Adlerian Explanation Regarding the Connection Between Childhood Onset Attention-Deficit Hyperactivity Disorder (ADHD) and Adolescent Onset Substance Use Disorders (SUD)

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Abstract

Following the internship overview, a collection of research investigating the connection between childhood diagnoses of ADHD and the manifestation of adolescent SUD is reviewed. Each review addresses the scope of the respective study, an overview of the investigative process utilized, as well as an explanation for the results from an Adlerian clinical counseling perspective.
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An Adlerian Explanation for the Connection Between Childhood Attention-Deficit Hyperactivity Disorder (ADHD) and Adolescent Substance Use Disorders (SUD)

The foundation of our academic structure in the United States is centered on fostering individual work ethic. The intention of this structured approach to academics is to create intrinsic motivation in students for independent achievement and personal advancement. We live in a large world populated by over six billion people; consequently there is significant demand for opportunity. To ensure that children maintain a drive to find personal satisfaction and success, it is necessary to provide them with developed regimens of academic training. Enter our education system. Our educational system functions effectively in a vacuum, however it does not inherently account for the manifestation of personal characteristics that may inhibit or slow the process that our educational structures would otherwise intend.

*Attention Deficit-Hyperactivity Disorder (ADHD)*

Attention Deficit-Hyperactivity Disorder (ADHD) is a formal diagnosis that may be applied to individuals that exhibit the necessary symptoms as specified the Diagnostic Statistical Manual, or as commonly referred, the DSM-IV-TR. Most often diagnosed in childhood, ADHD can present great struggles both in academics, as well as social functioning for the person carrying the diagnosis. Behavioral characteristics typically regarded as indicative of a diagnosis of ADHD may include the display of an energy level that exceeds situational appropriateness, an inability to concentrate or focus on a given stimulus outside the perspective of the individual, or any combination of the two aforementioned behavioral characteristics (APA, 2000). It is important to note that these
behaviors or various combinations thereof may exist in an individual in varying degrees and levels of intensity. When the aforementioned behaviors manifest in a manner that is unobtrusive to the general day-to-day functioning of an individual, there is no application of the ADHD diagnostic label. However, when these behavioral characteristics manifest in a manner that is obtrusive to the general day-to-day functioning, the diagnostic classification of ADHD can be applied. This diagnostic label can be helpful in the sense that it can provide an explanation, as well as management possibilities for these obtrusive behaviors. Inherent in the behaviors themselves, however, also seems to be the propensity in individuals who possess the behaviors to engage in a risky behavior widely referred to as substance abuse. Research has indicated a high prevalence of individuals who received a diagnosis of ADHD in childhood with the later manifestation of adolescent substance use disorders (SUD). This is of significant concern considering the sheer number of ADHD diagnoses, and the consequent potential for serious issues regarding substance use and abuse.

Substance Use Disorders (SUD)

Substance abuse is a serious problem for a variety of reasons; often significantly impacting the life of the user. The most obvious way in which substance abuse can impact the life of the user is in the effect or influence that the substances can have on behavioral patterns. Often, substances can influence an individual to act in ways that may conflict with their, subjectively speaking, typical behavior or cognitive reasoning. Just as there are a variety of substances that can be abused, there are similarly a variety of long-term ramifications on the life of an individual who uses. These long-term ramifications often manifest in the form of consequences either in response to the
violation of a law, or an ethical code on a broad based social level. The end result of this discussion of substance abuse is a social problem in which individuals seem to handicap themselves by ingesting substances that change not only the behaviors they typically might purvey, but also the way in which they reason or process information on a cognitive level. Adolescence is a developmental stage in which individuals are particularly vulnerable to outside influences, as well as their own chemical imbalances. With an ever growing number of children given the ADHD diagnosis, and the potential for the manifestation of adolescent substance use behaviors; an explanation for this relationship would help by not only increasing our understanding of the two disorders, but also by providing possibilities for interventions that might address these issues before they become problems.

The intentions of the academic structure that has been developed through time and experience are not truly honored when undiagnosed impediments to the learning process, i.e. ADHD or substance use disorders, with the potential for treatment or management are not given the opportunity as such. A disservice is not only occurs for the individual who in some capacity is limited in their potential to harness the academic resources available to them, but also to the academic system itself that is ultimately weakened by broader issues, or correlations that might contribute to the decrease in its universal effectiveness and success. The presence of characteristics in an individual disposing them to the DSM-IV-TR classification of ADHD can be a significant contributor to the academic disservice in an individual. Similarly, an individual engaging in substance abuse is also a disservice being rendered when it exists in a manner that is obtrusive to the potential of an individual. The presence of the two, ADHD and substance abuse, concurrently is an
issue significant interest presently. There seems to be a correlation between the individual characteristics constituting an ADHD diagnosis, and the individuals’ propensity to abuse substances.

The assertion of this literature review is that individuals meeting the categorical requirements of an ADHD diagnosis have a tendency to develop substance use disorders in adolescence. Taken a step further, this literature review also seeks to provide explanation for this behavioral in accordance with Adlerian theory. A compilation of research has been synthesized with hopes of providing validity to this assertion of a correlation between the characteristics typified by individuals with ADHD, and individuals who abuse a variety of substances. This assertion is of significance because of its ramifications on the broad institution of education. If direct correlations can be made linking ADHD diagnoses to the manifestation of abusive tendencies regarding substances, care can be taken to address the issue of substance abuse in these individuals before its consequences occur. Furthermore, identifying the specific behavioral patterns or cognitive processes of an individual with the propensity to abuse substances can help our social and academic systems in the process of developing strategies and interventions to manage the symptoms. The intention of the process is to improve the quality of life in the aforementioned individuals. After all, don’t we all deserve to be happy?!!

There are several key Adlerian concepts that may help provide explanation for the assertion that a connection exists between childhood ADHD and the later development of adolescent substance use disorders. Discouragement seems to be the most obvious explanation for this correlation in regard to Adlerian theory. Children who qualify for a diagnosis of ADHD have many obstacles to overcome in their social and academic
ADHD and SUD 10

Studies consistently illustrate that many children with ADHD develop substance use disorders in adolescence. These adolescents are at an increased vulnerability for substance use disorders due to discouraged feelings that are the product of struggles and perceived failures throughout the course of their academic and social development. A discouraged adolescent feels that way as a result of a lifetime of academic and social failure, which often relegates them to deviant peer groups and behaviors. While the explanation does not solve the problems associated with the broad assertion, nor does it explicitly suggest intervention strategies; it does offer a more complete understanding for the nature of the connection, possible causes for it on both a individual basis as well as socially, as well as insight into possible ways to avert the potential issues before they become problems. Whether it is a shared affinity regarding a particular physical stimulus, or a method self-medicating symptoms that may be otherwise uncomfortable in some way has yet to be determined conclusively. Much research and study is currently taking place with hopes of finding potential warning signs, or symptoms in individuals who ultimately abuse substances that might be identified before the substance abuse itself occurs.

There are many possible reasons for the connection between childhood diagnoses of attention deficit/hyperactivity disorder and the later manifestation of adolescent substance use disorders. The psychological model of Adlerian Psychotherapy lends itself very well to an explanation for the correlation between childhood ADHD and adolescent substance use disorders. “Adler supposes that there is a creative force inborn to the child, which increases with activity; it enables people to make their own decisions and to develop their own opinions on what happens to them. In this sense, individuals are not
just the product of their circumstances – as assumed in classic Behaviorism (behavior as a result of specific stimuli) or as in classical Psychoanalysis (psychological problems as result from traumatic childhood experiences) – but are also the creators of their circumstances and of themselves. This creative force works throughout the whole personality” (Oberst and Stewart, 2003, p. 12). Adlerian theory views individuals as unique, a product of their personal experiences. Behavior is dictated by these personal experiences in the capacity that we all respond to situations and life experiences differently.

The way in which we respond is guided by a fictional final goal, the likes of which is established early in our developmental process. To accurately understand this fictional final goal, we must understand what has occurred in the life of the individual, why whatever it is occurred, and most importantly how the individual responded to whatever it was that happened. We respond to external circumstances based on our feelings, beliefs, and behaviors. We all have a fictional goal that we have formed for ourselves; and that consequently dictates the way in which we respond to personal situations; it is our personal guiding force. These fictional goals are not necessarily in accordance with reality, although they may be depending on the life circumstances of the individual. Most often, they are coping strategies used by the individual to deal with reality. The fictional goal is a life-long process of evaluation and formation; constantly evolving as new experiences occur and are processed. Much the same as their formation in the first place, fictional goals are constantly tested in their application. Changes and modifications to the fictional goals will take place as necessary to fit the ideal outcome of the individual.
In relation to children with attention-deficit hyperactivity disorder (ADHD), the nature in which fictional final goal development occurs is very significant. Children with ADHD often experience great difficulty in social interactions with peers, as well as with academics. The characteristics of ADHD are such that children experiencing them often become very aware of what they are, and how these behavioral characteristics that are seemingly out of their control influence the nature in which they are able to interact socially and function academically. Academic failure and social rejection are not uncommon in children with ADHD. The assertion that a connection exists between childhood ADHD and adolescent substance use disorders provides allows the possibility for possible explanation in terms of Adlerian theory.

