

ADOLESCENT SUBSTANCE USE DISORDER

Adolescent Substance Use Disorder:

Prevention and Intervention Using a Multi-Tiered Approach



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Author Note

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Abstract

Adolescent substance use impacts students in all demographics across the United States. Substance use disorders can lead to adverse outcomes for students, both short and long-term, potentially impacting their physical, mental, and emotional well-being. Adolescents spend a significant amount of time in school, positioning school psychologists to play an integral role in shaping the supports for at-risk students and those currently grappling with a substance use disorder. A review of current, peer-reviewed literature indicates that there are many preventative and intervening programs schools can implement to support students with substance use issues. This paper examines the various interventions educators can provide using a multi-tiered system of supports model.

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Adolescent Substance Use Disorder: Prevention and Intervention Using A Multi-Tiered Approach

Substance use and substance use disorder among adolescents is a growing area of concern in schools across the country. The harmful impacts of adolescent substance use are severe and far-reaching, having both immediate and long-term effects. Youths coping with a substance use disorder (SUD) are more likely to suffer from significant mental health problems such as depression, anxiety, conduct disorder, and suicidality (Mayberry, Espelage, & Koenig, 2009; Wong et al., 2013; Evans & Tawk, 2016). Other adverse results of adolescent substance use include damaging impacts on brain development, an increase in risky behaviors, and exposure to and contraction of STDs, including HIV (Centers for Disease Control and Prevention, 2019). Current research shows that many who struggle with SUDs in adulthood began substance use in adolescence or childhood (National Institute of Drug Abuse, 2014; Spoth et al., 2013). Those initiated into early use are at higher risk of developing a SUD in adulthood. They are also more susceptible to adverse physical and mental health outcomes as they age such as sleep disorders, heart disease, high blood pressure, violent or aggressive behavior, and difficulty adjusting to workplace and family settings (Griffin & Botvin, 2010; Center for Disease Control and Prevention, 2018). SUDs that manifest early in life have the power to sustain and increase in severity into adulthood, posing a variety of issues for the individual—physically, mentally, and interpersonally.

The urgency of this problem has compelled schools to adopt various approaches to provide effective supports and resources to students. Longitudinal survey data indicates that while the use of certain specific substances like nicotine and THC vaping has rapidly increased, overall adolescent substance use is actually decreasing (Center for Disease Control and

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Prevention, 2018; National Institute of Drug Abuse, 2019). These results clearly indicate that while substance use can have potentially lethal repercussions, there are evidence-based solutions that schools can use to positively impact adolescents at risk of developing a SUD.

Adolescent substance use is a nuanced, multi-dimensional issue that poses obstacles at all levels of exposure and consumption. Whether preparing students to make safe and healthy choices about legal drugs and alcohol, providing practical strategies to cope with mental health issues, or supporting those facing severe and damaging dependency on mind-altering substances, the needs of each school community vary significantly from student to student. Each level of use and exposure embodies its own set of risks and its own unique needs. The public health model offers a solid framework for meeting these complicated challenges. By using a multi-tiered system of supports model, educators and school staff can provide appropriate varying degrees of assistance in combating SUDs at all levels. Through research and evaluation of existing, evidence-based prevention and intervention programming, this paper will provide insight into the most effective available methods of prevention and intervention in addressing adolescent substance use and SUDs. It will further examine how using a multi-tiered approach can support a school community as a whole.

Adolescent Substance Use Disorder

The term “adolescent substance use disorder” encompasses many variations of health risk behaviors involving drugs and alcohol consumption. Terminology varies across the literature, using terms such as “substance abuse” and “substance dependence” to refer to SUDs. In recent years, professional organizations like the American Psychiatric Association have adopted the term “substance use disorder” to encompass all previously used descriptors. Steering away from

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the distinction between abuse and dependence, “substance use disorder” reflects a single continuum of severity of use (Rogers Behavioral Health, 2014). In this paper, the term “substance use” will be used to refer to any substance use at all, and “substance use disorder (SUD)” will be used to refer to more severe, problematic cases of substance use aligned to diagnostic criteria outlined in the DSM-IV (American Psychiatric Association, 2013).

According to the World Health Organization, psychoactive substance use refers to the use of illicit drugs, alcohol, or any other psychoactive substance in a way that is damaging or dangerous (World Health Organization, 2020). Examples of psychoactive substances and illicit drugs include alcohol, nicotine, marijuana, prescription drugs, cocaine, heroin, methamphetamines, inhalants, hallucinogens, and ecstasy. Out of all substances, alcohol is used most commonly by adolescents (Johnston et al., 2018). In alignment with the WHO, the Substance Abuse and Mental Health Services Administration (SAMHSA) highlights that SUDs can cause significant health problems, and can substantially interfere with one’s ability to fulfill essential life responsibilities at school, home, or work (Substance Abuse and Mental Health Services Administration, 2019). SUDs can range in severity from mild or moderate to severe (American Psychiatric Association, 2013).

“Adolescent” is most commonly used to refer to someone between the ages of 10 and 19 years old (World Health Organization, 2019). Not only are there often legal consequences for substance use for this population, but youths are still in varying stages of physical, emotional, and cognitive development. During such stages, drug or alcohol use can elicit harmful effects regardless of quantities of consumption (Inman et al., 2020). Whether an adolescent’s excessive drug and alcohol consumption occurs in a single day or extends over long periods, there can be acute and chronic negative repercussions (American Academy of Pediatrics, 2017).

Outcomes Associated with Adolescent Substance Use

Current literature continues to support the finding that adolescents who use substances are more likely to experience a variety of adverse outcomes as a result of their drug and alcohol use. The effects of substance use can be emotional, psychological, social, and physical.

Recent studies have highlighted areas of impact that are particularly essential for developing learners. For example, extensive use of alcohol and marijuana is associated with negative impacts on such vital areas of cognitive functioning as attention, executive function, learning and memory (Becker, Collins, & Luciana, 2014; Bossong et al., 2014; Crean, Crane, & Mason, 2011; Dougherty et al., 2013; Luciana & Feldstein Ewing, 2015). Additionally, a study published in 2012 found that heavy cannabis use can cause decreasing levels of intellectual capability. Researchers monitored 1,037 participants from birth until 38 years old, documenting participants' cannabis use at the ages of 18, 21, 26, 32, and 38. They found that habitual cannabis use was associated with a neurological decline in cognitive functioning, and that early use had exceptionally damaging effects. Individuals who used cannabis persistently (categorized by researchers as four times per week over several years) and whose use began before the age of 18 displayed a decline of 8 IQ points on average from childhood to adulthood (Meier et al., 2012).

Impacts of drug use were felt not only by the users themselves, but by people close to them who reported a noticeable difference in users' cognitive functioning and behavior. Informant data was collected in the final year of this study, asking individuals who knew participants well to complete a questionnaire reporting their perspective on the study member's memory and attention. Those who responded on behalf of individuals exhibiting persistent cannabis dependence reported witnessing significantly more problems with both memory and

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attention. (Meier et al., 2012). Based on such results, it seems likely that such users also experienced difficulties in educational or social environments that could diminish both the quality of interpersonal relationships and overall academic achievement. It is also worth noting that individuals who use either alcohol, marijuana, or tobacco are at increased risk of using one or both of the other two (Brook et al., 2014).

