12-2015

From Attention Deficit Hyperactivity Disorder to Substance Use Disorder: Perspectives from Recovering Addicts

Elena Potovsky
Dominican University of California

https://doi.org/10.33015/dominican.edu/2015.edu.21

From Attention Deficit Hyperactivity Disorder to Substance Use Disorder: Perspectives from Recovering Addicts

Elena Potovsky

Submitted in Partial Fulfillment of the Requirements for the Degree

Master of Science in Special Education

School of Education and Counseling Psychology

Dominican University of California

San Rafael, CA

December 2015

Signature Sheet

This thesis, written under the direction of the candidate's thesis advisor and approved by the Chair of the Master's program, has been presented to and accepted by the Faculty of Education in partial fulfillment of the requirements for the degree of Master of Science. The content and research methodologies presented in this work represent the work of the candidate alone.

Elena Potovsky	December 1, 2015
Candidate	Date
Madalienne F. Peters, Ed.D.	December 1, 2015
Thesis Advisor	Date
Elizabeth Truesdell, Ph.D.	December 1, 2015
Program Chair	Date

Acknowledgments

I am truly grateful to all the people who have helped me along the way. This project was made possible because of them and their endless support.

Dr. Billye Brown always believed in me and encouraged me to continue, and to come back. Dr. Rande Webster inspired me deeply with her soup stories. Dr. Suresh Appavoo, opened up the doors of introspection. Dr. Madalienne Peters is a joy to work with and guides my thoughts.

My classmates thrive in an environment of learning. My co-workers make teamwork happen and know how to have fun. My students – they are what it's all about.

My parents, Pat and Ira Potovsky, are the pillars of encouragement and enthusiasm. The love of my life, Robert, is such a blessing. My daughter, Jenna, is a dazzling, bright star. Shine on.

Table of Contents

Abstract

People who have Attention Deficit Hyperactivity Disorder (ADHD) are often at high risk of acquiring Substance Use Disorder (SUD). When a diagnosis is determined for a school age child, the special education team mainly focuses on the most obvious problems that occur with ADHD: executive function issues, reading and writing impairments, and disruptive behavior. They may not realize how common it is for those identified with ADHD to also acquire SUD.

The literature revealed that there may be a shared genetic basis between ADHD and SUD, that there is commonly an early onset of SUD for those who have ADHD, and that this population has high impairments across several domains of daily life which complicate treatment response. The purpose of this study was twofold: To generate an increased awareness of the specific connection between SUD and ADHD, and to construct a plan of action for special education teachers who need to provide more support for risk prone adolescents.

This was a mixed methods study using both qualitative and quantitative information. Subjects included adults with ADHD who are recovering drug addicts. They were asked to complete a questionnaire about their perceptions and the trajectory of their personal experience.

Results of the current study indicated that adults who had been diagnosed with ADHD as children, or found out later in life about their ADHD diagnosis, had similar experiences to one another. Themes included: a concern that teachers did not know how to communicate with them, an early onset of SUD, the use of different substances to feel calm, manage their feelings of anxiety and cope with low self-esteem, an identified genetic factor, and dysfunctional life skills across environments.

Keywords: ADHD, addiction, education, dysfunction

Chapter 1 From ADHD to SUD: Perspectives from Recovering Addicts

In my experience of more than 20 years as a teacher and recovering drug addict, I observed, met and worked with many adult recovering drug addicts who were diagnosed with ADHD as well as many students with ADHD who have drug problems. Why is it common for drug addicts to have ADHD as co-occurring conditions? More importantly, how do teachers, particularly special education teachers, increase their awareness of this problem and help guide their students through the maze of risk taking behavior that is especially prominent in children with ADHD?

As a special education teacher it is part of my job to spend time with students who have ADHD, as well as those who have SUD. From time to time it has been appropriate for me to broach the addiction issue with some of those students, and to share a personal experience. This is a unique quality that not all teachers possess, but it is possible for teachers to have heightened awareness and education about this issue. Teachers' increased awareness could, in turn, have a greater impact on the level of empathy they are able to demonstrate toward students with ADHD.

During my special education teacher training, I, as the student, observed that the association between SUD and ADHD was not included in the program. However, it is a common phenomenon and, from my perspective now as the researcher, quite literally a matter of life and death. Many children with ADHD acquire SUD, and subsequently grow through adolescence to adulthood with serious consequences. It may begin with social and educational problems, but can convert into motor vehicle accidents, incarceration, suicidal behavior, suicide, and accidental death.

> The association between attention deficit hyperactivity disorder (ADHD) and Substance Use Disorder (SUD) is well documented. ADHD is a significant risk factor for the development of alcohol and illicit drug use disorders in adolescence and adulthood and is overrepresented consistently among SUD populations…While general population estimates suggest that 5-10% of children and 3-4% of adults have ADHD, the estimated overall prevalence of ADHD among those with SUD is 23% (Kaye, Darke, & Torok, 2013, p.1).

Throughout my education experience I participated in meetings where the importance of early intervention was delineated as a vital element for many learning and developmental issues. According to the National Early Childhood Technical Assistance Center (NECTAC) the neural pathways that support learning, behavior and health are more flexible in younger children and over time become more difficult to change. Different types of stress can lead to lifelong problems and positive experiences in early childhood can strengthen the brain (Nectac.org, 2011). "Positive early experiences are essential prerequisites for later success in school, the workplace, and the community" (p.1). Researchers frequently recommend early intervention as an option for addressing ADHD and other co-occurring disorders as a prevention to SUD. "The delineation of antecedent psychopathology to SUD has important implications. If antecedent disorders emerge in childhood, preventive programs could be developed aimed at affected children years before the onset of SUD. Clinically, practitioners could focus efforts on aggressively treating psychopathology and monitoring SUD development" (Davids, von Bunau, Specka, Fischer, Scherbaum, & Gastpar, 2005, p.5).

During adolescence, teenage and young adulthood people begin to develop crucial skills such as time management, critical thinking, money management, effective communication, self-esteem, and self-discipline. These may be developmentally absent for those who suffer from ADHD and SUD. Lacking early intervention and long term consistent treatment of both ADHD and SUD, one's life skills are affected and remain difficult to develop or regain. "ADHD typically first appears in early childhood and by early adolescence and frequently co-occurs with other psychiatric disorders such as conduct disorder and SUDs (SUD). The presence of these co-occurring disorders, along with ADHD, clearly contributes to the risk of developing delinquent behavior" (Konstenius, Larsson, Lundholm, Philips, van den Glind, Jayaram-Lindstrom, & Franck, 2015, p.1).

Acquisition of skills required to continue in school and develop independence are impacted for people with ADHD and SUD. Pursuing an education is frequently interrupted by the inability to complete tasks and apply basic life skills. Breyer, Lee, Winters, August, and Realmuto (2014) studied the negative impact on continuing one's education.

> The results of this study have several implications for education. Approximately half of the subjects with childhood ADHD continued to meet ADHD criteria in young adulthood during at least one young-adult time point, and many of them were either currently or previously enrolled in college (nearly half of the two ADHD groups attended some college during FU1–FU3). This presence of adult ADHD, along with a co-occurring SUD, can have a significant impact on college performance and completion rates. This suggests that students with ADHD may struggle with their education not only due to their ADHD symptoms, but due to

> the effects of substance disorders as well. This may be particularly true in early adulthood, around the age that these individuals are entering college. This suggests that early intervention in the college setting may be particularly important. The results also have implications for treatment. For those young adults already in treatment for substance dependence, they may be further helped by assessment and treatment of possible co-occurring ADHD (p.7).

In the present study, the researcher examined adult perspectives on this issue, which are important in contributing to increased public awareness about the complexity and severity of the problem. Adult perspectives on this issue may also serve to foster increased communication between teachers and students at a critical time in life.

Statement of Problem

Research studies support that it is common for those identified with ADHD to acquire SUD. Students have difficulty in school, trouble making friends, and develop low self-esteem (Malone, Van Eck, Flory, & Lamis, 2010). A neuro-typical adolescent is naturally impulsive and has poor decision making abilities (Spencer, Biederman, and Mick, 2007). From the researcher's perspective, when this issue is compounded with a diagnosis of ADHD, the road to SUD may be automatically paved.