*Adlerian Philosophy*

Adlerian theory lends itself to children, and their personal and social development. Children with a diagnosis of ADHD likely feel discouraged, a key concept in Adlerian theory. From the perspective of Adlerian Individual Psychology, discouragement is the lack of courage to navigate the tasks of life cooperatively and leads inevitably to behavior on the useless side of life. In relation to the connection between childhood diagnoses of ADHD and the manifestation of adolescent substance use disorders, the behavior on the useless side of life is the substance use itself. Children who experience the symptoms qualifying them for a diagnosis of ADHD often experience failure in mainstream social circles. They often find it difficult to maintain focus in the classroom, wherein they may become disruptive. This can often relegate them to a sort of class clown title; they in essence become a spectacle or novelty of sorts. Taken at face value, this may not seem counterproductive to their social development. An important
factor to take into consideration, however, is the fact these disruptive, class clown type behaviors are not necessarily the ideal form of expression, but rather a coping mechanism to deal with their own feelings of inadequacy in relation to their ability to navigate life challenges as they see other children without ADHD.

The discouraged child with ADHD does not necessarily assume their role voluntarily, rather their role is more a consequent of their behavior and inability to focus; this becomes an impediment to their social development in relation to peer interactions as well. The child begins to perceive their lack of ability to focus and interact as other children do as illustrative of their own value from a broad social perspective. They begin to associate themselves with a more deviant peer culture; as it is the deviant peer culture that provides them with an environment that places less focus on academic successes and healthy peer relationships. This deviant peer affiliation contributes to the development of adolescent substance use disorders in several ways. First of all, it provides affirmation to them of their perceived role outside of their mainstream peers; and whether or not they will admit it, their relative inadequacy regarding social and academic functioning. Furthermore, this deviant social group affiliation sets the stage for deviant social activities as these children enter the formative, and naïve years of adolescence. Pressures in the environment influence adolescence heavily; individuals become more aware of themselves, and their place within their broad peer group. Substance use is most commonly associated with deviant peer affiliation. While all individuals may have equal opportunity for substance use, it is the general consensus of the peer group of which one is a part that plays an influential role in whether or not the substance use occurs in the first place. Consequently individuals, in particular discouraged adolescents living with
ADHD and its behavioral characteristics, in these deviant peer groups are more likely to engage in behaviors that are not conducive to mainstream social success and high academic aspirations. There is not significant emphasis placed on achievement and mainstream social support; and consequently there are fewer stigmas around substance use with its increased potential for social and legal consequences.

Specifically, Adlerian theory seeks to explain behavior in terms of our interpretation, and consequent reaction to external stimuli and influences. On a basic level, Adlerian theory emphasizes that anything can be different; simply because a child struggles socially or academically does not automatically relegate them to a mental health diagnosis or the development of a substance use disorder. Rather, the latter may be coping mechanisms of sorts with which the child or adolescent deals with their perception of themselves in relation to their environment. Substance use in adolescents with a history of an ADHD diagnosis may be a way for the aforementioned individual to self-medicate the symptoms of the diagnosis. The self-medication motivation for substance use could also simply be a way for them to deal with the pressure they feel to succeed, coupled with a perceived inability to do it.

Research conducted by Maury Nation and Craig Helfinger (2006) sought to find correlation between a variety of psychosocial risk factors, and their effect on the manifestation of adolescent alcohol and drug usage. The purpose of this was to establish a level of collective importance in relation to the identified risk factors, and their influence on adolescent substance abuse. Despite efforts to reduce it, adolescent drug and alcohol abuse remains a public health problem. “The National Household Survey of Drug Abuse found that more than 10% of 12-17 year olds had used illicit drugs in the
previous month, and 25% reported that they could easily obtain cocaine. In the case of alcohol, 17% of adolescents reported drinking in the past month, and 10% reported binge drinking” (Helfinger & Nation, 2006, pp. 415-416). The data was collected through self-report by the participants as they completed a survey regarding psychological functioning and substance use. These staggering figures led researchers to the pursuit of identifying possible factors influencing the rates of adolescent substance and alcohol abuse. To identify these risk factors illuminating the potential for substance and alcohol abuse would elicit an increase in the ability of those in our social system to prevent and treat issues before they become problematic (Helfinger & Nation, 2006).

During the course of a national study involving around four thousand adolescents ranging from twelve to seventeen years old, several conclusions were reached. Psychological difficulties, specifically attention-deficit hyperactivity disorder (ADHD), were significant predictors of illicit drug abuse and dependence. In a comparison procedure of various psychosocial characteristics, psychological functioning, or dysfunction in this study, consistently rated as a highest risk characteristic. Adlerian theory could explain this as a sort of adaptation technique used by the individual engaged in the substance use. Adaptation speaks to our social embeddedness. We are evolving organisms in an evolving social structure. We either adapt to the world, or attempt to adapt the world to ourselves. An individual with psychological dysfunction likely feels as if they are poorly equipped to function within social parameters. They may lack the ability to manage impulses that others around them are able to effectively suppress or simply do not experience. In this example, an individual lacking the ability to suppress impulses may find themselves subject to behaviors that are not conducive to a classroom
environment, and consequently the peer relationships within it. Children notice things that are different; a child with ADHD will act differently, particularly on tasks requiring focus. The child with ADHD then becomes directly associated with their behavior; their behavior begins to define their role within the social structure. Since much of the behavior could be considered deviant, deviant peer group affiliation is a reasonably foreseeable outcome. The other categories measured included family environment, peer relationships, and stressful life events (Helfinger & Nation, 2006).

Of the roughly four thousand adolescents participating in the study, Helfinger and Nation identified 166 participants involved in alcohol or drug treatment. Of those 166 participants, 95% met the diagnostic criteria for chemical dependency, as well as ADHD. Furthermore, the participants meeting both the criteria for chemical dependency and ADHD were consistently associated with earlier and heavier use of alcohol and other substances. To further establish the findings, associations additionally made indicated more pronounced substance abuse in participants with more severe ADHD (Helfinger & Nation, 2006).

The findings collected by the study conducted by Nation and Helfinger seem to affirm their somewhat loosely stated hypothesis that a correlation exists between the presence of certain behavioral characteristics and the manifestation of substance abuse. There were, however, a certain amount of methodological aspects that may have skewed their findings. The researchers failed to identify the demographics of participants. Depending on the psychosocial factors influencing the population studied, there exists variation in the type of substances abused. The availability of the substances that are being abused can greatly influence the rate at which they are ultimately abused. Also
related to the type of substances abused is the potential for addiction to the substance itself. Some substances may have a greater influence over the user than others; therefore identifying the characteristics of the substance, as well as behaviors indicative of its use can provide insight into the nature of the abuse itself. Self-esteem and family life, for example, have significant influence on the propensity for risk-taking behavior, particularly in a group environment. Furthermore, little attention was given to the interrelationship between the behavior characteristics studied. For example, a relationship between peer influences on individuals with psychological dysfunction could be asserted. This study, however, does not address such a relationship (Helfinger & Nation, 2006). The need for future investigation into these characteristics and relationships is illustrated; additional systemic investigation with the intention of more comprehensively capturing the interaction between behavioral and cognitive risk factors could yield results with more potential for application. Other areas for potential investigation regarding this subject could possible address correlations between specific behavioral characteristics, and the development of specific types of drug abuse.

There are various forms of ADHD that take into effect the severity of the symptoms, as well as the age that the symptoms first manifest. Based on the suspicion of a relationship between the type of ADHD and the rate and type of substance abuse, a study was conducted by Kevin Antshel, PhD. and some of his colleagues to determine the validity of this assertion. The study sought to indicate substance abuse patterns in the ADHD sub-populations of full ADHD, late-onset ADHD, and sub-threshold ADHD. Investigation into specific substances preferred by the aforementioned subpopulations of ADHD and the reasons why, as provided by the self-report of the participant, was also
Conducted (Antshel, et. al., 2007). Defining the purpose behind this study required identifying the motivation for the substance abuse. Addressing the issue of substance abuse can be complicated in a clinical setting; often the reasons for the abuse itself can be unclear. This research attempted to find parallels in the behavioral and cognitive processes and behaviors of individuals with substance abuse disorders, and individuals with a diagnosis of ADHD. These parallels could provide insight regarding possible intervention techniques for implementation with individuals struggling with substance abuse.

The results of the study seemed to affirm the assertion that a correlation exists between a diagnosis of ADHD, regardless of the type, and the manifestation of adolescent substance use disorders. The rate of tobacco, alcohol, and marijuana usage increased greatly with all forms of ADHD; substance specific rates did not vary significantly. The importance of this finding resonated deeper than specific substances identified; rather the elevated rates of usage seemed to imply a propensity for individuals with behavioral characteristics meeting the criteria of ADHD in some form to engage in risk-taking behavior (under the pretense that substance use is risky behavior). “Although usage rates of other drugs failed to reach significance (in comparison to tobacco, alcohol, and marijuana), individuals with ADHD were more likely to have used each drug compared with the non-ADHD participants” (Antshel, et. al., 2007, p. 24).

Adlerian theory might explain this increased rate of substance use in a number of ways; compensation is one concept that seems to effectively address this propensity of risk-taking behavior in individuals with ADHD. As has been previously discussed, children and adolescents with ADHD often experience great difficulty in effectively
establishing healthy peer relationships and navigating classroom experiences. To compensate for failure in these circumstances, the individual may resort risky behaviors not attempted by the majority or mainstream social circles as a way to find success in a different arena. “Inferiority, which appears in childhood, attempts to escape its unmasking in the construction of a compensatory psychological superstructure aimed at regaining stability and superiority with trained readiness and safeguards” (Ansbacher & Ansbacher, 1956, p. 244). The child or adolescent with ADHD likely feels very discouraged as a result of the difficulties and perceived failures. Activities and their constituent behaviors in which mainstream peer groups engage may be difficult for these individuals. Risk taking behaviors, such as substance use, are an easier route by which these individuals can find success for the simple fact that there are not as many peers involved. Despite the self-destructive nature of the behavior, these successes, relatively speaking, are encouraging for the child or adolescent with ADHD.