Some of the short-term effects associated with adolescent substance use include high-risk sexual behaviors, operating a vehicle while under the influence, and overall impaired judgment and performance in daily life (American Academy of Pediatrics, 2017). Outcomes such as impaired judgment and functioning due to ingesting a psychoactive substance can diminish one's ability to interpret and perceive risk. This can lead to individuals placing themselves in greater danger of bodily injury and even death. One recent study revealed that underage drivers between the ages of 16-20 are at the highest risk of being fatally injured in a vehicle accident. When underage drivers are driving under the influence of alcohol, they are at 3.8 times the risk of dying in a vehicle accident (Voas et al., 2012).

Risk Factors

Several known factors place individuals at higher risk for substance use during adolescence. Understanding such factors provides direction in determining the nature and focus of universal supports and preventative measures, and any intervening supports that follow.

Antisocial behavior among peers, deficits in self-control, and lack of parental involvement are major factors that put adolescents at higher risk of engaging in substance use (Mak et al., 2020; Lee et al., 2020). A recent longitudinal study monitored participant use of tobacco, alcohol, and cannabis from the ages of 14 to 36. This study reaffirmed similar

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previously published findings that low levels of self-control and peer drug use were both strongly linked to higher levels of alcohol, tobacco, and cannabis use (Otten, Mun, & Dishion, 2017; Lee et al., 2020). Lower rates of parental involvement, low parental knowledge of a young person's activities, and having a parent who is using substances are also factors that increase the risk of substance use (Tyler & Ray, 2019; Mak et al., 2020).

Early use is often a significant determinant for a SUD in later adolescence and adulthood. This makes prevention efforts all the more critical (Spath et al., 2013). It is also worth noting that the risk of developing a SUD is higher for students diagnosed with certain childhood psychiatric disorders such as attention deficit hyperactivity disorder (ADD), oppositional defiant disorder (ODD), conduct disorder (CD) and depression (Groenman, Janssen, & Oosterlaan, 2017). These facts underscore the importance of proper mental health supports for all students, especially those who are most vulnerable and high-risk.

Protective Factors

In addition to understanding risk factors, it is also important to recognize protective factors that serve as safeguards, mitigating the likelihood of adolescent substance use and SUDs. Many factors protect individuals from adolescent substance use on the individual, family, and community level.

Multiple individual characteristics or qualities have been cited as having an inverse relationship with the likelihood of substance use. Resilience, for example, has been shown to be a strong protective factor in resisting substance use. During periods of high-stress, such as personal or societal crises or trauma, many people exhibit the ability to 'bounce back' and overcome adversity

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(Masten, 2014). Research shows that individuals who report higher rates of personal resiliency are less likely to engage in high-risk behaviors like substance use (Prince-Embury, 2015).

Family members can also influence the likelihood of adolescent substance use. The level of involvement in and awareness of the adolescent's life and daily activities has proven to be a protective factor from substance use (Mak et al., 2020). A parent who is aware of where their child is and what they are doing is better positioned to intervene against high-risk activities. Quality-relationships between adolescents and their parents can also prevent engagement in substance use by reinforcing healthy habits through honest and open dialogue (Lasser & Schmidt, 2009).

Influential forces within the school community also serve as protective factors. The more support students perceive within their school, the less likely they are to engage in substance use (Shekhtmeyster & Sharkey, 2011). Additionally, prosocial relationships and peer groups that support non-use can lessen the likelihood that a student will use (Shekhtmeyster & Sharkey, 2011). Activities within the classroom also have the potential to influence student substance use patterns. Research shows that engagement in cooperative learning where students are participating in group tasks can reduce rates of individual and group alcohol and tobacco use. (Van Ryzin & Roseth, 2018). Schools can impact substance use in many other ways, from healthy teacher-student relationships to development of curricula to the many other opportunities to create positive change and make a difference in the lives of students.

Multi-Tiered System of Supports

Implementing a multi-tiered system of supports based on the public health model gives schools an effective, comprehensive way to address substance use and SUDs. This approach

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allows service providers to respond to this issue at all levels of severity. A multi-tiered system of supports is a continuum of services that increase in intended impact to match the severity of each situation (Miller D. N., 2011). Ascension on this continuum translates to a reduced number of targeted students to minimize ratios and increase efficacy, and an intensification of supports tailored to these specific populations. A tiered model is structured to promote prevention and early identification, and to provide more targeted interventions for those who need them.

Each tier relies on various resources, tools and processes to address substance use from all angles and engage all stakeholders. The multi-tiered approach considers students from an ecological theoretical perspective, as members of multiple systems, and recognizes that they may need varying degrees of support depending on their circumstances (Bronfenbrenner, 1981).

Tier one supports are universal and meant for all students. These universal supports include primary measures specifically designed to prevent illegal and unsafe substance use that could potentially manifest into a more severe SUD. Tier two supports are secondary, more targeted interventions for students who are at high risk for developing substance use issues or who are unresponsive to tier one supports. Service providers designate tier three supports for individuals who have been unresponsive to both preventative and intervening measures. These students receive highly individualized interventions and treatments to address problems they are currently exhibiting. Students who are actively using drugs and alcohol and require immediate and intense interventions may require tier three supports (Miller, 2011; Sugai, 2007; Walker et al., 1996).

Methods

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All research articles included in this analysis were found using the Chapman University Library website on various database hosts, including ERIC-EBSCO, PsycINFO, PsycARTICLES, and Academic Search Premier. Keywords used during these searches were “adolescent substance use,” “adolescent substance abuse,” “prevention,” “intervention,” “students,” “schools,” and a combination of those terms. Google Scholar was also used to obtain articles that were unavailable through the Chapman University Website. To provide the most current information regarding the efficacy of these intervention and prevention practices, only articles peer-reviewed and published between 2010 and 2020 were included in this study.

Tier 1: Universal Prevention

Universal supports provided through the first tier are received by all students within a school community. When considering tier one supports, it is pertinent to consider existing research on protective factors for adolescent substance use. Practitioners can leverage these existing supports in creating the most effective preventative measures possible for all students. There are several protective factors related to the preventative programs described below, including implementation of early intervention tools, social-emotional learning, fostering self-efficacy among students through the development of life skills, creating community and enhancing school-connectedness, and cultivating partnerships with parents and families.

Social and Emotional Learning

Early childhood educators are in a unique position to implement evidence-based social and emotional learning (SEL) programming that has the potential to reduce a student’s likelihood to engage in substance use in middle or high school. By implementing SEL curriculum early in a

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child's education, educators can aid in the process of developing the essential skills and behaviors associated with reduced risk of SUDs.

One example is the Promoting Alternative Thinking Strategies (PATHS) program (Greenberg et al., 1995). Since its development in the early 90s, PATHS has been supported by extensive research both in the United States and internationally, validating its efficacy as an SEL intervention (Schonfield, et al., 2015; Berry et al., 2016; Panayioutou, Humphrey, & Hennessey, 2020). The goal of the PATHS program is to foster emotional health, social skills, positive self-esteem, healthy relationships, and decrease aggression and behavioral issues for students in grades K-12. Additionally, the PATHS curriculum works to create a positive impact on children in multiple areas of their life, including school connectedness, peer relationships, and psychological well-being. The materials consist of both in-class and take-home activities, including parent-facing materials, focusing on four concepts: peer relations and self-esteem, emotional understanding, social problem-solving, and self-control (Panayioutou, Humphrey, & Hennessey, 2020). Differentiated curriculum is available to suit the needs of any desired age group or ability level, making implementation possible at all grade levels for diverse learners.