Special education teachers are trained to help students with ADHD, but they may be unaware of the increased susceptibility of some students toward SUD. In addition, they may not be trained to assist students who are making risky decisions. This study examines the problem through the experiences of adults who had been diagnosed with ADHD and acquired SUD.

Purpose Statement

The purpose of this study is to document a unique perspective on this issue from recovering drug addicts who struggled and may continue to struggle with ADHD. Their insight may provide a distinctive awareness and offer potential strategies for training teachers how to assist students who have ADHD and are at risk of acquiring SUD**.** There is a need for addressing these issues with a fresh approach, one not apparent in the research literature.

This study is important as it may provide preventive measures in an area where intervention could assist in changing the course of a child's life. When special education teachers work with adolescent students, they have the potential to influence their decision making processes. Some of these students are making choices that can impact their lives in a negative manner. If educators are aware of the possibility that students identified as ADHD are likely to acquire SUD, and they are trained to intervene and assist, they have the potential to not only change a life, but to save a life.

Research Question

What are the reflections of adult recovering addicts on how a childhood diagnosis of ADHD impacted their risky choices regarding SUD? What are suggestions, from their perspective, for increasing communication skills between teachers and students with a diagnosis of ADHD, who may also be at risk for SUD?

Definitions

The American Academy of Child and Adolescent Psychiatry (2015), also known as AACAP, reported that ADHD affects children and teens, is more common in boys than in girls, and can continue into adulthood. AACAP stated ADHD is the most commonly diagnosed mental

disorder of children, causing hyperactivity, inability to control impulses, and trouble paying attention. These behaviors interfere with school and home life, and are usually discovered during the early school years, when a child begins to have problems focusing on academic tasks or school activities.

Symptoms in children are grouped into three categories: 1) Inattention: is easily distracted, does not follow directions or finish tasks, does not appear to be listening, does not pay attention and makes careless mistakes, forgets about daily activities, has problems organizing daily tasks, does not like to do things that require sitting still, often loses things, tends to daydream, 2) Hyperactivity: often squirms, fidgets, or bounces when sitting, does not stay seated, has trouble playing quietly, is always moving, such as running or climbing on things, is restless, talks excessively, is always on the go as if driven by a motor, and 3) Impulsivity: has trouble waiting for his or her turn, blurts out answers, and interrupts others (AACAP, 2015).

AACAP also reported that symptoms may change as a person ages. Adults with ADHD may have trouble managing time, staying organized, setting goals, and holding down a job. They may also have problems with relationships, self-esteem, and addiction. Adult symptoms often include: chronic lateness and forgetfulness, anxiety, low self-esteem, problems at work, trouble controlling anger, impulsiveness, SUD, disorganization, procrastination, increased frustration, chronic boredom, trouble concentrating when reading, mood swings, depression, and relationship problems (AACAP, 2015).

The American Society of Addiction Medicine (2015), known as ASAM noted that SUD "is a primary, chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual

manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors" (p.1).

A fundamental characteristic of people with SUD is the inability to remain abstinent from substances for an extended period, including street drugs, over the counter medications, and alcohol. They suffer from cravings and lack of impulse control that contribute to habitual behavior. People with SUD do not recognize significant problems with behaviors and interpersonal relationships, and resort to dysfunctional responses.

Like other chronic diseases, addiction often involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability, incarceration and premature death (ASAM, 2011).

Theoretical Rationale

The key theory associated with this research emerges from the field of neuroscience. Researchers in neuroscience study how the brain changes as people learn, and how different stressors affect learning. Both ADHD and SUD are disorders that have a direct relation on how the brain functions under stressful circumstances. Most people with ADHD and SUD operate with unique levels of dopamine and cortisol, do not get adequate sleep and nutrition, and experience difficulty with cognitive function at all but the highest level of Bloom's Taxonomy, which is evaluating and creating. Typically they only perform at these two levels out of sheer necessity to survive in unusual environments (Kaufer, 2015).

The theoretical rationale is important in the context of this study because research in the field of neuroscience relates stress to learning and decision making ability. The researchers within the field study how people experience chronic stress. "In such cases where the amygdala

is constantly activated, stress becomes an event in itself, rather than a response to a stimulus. The stress response has a negative impact on decision making and learning" (p.2). Drug addicts find themselves in a constant state of stress because they either need to find more drugs, are under the influence of drugs, or they are experiencing stressful situations that occur on a daily basis while living the lifestyle of a drug addict. People with ADHD also find themselves under a great deal of stress because they are impulsive, have challenges with learning, suffer from low self-esteem, and have difficulty making and keeping relationships.

Assumptions

The researcher's assumption is that many children who are diagnosed with ADHD are also prone to SUD. However, awareness and responsiveness training to this issue are not included in special education teacher training. Despite research which indicates the necessity for early intervention, most treatment professionals and teachers are not prepared to help children navigate the complexities of having a diagnosis of ADHD that can commonly lead to SUD. Most special education teachers are familiar with ADHD, but do not have the appropriate communication tools to help students.

Background and Need

Davids et al., (2005) presented research indicating ADHD and SUD are associated in several ways and the fundamental symptoms resemble one another. This study also illustrated how those who struggle with ADHD and SUD find it challenging to successfully sustain basic life skills, maintain meaningful relationships, and pursue education. Finally, their research concluded that the key strategy for assisting people who face ADHD and resort to SUD is early diagnosis, intervention and treatment. This study incorporated the information found in current

research about these connected disorders that may be essential for providing early intervention and treatment.

> The delineation of antecedent psychopathology to SUD has important implications. If antecedent disorders emerge in childhood, preventive programs could be developed aimed at affected children years before the onset of SUD. Clinically, practitioners could focus efforts on aggressively treating psychopathology and monitoring SUD development. The purpose of the current study was to evaluate the developmental relationship of SUD and ADHD psychopathology, attending to childhood-onset problems in a well-characterized sample of adults in treatment of opioid dependence with a focus on social adaptation problems (p. 5).

Summary

There is ongoing research that reports the common co-morbidity of ADHD and SUD. Research connects these two conditions through consistent early onset of SUD for those who have ADHD, a common genetic factor or familial trait, and impairments across a variety of basic life skills, including education. Exploration of this issue has also indicated that early detection and treatment of both ADHD and SUD would offer professionals assistance and may contribute to the reduction of ongoing life problems faced by people who suffer from both disorders.

Chapter 2 Review of the Literature

Introduction

This section is an examination of the peer reviewed research literature, national reports and statistical data on ADHD and SUD. Information was gathered from academic library searches using online resources. Research information is organized in the following categories: Historical Context, Review of the Academic Research, Statistical Information

ADHD is one of the most prevalent emotional, cognitive and behavioral disorders of childhood, which is linked to SUD (Spencer et al., 2007). The first coherent description of ADHD was by George Still in the Coombs lectures of 1902. He described an 'abnormal defect in moral control in children.' Moral control was defined as 'the control of action in conformity with the idea of the good of all... (that) can only exist when there is a cognitive relationship to the environment' (Spencer et al., 2007). In the 1930s, hyper kinesis, impulsivity, learning disability, and short attention span were described as 'minimal brain damage'—and later as 'minimal brain dysfunction'—due to similarities to patients with frank central nervous system (CNS) injuries. In the 1950s, this label was modified to 'hyperactive child syndrome' and then 'hyperkinetic reaction of childhood' in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-II in 1968. Each of these labels and sets of criterion were focused exclusively on children and placed the greatest emphasis on motoric hyperactivity and overt impulsivity as hallmarks of the disorder (Spencer et al., 2007).

The current version of ratings for ADHD are found in the DSM-V (DSM-V.org, 2015), stating that ADHD is typically characterized by poor performance in school and work, difficulty navigating social situations, hyperactivity and impulsivity, failure to pay attention, trouble with

organizing, and more. Although genetic and environmental factors can also have an impact, research indicates that adolescents with ADHD become disproportionately involved with drugs, and tend to maintain their SUD for longer periods of time (Spencer et al., 2007).