Implications for substance use resultant of ADHD from a general perspective were also investigated in this study. Around 400 individuals between the ages of 18 and 55 took a survey regarding their behaviors related to substance use. Of the 400 individuals used, subcategories were defined. The subcategories were comprised of participants ranging from those meeting full diagnostic criteria for ADHD to those who did not meet the diagnostic criteria for ADHD of any form. It was asserted, “Because substance abuse disorders often appear in adolescence and young adulthood, the apparent onset of ADHD might reflect the onset of substance use disorders. Likewise, symptoms might reflect risk factors for substance use disorders in individuals with ADHD”
Participants commonly identified “wanting to get high” as the primary motivating factor contributing to their substance use (Antshel, et. al., 2007).

This study was effective in illustrating a correlation between the manifestation of substance use disorders in individuals satisfying the diagnostic criteria for ADHD of some form. The study was limited, however, in its use of participants only between the ages of 18 and 55. While the scope of study was to investigate implications of late onset ADHD, not using participants under the age of 18 prevented the researchers from observing the behavioral characteristics of children with ADHD. While individuals under the age of 18 may not have been able to complete the substance use survey in a satisfactory manner, their omission nonetheless affected the overall comprehensiveness of the results. The inclusion of a wider range of participant ages might be a possibility for future research.

The assertion of this literature review is to validate the relationship between a diagnosis of ADHD, particularly in children, and the later manifestation of adolescent substance use disorders. The intention of this claim or hypothesis is to provide foresight into the behavioral patterns in children with ADHD as a preventative measure for their implications for future substance use issues. If direct correlations can be found between early diagnoses of ADHD and later substance abuse, preventative measures can be taken to ensure that children with greater potential for substance abuse receive effective interventions aimed at stopping the development of these alleged propensities. A study conducted by Russell Barkley and several of his colleagues sought to provide validation to proposed correlation between ADHD and adolescent substance use disorders. The study consisted of 147 participants with a mean age of 20-21 years. The study being
ADHD and SUD

The results of the study found several key pieces of information providing validity to their claim of increased risk for adolescent and young adult drug use/abuse when a diagnosis of ADHD is present beginning in childhood. From a behavioral perspective, the participants in the study had previously engaged in a variety of antisocial acts and other legal and drug related infractions. Ultimately, a greater prevalence of antisocial behavior, more specifically substance abuse, was found in the participants in the study with a diagnosis of ADHD in childhood as compared to figures measuring the prevalence of these behaviors in the same age range from a broader social perspective (Barkley, et al., 2004). These results can be attributed to a variety of factors, none of which are objectively evaluated within the confines of this study. Specifically, participants with severe adolescent ADHD were found to have significantly higher rates of usage for nearly all substances.

Some attempt has been made to relate this correlation to increased desire for risk-taking behavior; however it seems a more accurate assessment of the results to attribute this increased prevalence of delinquent type behavior, substance abuse in this case, to a decrease in inhibitions, rather than an increase in desire for risks. “Here is an individual who is striving incessantly from the sphere of insecurity and the feeling of inferiority towards a godlike dominance over his/her environment, is struggling for his/her significance, is attempting to force it” (Ansbacher & Ansbacher, 1956, p. 244).
Rather than simply looking for thrills by engaging in risk taking behaviors, these individuals may be looking for the significance that they do not experience in life within mainstream social parameters. It could be asserted that with risk-taking behavior comes an increase in the production of adrenaline. Similar to the effect of stimulant treatment on individuals with ADHD, adrenaline in this circumstance may elicit a similar effect. While this claim may have some merit, it is not addressed in this study; it remains a possibility for future research pursuits.

When examining the purported connection between childhood ADHD and the manifestation adolescent substance use disorders, identifying the motivation for the use can be a crucial piece in determining why this connection exists. Previous studies have come to various conclusions linking various behavioral traits often indicative of an ADHD diagnosis to the abuse of substances in the same individuals; understanding the reasoning or motivation behind the use is then the next step in determining how to decrease the prevalence of this anomaly. This might also prompt insight into possibilities for treatment development, wherein educational interventions may be refined to better address the connection between the two disorders.

In a study conducted by Joel Adamson and several of his colleagues, researchers sought to identify the cause or motivation for substance abuse in adolescents with a diagnosis of ADHD in childhood. The primary focus of this study was to test the hypothesis that individuals with ADHD beginning in childhood use and abuse substances as a way to self-medicate their symptoms indicative of the ADHD diagnostic label (Adamson, et.al., 2007). This problem is of particular significance because of the long-term ramifications of substance use. Resources to treat problematic symptoms with the
potential for enhancing quality of life in individuals with ADHD are repeatedly overlooked by individuals who rather opt for substance abuse as a kind of instant gratification in regard to relief of the symptoms. “Over the past decade, studies have demonstrated important relationships between Attention-Deficit Hyperactivity Disorder (ADHD) and substance use disorders (SUD). Independent reviews have highlighted converging evidence indicating that the overlap between SUD and ADHD is larger than is expected just by chance” (Adamson, et. al., 2007, p. 14). This study was comprised of around 180 participants, half of which were individuals with a diagnosis of ADHD, and half without a diagnosis of ADHD, serving as the control. The method used was a survey administered to obtain a self-report from each participant exploring their personal views on substance abuse, specifically their preferences if they have any, as well as their motivation for, or reasoning behind their usage (Adamson, et. al., 2007).

This study had several strengths that helped to provide validity to their results. Many of the participants with ADHD reported significantly higher rates of delinquent behaviors, academic failure, and family discord. Self-regulation problems regarding behaviors, as well as substance use itself were also frequently cited in lifestyle descriptions of participants with an ADHD diagnosis. Consequent of these behavioral characteristics were issues related to poor self-esteem, often associated with academic failure and consequences of delinquent behaviors. In Adlerian terms, these individuals had become discouraged. “By the nature of their intra-psychic stress and behavioral disinhibition, these youth may try to modulate their states with substances” (Adamson, et. al., 2007, p. 16). As compared to the findings of the study all inclusively, where roughly 30% of participants reported using substances simply to “get high”, participants with a
diagnosis of ADHD beginning in childhood consistently cited personal struggles and discord related to behavioral patterns indicative of their diagnosis as part of their motivation to use; rather than getting high, these participants wanted to just feel different. The substance use, in essence, gave them the courage to engage socially. Previous failures had discouraged them. Under the influence of a substance, the behavioral characteristics previously impeding their social interactions were masked. Substance use consequently became a method by which they could empower themselves with the courage to attempt things that before had promised significant struggles or failure.

In this study, a significant number of the participants cited a desire to “get high” as their primary motivation for substance use. This desire to get high could be a veiled way of describing their self-medication of the symptoms through the use of substances. The symptoms are seemingly out of their control, and consequently become pervasive in their daily functioning both academically, as well as socially. According to Adlerian theory, individuals are constantly adapting to the environment in which they reside. It is the individual who controls how, when, and why this happens. Substance use, in this sense, becomes their way of adapting to the world in which they must live with their ADHD symptoms. To complicate matters, their adaptive struggle is often shrouded in feelings of inferiority and discouragement. These individuals often struggle with many of the same activities in which their classmates do not. Life becomes increasingly difficult; beginning with the early, childhood manifestation of the symptoms, continuing into the formative and extremely vulnerable years of adolescence. In order to adapt to this, substance use can be a convenient way for these individuals to adapt to a life that becomes difficult to traverse. The discouraged child adapts to their symptoms and the
challenges of life by masking the symptoms causing them their social and academic struggles with substances that decrease the experienced symptom intensity.

The original assertion of this literature review was that a correlation exists between the diagnosis of ADHD in childhood, and the later development substance abuse in the same individual, most often first appearing in adolescence. Adlerian theory provides not only explanation for the connection, but also insight into possibilities for interventions and treatment strategies consequent of increased and comprehensive understanding the problem and its contributing factors.

Some researchers suggest that the relationship between childhood ADHD and adolescent substance use disorders is merely an overlap in behavioral characteristics that increase an individual’s vulnerability to substance use issues. A study conducted by Robert Clayton and his associates looked at an alternate explanation to the understanding of the relationship between ADHD and substance use disorders. Their hypothesis was that the characteristics of ADHD and conduct disorder (CD) interact to produce substance abuse problems (Clayton, et. al., 2003).

The authors of this study indicated that ADHD and CD have been found to occur together 30%-50% of the time. Upon examination of the respective characteristics of each of the aforementioned disorders, ADHD and CD, the authors concluded that taking into account the behavioral overlap of the characteristics statistically speaking, there was no significant relation between ADHD and substance use disorders. Instead, the significant relation or correlation that does exist is between conduct disorder and substance use disorders. “The original study consisted of 1,107 participants who were part of a 10-12 year longitudinal examination of the etiological pathways to substance use
and psychopathology” (Clayton, et. al., 2003, p. 155). Children were assessed by means of written questionnaires administered to them prior to the beginning of sixth grade. Of the original participants, 481 participated in the follow-up assessment, administered when the participants were around 20 years old. The results demonstrated that adult participants who experienced symptoms of conduct disorder in childhood experienced significantly more issues related to substance abuse and dependence in adolescence than participants who experienced symptoms of ADHD by itself in childhood (Clayton, et. al., 2003).