In one recent study, investigators looked at the effects of implementing the PATHS program in 45 schools in England to 5,218 students over two years. Results indicated that there was a significant increase in psychological well-being, school connectedness, and peer social support in students who had participated in PATHS versus students who received their traditional school programming (Panayioutou, Humphrey, & Hennessey, 2020). In the U.S., the PATHS program has also been associated with an increase in academic performance and a reduction in problem behaviors (Durlak et al., 2011). This research indicates that SEL programs

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implemented at an early age can enhance many protective factors with the potential to ameliorate the risk of substance use for all students later in life.

Climate Schools: Alcohol and Cannabis Use

In addition to preventative measures within the elementary school setting, universal programming geared towards both middle and high school students is also essential. Climate Schools: Alcohol and Cannabis Use is an internet-based universal program. It is a series of illustration-based educational courses aligned with a harm minimization framework. Most educators embed lessons within a school health curriculum. Rooted in Banduras social-learning theory, the goal is not to advocate for total abstinence. Instead, this curriculum relies on the social influence approach as a means of effective intervention (Bandura, 1977). Climate Schools is delivered over the internet, making the implementation process easy, scalable, and as a result, more feasible than other programming (Newton et al., 2010). Lessons use illustrated scenarios of teens experiencing real-life situations and issues related to drugs and alcohol to target learning objectives.

Research conducted using six random control trials, including 14,000 participants in 157 schools in Australia, has shown promising results. Based on these trials, Climate Schools programming proved to be effective in increasing students' knowledge about alcohol and other drugs, and in lowering weekly rates of alcohol consumption, cannabis use, and binge drinking when compared to control groups who did not receive the program (Newton et al., 2010; Gardner, 2018). Additionally, investigators found a decrease in alcohol-related harms. A newer version of the program with lessons that include parents, Climate School Plus, is also in the piloting stages of development (Thorton et al., 2018)

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Strengthening Family-Community Ties

Programming aimed at strengthening relationships between schools and families is another vital focal point of universal preventative measures. Primary caregivers, parents and legal guardians have the potential to significantly influence the likelihood of adolescent substances use in both protective and risk-inducing ways. For example, one family-focused evidence-based program, the Strengthening Families Program (SFP), has been shown to reduce adolescent substance use by 50% (Kumpfer & Magalhaes, 2018). It has been adapted for use in over 36 different countries. This programming is available in several different languages, making it more culturally inclusive than alternatives. In a closed-group structure, children, their parents, and family members engage in a 14-week program where participants learn about a variety of topics including aspects of child development, building healthy familial relationships, problem-solving strategies and alcohol and drug education (Akin et al., 2018). Investigators have found that SFP can help improve a range of family-related factors, including strengthening parenting strategies and family relationships, addressing parental substance use, and reducing the risk of drug, alcohol and tobacco use for adolescents (Akin et al., 2018; LoBraico et al., 2019). Programs such as these provide parents with strategies and information to cultivate healthy relationships with their children. This helps mitigate risk factors and promote protective factors related to adolescent substance use.

Role of School Psychologist at the Primary Level

School Psychologists play an instrumental role in the implementation of universal prevention programs addressing adolescent substance use. This primary tier of supports is for all students. To carry out additional tiers it is essential to acquire accurate baseline data prior to the

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implementation of universal supports. A school psychologist can help staff find valid, research-supported measures to administer before, during, and after program implementation. Strategic data collection will allow school staff to identify students for whom the primary tier of prevention is insufficient and individualized support may be needed.

As research has suggested, many mitigating factors are already built into the traditional structure of a school community. These include prosocial peer relationships, school connectedness, and positive teacher student-relationships (Shekhtmeyster & Sharkey, 2011). While the implementation of strategic prevention programming is essential, the school psychologist is also responsible for equipping teachers with information empowering them to continue supporting students indirectly through the cultivation of these inherent protective factors. Members of school communities may also lack information on substance use, SUDs and mental health in general. School psychologists must help to destigmatize SUDs and clarify common misconceptions to ensure as many students as possible receive necessary supports.

Tier II: At-Risk Targeted Intervention

Once a school community has implemented primary supports for all students, data yielded on the efficacy of these programs will reveal more evident next steps for continued support to those in need. Tier two interventions are for individuals who, despite receiving all universal supports alongside their peers, are still at high-risk for developing a SUD. Secondary interventions should be selected based on their likely success in mitigating risk factors and reinforcing protective factors as yielded by research-based evidence. The programs outlined below focus on strategic psychoeducational programs for high-risk students and programs to involve their families in the most effective way possible.

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Early Risers Program

The Early Risers “Skills for Success” Conduct Problems Prevention Program is intended for elementary age children with early behavioral issues that place them at increased risk for adverse outcomes, including substance use. Criteria for participant selection includes current exposure to risk factors like stressful life events, and the existence of problem behaviors relating to aggression (National Institute on Drug Abuse, 2016). Providing additional supports that cultivate adaptive behavioral skills can help mitigate the likelihood of substance use while also meeting students’ mental health needs (Groenman, Janssen, & Oosterlaan, 2017). In this program, educators work with students to improve academic outcomes, learn adaptive behavioral skills, and promote positive peer relationships. There is also a component for parental involvement, in which parents receive support in engagement, nurturance, and child behavior management (National Institute on Drug Abuse, 2016).

In a recent study, investigators sought to determine the long-term effects of the Early Risers program throughout a ten year period, using participants from a randomized control trial study published in 2007 (August et al., 2007). Researchers reassessed individuals who had participated in the Early Risers program for 2-3 years in elementary school through diagnostic interviews in late high school. The data showed that Early Risers participants initially identified by teachers in kindergarten as exhibiting externalizing behaviors associated with ODD and CD and those showing internalizing behaviors associated with major depressive disorder (MDD) made sustained improvements. Results indicated fewer maladaptive behaviors in both categories later in life than their peers who did not receive the Early Riser intervention programming (Hektner et al., 2014). Early intervention is crucial for students who require more targeted social,

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emotional, and behavioral supports, as it has the potential to shape their behavioral outcomes in middle and high school.

Skills-Based Training Programs

Skills-based training programs help students develop an awareness of influential social factors that promote substance use and the skills necessary to effectively resist engaging in drug and alcohol use.

The purpose of the Life Skills Training Program (LST) is to address the social and psychological factors that promote substance use. This curriculum can be implemented with students at elementary, middle, and high school levels, but the majority of research regarding its efficacy is at the middle school level. The three main goals of LST are to develop drug-resistance skills, personal management skills, and general social skills. (Griffin & Botvin, 2010). Through classroom activities that include instruction, modeling, role-plays and feedback, and behavior-focused homework assignments, students can develop a variety of skills necessary to handle real-world situations relating to drugs and alcohol. The program provides students with the foundational knowledge necessary to make safe choices about drugs and alcohol and resist high-risk situations. Additionally, students complete activities for personal self-growth, such as goal setting, an examination of their self-image, and the role of external influences.

These learning objectives, alongside activities to develop social skills in the LST program, have proven effective in reducing adolescent substance use in several different studies. The effectiveness of LST was tested over the past thirty years with several randomized control trials in which researchers compared results of students who received LST to those in a control

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group (Botvin & Griffin, 2014). They found that students who received LST reported lower rates of tobacco, alcohol, and marijuana use. In some studies, use of psychoactive substances decreased by as much as fifty percent (Griffin & Botvin, 2010, 2014). Some studies also indicate that the preventative impacts of LST are sustaining. In one study measuring adolescent substance use, LST students had a significantly slower rate of increase than participants in corresponding control groups one year and five years after the conclusion of the study (Griffin & Botvin, 2010). While implemented as a universal prevention measure, this program was shown to be particularly useful for high-risk students, who exhibited slower increase rates after initiation of marijuana and other drug use (Griffin & Botvin, 2010, 2014).

