

A LITERATURE REVIEW ON TREATMENT METHODS FOR ADOLESCENT
SUBSTANCE USE ISSUES

By

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A Thesis Submitted to The W.A. Franke Honors College

In Partial Fulfillment of the Bachelor's degree
With Honors in

Psychology

THE UNIVERSITY OF ARIZONA

MAY 2022

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Abstract

This literature review examines different treatment modalities for adolescent substance use issues in order to assess efficacy. The question of efficacy is an important one, as adolescent substance use issues are an ongoing problem (Winters et al., 2011). Over the course of the review, I searched the databases PsycINFO and Google Scholar, and found scientific research articles on topics pertaining to “adolescent substance use treatment, therapeutic boarding school efficacy, AA, adolescent resident programs, wilderness programs, family therapy, adolescence substance use”. After finding articles, they were reviewed for relevance and quality. After review, it was concluded that treatments such as CBT, family therapy, and motivational interviewing had been shown through research to be effective treatment methods for adolescent substance use issues. Treatments such as wilderness programs, therapeutic boarding schools, residential programs, AA, and D.A.R.E. all have shown to either have a lack of research or the research is inconclusive or ineffective for adolescent substance use issues. Parents should focus their resources on treatments that have been shown through research to be beneficial and have a treatment model that is based on valid theories, such as CBT and Family Therapy models.

Keywords

Substance Use Disorder: A cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems (APA, 2013).

Adolescence: Begins with the onset of puberty and ends when an adult identity and behavior are accepted. This period of development corresponds roughly to the period between the ages of 10-19 (WHO).

Maintenance Phase: This phase in addiction recovery is when the individual has made positive changes and is working actively on preventing relapse (Marlatt & Donovan, 2005)

Transporters: Individuals that are hired by parents to forcibly remove children from the home and transport them to a program (Golightley, 2020).

A Literature Review On Treatment Methods For Adolescent Substance Use Issues

Imagine you are 16 years old, sleeping in bed on what feels like a typical Wednesday night. Suddenly at 4:00 am, you are woken by two strange men telling you to get up and gather some things and that you are going away for some time. You are scared and start screaming for your parents, but they stand there watching and don't stop the strangers from taking you away. They take you to a car to the airport and board a flight together to a treatment program in the middle of the wilderness. You are surrounded by strangers, have no access to a phone or internet, and are not told how long you will be there.

This experience is familiar to many adolescents who have been whisked away to wilderness programs and therapeutic boarding schools due to problems with substance use (Golightley, 2020). Substance use disorder is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems (APA, 2013). In 2019, 4,777 young adults died from overdosing (*Teenage drug use statistics*, 2022). Furthermore, it is estimated that 1.5 million teenagers met criteria SUD in 2011. Despite that, only 7% of those teenagers receive treatment (Winters et al., 2011). Between 50,000 and 100,000 adolescents currently spend at least part of their year at a therapeutic boarding school or wilderness program (Mooney, 2021). Given the commonality of such programs, it is important to properly evaluate the efficacy of these programs. Unfortunately, there appears to be little guidance for parents when making such a stressful and financially impactful decision.. The following review identifies ten treatments and programs that address the issue of substance use in adolescents. It will examine research on the treatments and programs, draw conclusions on the efficacy of each treatment and program, and make recommendations for future directions.

DARE

While the main body of this paper will focus on treatment, one other potential solution presents itself: preventing youth from developing substance use problems at all. The most well-known of the prevention programs is DARE. The school based educational drug prevention program is widespread across the United States (About D.A.R.E, 2021). This program was founded in 1983 and focuses on educating kids on substance use prevention (About D.A.R.E, 2021). DARE specifically targets an audience of students including adolescents. The program is delivered to millions of school children every year and has been active for the past 30 years. The program employs tens of thousands of law enforcement officers and directors to travel throughout America and the globe to teach. DARE has annual federal expenditure of \$750 million (Pan & Bai, 2009). While the programs vary, the essential program and educational content is based on the core theory that adolescent drug use and risky behavior results from peer pressure. Education on how to stand up against peer pressure is common in the program.