Some explanation could be attempted explaining this correlation between conduct disorder and substance abuse. Drug use rates may reflect the poor impulse control often associated with conduct disorder. However, this hypothesis was not examined in this study, and may be a possibility for further research regarding specific behavioral symptoms, and the significance of their role in the manifestation of substance abuse problems. This study did not affirm the overall assertion suggested by this literature review. The assertion made was a connection between a diagnosis of ADHD in childhood and the later manifestation of adolescent substance use disorders. This study suggested that any correlation connecting the two could be almost fully attributed to the presence of a conduct disorder, which tends to co-occur with ADHD in between 30%-50% of people with ADHD. The study shows validity in its estimation of the independent effects of ADHD and CD (Clayton, et. al., 2003). The study does not, however, allow for the examination of the interactive effects that may be the product of the ADHD and CD occurring together. While individual characteristics of CD may fit congruently with the behavioral characteristics indicative of substance use, given the high
rate of co-occurrence of ADHD and CD, the overall strong correlation may be behaviors that are the product of this common co-occurrence.

The primary symptoms of indicative of an ADHD diagnosis are inattention, impulsivity, and hyperactivity. These symptoms can present challenges to the person experiencing them in variety of ways, ranging from poor social development, to difficult maintaining focus in an academic setting. The problem behavioral characteristics often indicative of the ADHD diagnosis are of growing concern pertaining to the development of substance use disorders in adolescents. Researchers are continually investigating the possible connection between these two issues. Past research seems to indicate that clinically significant levels of ADHD and its constituent symptoms interfere with academic and social functioning; this interference may ultimately result in significant adjustment problems later in life (Marshall, et. al., 2008). Research conducted by Michael Marshall and his associates sought to answer this question; do the possible adverse behavioral outcomes for children with ADHD predispose them to the early use of substances; and if they do, why?

The research conducted by Marshall and his colleagues consisted of 142 adolescents with childhood ADHD, and 100 demographically similar adolescents without childhood ADHD. Two assessments were conducted in this longitudinal study. The participants were between the ages of 5 and 17 at the time of their original assessment. An average of 6 years elapsed between the original assessment, and the follow-up assessment. The assessment procedure itself consisted of an interview followed by a written survey. Of the participants in the original assessment, around 60% participated in the follow-up (Marshall, et. al., 2008). The study concluded that adolescents with
childhood ADHD were more likely to report affiliation to deviant peer groups. Secondly, participants reported that this affiliation was attributed to peer deviant groups’ mediation acceptance of, or lack of stigmatization, of the behavior and cognitive symptoms of the ADHD diagnosis, as well conduct disorder when it was present. One final conclusion was a strong connection between the behavior modeled in deviant peer groups, and the manifestation of substance use (Marshall, et. al., 2008).

“Although there is controversy surrounding the magnitude and cause of the effect, children who are clinic referred for ADHD appear to be at risk for early substance use” (Marshall, et. al., 2008, p. 295). Several studies cited within the research itself illustrated more substance use disorders in males during late adolescence that experienced childhood hyperactivity (a characteristic symptom of ADHD) than in boys without childhood hyperactivity. Strong associations were also found relating adolescents engaging in substance use with a history of ADHD with the development of conduct disorder and related problems. Despite strong correlations in the statistical data, a conclusive explanation for the cause of these correlations have not yet been found. The primary focus of the research by Marshall and his associates examined the peer environment of adolescents engaging in substance use with a history of ADHD symptoms. “Affiliation with peers who also engage in, or tolerate, substance use and other deviant behaviors should be an influential risk factor, because it has been linked empirically and theoretically with both adolescent substance use and abuse” (Marshall, et. al., 2008, p. 297).

One possible explanation for this risk factor related to peer associations relates to the deficits in social functioning often experienced by individuals with ADHD. Children
with ADHD often experience difficulty in establishing and maintaining healthy peer relationships. Failure in mainstream social circles often results of this. Consequently, these children often gravitate toward non-conventional peer groups. These non-conventional peer groups tend to have higher rates of substance use, or decreased stigma associated with substance use itself. Children with ADHD are often characterized by information-processing deficits, impulse sensation seeking behaviors, as well as difficulty with emotional processing (Marshall, et. al., 2008). These social impairments are likely to decrease the quality of the relationships these children experience with those who do not have a diagnosis of ADHD, facilitating their gravitation toward others with similar experiences and behavioral patterns. Furthermore, these social impairments decrease their ability to effectively process the risks inherent in behavior such as substance use.

Studies have consistently illustrated a tendency in children with ADHD to befriend other children who share in the diagnosis (Marshall, et. al., 2008). “Because children with ADHD are more likely to affiliate with deviant peers than children without ADHD, and because deviant peer affiliation is one of the strongest risk factors for adolescent substance use, children with ADHD may be at the highest risk for substance abuse” (Marshall, et. al., 2008, p. 298).

Social rejection and negative feedback regarding behavior experienced in individuals with ADHD is another possible explanation for the relationship between childhood ADHD and the manifestation of adolescent substance use disorders. Individuals with experiences such as these consequently relate with deviant peer groups who embrace the impulsive behavioral patterns often indicative of an ADHD diagnosis.
The manifestation of substance use is then an extension of this deviant peer group affiliation (Marshall, et. al., 2008).

Adlerian theory follows a similar line of reasoning when applied to the connection between a diagnosis of ADHD in childhood and the later manifestation of adolescent substance use disorders; providing a workable approach to explaining the cause and effect relationship of the two disorders. “The constitutional inferiority and similarly effective childhood situations give rise to a feeling of inferiority which demands a compensation in the sense of an enhancement of the self-esteem. This fictional final purpose, itself originating in the safeguarding tendency, organizes psychological readiness for the purpose of [further] safeguarding. Among these the neurotic character and the functional neurosis stand out as prominent devices” (Ansbacher & Ansbacher, 1956, p. 111). Difficulty in establishing and maintaining healthy peer relationships often disposes children with ADHD to deviant peer group affiliation, often carrying over into adolescence. This can be discouraging to these individuals who already struggle with so many aspects of their daily functioning. An encouraged individual may persevere through challenges, however a discouraged individual lacks the courage to attempt that which they see as challenge; a child with ADHD has likely met disappointment and failure when faced with challenges. To safeguard themselves from future disappointment and failure, deviant peer group affiliation takes the pressure off to integrate into mainstream social circles. Rather, they find safety in social circles out of the mainstream. Unfortunately, it is these deviant peer groups where substance use is most prevalent.

Researchers provided a locus of control in reference to the populations sampled. The method by which they collected the data seemed to be objective, which is of
particular significance when taking into account the subjectivity inherent in data collected by self-report and surveys. By choosing participants both with and without childhood ADHD all from similar demographics, they ensure that specific characteristic eliciting the trend can be identified. By doing this, however, two things are possible which may deter from the validity of the study. If they simply decrease the complexity of the analysis by avoiding cross-demographic comparison with the intention of forming broad conclusions, consequently the study will have been effective. Another perspective could be that they are not forming truly sound, all encompassing conclusions considering the researchers limit themselves to one demographic, rather than taking into account varying demographics, and their inevitable variation of cultures, socio-economic status, and other geographic specific characteristics.

The majority of the focus in this literature review up to this point has examined connection between childhood ADHD and the later manifestation substance use by attempting explanation for the connection based on Adlerian theory and principles. The results of the study conducted by Marshall and his colleagues seem to affirm the hypothesis asserted by this literature review; the presence of ADHD in childhood may increase the risk of the manifestation of adolescent substance use disorders. One prevailing explanation for this increased risk of substance use disorders drew upon Adlerian theory; focusing on the idea that inferiority feelings consequent of failure in mainstream peer affiliation as well as academic struggles lead to discouragement and deviant peer group affiliation.

The preface of this examination pertained to the significance of this connection, and the possible long-term ramifications for children whose elicitation of warning signs
for later substance abuse is overlooked. Explanation for the connection helps by not only increasing our understanding of the issues and the nature of their relationship, but also by providing insight for possible intervention techniques.

The academic structure on our society is overloaded with problems that need to be addressed, from funding cuts, to dropout rates. To address issues before they become problematic could help decrease the magnitude of these social problems on a much broader scale. The behavioral problems of individuals with ADHD extend beyond substance abuse itself. Given the nature of the substance abuse, and the lifestyles often indicative of it; the consequences of such cognitive and behavioral patterns can be far more severe than trouble in school. Rather, incarceration for deviant acts committed resultant of behaviors stemming from ADHD behavioral characteristics, substance abuse, or any combination thereof is becoming increasingly common. Research conducted by Mathew Hiller and his associates looked to assess the rate of comorbidity (meaning the presence of two or more diagnoses concurrently) as it appears in criminal justice substance abuse treatment facilities.

Research conducted by Mathew Hiller and several colleagues examined 161 individuals mandated to four months of treatment at a criminal justice substance abuse treatment facility. The participants were assessed for evidence of psychopathology using the Millon Clinical Multiaxial Inventory – II (Hiller, et. al., 1996). “Overall, 80% of the sample was classified as having psychological problems, 72% had significant drug abuse problems, and 58% had concurrent psychopathology and drug abuse problems” (Hiller, et. al., 1996, p. 181). Comparisons between participants in the study yield results indicating more pre-admission illegal activity, and more social impairments in those
participants who experienced psychopathology in some form concurrently with substance abuse issues.