Family Check-Up Program

Involving parents and family members in the process of providing secondary intervening supports also has the potential to strengthen existing efforts that are more student-centered. Parents often bear witness to aspects of a child's behavior, choices, and activities that might be unknown to educators. Involving parents at all levels of intervention is crucial.

One program shown to be effective in engaging families of a student at a high risk of substance use is the Family Check-Up program (The Family Check-Up, 2020). Family Check-Up is a prevention program intended to reduce substance use and behavioral issues among children and adolescents by improving parenting and family relationships. Several studies support the efficacy of the Family Check-Up program in its ability to enhance academic performance and reduce conduct problems, symptoms of depression, and substance use (Van Ryzin, Stormshak, & Dishion, 2012; Connell, Stormshak et al., 2015; Connell & Dishion, 2017). Family Check-Up is unique in that the intervention goals and doses of treatment are explicitly

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tailored to the family's needs. An initial assessment conducted through Family Check-Up leads to a therapeutic intervention based on motivational interviewing strategies (Collins, Murphy & Bierman, 2004). The purpose of this process is to engage the family and activate behavioral change, allowing them to begin to set goals together as a family and to identify targets for further intervention (Miller & Rollnick, 1991; Connell & Dishion, 2017). Unstable family relationships and disengaged parenting styles have both been shown to increase the likelihood of substance use (Tyler & Ray, 2019; Mak et al., 2020). Simultaneously, the child participates in socialization activities that target behaviors associated with adolescent substance use. If necessary, referrals are made to additional community-based resources or services. Youth participants reported lower rates of marijuana, alcohol, and tobacco use three years after participating in Family Check-Up (Stormshak et al., 2011). These trends sustained for students who reported lower rates of alcohol, marijuana, and tobacco use at the age of 23 (Veronneau et al., 2016). This program works to alleviate risk factors and impart more effective parenting skills to caretakers while providing supports for participants to rebuild relationships necessary to function as a family.

Role of School Psychologist

School psychologists are positioned to play a critical role in the implementations of secondary intervening supports within a school community. First and foremost, data collection at every tier of intervention is critical to effectively implement and reap the benefits of the multi-tiered system of supports model. According to the National Association of School Psychologists, credentialed school psychologists have the skills to research current evidence-based practices, including assessment techniques, for implementation within a school (National Association of School Psychologists, 2020). Most members of the school community will not have this

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background, so it is essential for the school psychologist to turnkey this information to staff. For these more targeted interventions, this may involve conducting staff training to teach educators how to implement this programming. Additionally, Family Check-Up and similar family-based programs may require the implementation of different therapeutic techniques that might only be familiar to trained mental health professionals. In such cases, the school psychologist must identify other qualified staff who can assist with implementation, seeking outside supports as necessary.

It is imperative at this level of intervention that the school psychologist is aware of resources and services within the community. Needs may arise that cannot be met within the sometimes limited resources of the school setting. School psychologists should be prepared to make referrals as necessary to meet the needs of students and their families.

Tier III: Intensive Tertiary Interventions

As complex as the issue of adolescent substance use is, the path to identifying effective interventions for those most severely impacted is equally intricate. Tier three supports are employed once all preventative supports have failed and secondary interventions have also been ineffective in addressing an adolescent's substance use. Interventions that have proved to be effective for students in this population are individualized therapies, family-based approaches, mutual help groups, and treatment programs.

Individualized Therapies

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Therapeutic interventions can provide students struggling with a SUD with the necessary tools and psychoeducation to actively participate in and sustain their recovery from drugs and alcohol.

In Cognitive Behavioral Therapy (CBT), the student is taught how to anticipate problems and respond with effective coping strategies. Teaching adolescents the relationship between thoughts, emotions, and behaviors helps them learn to effectively identify the distorted thinking patterns and external factors that may trigger their substance use. CBT strategies allow the student to better understand the consequences of their substance use and develop skills in self-control, emotional regulation, and realistic problem-solving. This form of therapy has a history of being effective in treating SUDs in adolescents, and is applicable in individual and group settings (Ramchand et al., 2011; Hunter et al., 2012; Kiluk et al., 2018)..

Motivational Enhancement Therapy (MET), another therapeutic technique, prompts adolescents to resolve their ambivalence about stopping their drug and alcohol use and actively participating in treatment. The process begins with an assessment of a student's motivation to participate in treatment, which guides the sessions that follow. The goal is to assist the student in developing a desire to engage in treatment through non-judgmental feedback. This form of therapy is most commonly used in conjunction with other forms of treatment, and has yielded positive results in treating adolescent SUD (Ramchand et al., 2011; Hunter et al., 2012; Barnett et al., 2012; National Institute of Drug Abuse, 2014).

Family-Based Therapies

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Family-based approaches directly involve family members in an individual's treatment. The inclusion of family is often considered appropriate as the young person receiving treatment typically lives with their family. Research indicates that family-based approaches can be particularly useful in addressing a variety of issues, including another family member's substance use (Hogue & Liddle, 2009).

Brief Strategic Family Therapy (BSFT) addresses a broad range of issues within a family, including substance use. BSFT centers on the idea that an individual's problematic behavior originates from or is exacerbated by unhealthy family relationships. The practitioner's role is to help family members build awareness about maladaptive patterns of interaction and work to change them. This form of therapy has been effective in improving family functioning and is significantly more engaging than other forms of family therapy, resulting in higher rates of retention (Robbins et al., 2011). BSFT has also been shown to be effective in reducing rates of alcohol use among parents and rates of substance abuse among adolescents living in households where parental drug use is occurring (Horigian et al., 2015). Other forms of evidence-based family therapy include Multidimensional Family Therapy and Multisystemic Therapy (Liddle et al., 2011; Sheidow & Henggeler, 2012).

Mutual Help Groups

Mutual help groups are another way students can receive support in coping with a SUD. Twelve Step programs such as Alcoholics Anonymous and Narcotics Anonymous allow members to work toward maintaining sobriety by meeting regularly in groups to discuss drug and alcohol use. Such programs are self-supporting and free to members. Mutual support groups are also an opportunity to form friendships and garner support from others who are also trying to

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live a sober lifestyle. Individuals participating in 12-Step programs who regularly attend meetings have experienced more success and longer periods of abstinence from drug and alcohol use than those who do not attend meetings (Chi et al., 2012; Kelly et al., 2017). Researchers have also found that integrating 12-step meeting attendance with other forms of treatment like motivational enhancement therapy or cognitive behavioral therapy increases periods of sustained abstinence for participants (Kelly et al., 2017).

Treatment Programs

Decisions concerning when a student should receive treatment should be based on the needs of the individual to ensure that the treatment is appropriate in length and intensity. There are several different settings and formats where adolescents can receive treatment for a SUD, including outpatient programs, inpatient or residential treatment programs, and partial hospitalization, otherwise known as “day treatment” programs (National Institute of Drug Abuse, 2014). Such programs can also provide supports for co-occurring medical or mental health issues that the adolescent may be experiencing. One widely used residential treatment model is the therapeutic community (TC). TCs are substance-free residential treatment programs that are grounded in psychosocial rehabilitation. They have proven to be effective in reducing substance use and relapse during the first 12 months after treatment. However, there is limited recent research on their efficacy as it pertains to adolescents and long-term effects of substance use treatment (Edelen et al., 2010; Abdel-Salam, 2013). Assessing the severity of a student’s substance use is essential when seeking outside treatment as these options vary significantly in cost, restrictiveness, and time spent outside of a traditional school setting.