Review of Academic Research

Genetic factors and early onset

Chang, Lichtenstein, and Larsson (2011) examined early onset SUD for children with ADHD and the influence of nurture versus nature. The problem these authors identified is that early adolescence is a more complex developmental period for children with ADHD who may be exposed to substance use, and there have been very few studies done on this critical age. Their purpose was to study the longitudinal relationship between early onset SUD and ADHD in twins, in order to take genetics and environmental factors into consideration. Their hypothesis was that ADHD predicts early onset SUD, and that the link between the two is affected by genetic factors. The subjects were sets of twins born in Sweden. To collect data the authors collected parent reported symptoms of ADHD and parents also filled out a questionnaire about conduct problem behavior. Data about substance use was self-reported by subjects at ages 13-14. The authors then used multinomial logistic regression to analyze the qualitative data and organized the results in a series of tables and path diagrams. The results indicated a higher frequency of ADHD among boys, but substance use was equal among boys and girls, ADHD is a predictor of early onset substance use, ADHD symptoms and early-onset substance use is partly mediated by conduct problem behavior, and that each disorder has a shared genetic factor. This study connects with my research focus because it indicated a clear connection between early adolescent SUD and ADHD.

Biederman, Petty, Monteaux, Mick, Clarke, Ten Haagen, and Faraone (2009) examined the genetic factors related to the association between ADHD and psychoactive SUD (PUSD) in female adolescents. The main problem they identified is that this type of research has typically been done on male subjects, so it could not necessarily be generalized to female subjects. The purpose was to identify if adolescent girls with ADHD have parents with ADHD, if adolescent girls with PUSD have parents with PUSD, and if adolescent girls with both disorders have parents with both disorders. The hypothesis was that these disorders are independently transmitted and that additional factors are required for a subject to have both. The subjects were female adolescents ages 9 to 18, and their mothers and fathers, from mostly Caucasian middle class families. The authors used screening tests to confirm diagnoses and interviews by psychologists and psychiatrists to collect information. The reliability of the diagnostic tests was minutely variable as the referring doctors and subsequent assessors went from using the DSM-III to the DSM-IV to diagnose the disorders. They gathered results from the interviews and made comparisons using the Cox proportional hazards models, then created tables and graphs to demonstrate the themes they discovered in the research using qualitative data. The findings were in line with their hypothesis that adolescent girls with ADHD had parents with ADHD, those with PUSD had parents with PUSD, and although ADHD and PUSD may share common risk factors, there are additional influences involved for an adolescent girl to who have both factors, despite having a parent with one or the other disorder. This study connects to my topic of research by indicating the genetic correlation between SUD and ADHD.

Life problems

Huntley, Maltezos, Williams, Morinan, Hammom, Ball, Marshall, Keaney, Young, Bolton, Glaser, Forbes, Kuntsi, Xenitidis, Murphy and Asherson (2012) examined the frequency of undiagnosed ADHD in patients seeking treatment for SUD. The problem they identified is that despite the high rate of ADHD in adult substance users, the disorder remains under diagnosed and under treated. The purpose was to demonstrate that many cases of ADHD go undiagnosed and untreated, and therefore affect treatment of co-occurring disorders. The hypothesis asked whether or not identification of ADHD may lead to better treatment outcomes for the co-morbid disorders. The subjects were drug addicted adult males and females participating in outpatient and inpatient treatment. The instruments were questionnaires and interviews gathered in person. The mixed methods information was organized in tables, graphs and flowcharts. The key findings were that there is a 12% rate of undiagnosed ADHD, and that those with both disorders reported functioning deficiencies across several life domains. This study connects with my research focus by noting that those with ADHD and SUD find it more difficult to function in many areas of life.

Konstenius et al., (2015) examined the prevalence of ADHD and co-morbid problems, such as SUD in women who are incarcerated. The problem they identified is that SUD and other co-occurring psychiatric disorders in people who have ADHD indicated they are more likely to commit crimes, as seen in the earlier onset of criminality and higher rate of recidivism in offenders with ADHD. Their purpose was to analyze the overwhelming co-occurrence of ADHD and co-morbid disorders in females who are also incarcerated or who have experienced similar life problems and they sought to investigate the validity and usefulness of the adult ADHD Self-

Screening Rating Scale (ASRS) for this population. Their hypothesis was that incarcerated women are just as likely as incarcerated men to have both ADHD and SUD or another psychiatric disorder. The subjects were 60 women incarcerated in a Swedish prison. The authors used the ASRS, self-report questionnaires and interviews as instruments, gathering data from the questionnaires and writing notes during interviews. The authors organized the information in a flowchart, two tables and a discussion of the themes in this mixed method study. The key findings were women with ADHD have results indicating dependence on illicit drugs as often as incarcerated men, and that the six line ASRS can be a useful screening tool in female offenders. In addition, findings indicated that detecting ADHD in this high risk population is very important because it is a treatable disorder. This study connects to my research focus by showing the difficulties in coping with life problems for people with both SUD and ADHD.

Commonality and early intervention

Ameringer and Leventhal (2013) examined associations between ADHD and lifetime SUD. There were three problems identified in this co-morbid occurrence: previous studies did not take into consideration the spectrum of ADHD symptomology; did not use a broad representative sample to clarify the roles of attentive vs. inattentive ADHD; and did not study specific types of substances within the relationship. The purpose of this article was to clearly investigate levels of ADHD symptoms as they relate to SUD and provide a more thorough sampling of connections between specific drug dependence and ADHD. The hypothesis was that relationships between specific drug dependence and levels of ADHD symptomology are clinically significant and can be provided by a broader national sampling who have been given a more thorough psychiatric assessment. The subjects were adults 18 and older taken from a

National Epidemiologic Survey on Alcohol and Related Conditions, both men and women, including White, Black and Hispanic Americans from a mix of education and income. The data was first collected from the U.S. Census Bureau, then all eligible subjects were re-interviewed in Wave 2, and finally they were given a face-to-face interview of the Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS-IV). Wave 2 subjects were also given the ADHD Interview Schedule. The data was organized using logistic regression models and gathered using mixed methods. The key findings were that as ADHD symptomology increases, as opposed to ADD, the individual is more likely to become dependent and that they will be addicted to several substances at once. This study relates to my topic by indicating there is a clear connection shown between ADHD and SUD.

Breyer et al., (2014) examined childhood ADHD and SUD in early adulthood. The problem the authors identified is that there is very little known about the connection between adult ADHD and SUD. The purpose of this study was to determine whether or not the same pattern of SUD of alcohol, marijuana, and tobacco that occurs in adolescence continues when the ADHD diagnosis persists into adulthood. The authors' hypothesis was that the subjects with persistent ADHD (persists into adulthood) will display high rates of SUD. The subjects were originally part of a longitudinal study that began in 1990, predominantly middle class Caucasians who lived in the suburbs. Subsequent follow up assessments were carried out as well as which led to the eligible subject group. Data were collected through administering standardized tests and rating scales, structured diagnostic interviews, and telephone interviews. Well trained professionals, with a master's or bachelor's degree in psychology, administered tests and interviews. Statistical analyses were done using Tukey's HSD and the GEE model. The authors

used mixed methods to acquire data, which was organized and placed into comparison graphs and a summary table for the three substances: alcohol, marijuana, and nicotine. The key findings of this study indicated that SUD and persistent ADHD are closely linked, particularly in young adulthood. This connects to my area of research in two ways: it demonstrated the relationship between ADHD and SUD, and it discussed implications for education - that educators need to know more about this common occurrence and about how to provide intervention.

