hyperactive children: New consensus report. National Institutes of Health (NIH) web site (<http://www.nih.gov/news>).

Neuwirth, S. (1996). Attention deficit hyperactivity disorder: Decade of the brain. National Institutes of Health. Publication No. 96-3572. Retrieved Online 3 December, 1998, from <http://www.chadd.org/docld.htm>.

Nordby, S. M. (1994). Problems in identification and assessment of ADHD. Retrieved Online 17 October, 1997, 2:26PM, from <http://members.aol.com/svennord/ed/adhd.htm>.

Oliverio, A. & Lauderdale, P. (1996). Therapeutic states and attention deficits: Differential cross-national diagnostics and treatments. International Journal of Politics, Culture and Society, 10(2), pp. 355-373.

Palfrey, J. S., Levine, M. D., Walker, R. G., & Sullivan, M. (1985). The emergence of attention deficits in early childhood: A prospective study. Developmental and Behavioral Pediatrics, 6, 339-348.

Pascualvaca, D. M. (1989). Sex differences in the manifestation of attention deficit-hyperactivity disorder. (Doctoral Dissertation, City University of New York, 1989). Dissertation Abstracts International. 50-09B, 4247.

Patricelli, P. (1994). Problems in identification and assessment of ADHD. (in Nordby) Retrieved Online 17 October, 1997, 2:26PM, from <http://members.aol.com/svennord/ed/adhd.htm>.

Peterson, J. (2001). Support without stigma. Retrieved Online 26 November, 2001, from <http://www.macontelegraph.com>.

Pihl, R.O., & Peterson, J.B. (1991). Attention-deficit hyperactivity disorder, childhood conduct disorder, and alcoholism: Is there an association? Alcohol, Health, and Research World, 15(1), 25-31.

Pless, I.V., Taylor, J.G., & Arsenault, L. (1995). The relationship between vigilance deficits and traffic injuries involving children. Pediatrics. 95(2), 219-224.

Quist, J. F., Barr, C. L., Schachar, R., Roberts, W., Malone, M., Tannock, R., Basille, V. S., Beitchman J., & Kennedy, J. L. (1998). Evidence for the serotonin HTR2A receptor gene as a susceptibility factor in attention deficit hyperactivity disorder (ADHD). Journal of Abnormal Child Psychology, 26(6), 415-430.

Rabiner, D. (2001). New Treatment Guideline for ADHD from the American Academy of Pediatrics. Retrieved Online 21 November, 2001 from <http://www.attention.com>.

Rafalovich, A. (2001). The conceptual history of attention deficit hyperactivity disorder: Idiocy, imbecility, encephalitis and the child deviant, 1877-1929. Deviant Behavior, 22(2), 93-115. Retrieved Online 16 March, 2001, from newfirstsearch.oclc.org/WebZ/FSFET...tytoprecno=91:entitycurrecno=91:numrecs=1.

Ramirez-Smith, C. (1997). Mistaken identity: Gifted and ADHD (Abstract)(EC305959). Retrieved Online 21 January, 1999, from [ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children](http://ericclearinghouse.org/Disabilities%20and%20Gifted%20Education/Council%20for%20Exceptional%20Children). Email: ericec@cec.sped.org.

Rapport, M. (1992). Treating children with attention deficit hyperactivity disorder. Behaviour Modification, 16, 155-163.

Reid, Robert (1996). Three faces of attention-deficit hyperactivity disorder. Journal of Child and Family Studies, 5(3), 249-265.

Reid, R., Hertzog, M., & Snyder, M. (1996). Educating every teacher, every year: the public schools and parents of children with ADHD. Seminars in Speech and Language, 17(1), 73-90.

Reid, Robert, Maag, J. W., Vasa, S. F., & Wright, G. (1994). Who are the children with attention deficit-hyperactivity disorder? A school-based survey. Journal of Special Education 28(2), 117-137.