Role of School Psychologist

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Tier three supports in a multi-tiered system of supports are unique in that most of them extend beyond the capacities of a traditional school setting. The nature of these outside supports does not, however, diminish the role school psychologists play in assisting a student who is actively engaged in substance use or coping with a SUD.

School psychologists are often one of a few mental health professionals in a school building with professional training to conduct assessments of mental health issues. It is the responsibility of school psychologists to review all assessment information available and make an appropriate, data-driven recommendation on whether or not a student requires more extensive intervening services. If tier three interventions are necessary, referrals to community-based resources and services are vital in providing a student and their family with helpful next steps. In many cases, these types of outside supports are available to families at cost, so collaborating with the school social worker, school nurse, or administrators on options for payment, insurance, and financial aid opportunities might also be necessary. School psychologists should provide various forms of mental health counseling such as cognitive behavioral therapy or motivational enhancement therapy to the extent possible within the school setting, and make outside referrals as necessary.

Communication with families is also an essential part of the school psychologist's role in providing tier three supports. Whether it is educating parents on SUDs and mental health, making outside referrals, or providing school-based support when their student is struggling, there are several ways a school psychologist can assist students and their families.

Another essential responsibility of school psychologists is to create a plan for reintegration once a student has left to participate in an in-patient treatment program or has

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begun intensive treatment for a SUD outside of school. School psychologists can provide supplemental supports to a student while in school, even if they are seeking primary forms of treatment outside of the school building. In the case of extended absences, it is essential to adhere to privacy and confidentiality laws while making sure that teachers are aware of how they can support the student during their absence and when they return to campus.

Conclusion and Implications for Practice and Future Research

The National Association of School Psychologists acknowledges that substance use issues can pose a serious barrier to a child's emotional well-being, health and development, and ability to learn. School Psychologists are uniquely positioned to assist in multiple levels of intervention and help schools develop preventative and intervening measures to support children and families with SUDs.

The NASP emphasizes the importance of working relationships between school faculty, parents and families, and community resources (Lasser & Schmidt, 2009). Prioritizing communication and collaborations is essential at each level of a multi-tiered system of supports. Families often need assistance in knowing how to communicate with their child about drugs and alcohol. School psychologists and health educators can help them in this process. They can also assist families in finding various resources available within the community if their child needs support that extends beyond the capacity of the school. One study identified protective factors against youth SUD as strong self-control, parental guidance, academic aptitude, strict anti-drug rules, drug education programs in schools, and strong neighborhood and community ties (Lasser & Schmidt, 2009). Implementing programs that leverage and promote these protective factors at each tier will lead to more successful youth substance use programming in schools.

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There are several common themes that emerge at each level of programming in the multi-tiered system of supports model. Many programs for universal supports emphasize the importance of early implementation, social-emotional learning, psychoeducation and explicit teaching on drugs and alcohol, and engaging families in all aspects of a child's schooling, including mental and physical health.

The second tier of intervention services should also focus on early intervention. Programs like Early Risers that work towards ameliorating risk factors that present in elementary school students are crucial in reducing the number of supports children may need in their later years (Hektner et al., 2014). Involving parents and families in the intervention process can also lead to more effective outcomes (Stormshak et al., 2011; Veronneau et al., 2016). Focusing on parental-skill building, strengthening family relationships, and SUD education can help families to function better and support students. Lastly, some of these prevention and intervention programs are intended for classroom implementation. The school psychologist can assist teachers through consultation, performance feedback and proper training to ensure they feel confident in effectively delivering these supports to students.

There are a variety of recommendations and services a school psychologist can provide at the third tier, the most intensive level of support for a student struggling with substance use issues. Therapeutic interventions, family therapy, mutual support groups, and treatment programs are all ways to help a young person with a SUD. By intervening in adolescence and making evidence-based recommendations to students and their families, school psychologists can aid in reducing the risk of a student developing an increasingly intensified SUD in adulthood.

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It should be noted that there are other programs and treatment options available for students and schools. School psychologists should be mindful that exploring these additional options may yield other alternatives for successful results. It should also be noted that some of the programs included in this paper, while supported through evidence, would benefit from further research. For example, the Climate Schools program was initially created and implemented for school-aged populations in Australia (Newton et al., 2010). While preliminary studies yielded promising results, more research is needed to determine whether this program could apply in other geographic regions. More research is also needed on intensive treatment programs for adolescents struggling with SUDs. Though there is extensive theoretical research available supporting various types of individualized and family therapies implemented through in-patient and out-patient treatment programs, there is limited data available on the actual efficacy of these programs to treat adolescent SUD.

School communities can support adolescents at every level of need through the implementation of multi-tiered system of supports. As mental health professionals with access to information on evidence-based practices, school psychologists are uniquely qualified to take a leadership role in educating other school staff about useful and ethical best practices in responding to adolescent substance use. By implementing a multi-tiered system of supports model, school psychologists, along with all stakeholders, can ensure that students at every level of need and circumstance receive the support necessary for social-emotional and academic success.

ADOLESCENT SUBSTANCE USE DISORDER

Works Cited

- Abdel-Salam, S. (2013). Self-Control as a Predictor of Relapse and Recidivism in Adolescent Therapeutic Community Treatment. *Substance Use and Misuse*, 48, 157-172.
- Akin, B. A., Johnson-Motoyama, M., Davis, S., Pacey, M., & Brook, J. (2018). Examining intervention component dosage effects on substance use initiation in the strengthening families program: For parents and youth ages 10--14. *Child & Family Social Work*, 735-742.
- American Academy of Pediatrics. (2017, April). *Substance Use Screening and Brief Intervention for Youth*. Retrieved from American Academy of Pediatrics: https://www.aap.org/en-us/Documents/substance_use_screening_implementation.pdf
- American Psychiatric Association . (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5* . American Psychiatric Publishing.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5*. American Psychiatric Association.
- Andrews , J. A., Hampson, S., & Peterson, M. (2011). Early adolescent cognitions as predictors of heavy alcohol use in high school. *Addictive Behaviors*, 448-455.
- August, G. J., Bloomquist, M. L., Realmuto, G. M., & Hektner, J. M. (2007). The Early Risers “Skills for Success” Program: A targeted intervention for preventing conduct problems and substance abuse in aggressive elementary school children. In J. S. P. Tolan, *Preventing youth substance abuse: Science-based programs for children and adolescents* (pp. 137-158). Washington, D.C.: American Psychiatric Association .
- Bandura, A. (1977). *Social Learning Theory*. Englewood: Prentice Hall.
- Barnett, E., Sussman, S., Smith, C., Rohrbach, L., & Spruijt-Metz, D. (2012). Motivational interviewing for adolescent substance use: a review of the literature. *Addictive Behavior*, 37(12), 1325-1334.
- Becker, M. P., Collins, P. F., & Luciana, M. (2014). Neurocognition in college-aged daily marijuana users. *Journal of Clinical and Experimental Neuropsychology*, 36(4), 379–398.
- Bergman, P., Dudovitz, R. N., Dosanjh, K. K., & Wong, M. D. (2019, October). Engaging Parents to Prevent Adolescent Substance Use: A Randomized Controlled Trial. *AJPH*, 1455-1461.
- Berridge, B. J., McCann, T. V., Cheetham, A., & Lubman, D. I. (2018). Perceived Barriers and Enablers of Help-Seeking for Substance Use Problems During Adolescence. *Health Promotion Practice*, 86-93.
- Berry, V., Axford, N., Blower, S., Taylor, R. S., Edwards, R. T., Tobin, K., . . . Bywater, T. (2016). The effectiveness and micro-costing analysis of a universal, school-based, social–emotional learning programme in the UK: A cluster-randomised controlled trial. *School Mental Health*, 238-256.