Carpentier, Arias Vasquez, Hoogman, Onnink, Kan, Kooij, Makkinje, Iskandar, Kiemeney, de Jong, Franke, and Buitelaar (2013) examined the linked genetic factors between ADHD and SUD. The problem they noted is that the genetic risk factors common to ADHD and SUD have not yet been identified because the origin of the two disorders is still not clearly identified and most of the research on this topic has focused on the similar neurotransmitter systems in the two disorders. The purpose of this study was to explore how six particular genetic polymorphisms are common to both ADHD and SUD. Their hypothesis was that some risk genotypes are only associated with ADHD or SUD and some risk genotypes are associated with both disorders. The subjects in this study were Caucasian adults living in The Netherlands. The instruments used for the study were a collection of DNA samples from blood and saliva that were genotyped using standard protocols for genetic analysis. The authors then used quantitative data derived from specific allele frequencies and provided tables to organize the information. The key findings supported the authors' hypothesis that some genetic factors support the outcome of only one disorder and some support the outcome of both ADHD and SUD. This study connects with my area of focus as it indicated a clear association between ADHD and

SUD. As in other studies, it also denoted that there are many addicts who have undiagnosed ADHD.

Davids et al., (2005) examined the relationship between ADHD and opioid abusers presenting for opioid maintenance treatment. The problem they identified suggests that rates of ADHD would be high in opioid users as their dependence encompasses particularly dangerous and harmful behaviors, but there is very little research on those seeking treatment. The purpose was to provide new data on the link between the two. Their hypothesis suggested that ADHD may be an antecedent of opioid dependence. Subjects were male and female patients entering an outpatient addiction treatment clinic. Instruments used were questionnaires and semi-structured clinical interviews. The authors gathered qualitative data, analyzed them using the CHI test and Pearson's correlation, and then organized them in graphs and tables. The key findings were that ADHD is not the only reason for becoming opioid dependent, but there is a strong correlation between the two. The authors suggested that preventive programs could be developed aimed at affected children years before the onset of SUD. This study connects with my research focus because of the noted link between ADHD and SUD, as well as the conclusion that there should be preventive treatment for young children with ADHD to deter the onset of SUD.

Glind, Van Emmerk-Van oortmerssen, Carpentier, Levin, Koeterr, Barta, Kaye, Skutle, Franck, Konstenius, Bu, Moggi, Dom, Demetrovics, Fatseas, Scillinger, Kapitany-Foveny, Verspreet, Seitz, Johnson, Faraone, Ramos-Quiroga, Allsop, Carruthers, Schoevers, IASP Research Group, and Van Den Brink (2013) examined the prevalence of ADHD in those who have SUD on an international scale. The problem they identified is that there are many unanswered questions about the prevalence of ADHD in SUD populations between different

countries, and about the differences with a variety of substances and severity of abuse. The purpose of this study was to highlight the importance of identifying the co-occurring disorders because early detection and treatment may assist in providing better outcomes for both and may help to develop strategies for prevention of SUD in children with ADHD. The hypothesis was that ADHD is an increasingly comorbid condition in those who have SUD internationally, as compared with a non ADHD population. The subjects were adults aged 18 to 65 who were subjects in addiction treatment programs in 10 different countries. The instruments used were questionnaires, interviews and diagnostic assessments. The information was gathered from test scores and personal responses. The authors organized both the qualitative and quantitative data in tables. They found common themes throughout the data that ADHD is a common factor in the onset of SUD. This study connects to my research focus by demonstrating the connection between SUD and ADHD in addicts all over the world, by noting the importance of determining strategies for early intervention and prevention, and by the fact that the subjects were seeking treatment.

Kalbag and Levin (2005) examined the difficulties with assessment and treatment response in adults with both ADHD and SUD. The problem the authors identified is that doctors who treat patients with these co-occurring disorders are not always able to gather a comprehensive diagnostic assessment, which is critical for initiating pharmacotherapy. The purpose of this study was to present the various difficulties with diagnostic assessment. They hypothesized that persons with ADHD and SUD could benefit from both pharmacological and psychological treatments, especially with more thorough diagnostic assessment information. The authors compared different diagnostic criteria for this study. Quantitative data were gathered

from previous studies and presented in tables. The key findings indicated that although more research is required, using combinations of medicine and therapy for treating co-occurring disorders has been beneficial. This study connects to my topic by demonstrating the common difficulties in treating both ADHD and SUD.

Kaye et al., (2013) examined the link between possibly undiagnosed ADHD and psychostimulant drug users. The problem the authors identified is that it is likely that drug addicts who use stimulants also have undiagnosed ADHD. The purpose of their study was to look at how ADHD, often undiagnosed, complicates SUD treatment. The hypothesis was that those with undiagnosed and/or untreated ADHD may self-medicate with psychostimulants. Their subjects were male and female psychostimulant drug users who were mostly unemployed and the majority of whom had previously received dependence treatment. Instruments used interviews and screening measures. Analyses of the scores were conducted using PASW statistics. The author gathered the mixed methods results and compared them by using graphs and tables. Key findings indicated that the majority of psychostimulant drug users have ADHD, those with both ADHD and SUD face increased complications with treatment, and that ADHD screening could assist in treatment. This study connects with my research focus as it linked ADHD with SUD and the need for better identification and treatment options.

Kronenberg, Slager-Visscher, Goossens, van den Brink, and van Achterberg (2014) examined everyday life consequences for subjects who suffer from ADHD or Autism Spectrum Disorder (ASD) and SUD. The problem the authors identified was the mostly ineffective treatment and care for those who have co-occurring disorders. Their question was what is a patient's perspective of everyday life consequences for people with co-occurring ADHD and

SUD? The subjects were dual diagnosis patients seeking treatment in a facility. The patients were interviewed; qualitative data were collected from these interviews and were presented in tables and flow charts. The key findings indicated that everyday life consequences for those with dual diagnosis are a vicious cycle of symptoms and drug abuse. Although SUD treatment can help, the goal of treatment for dual diagnosis should be the maximization of their long-term welfare. This connects to my research topic because it elucidated not only the link between ADHD and SUD, but the insidious nature of both disorders.

Roy (2008) examined the link between ADHD, SUD, and Conduct Disorder (CD). The problem he identified was that many people who meet the ADHD criteria also meet the criteria for CD. The purpose of the study was to investigate if the association between SUD and ADHD is explained by the high level of comorbidity between CD and ADHD. The author hypothesized that CD may have a greater connection to SUD than ADHD. The author's instruments were previous research studies, which he used quantitatively and presented in tables. The key findings were that CD is the dominant factor in predicting drug abuse, but those with both CD and ADHD may be at higher risk. This study connects to my research topic because it considered ADHD as a co-occurring disorder with ADHD.

Salman, Idrees M, Anees, Idrees J, Idrees F, and Badshah (2014) examined the association between ADHD and heroin addiction. The problem was that there is a lack of diagnosis and specific risk factor identification of SUD and ADHD in early adolescence, which prevents better treatment options. Their question was whether or not heroin addicts have persistent ADHD in adulthood. The subjects were adult patients seeking treatment for heroin addiction in a psychiatry ward. The authors used rating scales, and presented the quantitative

data in tables. Their key findings were that a high percentage of adult heroin addicts meet the criteria for persistent adult ADHD. This study connects to my research by linking persistent adult ADHD to SUD.

Schubiner (2005) examined the relationship between SUD and ADHD, with a particular focus on the treatment of individuals with ADHD and how it impacts them. Shubiner reported that for the vast majority, symptoms are reduced by stimulant treatment, despite the possible risk of future SUD, and that by reducing symptoms, potential for future risk taking behaviors is more likely to decrease. Overall, treatment options are complicated because of the increased likelihood of dual diagnosis. This study connects to my research because it discussed the impact of ADHD treatment on possible subsequent SUD.

Spencer et al., (2007) examined how ADHD is associated with a wide range of emotional, educational and social outcomes. Like SUD, ADHD is also characterized by major impairments of adult life skills, and happens most often as a co-morbid disorder. The examiners additionally reported about the complex neurobiological and genetic substructures of ADHD and its commonly co-occurring disorders that require additional study. This study is connected to my research by investigating common co-morbid disorders such as ADHD and SUD, as well as their common natural frameworks.