- Rhodes, S.S., & Jasinski, D.R. (1990). Learning disabilities in alcohol-dependents: A preliminary study. Journal of Learning Disabilities, 23(9), 551-556.
- Richardson, W. (2001). Attention-deficit/hyperactivity disorder (ADHD) and addiction: ADD and the family. Retrieved Online 10 March, 2001, 1:35AM from <http://www.addandaddiction.com>.
- Ross, George R. (1993). Treating adolescent substance abuse: Understanding the fundamental elements. Toronto: Allyn & Bacon.
- Santrock, J. W. (1994). Child Development 6th Ed. Wisconsin: Brown & Benchmark.
- Schatzberg, A.F., & Cole, J.O. (1987). Manual of clinical psychopharmacology. Washington, D.C.: American Psychiatric Press.
- Scholten, T. (1999). Attention deluxe dimension. Calgary, AB: T. Scholten Psychiatric Services.
- Schubiner, H., Tzelepis, A., Isaacson, J.H., Warbasse, L.H., Zacharek, M., & Musial, J. (1995). The dual diagnosis of attention-deficit/hyperactivity disorder and substance abuse: Case reports and literature review. Journal of Clinical Psychiatry. 56(4), 146-150.
- Scoggin, J. A. (1998). Attention deficit and hyperactivity disorder: Review of the diagnostic and management guidelines. Retrieved Online at HELIX, Resources for the Medical Professional (1998) Additional Resources: Trends in Pharmacy. Continuing Education Program: May/June 1998.

Sheridan, J., Sanders, M. R. (1996). The need for effective early behavioural family interventions for children with attention deficit hyperactivity disorder. The Australian Educational and Developmental Psychologist, 13(1), 29-39.

Silverthorn, P., Frick, P J., Kuper, K., & Ott, J. (1996). Attention deficit hyperactivity disorder and sex: A test of two etiological models to explain the male predominance. Journal of Clinical Child Psychology, 25(1), 52-59.

Silverman, L. K. (1998). Through the lens of giftedness (Abstract)(EC618582). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

Smalley, S. L., McGough, J. J., Del'Homme, M., Newdeman, J., Gordon, E., Kim, T., Liu, A., & McCracken, J. T. (2000). Familial chartering of symptoms and disruptive behaviors in multiple families with attention-deficit/hyperactivity disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 39(9). Retrieved Online 16 March, 2001, from <http://isis.lib.ucalgary.ca:32888/2001031...cademy+of+Child+and+Adolescent+Psychiatry>.

Stein, M. A. (1995). Adaptive skills dysfunction in ADD and ADHD children. Journal of Child Psychology and Psychiatry, 36, 663-670.

Substance Abuse and Learning Difficulties in Youth Project (SALDY) (1997). Substance Abuse and Learning Difficulties in Youth, Calgary, AB.

Task Force on Nicotine Dependence (1995). Position statement on nicotine dependence (Official Acts). American Journal of Psychiatry, 152, 481-482.

Van Wormer, K. (1995). Alcoholism treatment: A social work perspective. Chicago: Nelson-Hall.

Volkow, N., Wang, G. Maynard, L., Gatley, S., Gifford, A., Franceschi, D. (2001). New Brookhaven Laboratory study shows how Ritalin works. Brookhaven National Laboratory. Retrieved Online 26 November, 2001 from <http://www.sciencedaily.com/releases/2001/01/0101/1707/5041.htm>.

Wallis, C. (1994). Life in overdrive: doctors say huge numbers of kids and adults have attention deficit disorder. Time, 144(3), cover story.

Webber, D. (1996). Therapeutic states and attention deficits: Differential cross-national diagnostics and treatments. (in Oliverio & Lauderdale) International Journal of Politics, Culture and Society, 10(2), p. 355.

Weinstein, C. S., Apfel, R. J., & Weinstein, S. R. (1998). Description of mothers with ADHD with children with ADHD. Psychiatry, 61(1), 9-12.

Wells, K.C., Epstein, J. N., Hinshaw, S. P., Conners, C. k., Klaric, J., Abikoff, H. B., Abramowitz, A., Arnold, L. E., Elliott, G., Greenhill, L. L., Hechtman, L., Hoza, B., Jensen, P. S., March, J. S., Pelham, W. Jr., Pfiffner, L., Severe, J., Swanson, J. M., Vitiello, B., & Wigal, T. (2000). Parenting and family stress treatment outcomes in attention deficit hyperactivity disorder (ADHD); An empirical analysis in the MTA Study (1). Journal of Abnormal child Psychology, 28(6), 543-566.

Wender, P. H., Peimherr, F. W., Wood, D., & Ward, M. (1985). A controlled study of methylphenidate in the treatment of attention deficit disorder, residual type, in adults. American Journal of Psychiatry, 142(5), 547-552.

Whalen, C K., & Henker, B. (1991). Therapies for hyperactive children: Comparisons, combinations, and compromises. Journal of Consulting and Clinical Psychology, 59, 126-137.

Wilens, T. E. Biederman, J., & Mick, E. (1998). Does ADHD affect the course of substance abuse? Findings from a sample of adults with and without ADHD. American Juvenile Addiction, 7(2), 156-63.