ADOLESCENT SUBSTANCE USE DISORDER

- Border, R., Corley, R. P., Brown, S. A., Hewitt, J. K., Hopfer, C. J., Wall, T. L., . . . Stallings, M. C. (2018). Independent predictors of mortality in adolescents ascertained for conduct disorder and substance use problems, their siblings and community controls. *Addiction*, 2107-2115.
- Bossong, M. G., Jager, G., Bhattacharyya, S., & Allen, P. (2014, April). Acute and non-acute effects of cannabis on human memory function: A critical review of neuroimaging studies. *Current Pharmaceutical Design*, 20(13), 2114-2125.
- Botvin, G. J., & Griffin, K. W. (2014). Life skills training: Preventing substance misuse by enhancing individual and social competence. *New Directions for Youth Development*, 141, 57-65.
- Bronfenbrenner, U. (1981). *The Ecology of Human Development: Experiments by Nature and Design*. Harvard University Press.
- Brook, J. S., Lee, J. Y., Rubenstone, E., Brook, D. W., & Finch, S. J. (2014). Triple comorbid trajectories of tobacco, alcohol, and marijuana use as predictors of antisocial personality disorder and generalized anxiety disorder among urban adults. *American Journal of Public Health*, 104(8), 1413-1420.
- Center for Disease Control and Prevention. (2018). *Youth Risk Behavior Survey Data Summary & Trends Report 2007-2017*. National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of Adolescent and School Health. Center for Disease Control and Prevention.
- Centers for Disease Control and Prevention. (2019, April 1). *Teen Substance Use & Risks*. Retrieved December 2019, from Centers for Disease Control and Prevention: <https://www.cdc.gov/features/teen-substance-use/index.html>
- Chi, F. W., Campbell, C. I., Sterling, S., & Weisner, C. (2011). Twelve-Step attendance trajectories over 7 years among adolescents entering substance use treatment in an integrated health plan. *Addiction*, 933-942.
- Collins, L., Murphy, S., & Bierman, K. (2004). A conceptual framework for adaptive preventive interventions. *Prevention Science*, 185-196.
- Connell, A. M., & Dishion, T. J. (2017). Long-Term Effects of the Family Check-Up in Public Secondary School on Diagnosed Major Depressive Disorder in Adulthood. *Journal Youth Adolescence*, 570-581.
- Connell, A., Stormshak, E., Dishion, T., Fosco, G., & Van Ryzin, M. (2015). The Family Check Up and adolescent depression: An examination of treatment responders and non-responders. *Prevention Science*.
- Crean, R. D., Crane, N. A., & Mason, B. J. (2011, March). An Evidence-Based Review of Acute and Long-Term Effects of Cannabis Use on Executive Cognitive Functions. *Journal of Addiction Medicine*, 5(1), 1-8.

ADOLESCENT SUBSTANCE USE DISORDER

- Daniels, R. A., Holdsworth, E., & Tramontano, C. (2017). Relating Therapist Characteristics to Client Engagement and the Therapeutic Alliance in an Adolescent Custodial Group Substance Misuse Treatment Program. *Substance Use & Misuse*, 52(9), 1139-1150.
- Dougherty, D. M., Mathias, C. W., Dawes, M., Furr, R., Charles, N., Liguori, A., & Acheson, A. (2013, March). Impulsivity, attention, memory, and decision-making among adolescent marijuana users. *Psychopharmacology*, 226(2), 307-319.
- Durlak, J., Weissberg, R., Dymnicki, A., Taylor, R., & Schellinger, K. (2011). The impact of enhancing students' social emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 81(1), 405-432.
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Flint, K. H., Hawkins, J., . . . Wechsler, H. (2012, June 8th). Youth risk behavior surveillance--United States, 2011. *Morbidity and Mortality Weekly Report: Surveillance Summaries*, 61(4), 1-162.
- Edelen, M., Slaughter, M., McCaffrey, D., Becker, K., & Morral, R. (2010). Long-term effect of community-based treatment: Evidence from the adolescent outcomes project. *Drug and Alcohol Dependence*, 107(1), 62-68.
- Evans, D., & Tawk, R. (2016). The relationship between substance abuse and suicide among adolescents. *Florida Public Health Review*, 13(8), 55-63.
- Galvan, A. (2010). Adolescent development of the reward system. *Frontiers in Human Neuroscience*, 4, 1-9.
- Galvan, J. L. (2017). *Writing Literature Reviews A Guide for Students of the Social and Behavioral Sciences*. New York: Routledge.
- Gardner, L. (2018). 24.3 Internet-based prevention for alcohol and other drugs: An overview of the universal climate schools prevention programs. *Journal of American Academy of Child & Adolescent Psychiatry*, 57, 36.
- Gewin, A. M., & Hoffman, B. (2016). Introducing the cultural variables in school-based substance abuse prevention. *Drugs Education and Prevention Policy*, 1-14.
- Grant, B. F., Chou, S. P., & Saha, T. D. (2017). Prevalence of 12-Month Alcohol Use, High-Risk Drinking, and DSM-IV Alcohol Use Disorder in the United States, 2001-2002 to 2012-2013 Results From the National Epidemiologic Survey on Alcohol and Related Conditions. *JAMA Psychiatry*, 911-923.
- Greenberg, M. T., Kusche, C. A., Cook, E., & Quamma, J. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychology*, 7, 117-136.
- Griffin, K. W., & Botvin, J. G. (2010). Evidence-Based Interventions for Preventing Substance Use Disorders in Adolescents. *Child Adolesc. Psychiatr. Clin. N. Am.*, 505-526.