Washington State Department of Health, Office of Healthy Communities (2009) examined data about how youth with disabilities are at higher risk for SUD. Their survey results indicated that by understanding the unique needs of youth with special needs and disabilities, substance use prevention planning efforts can identify resources and educational approaches.

This study connects with my research by linking SUD with disabilities and by demonstrating the need for early intervention practices.

Statistical Information

Attention deficit hyperactivity disorder, better known as ADHD, is a mental disorder characterized by inattentiveness, impulsivity, over-activity or a combination of these symptoms. This normally affects children, but adults may also suffer from ADHD. These people may have trouble in some environments, such as in the classroom or at work. Relationships may also be strained due to the SUD or impact of ADHD. The symptoms must be out of the norm for the age group to be classified as ADHD. According to SAMHSA, between 2005 and 2010, there were 31,244 visits to the emergency department associated with ADHD and stimulant medication use. Other drugs were involved in 45 % of those department visits, according to SAMHSA, and 21% of the visits included illicit drugs and 19% involved alcohol. Sometimes, because stimulants are so easy to get, the substances end up being misused or used by people other than those to whom they are prescribed. Because of the availability of this drug, those who are misusing it will have little trouble getting more. Finding a rehabilitation center specializing in learning disorders and SUD may be the best option for those who are taking more of the medication than prescribed or for those taking it without a prescription (Recovery.org, 2015).

Summary

The research literature indicated that there is a high percentage of those with ADHD that have co-occurring SUD. The literature on this topic demonstrated that there is a clear connection between ADHD and SUD and denoted that as their ADHD symptoms increase, subjects are

likely to acquire SUD, and moreover they may become poly-addicted – in other words: addicted to several different types of substances (Ameringer et al., 2013: Breyer et al., 2014).

The literature also indicated that there is an early onset for SUD and a consistent genetic factor for both ADHD and SUD that replicates itself in families and through generations. The literature documented that early onset ADHD and SUD are common, and may be inherited characteristics. The early onset of SUD for those who are diagnosed with ADHD is documented in a study by Davids et al., (2005). Their research indicated SUD is initiated at a typical age of 11 years. Chang et al., (2011) noted that there is a genetic influence on the association between ADHD and SUD, and a genetic susceptibility to acquiring both disorders at an early age. "Results from family-based and twin studies suggest a genetic component underlying the association between ADHD and substance use" (p.2). Family history of ADHD and/or SUD within both paternal and maternal lineage has been a consistent theme in the literature. Spencer et al, (2007) provided research on this subject that documents the frequency with which ADHD and SUD occur within a familial line. The "magnitude of genetic influence" (p.3) is revealed as prevalent in psychiatric comorbidity. Adolescents are likely to inherit both ADHD and SUD (Spencer et al., 2007).

It is evident in the literature that people with both disorders have difficulty managing basic life skills. When young children come from a distressed family environment due to parental ADHD and/or SUD, there may be less likelihood of receiving support or assistance for either of the disorders. Based on the identification of the parents with ADHD and SUD, they may be coping with the lack of life skills they require to provide support or intervention to any family member (Chang et al., 2011).

The population of adolescents with ADHD suffer from a disproportionate number of problems: school performance, social interaction, organization, and focus. In addition, many may be making risky decisions that stimulate the commencement of SUD. The combination of these two disorders contributes to ongoing life problems, if the individual survives overdose. These populations most often end up living a marginalized existence and/or become institutionalized either in a treatment center, psychiatric hospital, jail or prison (Kronenberg et al., 2014).

Huntley et al., (2012) examined how people who have ADHD and SUD experience impairments across several domains of daily life. They suffer from an inability to maintain successful relationships, sustain long term employment, and pursue education. The impact and loss of control one experiences with having SUD and ADHD also inhibit intervention or treatment of these co-occurring disorders. The history of unemployment, unreliability and potential for criminal activity decreases the probability that those with ADHD and SUD will have success, perpetuating the dysfunctional cycle across life domains.

ADHD and SUD can have a serious impact on one's life. Not only do the two disorders mirror one another, but the research shows they are closely linked by many factors, and very commonly co-occur. People with ADHD are impulsive and tend to have low self-worth, which is a common theme among those with SUD, as well as the fact that they experience difficulty with general life skills. Academicians who research these issues and professionals who contend with these issues have documented that early intervention is a necessary component of prevention. The literature stated that there is a need for improved identification and treatment for those identified with ADHD and SUD. Researchers indicated that there is a need for educators to know more about this common occurrence and about how to provide intervention (Breyer et al., 2014).

The present study extends the literature by adding adult voices, including their reflections on having a diagnosis of ADHD and acquiring SUD. Voices of adult recovering addicts provide a specific experience not found in the literature. They identify risky, impulsive behaviors that are common for people with their specific co-occurring disorders. Due to the clarity of mind and memory bred from long-term engagement in the recovery lifestyle, they also identify fundamental social and emotional elements with an accuracy not found in previous research. Finally, the adult voices of recovering addicts offer a keen insight into techniques, strategies and communication tools for teachers who instruct children diagnosed with ADHD and are at risk of acquiring SUD.

Chapter 3 Method

Research Approach

This was a mixed methods study using both qualitative and quantitative information. Subjects included adults with ADHD who are recovering drug addicts. They were asked to complete a questionnaire about their perceptions of having ADHD and SUD and the trajectory of their personal experience. Questions were designed to elicit both qualitative and quantitative responses. Subjects also self-reported on family history.

The method used was qualitative research, where subjects were interviewed via questionnaire (Patten, 2014). Qualitative procedures provided an in-depth investigation and understanding of the subject matter (Berg, 2004). Qualitative data were divided into groups based on common problems during childhood, common social and emotional experiences, and common experiences with teacher communication.

Ethical Standards

This paper adheres to the ethical standards for protection of human subjects of the American Psychological Association (2010). Additionally a research proposal was submitted and reviewed by the Dominican University of California Institutional Review Board for the Protection of Human Subjects (IRBPHS), approved and assigned number 10387.

Sample and Site

The researcher approached members of her community, Narcotics Anonymous, with a request to participate in a study including people who have been diagnosed with ADHD either as school aged children or as an adult, and who are recovering from the disease of addiction as adults. Subjects included 5 men and 5 women between the ages of 20 and 61. Ethnicities

included Caucasian, African American, and Hispanic. The researcher sent an initial request to the target group of 135 people, out of which 24 people responded. Out of the 24 initial respondents, a final pool of 10 subjects fulfilled the study requirements and responded to the questionnaire.

Access and Permissions

This study utilized a purposive sample in order to focus on particular characteristics of the recovering addict population who have a diagnosis of ADHD. The purposive sample included in this study provides a valid means for answering the research questions. The researcher had access to the subjects through a personal connection and common membership in a group. The researcher assured subjects that no identifying information would be used in the final report, and that their information would remain confidential. The researcher informed the subjects via email; those who replied also indicated their consent to participate. An initial announcement of intent to recruit subjects was posted on the researcher's Facebook page on April 9, 2015. The announcement described this study and included an invitation to attend the researcher's presentation on the current research at the Scholarly and Creative Works Conference on April 23-24, 2015 at Dominican University of California. The invitation to participate as a subject by questionnaire was sent as a private Facebook message to selected potential subjects from the researcher's recovering addict community, members of the Narcotics Anonymous fellowship, on the following dates: September 19, 2015 and October 18, 2015.

Measurement

The researcher designed a questionnaire that included items about demographics, family history, experience with having ADHD in school, teacher interactions, communication and attitude, whether or not using substances was connected to managing the symptoms of ADHD,

and reflections as an adult recovering addict regarding interventions that may have been beneficial to them. The measurement was teacher designed and therefore represents a pilot study of this type of measurement. The questions were examined by an outside source and found to be appropriate for the purpose of the study.