Two researchers, Pan and Bai, conducted a multivariate meta-analysis that reviewed 20 studies that evaluated the effectiveness of the DARE Program in the United States (2009). This meta-analysis revealed that the program has a less than small effect on both drug use and psychosocial behavior. The results suggest that the program is not an effective way to prevent drug use in students in the United States. The program is also expensive given the largesse of its federal expenditure. The ineffectiveness of the program combined with the cost makes it clear that the DARE program is not the best choice for addressing adolescent substance use disorders.

The question remains as to whether the DARE program could be effective. The primary issue with DARE is that it is built off the core assumption that peer pressure is the main cause for

adolescent drug use. However, there is little data to support this assumption (Reed and Rountree, 1997). In reality relationships with peers are only one of many reasons adolescents use drugs. Many other factors exist: popular media, escape and self-medication, boredom, rebellion, instant gratification, lack of confidence, and misinformation (Partnership to End Addiction, 2020). Given its overfocus on peer pressure, it is unsurprising that DARE has been ineffective.

Cognitive Behavioral Therapy

Cognitive behavioral therapy (CBT) is a form of psychotherapy that works on modifying dysfunctional emotions, behaviors, and thoughts by interrogating and uprooting negative or irrational beliefs (APA, 2017). CBT is appropriate for all ages and has been used to treat a variety of conditions such as anxiety, PTSD, eating disorders, OCD and addiction. In most forms, CBT can be a brief treatment, lasting between 5-20 sessions, which keeps it at a lower cost (APA, 2017). CBT is based on cognitive and behavioral theories which focuses on the effects of thoughts on behaviors and emotions.

At its core, cognitive behavioral therapy for substance use targets thoughts, emotions and behaviors which contribute to the use of said substances. CBT teaches patients how to use healthier coping skills when faced with the desire to use a substance. It also teaches patients how to disrupt negative thought cycles to end the vicious cycle of drug use. Waldron and Kaminer (2004) conducted randomized clinical trials on adolescents and reviewed them for treatment efficacy. The researchers found that individual CBT was associated with significant and clinically meaningful reductions in adolescent substance use. Because the study looked specifically at group-delivered CBT, it also countered the idea that bringing problematic youths in a group will result in further negative behaviors. A second study compared the efficacy of

cognitive behavioral therapy to psychoeducational therapy in adolescents with substance use disorders (Kaminer et al., 2002). The study found that adolescents who were assigned CBT had lower rates of positive urinalysis at a three month follow up compared to adolescents assigned to psychoeducational therapy. The results show that though both treatment options were effective, CBT had better outcomes for adolescents with substance use disorders. As shown by research adolescent substance use can be sufficiently treated with CBT, in a small number of sessions.

Compared to other interventions, cognitive behavioral therapy benefits from a robust theoretical basis. It provides an accurate conceptualizing of substances use as a set of learned behaviors that are initiated and maintained in the context of environmental factors (Waldron & Kaminer, 2004). This conceptualization has shaped the models of CBT and lends to the efficacy of the treatment for adolescent substance use.

Relapse Prevention and CBT

Relapse prevention is a model used within a cognitive behavioral framework which focuses on specific thought processes intended to support the maintenance phase of substance use treatment. The maintenance phase is the period of time after which an individual has stopped using substances. Relapse prevention focuses specifically on high-risk thought processes associated with relapse. It attempts to reduce the self-blame and guilt associated with relapse. The aim is to implement interventions during relapse to prevent the negative behaviors associated with the abstinence violation effect (Marlatt & Donovan, 2005). Abstinence violation effect is the combination of internal, stable, and global causal attributions for using a substance following the attainment of abstinence (Curry, S., Marlatt, A. G., & Gordon, J. R., 1987). Instead

of viewing relapse as a failure, the patient is encouraged to view relapse as a natural learning experience and part of long term treatment.