These figures are significant for several reasons. They seem to affirm the assertion that individuals with ADHD seem to have a desire for impulse-sensation seeking behaviors such as deviant behaviors indicated by research cited earlier in this review conducted by Marshall and his colleagues. Furthermore, the results confirm the need for an increase in comprehensive treatment for individuals demonstrating early warning signs for later manifestation of adolescent substance use disorders. “Of 710,000 inmates reported to be in the United States in 1992, 79% had used illicit drugs at some point in their life, 50% had used them in the month before, and 57% of new inmates were under the influence of drugs at the time of their arrest” (Hiller, et. al., 1996, p. 182). These figures illuminate the consequences for untreated behavioral characteristics left unaddressed. While the generalization cannot be made that all individuals with ADHD will become drug addicted criminals, no harm is done by addressing documented warning signs before they become more than warning signs, and reality instead.

From an Adlerian perspective, the concept of private logic explains this behavioral relationship between ADHD and deviant behavior. Private logic is a concept that explains our behavior in terms of our interactions in society and our subjective interpretation of, and reaction to them. Individuals form their judgments about the world, and their perceived place in it based on a combination of their life experiences and their reaction to them. Ideally, the private logic formed and reality is congruent. However, when dissonance exists, the individual will likely act accordingly with their private logic, despite the reality of the environment in which they reside; particularly, a discouraged
individual will form private logic that illustrates behaviorally their feelings of discouragement. “When any of the individuals’ unconscious beliefs, ideas, goals or intentions are at variance with the demands of social interest, then that individual will operate on the basis of his private logic despite the consensual position (of society)” (Oberst & Stewart, 2003, p. 25). In the case of the study conducted by Hiller and his associates, Adlerian theory proposes that the individual with ADHD feels inferior consequent of their difficulty in maintaining healthy social relationships and academic focus. These same individuals may find that the relative successes associated with deviant behavior are more easily attained. Consequently, their private logic becomes the product of their discouragement; they abandon aspirations for the useful side of life, and retreat to the useless.

A significant amount of research has been reviewed and evaluated regarding the connection between childhood ADHD and the later manifestation of adolescent substance use disorders. The consensus among much of the work seems indicate that certain behavioral characteristics in ADHD are potential risk factors in regard to increasing the odds of thrill or impulse seeking behavior, more specifically substance use and abuse. Motivation for this desire varies, however the Adlerian concept of discouragement seems to mesh with the desire for thrill seeking behavior. Failure in mainstream social circles and their constituent activities often seem to relegate these individuals to activities from which the social mainstream often stray. Previous research conducted by Mathew Hiller and colleagues attributed a familiarity with, and consequent association with deviant social groups functioning outside of the mainstream as a contributing cause for this relationship. Adlerian theory affirms this assertion regarding deviant peer group
affiliation, adding another level to the analysis by explaining the reason for the motivation for this tendency. This tendency to shy away from the mainstream can sometimes lead to deviant behaviors such as substance abuse, particularly in discouraged individuals who may be striving for significance that they often struggle with in mainstream social systems which often present them with great difficulty (Hiller, et. al., 1996). Many researchers estimate the comorbidity of individuals experiencing both ADHD behavioral characteristics and substance use to be as high as 30% - 50%. These figures are significant in illustrating the connections between the two conditions, as well as influencing the interventions by which they may be addressed.

Despite the research that has been conducted to identify the problem, treatment strategies to effectively address the comorbidity problem have not yet been developed. The first step in this process is to examine the success rates of the interventions currently implemented to address these issues. By examining the effect the two separate issues, ADHD and adolescent substance use disorders, have on one another, insight into effective treatment strategies can be developed to exhaustively address all issues associated with the substance use, the ADHD behavioral characteristics, and any products of the combination of the two (Ernst, et. al., 2004).

Several key models attempt to explain plausible relationships between ADHD and adolescent substance abuse. These models were evaluated through the assessment of 220 adolescent participants based on their completion of a Personal Experience Inventory, as well as information gathered during their participation in a 12-step program. A six-month follow-up study was also conducted on the original participants; of the original participants, roughly 77% participated (Ernst, et. al., 2004). Relapse rates were
of particular significance in the study conducted by Jenna Ernst and her colleagues. By examining the role of ADHD comorbidity in relapse among adolescents undergoing treatment, effective strategies accounting for the purported relationship could be developed.

In the first model examining the relationship between ADHD and substance abuse, ADHD status itself is viewed as a relapse risk factor among recovering youth, independent of other treatment related predictors with association with ADHD (Ernst, et al., 2004). This first model cites an urge to self-medicate in individuals with ADHD, predisposing them to substance use disorders. The motivation for this self-medication is a sort of coping strategy used in reference to distress as a result of chronic school failure, low self-esteem, conflict with peers and parents, and other diagnostic symptoms commonly associated with an ADHD. Previous research had indicated that self-medicating was often associated with earlier onset of substance abuse and greater substance abuse problems (Ernst, et. al., 2004).

A second model posits that ADHD indirectly contributes to post-treatment relapse among adolescents recovering from substance use disorders. An example illustrating this hypothesis are the “unique behavioral challenges often presenting by individuals with ADHD in a clinical treatment setting, often resulting in lack of engagement with peers, shorter treatment stays, and lower rates of treatment completion and aftercare participation” (Ernst, et. al., 2004, p. 3). Behavioral characteristics indicative of the ADHD diagnosis functionally disrupt the effectiveness of substance abuse treatment, consequently increasing the risk of relapse in the individuals whose behavioral characteristics are limited the impact of the treatment itself. A third model presented in
this research hypothesized that conduct-disordered behavior; often occurring concurrently with ADHD contributes to relapse rates in individuals. The assertion with this model is such that childhood ADHD and later substance abuse are more accurately attributed to conduct-disordered behavior (Ernst, et. al., 2004).

The research conducted by Ernst and her colleagues focused primarily on evaluating the relationship between ADHD status and post treatment relapse rates. The study attempted this examination of relapse occurring independent of demographics; conduct disordered behavior, and substance abuse frequency before admission to treatment. The results of the study supported more than one of the proposed models regarding the relationship between ADHD status and heightened risk for relapse. Significant among the findings was the variation in potential risk between specific substances; particularly alcohol and marijuana, which elicited the highest rates of post-treatment relapse.

The overall conclusion reached was that relapse rates in adolescents are more likely influenced by, and attributed to the presence of a co-occurring conduct disturbance as well as ADHD, rather than ADHD by itself. One possible explanation for this anomaly are the behavioral patterns resultant of the co-occurring disorders that often place such individuals in risky situations where substance use and abuse is present. It is during these risky situations that individuals with impairments in impulse control, paired with a greater than average need for social acceptance consequent of co-occurring ADHD and conduct disordered behavior are of particular vulnerability for use in the first place, and higher rates of relapse following treatment (Ernst, et. al., 2004).
The research discussed here seems to affirm the original assertion of this literature review. Results presented indicated higher rates of substance use in individuals with childhood ADHD. Results also indicated an increased risk of relapse following treatment in individuals with ADHD. The original assertion of a connection between childhood ADHD and later adolescent substance use is congruent with these findings. The research conducted by Ernst and her colleagues, however, demonstrated weakness by means of its sample population. First of all, the study was not longitudinal, assessing the participants well after their first substance use experience. The time lapsed between the initial usage period, and the assessment decreases the validity in several ways. First, capturing their motivations for use after treatment will differ greatly from the original motivation for use, as the client has now spent considerably more time using. Furthermore, by using individuals only in a formalized treatment setting, their results could vary from individuals with ADHD who also use substances and are not engaged in some kind of substance use treatment. Basically, their sampled population seems a bit limited.

Adlerian theory seeks to explain behavior in terms of our interpretation, and consequent reaction to external stimuli and influences. On a basic level, Adlerian theory emphasizes that anything can be different; simply because a child struggles socially or academically does not automatically relegate them to a mental health diagnosis or the development of a substance use disorders. Rather, the latter may be coping mechanisms of sorts with which the child or adolescent deals with their perception of themselves in relation to their environment. Substance use in adolescents with a history of an ADHD diagnosis may be a way to self-medicate the symptoms of the diagnosis. The self-medication motivation for substance use could also simply be a way for them to deal with
the pressure they feel to succeed, coupled with a perceived inability to do it; self-
medication seems to encourage them when they are otherwise discouraged by perceived
academic and social failure. In relation to relapse rates, this Adlerian discussion lends
possible explanation by calling to review the effectiveness of the current intervention
strategies.

Despite time in treatment, individuals with ADHD demonstrated significantly
higher rates of relapse. It could be inferred that the present treatment methods do not
adequately address the ADHD symptoms experienced by the individual. If the individual
does not learn effective strategies for symptom management, the symptoms will not go
away. Consequently, the presence of symptoms will inevitably lead to more self-
medication. Substance abuse treatment should include an assessment piece to determine
how much of the substance use itself can be attributed to a desire to self-medicate ADHD
symptoms. Addressing the substance use alone does not adequately address the
motivation for the use; and as the study conducted by Ernst and her colleagues indicated,
the potential for relapse remains of great concern.