Data Gathering Procedures

Data gathering began by sending an invitation to participate in the study to the researcher's personal community of recovering addict friends, members of Narcotics Anonymous, as a Facebook private message. Subjects were assured that their confidentiality would be maintained throughout the duration of the study and within the final report. Some of the potential subjects responded that they were not diagnosed with ADHD and therefore did not fit the criteria for the study. Subjects were self-selected and interview questions were subsequently sent out privately to subjects' emails. A final total of 10 people responded by sending answers to the researcher's private email or by being interviewed by the researcher in a private location.

Data Analysis Approach

The researcher examined the responses to the questions that contained quantitative data, and generated 8 data tables accompanied by narratives. The researcher examined the responses to the questions that contained qualitative data, analyzed the content for similar concepts and recurring themes, and generated categories and sub-categories based on the evaluation of the data.

Chapter 4 Findings

The results of this study were intended to convey outcomes and solutions to the following questions: Why is it common for people diagnosed with ADHD to have co-occurring SUD? How do teachers, particularly special education teachers, increase their awareness of this problem and help guide their students through the maze of risk taking behavior?

Quantitative Data

According to the findings, there were an equal number of male and female adult recovering addicts who participated in this study who were diagnosed with ADHD and acquired SUD, Table 1. These diagnoses were common to all 10 subjects and gender was not a determining factor within this pool of subjects.

Table 1: Gender

Male	Female
5	5

Findings indicated that of those who participated in this study, 6 were past the age of 50, 2 were in their late 30s, 2 were in their 20s and the majority had 5 years or more of time in recovery from SUD, Tables 2 and 3. Eight (8) of the subjects in this study were over the age of 30, 7 of those had 5 or more years of time in recovery from SUD, Tables 2 and 3. The findings indicated that the average age to initiate recovery from SUD was 30 years old.

There were 4 outlier subjects who initiated recovery from SUD either during the teen years or over the age of 50. Subjects of this study who match the average age range also had substantial lengths of time in recovery from SUD, Table 3.

Table 2: Age at Time of Study

Frequency	Years
1	61 (Subject 1)
2	57 (Subjects 2 and 3)
1	54 (Subject 4)
2	53 (Subjects 5 and 6)
1	38 (Subject 7)
1	37 (Subject 8)
1	29 (Subject 9)
1	20 (Subject 10)

These subjects provided a valid account of data based on having a diagnosis of ADHD, and having spent significant time in recovery from SUD. Data also suggested the average age of initial recovery from SUD is not equivalent to remaining in recovery over a period of years. It should be noted, though not included as a part of this study, recurrent relapse of SUD is common, and was coincidentally reported by 9 out of 10 subjects in this study. This data coordinates with research from Huntley et al., (2012) stating that despite the high rate of ADHD in adult substance users, the disorder remains under diagnosed and under treated, affecting treatment of co-occurring disorders.

Table 3: Number of Years of Recovery from SUD

Frequency	Years
2	2 (Subjects 2 and 10)
1	5 (Subject 8)
2	8 (Subjects 3 and 7)
1	10 (Subject 9)
1	20 (Subject 6)
1	26 (Subject 5)
2	30 (Subjects 1 and 4)

Although the researcher's community of recovering addicts, members of Narcotics Anonymous, included a variety of ethnicities, the majority of the subjects who responded to the

questionnaire for this study live in a primarily Caucasian community. The majority of the subjects were Caucasian. The other subjects who participated were African American and Hispanic, Table 4.

Table 4: Ethnic Origin

Frequency	Ethnicity
7	Caucasian
2	Hispanic
1	African American

The average age of subjects who participated in this study was 45.9 years old. During these subjects' youth ADHD was not as recognized as it is today, and was not diagnosed as readily until the 1990s (Healthline.com, 2015). Therefore, in this study, it was more common to receive a diagnosis of ADHD during adult years, Table 5. The subjects who received an ADHD diagnosis as an adult reported that they anticipated this diagnosis as apparent from reviewing their childhood symptoms and behaviors.

Table 5: Age of ADHD Diagnosis

Frequency	Childhood/Adult
4	Childhood
6	Adult

Half of the subjects did not receive an explanation for their symptoms and their behavior from a doctor or teacher before they received a diagnosis of ADHD, Table 6. Many of the subjects stated that they knew something was wrong, and got into trouble at home and at school. This may also be due to their developmental age and the fact that doctors and teachers were not as educated about ADHD during those years. One of the subjects carried out personal research

based on his symptoms, and the remainder received an explanation of the disorder from a professional, Table 6.

Table 6: Personal Knowledge of ADHD

Frequency	None/Teacher/Doctor/Personal Research
4	None
2	Teacher
3	Doctor
1	Personal Research

The average age of early onset SUD for subjects of this study was 11.2 years, Table 7. This data corresponds with the average age of 11 years for early onset SUD in the research literature of Chang et al., (2011). This data also corresponds with a study by Davids et al., (2005) which documented the common link of early onset SUD for those who are diagnosed with ADHD. The young age of early onset SUD noted in Table 7 exemplifies the seriousness of these disorders and the importance of early intervention for those diagnosed with ADHD who may acquire SUD.

Table 7: Age of Early Onset SUD

Frequency	Age
1	8
2	9
2	11
3	12
2	14

The majority of subjects, 9 out of 10, had parents with a history of SUD, Table 8. Parental history of having SUD was the most common; parents with ADHD, both disorders and neither disorder each had a single occurrence, Table 8. All 9 subjects with parents who had SUD reported that their childhood homes were dysfunctional and chaotic, and none of their parents

entered into treatment for SUD. This data coordinates with qualitative content noted under the heading of difficulties.

Table 8: Parental History

Frequency	ADHD/SUD/None/Both
9	SUD only
1	ADHD only
1	Neither ADHD nor SUD
1	Both ADHD and SUD

Content Analysis

The subjects in this study provided answers to questions about their home and school experiences while having ADHD and SUD during their youth. The following content analysis provides a series of descriptive labels, which are supported by quotes from the subjects. The labels indicate common themes that emerged in the data.

Difficulties

Subjects reported on the difficulties they experienced and the distressing feelings they had as young students. Subjects reported that these difficulties had an emotional impact on them that they were too young to manage or resolve. These feelings and the repercussions from their behaviors led them to make risky choices such as using drugs.

It was hard to study and to keep things organized

"I was deemed a slow learner in 2nd grade and had to go to a learning center part of every school day to help me with my reading and writing." "I fell through the cracks."

I got into trouble at school

"I usually ended up in the principal's office." "Well let me tell you what, I got into a lot of trouble in Catholic school. I got hit with the roller paddle, I just couldn't pay attention and then most of the time I was there in the principal's office or I was sent home."

Lacking impulse control and feeling out of control

"When I wasn't stoned my friends would ask me what I was on because I was so hyper."

Dysfunctional home life

"Both of my parents had substance abuse issues." "Only my dad had a history of substance abuse and he died early from it." "My mom is an addict and she strongly believes she has ADHD." "I always wanted to get away from my crazy life." "I never knew how it was going to be when I got home."

Low self-esteem, felt shame

"I felt like an outcast." "I couldn't do anything right, and I thought I was just dumb."

Consequences

Subjects reported that they made risky choices, such as using drugs, which affected them for the rest of their lives. Subjects reported that they used drugs because they did not know they had any other options. When they began using drugs they were self-medicating, but did not know the consequences, or how likely it was for them to acquire SUD.

Used drugs and alcohol

"When I smoked lots of pot it calmed me down. I felt better when I was on it. I started smoking pot when I was 8 and was a daily smoker by age 11 or 12. I'm sure I was self-medicating my undiagnosed ADHD and dyslexia symptoms, as well as my undiagnosed depression." "I just wanted to quiet my brain."

Interaction

Subjects reported their communication with teachers was painful. Teachers did not have background knowledge or strategies to help them, and failed to establish a rapport. Subjects felt misunderstood and mistreated by their teachers.

No help from teachers

"During my early education years there was no help or support." "Teachers made me feel stupid." "All through school my teachers told my parents that I am so much smarter than this, I'm just lazy."