Wilens, T. E., Prince, J. B., Biederman, J. , Spencer, T. J., & Frances, R. J. (1995). Attention-deficit hyperactivity disorder and comorbid substance use disorder in adults. Psychiatric Services. 46(8), 761-765.

Wolraich, M. L., Hannah, J. N., Pinnock, T. Y., Baumgaertel, A., & Brown, J. (1996). Comparison of diagnostic criteria for attention deficit/hyperactivity disorder in a county-wide sample. Journal of the American Academy of Child and Adolescent Psychiatry, 35, 319-324.

Wolraich, M. L., Hannah, J. N., Baumgaertel, A., Pinnock, T. Y., & Feurer, I. (1998). Examination of DSM-IV criteria for attention deficit/hyperactivity disorder in a county-wide sample. Journal of Deviant Behavior – Pediatrics, 19, 162-168.

Wood, J. W., & Lazzari, A. M. (1997). Exceeding the boundaries: Understanding exceptional lives (Abstract)(EC902598). Retrieved Online 21 January, 1999, from ERIC Clearinghouse on Disabilities and Gifted Education, Council for Exceptional Children. Email: ericec@cec.sped.org.

Appendix A

Questionnaire on Attention Deficit Disorder

- The date when your child was first diagnosed with Attention Deficit Disorder?

- How old was your child at that time? _____

Please answer as best you can. If you don't know an answer please put "Don't Know" rather than trying to guess the correct answer.

1. All children who have ADD are unable to sit still.

Yes
No
Don't know

2. Rewards, as consequences for doing work or behaving well, usually work with children who have ADD.

Yes
No
Don't know

3. The drug "Ritalin", commonly given for ADD, is a depressant

Yes
No
Don't Know

4. A child with ADD may also have other learning disabilities.

Yes
No
Don't know

5. Children with ADD cannot do just one thing for a long time.

Yes
No
Don't know

6. Children who have ADD will grow out of it when they are adults.

Yes
No
Don't know

7. If a child uses medication to control his/her ADD, it is more likely that this child will abuse drugs or alcohol when a teenager.

Yes
No
Don't know

8. Medicine for ADD, like Ritalin, can make a child sleepy.

Yes

No

Don't know

9. Children who have ADD are often not quite as smart as other children.

Yes

No

Don't know

10. Medicine, such as Ritalin, will cure ADD in a child.

Yes

No

Don't know

11. What have you found the most troublesome with your child's ADD?

12. What services have you used to support treatment of your child's ADD?

13. What information about ADD and how to deal with it do you wish you had known when you first realized your child was having difficulties?

Appendix B

Consent Form

Research Project Title: "Age of Diagnosis and Parent Knowledge of ADD among ADD Adolescents with Substance Abuse Issues"

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please ask. Please take time to read this form carefully and to understand any accompanying information.

Investigator: Cheryl L Franceschi, BSW (MSW thesis student)

1. Purpose and Usefulness: The purpose of this study is to consider relationships between substance abusing adolescents with Attention Deficit Disorder (ADD); age of diagnosis of ADD and parental knowledge of treatment of ADD. The results of this study will highlight areas important in addressing future preventative measures that lower the incidences of ADD youth who develop substance abuse issues. The two areas focused on are: the age at which a substance abusing youth was first diagnosed with ADD and what types of ADD knowledge parents of these youth were exposed to.

2. Participants, Procedures and Your Participation: We are asking for your participation in this study during the intake process in the AADAC Youth Services Intake Program. You will be asked to complete a questionnaire which will consist of a series of questions designed to help the researcher gain an idea of how age of ADD diagnosis and possible strengths and weaknesses in our society's dissemination of ADD knowledge to primary caretakers. Three additional questions will allow you to briefly share your personal experiences with your child's ADD. In order to avoid asking the same questions as your intake worker, other information may be used from your intake form.

3. Research Design: Your responses to the first part of the questionnaire will be analyzed along with those contributed by other participants. The period of collection of this data extends from approximately September 1, 1999 to May 31, 2000. The

description of your ADD experiences will also be grouped with similar contributions in an effort to understand which particular areas of parenting of an ADD child could be better supported.

4. Risks/Costs/Benefits: This research does not pose risks to anyone who will be participating in the research. The only costs to you are the time that it will take to complete the questionnaire (about 15 minutes). There will be no monetary compensation. As a benefit for participation you will be given a brief informative sheet including current information about ADD as well as particular agencies or programs concerning ADD that are available to you and your child.