Throughout this literature review, a wide variety of research has been analyzed
with the intention of providing support for a connection between the presence of ADHD
in childhood, and the later manifestation of substance use. Up to this point, the majority
of the research has focus on behavioral characteristics often indicative of a diagnosis of
ADHD, and how those characteristics might dispose individuals experiencing them to
substance use. Adlerian theory has been incorporated to add another dimension to the
understanding of this connection between the two diagnoses by looking at contributing
factors for the use, and possibilities for identifying emotional experiences associated with
it. Impulse seeking behavior often leads to substance use in individuals with ADHD. Social rejection and an inability to connect with the mainstream social environment may also lead to substance abuse; as individuals experiencing it may tend to self-medicate with substances as a coping strategy. Furthermore, the aforementioned social rejection often facilitates association with deviant peer groups, who may provide the ever-important sense of belonging these individuals seek. The consequence of association in deviant peer groups is often affiliation with individuals who are more apt to substance use and abuse. These conclusions all seem to support the original assertion of a connection between ADHD and substance abuse. One aspect, however, that has not yet been addressed in this literature review is the role of the psycho stimulant treatment for the ADHD itself on the later manifestation of the substance abuse. In research conducted by William Barbaresi and his colleagues, they sought to investigate the association between such treatments and the risk for later substance use and abuse (Barbaresi, et. al., 2005).

Stimulant treatment has long been popular for ADHD symptom management. Many of the behavioral characteristics indicative of an ADHD diagnosis can be effectively managed using pharmaceuticals of the stimulant classification. Stimulants tend to have a reverse effect on an individual given the presence of the ADHD diagnosis, consequently decreasing the inattentiveness and hyperactivity. Little research has been conducted, however, regarding the long-term effect of these stimulant treatments; particularly in reference to the potential risk for substance abuse among young adults engaging in the stimulant treatment. The aim of the research conducted by Barbaresi and his colleagues was to evaluate the association between stimulant treatment and the risk for substance abuse in adolescents. The subjects for this research consisted of 295
ADHD and SUD

individuals with ADHD who had been treated with psycho stimulant medication, and 84 individuals with ADHD who had not been treated with psycho stimulants. The research was longitudinal; the time between assessments averaged around 17 years. Medical and school records were reviewed regarding each subject, noting any documented issues experienced by the individual related to substance abuse and psycho stimulant treatment (Barbaresi, et. al., 2005). Based on the gathered information, the data was then analyzed in an effort to determine any significant associations.

The authors importantly noted a weakness in the data regarding the ability of their measurable results to accurately demonstrate cause and effect in reference to psycho stimulant treatment for ADHD and later substance abuse (Barbaresi, et. al., 2005). Despite this weakness in the data analysis, there was a feasible conclusion reached. “Findings indicate that psycho stimulant treatment of childhood ADHD is associated with reduced risk for later substance abuse among boys with ADHD” (Barbaresi, et. al., 2005, p. 774). Therefore, psycho stimulant treatment, in this research, seemed to have potential as a solution, rather than a contributing cause to adolescent substance abuse. These findings are significant for several reasons. First of all, in relation to the assertion presented in this literature review, it might be interpreted that without the presence of psycho stimulant treatment, untreated ADHD may be a risk factor for later substance abuse tendencies. It should be noted, however, that the previous hypothesis was not tested, and therefore is not conclusive; however it may be an avenue for future research.

The results of this research are significant in that they may help provide the framework for possible, effective interventions to decrease the risk for substance abuse in individuals who may otherwise be at risk. One last notable weakness in this research was
the fact that the associations they made could also be attributed to other factors for which there were no controls. Regardless, they affirm the original assertion of the literature, as well as provide further validity for previous research conducted that found correlations between the behavior patterns of individuals with ADHD that may be potential risk factors for substance abuse. Identifying effective treatments for the behaviors could decrease the risk associated with those same behaviors.

As has been reported by a variety of literature reviewed thus far, substance use disorders are seen more often in individuals with a history of a ADHD diagnosis than in the rest of the population. ADHD is becoming increasingly prevalent in children, often documented well into adolescence. Stimulant medication has become a popular treatment, demonstrating unparalleled success in managing ADHD symptoms (Barbaresi, et. al., 2005). And although many stimulant medication have the potential for abuse, studies have shown that adolescents prescribed medical therapies such as stimulant treatment for ADHD have lower rates of substance abuse disorders than those who are not treated with stimulants (Barbaresi, et. al., 2005). Despite the mounting evidence, a debate exists regarding the methodology for treating co-occurring ADHD and substance use disorder. It is particularly difficult to differentiate ADHD when substance use disorders are present. This leads to concern given the fact that the growing prevalence of stimulant based treatment leads inevitably to an increased risk for stimulant use in individuals with substance use disorders who may not wholly benefit from them.

"Studies show that 20-30% of adults presenting with substance use disorders have ADHD and approximately 20-40% of adults with ADHD have histories of substance use
disorders” (Schubiner, 2005, p. 644). Careful diagnostic interviews must be conducted to
effectively determine if all individuals have either or both of these disorders prior to the
onset of treatment. The prevailing argument asserts that until a period of sobriety is
achieved in individuals with both ADHD and substance use disorder, specific ADHD
treatment is effective. An argument with this is that many individuals with comorbid
ADHD and substance use disorders ultimately experience higher levels of substance
abuse and will often relapse before ADHD treatment ever begins; ultimately these
patients are never comprehensively treated. In these circumstances, it is argued that
ADHD is best treated with the use of stimulant treatment to best address the symptoms,
using behavioral interventions concurrently to address the substance use disorder. New
nonstimulant medication has also been developed to address concerns regarding risks
associated with stimulant treatment and its own potential for addiction, in individuals
with a history of substance use disorder (Schubiner, 2005).

Individuals with both ADHD and substance use disorders provide unique
challenges to diagnostics and therapeutic intervention strategies. The most effective
treatment program is a combination of medical and behavioral therapies, coupled with
close supervision between client and counselor (Schubiner, 2005). Although client
specific behavioral characteristics should be carefully investigated, newer medical
treatments are most effectively used for clients with ADHD and substance use disorders.
Given the difficulty in differentiating the two diagnoses, no treatment should be
attempted until careful client history is collected and interpreted in an effort to determine
the most effective way to treat the individual. Ultimately, one conclusion in this research
prevailed; citing the termination of substance use as, while not a firm prerequisite, an
important first step in the treatment process. The longer a patient is in remission from substance use prior to starting treatment for ADHD, the greater the odds for long-term remission from substance use and abuse (Schubiner, 2005).

In a previously reviewed study conducted by Michael Marshall, Brooke Molina and a colleague, an assertion was made regarding the influence of deviant peer affiliation on the manifestation of substance use disorders in individuals, particularly adolescents, who have ADHD. Citing failure in mainstream social groups, substance abuse seems to be a consequence of this deviant peer affiliation (Marshall, et. al., 2008). The assertion is that the stigma often attached to substance use and abuse is less in peer social groups outside of the mainstream. Affiliation with these deviant peer groups; coupled with deficits in impulse control indicative of the ADHD diagnosis itself, seem elicit overall circumstances conducive to the manifestation of adolescent substance use disorders.

In a follow-up study, Michael Marshall and Brooke Molina evaluated the interrelationship of ADHD symptom severity and deviant peer group affiliation. One final variable incorporated into the research was the role of conduct disordered behavioral characteristics as another potential risk factor in the manifestation of adolescent substance abuse disorders (Marshall & Molina, 2006).

Research conducted by Marshall and Molina used a population of 142 adolescents with a diagnosis of ADHD in childhood. The participants were between the ages of 5 and 12 when first assessed using an interview method. The follow-up interview took place when participants were between the ages of 13 and 17. The average amount of time that lapsed between the two assessments was 5.6 years. As had been reported in previous research, childhood ADHD symptom severity predicted both the manifestation
of adolescent substance use disorders and the severity or magnitude of the substance use itself (Marshall & Molina, 2006). Results of the follow-up study also seemed to provide validation for the original assertion regarding the role of social relationships and deviant peer association in the manifestation of adolescent substance use. The study reported that difficulty in social relationships was ultimately mediated by behavioral characteristics indicative of a childhood diagnosis of ADHD. Providing further validation to their previous assertions, Marshall and Molina also concluded, "deviant peer affiliation mediated the relation between childhood ADHD diagnosis and adolescent substance abuse" (Marshall & Molina, 2006, p. 223).

Overall, the conclusions reached in the study conducted by Marshall and Molina identified several risk factors for adolescent use and abuse. By identifying and documenting risk factors, parents, educators and counselors have a plan of action by which they can address the potential for substance use and abuse issues before they become problematic. ADHD can be treated independently; however when substance use issues exist concurrently, addressing the problem becomes significantly more complicated.

The majority of literature reviewed has maintained a focus on validating the claim that a propensity exists in individuals with childhood ADHD for the later manifestation of adolescent substance use disorders. Results have repeatedly validated the claim of a connection between the two issues. Adlerian theory has provided explanation for this relationship between the two diagnoses by providing insight into the motivations for use, and integral pieces in their development. Previously reviewed research has attempted to determine the most effective modality to treat the two issues, ADHD and substance
abuse, in the context of their comorbidity. Focus has been devoted in much of the literature to determining the effect that childhood behavioral characteristics have on the individual as they grow older; results seem to show that, as thought historically, behavioral symptoms of ADHD continue through adolescence, often into adulthood. The results of this research has been revised treatment interventions and strategies by which counselors and therapists attempt to treat substance use disorders and ADHD concurrently, as they often appear. In research conducted by Kathleen Brady and several of her colleagues, the nature of ADHD behavioral symptoms in children as they gradually persist into adolescence was investigated. Researchers also examined the particular substances of choice in individuals with a diagnosis of ADHD in childhood, whose symptoms persisted into adolescence, and ultimately developed substance use disorders (Brady, et. al., 1999).