Teachers were not informed

"When I was in elementary school and middle school ADHD was taboo, the teachers didn't talk about it, they didn't teach about it, it was very hush, hush." "It was never explained by my parents, teachers, or doctors. If teachers had told my parents I'm sure they would've been in denial." "I'm not sure my grade school teachers knew much about it in the 60's and in the 70's. I was at high school in England and South Africa. I don't think I ever heard the words ADD or ADHD overseas in my life." "I believe that undiagnosed ADHD children self-medicate with either sports or drugs. I was not good at team sports, which is all we were offered in school, so I started getting high and it continued all through school and into my adulthood until I got clean at 27."

Solutions

Subjects reported they would have been relieved to receive assistance from a knowledgeable, kind educator, who could provide them with strategies and information. All subjects wished that teachers were able to acknowledge the symptoms and behaviors associated

with ADHD, understood the co-occurring disorders, and provided support and strategies for intervention.

Early intervention and comprehensive education

"I wish I had been diagnosed earlier and then given behavior modification tools to use." "It would absolutely have made a difference if teachers were more aware of the connection between ADHD and SUD." "I actually learned to cope with my ADHD on my own. I like the way my ADHD brain works! It was a huge relief when I was actually diagnosed, and had a label for my weirdness! The biggest help was reading books on ADHD and recognizing a lot of my coping mechanisms and quirks. It made me feel as if there was really nothing wrong with me." "I think that if my teacher had actively taught about addiction and then separately addressed ADHD, my mind would have seen the connection and I could have sought out more information, since we have a history of addicts in the family." "I suggest that teachers encourage us more, talk about these issues and build trust with their students." "Teachers need to better accommodate kids with ADHD so they won't feel so much like outcasts." "Teachers need to take more time with kids. They need to accept and appreciate the way their brain works and their quirks."

Results

There was consistent evidence in the study that links ADHD and SUD. Subjects in this study reported that they were trying to calm themselves and make themselves feel better by using drugs. Not all subjects knew they had ADHD, but they all attempted to self-medicate as a solution.

Subjects reported that they had difficulties because of their dysfunctional parents and dysfunctional home life. Their parents were not able to properly care for them, and were not able

to advocate for them. The subjects exhibited distress both in the home and at school. They did not know how to behave as expected at school, and did not receive assistance or intervention from teachers. Subjects noted they had many problems across several domains of life, which began at an early age and continued into adulthood.

Subjects consistently reported that early intervention by educators was needed. The subjects of this study commented that they wished their teachers would have been educated about their ADHD, and about how to approach and help them with issues common in people diagnosed with ADHD. They also noted that they wished their teachers knew more about SUD and how common it is for those with ADHD to acquire SUD. The subjects commented that they wanted their teachers to help them instead of being impatient with them and unkind to them.

Within the research there was also a common thread of support for early intervention at the time of diagnosis, which could provide a student with a better outcome when making decisions regarding risk taking behavior and experimentation with drugs.

In the current school environment, students with an ADHD diagnosis may have a team of professionals working with them, but the one adult with whom they spend the majority of their time, the special education teacher, is not necessarily aware of the co-morbidity of ADHD and SUD. In addition, special education teachers are not professionally prepared to contribute to the monitoring and management of an at risk student. Regardless of the large population of students in special education with ADHD and SUD, special education teachers are not given specific training in how to identify and assist these students.

Chapter 5 Discussion /Analysis

Summary of Major Findings

The reflections of adult recovering addicts who were diagnosed with ADHD indicated that they elected to experiment with drugs in order to feel calm and quiet their brains. They did not have alternative methods, nor did they have an advocate in the form of a parent or a teacher to assist them in managing their ADHD. In each case the child acquired SUD that led to a series of life problems for which they had no skills to help them discern better choices or alternatives.

Each of these subjects commented that teachers should be trained and equipped to recognize, acknowledge, intervene and assist their students. They noted that training should include awareness of how common it is for those with a diagnosis of ADHD to acquire SUD.

The subjects suggested that teachers' education should include awareness and information about the common link between ADHD and SUD. They also suggested it would be beneficial for teachers to be kind to their students, have more patience, appreciate and accommodate their differences, and have the ability to help them navigate the risky choices and difficulties that are likely to occur.

Comparison of Findings to the Literature

The researcher's findings were similar to the literature in the areas of co-morbidity of ADHD and SUD, common genetic factors, early onset SUD, ongoing problems across many life domains, and the need for early intervention.

Ameringer et al., (2013) examined associations between ADHD and SUD. Their study noted that an individual with ADHD is more likely to acquire SUD. Chang et al., (2011) noted that there is a genetic influence on the association between ADHD and SUD, and a genetic

susceptibility to acquiring both disorders at an early age. The current study noted 9 out of 10 subjects had a genetic influence on their SUD, ADHD or both. The average ages of early onset SUD of subjects were between age 8 and 14.

In the study by Kronenberg et al, (2014) they noted the population of adolescents with ADHD suffer from a disproportionate number of problems. They are also making risky decisions such as using drugs. The combination of these two disorders contributes to ongoing life problems. These populations most often end up living a marginalized existence and/or become institutionalized either in a treatment center, psychiatric hospital, jail or prison. The subjects in the current study reported life problems, such as poor school performance, problematic social interaction, lack of organization, and difficulty focusing. Each of the subjects continued to suffer serious life problems during their SUD, such as inability to maintain a job or a relationship, inability to continue their education, and trouble with the law.

In a study by Davids et al, (2005) their research concluded that the key strategy for assisting people who face ADHD and SUD is early diagnosis, intervention and treatment. In the current study all subjects stated that early intervention and assistance from kind, caring teachers could have made a difference in their lives. Early diagnosis and intervention was the leading solution to the problem of having ADHD and acquiring SUD.

The researcher's findings were unique and different from the literature because they included adult voices of recovering addicts. These subjects were able to tell their stories and answer questions with hindsight and clarity derived from their time spent involved in recovery from SUD. The literature included data from subjects in jails and treatment facilities, but did not

include any interviews with recovering drug addicts with ADHD who had spent substantial time in recovery from SUD, and could reflect on the trajectory of their experience.

Limitations/Gaps in the Research

The study was limited by the small pool of subjects and the narrow scope of requirements to participate. Ten (10) people participated in the study. Subjects had a diagnosis of ADHD and subsequently acquired SUD. Subjects were known to the researcher and were fellow members of the Narcotics Anonymous fellowship.

There were gaps in the research literature regarding the inclusion of adult voices of recovering addicts with co-occurring ADHD as children. Adult recovering addicts who have spent a significant amount of time in recovery from SUD provided reflections on emotional incidences that impacted their lives. Subjects identified common themes and symptoms of the co-occurring disorders. Subjects reflected on the reasons they made risky choices, such as using drugs, and the feelings associated with the behaviors.

Additionally, there were gaps in the research literature regarding the subjects as advisors. Adult voices of recovering addicts with co-occurring ADHD have not previously been asked what impacted them the most as students, and how teachers could have been equipped to understand, care for and assist them. Subjects have not previously reflected on how appropriately trained teachers might interact with them and have an influence on the progression from having ADHD to acquiring SUD.

Implications for Future Research

This research may initiate a structure within teacher training that provides not just the facts as found in research, but realistic strategies and tools based on reflections of those with

personal experience. The most prominent theme suggested that teachers should be aware of this subject matter, and receive training in order to promote safer, more confident students. Appropriate intervention from a kind teacher could affect the progression from having ADHD to acquiring SUD.

Overall Significance of the Study

This study conveyed a distinctive, qualified statement about the importance of understanding the link between ADHD and SUD, and the importance of teacher training in order to provide appropriate intervention and assistance. This study identified an omission in teacher training, specifically special education teacher training, which could incidentally save students' lives.

About the Author

Elena is a special education teacher who works at Fusion Academy. She started her current career as a reading intervention specialist in 1996, earned her special education credential in 2010, and her Masters in Special Education in 2015 from Dominican University of California. Elena also earned a B.A. in Chinese Language and Literature from San Francisco State University in 1985. Her professional interest is to become a professor so she can train teachers, as well as consult with schools, parents and professionals. Elena lives in San Rafael with her daughter, Jenna, and the love of her life, Robert. They share a passion for recovery, yoga, good food and spending time with family and friends.