ADOLESCENT SUBSTANCE USE DISORDER

- Groenman, A. P., Janssen, T. W., & Oosterlaan, J. (2017, July). Childhood psychiatric disorders as risk factor for subsequent substance abuse: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(7), 556-569.
- Harris, N., Brazeau, J. N., Clarkson, A., Brownlee, K., & Rawana, E. P. (2012). Adolescents' Experiences of a Strengths-Based Treatment Program for Substance Abuse. *Journal of Psychoactive Drugs*, 390-397.
- Hektner, J. M., August, G. J., Bloomquist, M. L., Lee, S., & Klimes-Dougan, B. (2014). A 10-year randomized controlled trial of the early risers conduct problems preventive intervention: Effects on externalizing and internalizing in late high school. *Journal of Consulting and Clinical Psychology*, 355-360.
- Hogue, A., & Liddle, H. (2009). Family-based treatment for adolescent substance abuse: controlled trials and new horizons in services research. *Journal of Family Therapy*, 31(2), 126-154.
- Holiday, C. E., Wynne, M., Katz, J., Ford, C., & Barbosa-Leiker, C. (2018). A CBPR Approach to Finding Community Strengths and Challenges to Prevent Youth Suicide and Substance Abuse. *Journal of Transcultural Nursing*, 64-73.
- Horigian, V. E., Feaster, D. J., Brincks, A., Robbins, M. S., Perez, M. A., & Szapocznik, J. (2015). The effects of Brief Strategic Family Therapy (BSFT) on parent substance use and the association between parent and adolescent substance use. *Addictive Behaviors*, 44-50.
- Inman, D., El-Mallakh, P., Jensen, L., Ossege, J., & Scott, L. (2020). Addressing substance use in adolescents: screening, brief intervention, and referral to treatment. *The Journal for Nurse Practitioners*, 69-73.
- Jaynes, S. (2014, January). Using Social Disorganization Theory to Guide Substance Abuse Prevention Among Adolescents: Implications for Educators. *The Journal OF AT-RISK ISSUES*, 35-40.
- Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Shulenberg, J. E., & Patrick, M. E. (2018). Monitoring the future national survey results on drug use, 1975-2017: Overview, key findings on adolescent drug use. *Ann Arbor: Institute for Social Research, The University of Michigan*, <http://dx.doi.org/10.3998/2027.42/148123>.
- Judy A. Andrews, S. H. (2011, May). Early adolescent cognitions as predictors of heavy alcohol use in high school. *Addictive Behaviors*, 36(5), 448-455.
- Kelly, J. F., Kaminer, Y., Kahler, C. W., Hoepfner, B., Yeterian, J., Cristello, J. V., & Timko, C. (2017). A pilot randomized clinical trial testing integrated 12-Step facilitation (iTTSF) treatment for adolescent substance use disorder. *Addiction*, 2155-2166.
- Kelly, J. F., Kaminer, Y., Kahler, C. W., Hoepfner, B., Yeterian, J., Cristello, J. V., & Timko, C. (2017). A pilot randomized clinical trial testing integrated 12-Step facilitation (iTTSF) treatment for adolescent substance use disorder. *Addiction*, 2155-2166.

ADOLESCENT SUBSTANCE USE DISORDER

- Kiluk, B. D., Nich, C., Buck, M. B., Devore, K. A., Frankforter, T. L., LaPaglia, D. M., . . . Carroll, K. M. (2018). Randomized clinical trial of computerized and clinician-delivered CBT in comparison with standard outpatient treatment for substance use disorders: Primary within-treatment and follow-up outcomes. *American Journal of Psychiatry*, 853-863.
- Kub, J., & Solari-Twadell, A. (2013). Religiosity/Spirituality and Substance Use in Adolescence as it Relates to Positive Development. *Journal of Addicition Nursing*, 247-262.
- Kumpfer, K. L., & Magalhaes, C. (2018). Strengthening Families Program: An Evidence-Based Family Intervention for Parents of High-Risk Children and Adolescents. *Journal of Child & Adolescent Substance Abuse*, 174-179.
- Lasser, J., & Schmidt, E. A. (2009, January). Substance Use, Abuse, and Dependency in Adolescents. *Principal Leadership*, 12-16.
- Lasser, J., & Schmidt, E. (2009, January). Substance Use, Abuse, and Dependency in Adolescence: addressing substance use and abuse among students requires long-term programs and coordination with families. *Principal Leadership*, 12-19.
- Lee, J. Y., Kim, W., Brook, J. S., Finch, S. J., & Brook, D. W. (2020). Adolescent risk and protective factors predicting triple trajectories of substance use from adolescence into adulthood. *Journal of Child and Family Studies*, 29, 403–412.
- Levy, S., Campbell, M. D., Shea, C. L., & DuPont, R. (2017). Trends in Abstaining From Substance Use in Adolescents: 1975–2014. *Pediatrics*, 1-10.
- Liddle, H. A., Dakof, G. A., Henderson, C., & Rowe, C. (2011). Implementation outcomes of multidimensional family therapy-detention to community: A reintegration program for drug-using juvenile detainees. *International Journal of Offender Therapy and Comparative Criminology*, 55(4), 587-604.
- LoBraico, E. J., Fosco, G. M., Crowley, D. M., Redmond, C., Spoth, R. L., & Feinberg, M. E. (2019). Examining Intervention Component Dosage Effects on Substance Use Initiation in the Strengthening Families Program: for Parents and Youth Ages 10–14. *Prevention Science*, 852-862.
- Luciana, M., & Feldstein Ewing, S. W. (2015). Introduction to the special issue: Substance use and the adolescent brain: Developmental impacts, interventions, and longitudinal outcomes. *Developmental Cognitive Neuroscience*, 16, 1-4.
- Mak, H. W., Russell, M. A., Lanza, S. T., Feinberg, M. E., & Fosco, G. M. (2020). Age-varying associations of parental knowledge and antisocial peer behavior with adolescent substance use. *Developmental Psychology*, 56(2), 298-311.
- Manion, I., Short, K. H., & Ferguson, B. (2012). A Snapshot of School- Based Mental Health and Substance Abuse in Canada: Where We Are and Where It Leads Us. *Canadian Journal of School Psychology*, 119-135.

ADOLESCENT SUBSTANCE USE DISORDER

- Masten, A. S. (2014). *Ordinary Magic: Resilience in Development*. New York , NY : The Guildford Press.
- Mayberry , L. M., Espelage, D. L., & Koenig, B. (2009). Multilevel modeling of direct effects and interactions of peers, parents, school, and community influences on adolescent substance use. *Journal of Youth and Adolescence* , 1038-1049.
- Meier, M. H., Caspi, A., Ambler, A., Harrington, H., Houts, R., Keefe, R. S., . . . Moffitt, T. E. (2012, August 27th). *Persistent cannabis users show neuropsychological decline from childhood to midlife*. Retrieved from PNAS : www.pnas.org/cgi/doi/10.1073/pnas.1206820109
- Miller , W., & Rollnick, S. (1991). *Motivational Interviewing: Preparing people to change addictive behavior*. New York : Guilford Press.
- Miller, D. N. (2011). *Child and Adolescent Suicidal Behavior: School-Based Prevention, Assessment, and Intervention*. The Guildford Press.
- National Association of School Psychologists. (2020). *Nation Association of School Psychologists*. Retrieved from NASP Practice Model 10 Domain: <https://www.nasponline.org/standards-and-certification/nasp-practice-model/nasp-practice-model-implementation-guide/section-i-nasp-practice-model-overview/nasp-practice-model-10-domains>
- National Institute of Drug Abuse . (2019). *Monitoring the Future Survey 2019 Survey Results: Overall Findings*. Bethesda, MD: National Institute of Drug Abuse .
- National Institute of Drug Abuse. (2014, January 1). *Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide*. Retrieved December 2019, from National Institute of Drug Abuse: <https://www.drugabuse.gov/publications/principles-adolescent-substance-use-disorder-treatment-research-based-guide/introduction>
- National Institute on Drug Abuse. (2003). *Preventing Drug-Use among Children and Adolescents: A Research-Based Guide for Parents, Educators, and Community Leaders (2nd ed.)*. U.S. Department of Health and Human Services.
- National Institute on Drug Abuse. (2016). *Principles of substance abuse prevention for early childhood: A research-based guide*. U.S. Department of Health and Human Services .
- Newton, N. C., Teeson, M., Vogl, L. E., & Andrews, G. (2010). Internet-based prevention for alcohol and cannabis use: final results of the Climate Schools course. *Addiction*, 749-759.
- Nock, N. L., Minnes, S., & Alberts, J. L. (2017). Neurobiology of substance use in adolescents and potential therapeutic effects of exercise for prevention and treatment of substance use disorders. *Birth Defects Research*, 109(20), 1711-1729.
- Otten, R., Mun, C. J., & Dishion, T. J. (2017). The social exigencies of the gateway progression to the use of illicit drugs from adolescence into adulthood. *Addictive Behaviors*, 73, 144-150.