5. Your Choice: You are free to participate in the AADAC Intake Program whether or not you choose to fill out or hand in the questionnaire. If you would like any assistance in reading or completing the questionnaire, one of the presenters will be able to help you.

6. Confidentiality: When completing the questionnaire, you will not be asked to include your name or any other information that may identify you. Your completed questionnaire and information will be safely secured and all identifying information will be removed. At completion of this research thesis all questionnaires will be destroyed. Anonymity is carefully respected at all times.

7. Further Information: Your participation will be completed upon completion of the questionnaire. You are encouraged to ask any additional questions during the course of the

Intake meeting at AADAC. I do not plan to contact research participants for follow-up or to provide additional information.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project, and agree to participate as a subject. In no way does this waive your legal rights nor release the investigator or the involved institution from their legal and professional responsibilities. You are free to withdraw from the study at any time. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact the address below.

Cheryl L. Franceschi, Faculty of Social Work, University of Calgary at
(403) 225-0828. (You may call collect)

If you have any questions concerning your participation in this project, you may
also contact my supervisor, Dr. Allan Barsky, at (403) 220-7550.

Participant (Youth)

Date

Participant (Parent/Guardian)

Date

Witness

Date

- a copy of this form has been given to you for your records and reference.
- If you would like to have a copy of the findings of this research, please provide
your mailing address:

Appendix C



Alberta Alcohol and
Drug Abuse Commission

Youth Services Centre
1005 - 17 Street N.W.
Calgary, Alberta
Canada T2N 2E5
Tel: (403) 297-4664
Fax: (403) 297-4668

May 11, 1998

Ms. Cheryl Franceschi
68 Deerpath Road S.E.
Calgary, Alberta
T2J 6K8

RE: Master's Thesis Proposal

Dear Cheryl,

We have received and discussed your Master's Thesis Proposal. We are prepared to participate and help you recruit subjects from our Outpatient Program clients.

Please let us know as soon as the Ethics Committee has passed your proposal.

Sincerely,

A handwritten signature in cursive script that reads "John Scholten".

John Scholten, MA, C. Psych. ICADC
Clinical Supervisor/Family Services

ADHD HANDOUT

Thankyou for participating in this research project. May the following information be of benefit to you.

ADD is a neurological syndrome whose symptoms include at least two of the following: impulsivity, distractibility, and hyperactivity (excess energy). The condition occurs in children and adults, men and women, boys and girls, and it cuts across all ethnic groups, socioeconomic strata, levels of educational and degrees of intelligence. It is believed that one third of children who have ADD do not outgrow it. There is debate whether ADD should be included as a learning disability or not. Meanwhile it is not uncommon that a person may have both ADD and another learning disability in areas such as reading, writing or mathematics.

ADD is not the result of poor parenting. It is biological in nature. Although ADD should never be allowed as an excuse for behavior, those with ADD are often under stress to "perform" better. Reward systems instead of punishment systems have shown to relieve some of this stress and encourage better "performance".

In spite of controversy over the use of drugs, several stimulants (not depressants) such as Ritalin and Dexedrine have been shown to be supportive in overcoming negative symptoms. Drugs do not "cure" ADD. These drugs are not addictive but do often require patience in "finding" correct dosages. Many argue that there are several routes to overcoming symptoms and all research results in these areas are not in. An open mind and willingness to explore is helpful for those with ADD or those helping them.

There are many who argue that there are real benefits for those with ADD. It has been observed that people with ADD, while having difficulty paying attention to ordinary "everyday" tasks, often have great ability focusing for long periods of time on something that interests them. ADD people are also often found to be very creative, spontaneous and dynamic.

In order to help those with ADD and those who support them, I have included on the reverse side some local addresses where further support and help are available. All folks do not require or want the same help but I encourage you to take time, if you have not already done so, to explore the resources available.

CH.A.D.D. (Calgary) Calgary
Chapter of CH.A.A.D. Canada
(A support group for people
dealing with Attention Deficit
Disorder)

134

PH: Gillian MacDonald - 271-2847
Susan LaFrance - 225-1650

City of Calgary
Information Centre
(Good for any new ADD support
systems not mentioned here)

PH: 268-4656

Family Life Education Council
HELPLINE

PH: 262-3532

Calgary Learning Centre

PH: 686-9300

ADD Helpline

PH: 286-2004
226-1170

Learning Disabilities Assoc.

PH: 283-6606

Calgary School Board
Dr. Oakley School
(specialized school)

PH: 777-8300

Viscount Benet School
Calgary Learning Academy
(further education)

PH: 777-8840