References

American Academy of Child & Adolescent Psychiatry. (2015). Retrieved October 28, 2015 from http://www.aacap.org/AACAP/Families_and_Youth/Resource_Centers/ADHD_Resource_Center/ADHD_A_Guide_for_Families/What_is_ADHD.aspx

American Psychological Association. (2010). *Publication Manual of the American Psychological Association*. Washington, DC: American Psychological Association.

American Society of Addiction Medicine. (2015). Retrieved October 28, 2015 from http://www.asam.org/for-the-public/definition-of-addiction

Ameringer, K. J., & Leventhal, A. M. (2013). Associations between attention deficit hyperactivity disorder symptom domains and DSM-IV lifetime substance dependence. *American Journal on Addictions, 22*(1), 23-32. doi:10.1111/j.1521-0391.2013.00325.x

Berg, B. L. (2004). *Qualitative Research Methods for the Social Sciences*. San Francisco: Pearson Education, Inc.

Biederman, J., Petty, C. R., Monuteaux, M. C., Mick, E., Clarke, A., Ten Haagen, K., & Faraone, S. V. (2009). Familial risk analysis of the association between attention-deficit/hyperactivity disorder and psychoactive SUD in female adolescents: A controlled study. *Journal of Child Psychology & Psychiatry, 50*(3), 352-358. doi:10.1111/j.1469-7610.2008.02040.x

Breyer, J. L., Lee, S., Winters, K. C., August, G. J., & Realmuto, G. M. (2014). A longitudinal study of childhood ADHD and substance dependence disorders in early adulthood. *Psychology of Addictive Behaviors, 28*(1), 238-246. doi:10.1037/a0035664

Carpentier, P. J., Arias Vasquez, A., Hoogman, M., Onnink, M., Kan, C. C., Kooij, J. J. S., Buitelaar, J. K. (2013). Shared and unique genetic contributions to attention deficit/hyperactivity disorder and SUDs: A pilot study of six candidate genes. *European Neuropsychopharmacology, 23*(6), 448-457. doi:10.1016/j.euroneuro.2012.07.003

Chang, Z., Lichtenstein, P., & Larsson, H. (2012). The effects of childhood ADHD symptoms on early-onset substance use: A Swedish twin study. *Journal of Abnormal Child Psychology, 40*(3), 425-435. doi:10.1007/s10802-011-9575-6

Davids, E., von Bünau, U., Specka, M., Fischer, B., Scherbaum, N., & Gastpar, M. (2005). History of attention-deficit hyperactivity disorder symptoms and opioid dependence: A controlled study. *Progress in Neuropsychopharmacology & Biological Psychiatry, 29*, 291-296. doi:10.1016/j.pnpbp.2004.11.014

Glind, G., Van Emmerik-van Oortmerssen, K., Carpentier, P. J., Levin, F. R., Koeter, M. W. J., Barta, C., . . . Johnson, B. (2013). The international ADHD in SUDs prevalence (IASP) study: Background, methods and study population. *International Journal of Methods in Psychiatric Research, 22*(3), 232-244. doi:10.1002/mpr.1397

Healthline.com (2015). A climb in diagnoses. Retrieved December 1, 2015 from http://www.healthline.com/health/adhd/history#19022

Huntley, Z., Maltezos, S., Williams, C., Morinan, A., Hammon, A., Ball, D., Asherson, P. J. (2012). Rates of undiagnosed attention deficit hyperactivity disorder in London drug and alcohol detoxification units. *BMC Psychiatry, 12*(1), 223-231. doi:10.1186/1471-2393-12-223

Kalbag, A. S., & Levin, F. R. (2005). Adult ADHD and SUD: Diagnostic and treatment issues. *Substance use & Misuse, 40*(13-14), 1955-1981. doi:10.1080/10826080500294858

Kaufer, D. (2015). What can neuroscience research teach us about teaching? Retrieved September 18, 2015 from http://gsi.berkeley.edu/programs-services/hsl-project/hsl-speakers/kaufer/

Kaye, S., Darke, S., & Torok, M. (2013). Attention deficit hyperactivity disorder (ADHD) among illicit psychostimulant users: A hidden disorder? *Addiction, 108*(5), 923-931. doi:10.1111/add.12086

Konstenius, M., Larsson, H., Lundholm, L., Philips, B., van, d. G., Jayaram-Lindström, N., & Franck, J. (2015). An epidemiological study of ADHD, substance use, and comorbid problems in incarcerated women in Sweden. Journal of Attention Disorders, 19(1), 44. Retrieved April 11, 2015 from http://search.ebscohost.com

Kronenberg, L., Slager-Visscher, K., Goossens, P., van den Brink, & van Achterberg, T. (2014). Everyday life consequences of substance use in adult patients with a SUD (SUD) and co-occurring attention deficit/hyperactivity disorder (ADHD) or autism spectrum disorder

(ASD): A patient's perspective. *BMC Psychiatry, 14*(1), 1-18. doi:10.1186/s12888-014-0264-1

Malone, P. S., Van Eck, K., Flory, K., & Lamis, D. A. (2010). A mixture-model approach to linking ADHD to adolescent onset of illicit drug use. Developmental Psychology, 46(6), 1543-1555. doi:10.1037/a0020549

Nectac.org. (2011). Importance of early intervention. Retrieved November, 11 2105 from http://www.nectac.org/~pdfs/pubs/importanceofearlyintervention.pdf

Patten, M.L. (2014). *Understanding Research Methods. Glendale, CA: Pyrczak Publishing.*

Recovery.org. (2015). ADHD and SUD. Retrieved April 11, 2015 from http://www.recovery.org/topics/find-the-best-dual-diagnosis-recovery-program-for-learning-disorders-and-substance-abuse/

Roy, A. (2008). The relationships between attention-deficit/hyperactive disorder (ADHD), conduct disorder (CD) and problematic drug use (PDU). *Drugs: Education, Prevention & Policy, 15*(1), 55-75. doi:10.1080/09687630701489481

Salman, S., Idrees, M., Anees, M., Idrees, J., Idrees, F., & Badshah, S. (2014). Association of attention deficit hyperactivity disorder with heroin addiction. *Bangladesh Journal of Medical Science, 13*(2), 128-134. doi:10.3329/bjms.v13i2.18294

Schubiner, H. (2005). SUD in patients with attention-deficit hyperactivity disorder: Therapeutic implications. *CNS Drugs, 19*(8), 643-655. Retrieved April 11, 2015 from http://ezproxy.dominican.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=18160514&site=eds-live

Spencer, T. J., Biederman, J., & Mick, E. (2007). Attention-deficit/hyperactivity disorder: Diagnosis, lifespan, comorbidities, and neurobiology. *Ambulatory Pediatrics, 7*(1), 73-81. Retrieved April 11, 2015 from http://ezproxy.dominican.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2009513369&site=eds-live

Washington State Department of Health, Office of Healthy Communities. (2009). Youth with disabilities risk factors for alcohol, tobacco and drug use data monograph. Retrieved April 11, 2015 from http://www.doh.wa.gov/Portals/1/Documents/Pubs/160-024_YouthWithDisabilitiesRiskFactorsForSubstanceAbuse.pdf

Appendix

QUESTIONS

Gender:

Ethnicity:

Age:

Number of years in recovery:

1. How old were you when were you first diagnosed with ADHD?
2. Did you know what ADHD was?
3. Was it explained to you by your parent, teacher, or doctor?
4. How old were you when you first tried any type of substance?
5. Did either of your parents suffer from ADHD and/or SUD?
6. Do you think there are common symptoms of ADHD and SUD?
7. Were your ADHD symptoms a contributing factor that made you feel like you wanted to use drugs to change or manage how you felt?
8. At school how did your teacher address/help you with your ADHD? If at all.
9. Do you think it could have made a difference for you, or would make a difference for other kids, if teachers were more aware of the connection between these two issues?
10. Is there anything else you would like to share with me on this subject?