ADOLESCENT SUBSTANCE USE DISORDER

- Panayioutou, M., Humphrey, N., & Hennessey, A. (2020). Implementation matters: Using complier average causal effect estimation to determine the impact of the promoting alternative thinking strategies (PATHS) curriculum on children's quality of life. *Journal of Educational Psychology, 112*(2), 236-253.
- Plackis, C. (2011, December). Academic Success for Students in Families Affected by Alcoholism. *Principal Leadership* , 12-16.
- Prince-Embury, S. (2015). Risk Behavior and Personal Resiliency in Adolescents. *Canadian Journal of School Psychology, 209-217*.
- Robbins, M., Feaster, D., Horigian, V., Rohrbaugh, M., Shoham, V., Bachrach, K., . . . Szapocznik, J. (2011). Brief strategic family therapy versus treatment as usual: Results of a multisite randomized trail for substance using adolescents. *Journal of Consulting and Clinical Psychology, 79*(6), 713-727.
- Rogers Behavioral Health. (2014, February 24). *DSM-5 Now Categorizes Substance Use Disorders in a Single Continuum*. Retrieved from Rogers Behavioral Health: <https://rogersbh.org/about-us/newsroom/blog/dsm-5-now-categorizes-substance-use-disorders-single-continuum>
- Sarra L. Hedden, S. S. (2010, January). Patterns of illegal drug use among an adult alcohol dependent population: Results from the National Survey on Drug Use and Health. *Drug Alcohol Depend., 10-17*.
- Schonfield, D., Adams, R., Fredstrom, B., Weissberg, R., Gilman, R., Voyce, C., . . . Speese-Linehan, D. (2015). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly, 406-420*.
- Sheidow, A. J., & Henggeler, S. W. (2012). Multisystemic therapy with substance using adolescents: A synthesis of the research. In N. J. (Ed.), *Understanding and Treating Adolescent Substance use Disorders: Assessment, Treatment, Juvenile Justice Responses* (pp. 9-1-9-22). Civic Research Institute.
- Shekhtmeyster, Z., & Sharkey, J. (2011). The Influence of Multiple Ecological Assets on Substance Use Patterns of Diverse Adolescents. *School Psychology Review* , 40(3), 386-404.
- Singh, N., McCann, H., Weber, M. K., Gonzalez, S. J., & Alzate, M. M. (2018, October). Adolescent Screening, Brief Intervention, and Referral to Treatment for Substance Use: An Application for School Social Workers. *Children & Schools, 249-251*.
- Spoth, R., Trudeau, L., Shin, C., Ralston, E., Redmond, C., Greenberg, M., & Feinberg, M. (2013). Longitudinal effects of universal preventive intervention on prescription drug misuse: Three randomized controlled trials with late adolescents and young adults. *American Journal of Public Health*(103), 665-672.
- Stormshak, E., Connell, A., Veronneau, M., Meyers, M., Dishion, T., Kavanagh, K., & Caruthers, A. (2011). An ecological approach to promoting early adolescent mental health and social adaptation: family-centered intervention in public middle schools. *Child Development, 209-225*.

ADOLESCENT SUBSTANCE USE DISORDER

- Substance Abuse and Mental Health Services Administration. (2019, April 13). *SAMHSA* . Retrieved from Mental Health and Substance Use Disorders: <https://www.samhsa.gov/find-help/disorders>
- Sugai, G. (2007). Promoting behavioral competence in schools: A commentary on exemplary practices. *Psychology in Schools, 44*, 113-118.
- The Family Check-Up. (2020). *The Family Check Up*. Retrieved from Arizona State University Reach Institute: <https://reachinstitute.asu.edu/family-check-up>
- Thorton, L. K., Chapman, C., Leidl, D., Conroy, C., Teeson, M., Slade, T., . . . Newton, N. (2018). Climate schools plus: An online, combined student and parent, universal drug prevention program. *Internet Interventions, 36-45*.
- Trudeau, J. K., Black, A. R., Kamon, J. L., & Sussman, S. (2017). A Randomized Controlled Trial of an Online Relapse Prevention Program for Adolescents in Substance Abuse Treatment. *Child Youth Care Forum, 437-454*.
- Tyler, K. A., & Ray, C. M. (2019). Risk and protective factors for substance use among youth experiencing homelessness. *Children and Youth Services Review, 107*.
- Vaidya, J. G., Elmore, L. A., Wallace, A. L., Langbehn, D. R., Kramer, J. R., Kuperman, J., & O'Leary, D. S. (2019, July). Association Between Age and Familial Risk for Alcoholism on Functional Connectivity in Adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 692-701*.
- Van Ryzin, M. J., & Roseth, C. J. (2018). Peer influence processes as mediators of effects of a middle school substance use prevention program. *Addictive Behaviors, 180-185*.
- Van Ryzin, M., Stormshak, E., & Dishion, T. (2012). Engaging parents in the family check-up in middle school: Longitudinal effects on family conflict and problem behavior through the high school transition. *Journal of Adolescent Health, 627-633*.
- VanDerNagel, J., Kiewik, M., Kemna, L., Engels, R., & DeJong, C. (2016). Substance use prevention program for adolescents with intellectual disabilities on special education schools: a cluster randomised control trial. *Journal of Intellectual Disability Research, 191-200*.
- Veronneau, M., Dishion, T., Connell, A., & Kavanagh, K. (2016). A randomized, controlled trial of the family check-up model in public secondary schools: Examining links between parent engagement and substance abuse progressions from early adolescence to early adulthood . *Journal of Consulting and Clinical Psychology, 526-543*.
- Voas, R. B., Torres, P., Romano, E., & Lacey, J. H. (2012, May). Alcohol-related risk of driver fatalities: An update using 2007 data. *Journal of Studies on Alcohol and Drugs, 73*, 341-350.
- Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-aged children and youth. *Journal of Emotional and Behavioral Disorders, 4*, 193-256.

ADOLESCENT SUBSTANCE USE DISORDER

- Willoughby, T., Good, M., Adachi, P., Hamza, C., & Tavernier, R. (2013, December). Examining the link between adolescent brain development and risk taking from a social-developmental perspective. *Brain Cognition*, 83(3), 315-323.
- Wong, S., Zhou, B., Goebert, D., & Hishinuma, E. (2013, October). The risk of adolescent suicide across patterns of drug use: a nationally representative study of high school students in the United States from 1999 to 2009. *Social Psychiatry and Psychiatric Epidemiology*, 48(10), 1611–1620.
- World Health Organization . (2019, October 23). *Adolescent mental health*. Retrieved from World Health Organization : <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
- World Health Organization. (2018). *Global status report on alcohol and health 2018*. Geneva: World Health Organization.
- World Health Organization. (2020). *Health Topics: Substance Abuse*. Retrieved from World Health Organization: https://www.who.int/topics/substance_abuse/en/
- World Health Organization. (2020). *Substance Abuse: Facts and Figures* . Retrieved from World Health Organization: https://www.who.int/substance_abuse/facts/en/