Researchers have found that the cognitive framing of relapse is crucial in truly preventing relapse (Hendershot, C. S., Witkiewitz, K., George, W. H., & Marlatt, G. A., 2011). The abstinence violation effect has an affective and cognitive component. The affective component frames relapse in relation to guilt and shame and triggers a discrepancy in identity between being an abstainer and using a drug. The cognitive component focuses on whether the individual believes that relapse is internal and uncontrollable or external and in their control. If the individual believes that relapse behavior is internal and uncontrollable, they have a heightened risk of relapse due to one lapse. However, if an individual believes that relapse behavior is external and controllable, they are at less risk to have a full relapse due to one lapse (Marlatt & Donovan, 2005). Those who view relapse as a learning experience and not a full failure are more likely to learn from their experiences and work on new coping skills for future situations that may trigger a lapse. The relapse prevention model of CBT has high efficacy for this reason and helps individuals make progress in maintenance rather than framing a relapse as a full devastation.

Attributional theory underlies relapse prevention, and its strong theoretical basis helps to bolster its effectiveness (Rawson, R. A., Obert, J. L., McCann, M. J., & Marinelli-Casey, P., 1993). This focus helps those who are trying to abstain from drug use by attributing relapse to an external and controllable behavior which helps reduce the risk of a full relapse due to one lapse to drug use. Research on relapse prevention has been done on adult populations, so it is important to do research on adolescents in order to understand more about the efficacy for the adolescent population.

Relapse Prevention with Medications

Relapse prevention through medication focuses on the maintenance phase of the habit change in drug use. This focus reframes relapse to not be just a failure in treatment and rather a point of intervention (Marlatt & George, 1984). Relapse prevention can be done through different pharmacological agents that can help with withdrawal symptoms and ease drug cravings. These medications can be expensive without insurance, so this is not an accessible form of treatment for every individual (Douaihy et al., 2013).

Pharmacological agents have three objectives: management of withdrawal symptoms, reducing cravings, and prevention of relapse. Reducing withdrawal symptoms helps prevent patients from using drugs to prevent the withdrawal symptoms from starting, which is part of the vicious cycle of drug addiction (Douaihy et al., 2013). Naltrexone is an example of an anti-craving medication for long term treatment and has been shown to reduce the frequency of drinking. There are also medications such as Antabuse that reduce the enzyme that breaks down alcohol. However, only 19% of patients take Antabuse consistently (Douaihy et al., 2013). These medications have shown to be effective especially with helping ease and reduce withdrawal systems to help people get past the initial barrier of detoxing.

It is important that patients are also active in psychotherapy and behavioral treatment along with being consistent with their medications to have the best chance at preventing relapse. Another study also looked at the efficacy of psychiatric medications in reducing drug withdrawals and cravings. This study echoes the importance of psychotherapy in combination with medications (O'Brien, 2005). Methadone, which is in the opiate category, has been used successfully to maintain abstinence for years in previous heroin users. Naltrexone is mentioned

again for its effectiveness in reducing opiate cravings long term. This study also echoes the importance of compliance with taking medication, and that compliance is one of the biggest issues with the efficacy of psychiatric medications in relapse prevention.

Relapse prevention focuses on the physiological and neurological interactions when drugs are consumed. The pharmacological medications are formulated off the understanding of how drugs interact in bodies physiologically. For this reason, when taking the medications consistently, they work at reducing craving and chance of relapse. However, the issue with medications is that most people do not take them consistently, and therefore are more prone to cravings and relapse. There has also been little research on medication in the treatment of adolescents.

Alcoholics Anonymous

Alcoholics Anonymous is a 12 step program that has been around since 1935 (History of A.A.). The 12-step program is not based on research or any research based theories. Alcoholics Anonymous is typically hosted in community centers and churches so it is very low cost and accessible to many individuals.