By examining preferences regarding specific addictive substances; researchers, counselors, and therapists are given insight into trends and patterns in substance use culture. By identifying these trends, methods designed to address specific substances may be implemented. This would eliminate some of the diagnostic and symptom analysis. "To examine the prevalence and subtypes of ADHD in a group of individuals with substance use disorders, 136 inpatients with a substance use disorder were administered a structured interview for ADHD. Of the individuals with substance use disorders, 32% met criteria for ADHD, and 35% of those with a childhood diagnosis of ADHD continued to have clinically significant symptoms into adulthood" (Brady, et. al., 1999, p. 441).
The results of this research indicated there was a particularly high rate of substance use in individuals with childhood ADHD. One hypothesis proposed by the researchers was that stimulant abuse would be significant among participants with ADHD symptoms. The reasoning was that given the effectiveness of stimulant treatment for individuals with ADHD, those same individuals would ultimately abuse stimulants in an effort to self-medicate their symptoms (Brady, et. al., 1999). This hypothesis, however, did not hold up under the scrutiny of statistical significance, and was ultimately ruled out. Resultant of behavioral characteristics indicative of an individual with ADHD, such as impulsivity and poor school performance, it was concluded that those individuals are predisposed for the use substances generally speaking, not stimulants in particular (Brady, et. al., 1999). These findings, while illustrative of some interesting results, are limited by the small sample size from which they were derived. While the overall assertion of the researchers was affirmed, several specific points were not. This could be partially attributable to the small population size, or they may have simply been wrong. Regardless, the potential for benefit in research regarding this topic is great and would be justifiably pursued in the future.

Adolescent substance abuse is a major concern. Much of the literature reviewed so far has highlighted this concern in regard to potential risk factors for the manifestation of substance use disorders in adolescents, namely behavioral characteristics indicative of an ADHD diagnosis. Therapists and counselors are frequently faced with the challenge of treating ADHD and substance use disorders occurring comorbidly. This problem of substance use in adolescents is not specific to the United States, despite the fact that the bulk of the research reviewed here uses samples from the United States. In research
conducted by Oscar Bulestein and several colleagues, a sample of adolescents from a geographical area in the south of Brazil was investigated. The intent of this research was to determine if an association exists between attention-deficit / hyperactivity (ADHD) and substance use disorders, controlling for the association with conduct disorder (Bulestein, et. al., 2007).

A significant amount of research has already been conducted associating conduct disorder with the manifestation of adolescent substance abuse. Bulestein and his colleagues suggested four possible interactions: ADHD may have an independent effect on substance use liability; a detectable effect on ADHD in adolescents engaging in substance use might be mediated by conduct disorder symptoms as comorbidity rates of ADHD and conduct disorder are significant in clinical samples; ADHD may simply co-exist with substance use without causal relation; and finally, individuals with ADHD and substance use disorders might share common genetic vulnerabilities (Bulestein, et. al., 2007). By examining each of these possible interactions, the researchers hoped for a viable conclusion regarding the validity of the association between ADHD and substance use in their sample population.

Bulestein and his associates reached several conclusions as a result of their research on the association between ADHD and substance use disorders. Most pertinent to this literature review, the researchers concluded that an association between ADHD and substance abuse did exist in their population of Brazilian adolescents; an association that was not mediated by the effects of conduct disorder behavioral characteristics. The results were important on a community level because they provided a prevention perspective, considering the wide variety of treatment available for ADHD in
Brazil (Bulestein, et. al., 2007). The results also provided affirmation of the general premise, asserting a relationship between a diagnosis of ADHD in childhood and the later manifestation of adolescent substance use or abuse.

The results reached by Bulestein and his colleagues also provided a more comprehensive validation by testing the general hypothesis of a relationship between childhood diagnoses of ADHD and the manifestation of adolescent substance use disorders on a population dramatically different geographic population; the majority of the research reviewed up to this point sampled populations from the United States. By testing a sample from a different culture that consequently matched the results of the sample from the United States, the conclusions are provided with added validity. The weakness of these conclusions, speaking specifically to the sample from the research conducted by Bulestein, was a difference in age range. Their average participant age was around 18 years of age, while the majority of the other studies tested participants who were several years younger. The age discrepancy, however, seems to detract from the overall quality of the research by a small margin. Previous studies also tended to use subjects with a greater range in age; often within the confines of longitudinal studies. Longitudinal studies also provide greatly increased validity by following the evolving behavioral characteristics through the emotional and physical development of the subject.

The previous study highlighted substance abuse tendencies in adolescent males from Brazil who were diagnosed with ADHD in childhood. A correlation between a childhood diagnosis of ADHD and the manifestation of adolescent substance use or abuse disorders was concluded (Bulestein, et. al., 2007). The significance of this research in relation to this literature review did not, however, affirm the hypothesis of the
researchers. The significance was in the sample population used to affirm this hypothesis, which was congruent with the overall assertion of this literature review. The majority of the research reviewed affirmed the assertion that a childhood diagnosis of ADHD was a potential risk factor for the later manifestation of adolescent substance use disorders. The majority of the research, however, focused on samples of individuals living in the United States. Necessary for a conclusive correlation between childhood ADHD and substance use disorders is further testing on sample populations outside the United States. The research conducted by Bulestein and his colleagues helped affirm this.

In another research project led by Eizo Iselei and several of his colleagues, individuals who experienced childhood diagnoses of ADHD and later developed either stimulant abuse, inhalant abuse, or any combination of the two, were evaluated to determine which substance elicited a greater likelihood for abuse in the participants. The significance of this research in relation to the broad assertion of this literature review goes beyond the testing of the hypothesis itself to include the sample population used. Similar to the previous work by Oscar Bukstein and his colleagues, this study by Eizo Iselei involved Japanese adolescents. Using a sample of Japanese adolescents provides added validation to the broad assertion of the literature review, assuming the hypothesis is found to be correct, by addressing a sample population different from that used in the majority of research up to this point.

In this study, a sample of 54 methamphetamine abusing adolescents and inhalant abusing adolescents, all of whom had histories of childhood ADHD were studied to determine their behavioral tendencies toward the use of stimulants and inhalants (Iseli,
et. al., 2005). This was the first study of its kind, investigating substance abuse habits of individuals with a childhood diagnosis of ADHD in Japanese culture. The researchers provided explanation for the disproportionate sample sizes of stimulant abusers compared to inhalant users; "because inhalants are less likely to cause severe dependence and psychosis than stimulants, and result in only a small proportion of drug abusing inpatients (Iseli, et. al., 2005, p. 103).

The results of the study indicated several things. First of all, over 65% of the participants, both stimulant and inhalant abusers, had scores on the assessment qualifying them for a diagnosis of ADHD; this result seemed to suggest a relationship between substance abuse and childhood ADHD (Iseli, et. al., 2005). This finding was significantly higher than substance abuse rates in adolescents without childhood ADHD. One weakness of the finding, however, came from the researcher's lack of information regarding specific rates of substance abuse in the general, adolescent population. Upon further analysis of the results, the original hypothesis regarding the substance of choice in the participants was found to be incorrect. It seemed that rather than finding higher rates of stimulant abuse in individuals with childhood ADHD, the results indicated higher rates of inhalant abuse (Iseli, et. al., 2005). The reasoning behind their hypothesis was prompted by the use of stimulant therapy as treatment for ADHD. The researchers hypothesized that participants would medicate symptoms of ADHD with stimulants similar to the pharmaceutical treatment frequently administered. Instead, the results indicated that individuals with childhood ADHD self-medicated their hyperactivity symptoms and irritability with inhalants to suppress the symptoms (Iseli, et. al., 2005). The researchers provided validity to their work by citing that their study was only
preliminary, given that it was the first of its kind. Also cited as a weakness in the study was the use of small sample sizes, a lack of parental information regarding evaluation of ADHD, and insufficient life-long background information for both types of users (Iseli, et. al., 2005).

Several research projects conducted by Brooke Molina and William Pelham have been reviewed in this literature review. These researchers have conducted a significant amount of investigation into the relationship among diagnoses of ADHD, the behavioral characteristics that constitute the diagnosis, and their possible relationship with the manifestation of substance use or abuse later in life, typically first occurring in adolescence. ADHD is one of the most commonly diagnosed mental health disorders of childhood, occurring in 3-5% of children. Over the last decade, particular focus has been given to the potential risk in this population of children with ADHD for the later manifestation of adolescent substance use disorders (Molina & Pelham, 2003). While conclusive evidence of a connection between ADHD and substance use has yet to be found, researchers are increasingly providing results that merit the assertion of a connection.

Explanation for this purported connection has been provided courtesy of Adlerian theory. Diagnoses of ADHD are socially inevitable. There are varying degrees of concern regarding its prevalence, and whether or not it is increasing. From a treatment standpoint, not much can be done about this. If in fact, a diagnosis of ADHD and its behavioral and cognitive characteristics present in childhood predisposes that same individual for substance use disorders in adolescence, explanation for this relationship may elicit possibilities for addressing these warning signs before they become more
significant difficulties. According to Adlerian theory, children with ADHD often become discouraged resultant of struggles with academics due to deficits in their ability to focus, as well as difficulty functioning in mainstream social circles. These circumstances often culminate into the formation of private logic that the individual is not adequately equipped to effectively navigate life. They lack the courage to face new challenges because previous attempts often resulted in great difficulty and failure. As these individuals enter into adolescence, often so do their ADHD symptoms. Failure in mainstream social circles often results in gravitation into alternative social circles. The rate of substance use in such groups tends to be higher than in mainstream social circles. This decreased stigma regarding substance use, coupled with a desire to self-medicate their symptoms leaves an adolescent with ADHD at significant risk for the development of substance use disorders. Not only does the substance use serve as a common interest with the peers to whom they most easily associate with, but it also serves as a method for the individual to manage the symptoms that have helped shape the private logic yielding discouragement in the first place.

A majority of the longitudinal research on childhood ADHD and adolescent substance use disorders has been conducted secondary to the initial goal of investigation into the long-term course of ADHD; substance abuse research has been the by-product of results that seem to continually support a connection between childhood ADHD and adolescent substance use disorders. Researchers cite a danger in diagnoses whose behavioral characteristic constituents may be better described as experiential. Diagnosing too early fails to account for the evolution of the behavior itself, such as frequent use over a lifetime versus a temporary phase (Molina & Pelham, 2003). Aside
from this potential risk in diagnosing, research has repeatedly indicated a connection
between childhood ADHD and its risk for adolescent substance use. Often cited are norm
violating behavioral problems in youth, disposing the affected individuals to non-
mainstream social groups who tend to lack focus on academic achievement and instead
foster an environment with less stigma regarding substance use.

Deviant peer group association is a significant risk factor in a population with
documented deficits in impulse control. In a study conducted by Molina and Pelham,
researchers sought to clarify the magnitude of risk for early substance use and abuse in
clinic-referred children with ADHD, as compared to children without ADHD. The
researchers "tested whether severity of childhood symptomology in the ADHD sample
prospectively predicted their elevated substance use 5 years later" (Molina & Pelham,

The participants in this study were 142 adolescents with childhood ADHD and
100 demographically similar adolescents without ADHD, all receiving clinical mental
health services. The participants were between the ages of 5 and 17 during first
application of services. When the participants entered adolescence, an average of 5.3
years later, they were contacted again for re-assessment. Of the original participants,
roughly 57% participated in the follow-up interview.

The results of this study indicated that when adolescent substance use is measured
in a developmentally appropriate way, the presence of ADHD in childhood is associated
with an increased risk for elevated use and abuse of alcohol, as well as heavier and earlier
use of other drugs in adolescence. "Childhood with ADHD symptoms, particularly the
inattentive dimension of ADHD, predicted later substance use to a greater degree than
samples without any ADHD symptoms" (Molina & Pelham, 2003, p. 505). Results of the research also suggested that the severity of ADHD symptoms experienced has the potential to become a predictive risk factor for the emergence of substance use behaviors earlier than the samples without ADHD behavioral characteristics. The hypothesis asserted by the researchers seemed to be affirmed by the results gathered. Behavioral variables such as poor academic achievement and peer difficulties, both the product of deficits in attention span and inhibition, seemed to influence gravitation to non-conventional peer groups where substance use is tolerated and modeled (Molina & Pelham, 2003).

The findings of this research validated the general assertion of this literature review; that a connection exists between a diagnosis of childhood ADHD and the later manifestation of adolescent substance use disorders. Despite this validation, there were several areas in which the research could have been improved. Consequently the results were not as comprehensive as they might otherwise have been. The first weakness related to the sample population used. All of the participants were clinic referred; children referred for mental health services have higher rates of psychiatric comorbidity than non-referred children. Consequently, the risk reported for substance use disorders may be a function of referral bias (Molina & Pelham, 2003). Furthermore, the samples were comprised of all males. The lack of female participants, and female related research in general, is an important focus for future research in an effort to gain a more comprehensive understanding of these issues. Another area of focus that may provide added credibility to the conclusions reached in this research would be an expansion of the longitudinal aspect of the research, such as conducting another follow-up with an
emphasis on investigating these substance using behavioral characteristics into late adolescence and adulthood. This type of research would provide insight into the nature of the treatment necessary at various developmental stages in the researched populations.

The incorporation of Adlerian theory provides added depth to the conclusions reached be Molina and Pelham. As has been previously discussed, discouragement is a concept that lends itself well to an explanation for the relationship between diagnoses of ADHD in childhood, and the manifestation of adolescent substance use disorders. At the root of this discouragement is a feeling of inferiority in the individual. While this feeling of inferiority may be entirely a construct of the individual’s interpretation of themselves in a personal sense, as well as in relation to the rest of the environment in which they are a part; it can nonetheless inhibit and hinder the individuals personal, social, and academic growth by stripping them of the courage to engage in activities for which they perceive sure failure. “The most common form in which the feeling of inferiority, which appears in childhood, attempts to escape its unmasking consists in the construction of a compensatory psychological superstructure aimed at regaining stability and superiority with trained readiness and safeguards… Here is an individual who is striving incessantly from the sphere of insecurity and the feeling of inferiority towards godlike dominance over his environment, is struggling for his significance, is attempting to force it” (Ansbacher & Ansbacher, 1956, p. 244). The gravitation toward, and affiliation with deviant peer groups empowers the individual who has failed in both academics and mainstream social circles by providing a forum in which they do not struggle; consequently safeguarding them from the all too familiar insecure feeling. Experiencing relative successes in these deviant peer groups, provides them with a form of courage
they would not otherwise experience without significantly greater struggle. The use of substances not only provides them with medium by which they can gain acceptance, but also a medium in which there is relatively little struggle involved; a welcomed relief in a life that may have otherwise presented great struggles.

The issue of attention-deficit / hyperactivity disorder is a natural human variation inevitable in our heavily populated social system. Despite its inevitability, the characteristic behavioral symptoms indicative of the ADHD diagnosis nonetheless contribute to deficits in an individual's ability to function effectively, both cognitively and behaviorally. Particularly during childhood, ADHD can become pervasive in social development. Often characterized by deficiencies in impulse control, as well as inattentiveness and inability to focus, children diagnosed with ADHD often struggle with academics, particularly in a classroom setting where issues unobtrusive to the learning process of a child without ADHD can become external stimuli to a child with ADHD. Ultimately, these external stimuli can greatly decrease the ability of the child to effectively utilize the classroom experience. The result is often academic failure, as well as failure in mainstream social circles. Consequently, children with ADHD will often lose focus on academics and mainstream social circles, gravitating toward deviant social circles that more fully embrace their behavioral symptoms. Treating the behavioral symptoms and cognitive patterns early can help decrease the impact or prevent altogether some of these social and academic consequences.

Substance use and abuse is another problem affecting individuals in our society. Although its inevitability is relative considering a wide variety of contributory risk factors, it is nonetheless an issue that must be addressed if the afflicted individual has
genuine aspirations for effective systemic social functioning. Speaking to its debatable inevitability, substance use disorders present a debatable source of origin. As indicated in the reviewed research, statistical results seem to resoundingly implicate the behavioral symptoms, many of which are indicative of an ADHD diagnosis, as potential risk factors for the development of substance use disorders or abusive behaviors. Much of the research seems to indicate that behaviors qualifying an individual for the ADHD diagnosis seem to persist into adolescence. Consequent of the individual experience with the symptoms, as well as the social consequences of the characteristic behaviors, children with ADHD are at a greater risk for substance use in adolescence. The deviant social circles in which association is common tend to foster an environment conducive to substance use and abuse.

The general assertion made regarding these results is that ADHD and substance abuse must be independently assessed and evaluated. Following this assessment, they must both be addressed and treated in a manner that accounts for the behavioral variables such as inattentiveness and poor impulse control. This is where opportunities for future research exist. The connections between childhood ADHD and adolescent substance use disorders is well documented throughout the reviewed research, as are the contributing factors to its manifestation. These findings affirmed the original hypothesis of this literature review. Methodologies regarding treatment are not as resoundingly supported. Debate continues regarding the most effective treatment strategy when ADHD and substance use disorders exists comorbidly.

One glaring discrepancy in the research indicating a connection between childhood ADHD and adolescent substance abuse is the lack of female samples
incorporated into research. Investigation into the contributing reasons for the disproportionate number of female research participants as compared to their male counterparts could provide further insight into effective treatment methods. Future projects investigating interventions would ultimately benefit not only those in the helping profession, but also the individuals whose lives are socially, academically, and occupationally disturbed by these crippling, although not untreatable anomalies.

Encouragement, important for the healthy development of everyone, is of particular significance with children qualifying for a diagnosis of ADHD. Life is not easy for anyone; presenting its array of decisions, difficulties, and dramas. Children with ADHD, however, experience a life accompanied by some perceived deficits that can greatly complicate the academic and social development the likes of which those without the ADHD diagnosis take for granted. An expected level of immaturity consequently impedes the ability to persevere through challenges. A key element in preventing discouragement from occurring in children with ADHD, as well as the consequent development of adolescent substance use disorders, is providing them with an encouraging environment in which they can attempt the challenges of life without fear of failure. This is not to say that failure will not occur; the difference is in the way the failure is interpreted. It need not be the end all, be all; rather individual failures are simply individual attempts. Just as basketball players miss some baskets, and baseball players strike out the majority of the time; encouragement will demonstrate to children with ADHD that life is full of processes that occur transpire at a different pace. All hope is not lost when a struggle arises; rather it is an expected part of life that does not define them. This seems to be obvious, however it is easy to take for granted things when we
call prey to our natural human, self-centered preoccupations. As the field of counseling psychology develops, however, techniques for meeting the needs of those living with ADHD will undoubtedly be developed and refined; empowering adolescents with the ability to attempt and navigate reality without losing hope, becoming discouraged, and falling victims to struggles and pain of substance use disorders.
References


adulthood: Individuals with symptoms of attention-deficit/hyperactivity disorder are uniquely at risk. *Psychology of Addictive Behaviors, 17*, 151-158.