During the program, members have sponsors that support them through the process of completing all 12 steps and maintaining sobriety. These 12 steps include admitting powerlessness to alcohol, admitting wrongs, and making amends to people wronged (Ackermann, 2021). AA focuses on a traditional model of motivation which is considered a no-win situation for clients. If the clients can remain abstinent long term their success is credited to the program rather than their own persistence, strength, and desire to change. However, if the client is unable to abstain and seen as unsuccessful, they blame input on issues within the client

not the program (Miller, 1983). There is never a situation within the program in which the client can succeed and attribute their success to their own positive change and mindset which can prove to be a challenge in staying abstinent long term. AA puts significant weight behind the self-labeling of 'alcoholic' and believes that "owning the label" is a crucial part to moving forward to becoming sober. However, research has shown that there is no association between self-labeling and ability to stay sober long term (Miller, 1983). Another important thing to note is that AA is religious and references prayer and God throughout the 12 steps. It is unknown if the religious component is beneficial to long term abstinence and more research needs to be done.

There is some evidence that AA may be effective. One study found that 68% of AA attendees were able to stay sober for a 30 day period compared to 37.7% for the non-attendees group (Ye & Kaskutas, 2009). In adolescents, a study looked at adolescent perception of AA programs and the results showed that adolescents liked the group dynamic aspect of AA and the support that comes with it (Kelly et al., 2008).

There is some evidence that AA can be effective and it is low-cost and accessible. However, AA's focus on crediting the program for a client's success rather than on the clients self-efficacy and persistence, could theoretically lead to a heightened abstinence violation effect. This makes it more likely that if someone were to lapse, they would go into a full relapse because AA conceptualizes a lapse as starting back at step 1. More research needs to be done on AA's effectiveness as well as specifically on adolescents. The research done on adolescents thus far has not shown clear effectiveness.

Motivational Interviewing

Motivational Interviewing is a form of therapy in which a therapist emphasizes individual responsibility in a nonjudgmental way in hopes of the patient eventually agreeing to get treatment for their substance use disorder (Miller, 1983). Motivational interviewing is effective in helping adolescents acknowledge their behavior and highlighting that it goes against their values, so that they agree to want to change their substance use behavior. Motivational interviewing tends to consist of less than five sessions since it is seen as a bridge to pursuing further treatment. For this reason, it can be affordable since it is a short-term form of treatment.

Researchers compiled a meta-analytic review of effectiveness of motivational interviewing interventions for adolescent substance use behavior change (Jensen et al., 2011). When completing the meta-analysis researchers discovered that a small but statistically significant effect size can be found when using motivational interviewing for adolescent substance use behavior change. They also observed that when following up within 24 months there was a large effect size on the change in behavior due to motivational interviewing. The study noted that motivational interviewing produced a small but significant effect size on adolescent substance use behavior regarding numerous substances such as tobacco, alcohol, marijuana, and illicit drug use, however tobacco was the drug with the least effect on behavior change with the use of motivational interviewing (Jensen et al., 2011).

A separate literature review found that 67% of the trials they reviewed showed significant reductions in some type of substance use (Barnett et al., 2012). The review also compared the effectiveness of motivational interviewing in a group setting vs individual setting. They found that all three groups reported positive effects while only 63% of individual studies did. The review also revealed that in the group school-based interventions those that included the parents resulted in significantly more positive effects than groups with the adolescents only (Barnett et

al., 2012). Overall motivational interviewing has been found to be effective for change in substance use behaviors for adolescents.

All the studies reviewed in both the meta-analysis and the literature review either found no effect or a positive effect for motivational interviewing on adolescent substance use behavior change. This shows that there are no negatives or consequences to using motivational interviewing as an intervention, and that overall, there is a significantly positive effect of motivational interviewing on adolescent behavior change with substance use. Additionally, involving parents showed to report an even higher effect change in adolescent substance use behavior. This intervention is also affordable and short term which makes it more accessible to the average family.

Wilderness Program/Therapeutic Boarding Schools

Wilderness programs are short term intensive treatments in which adolescents live at the program's facilities for a span of a couple months. In many cases, adolescents then move from wilderness programs onto therapeutic boarding schools which tends to be a long-term form of treatment since many adolescents stay for over a year (Mooney & Leighton, 2019). Both wilderness programs and therapeutic boarding schools exercise control over the adolescents' daily lives. Any form of contact with the outside world must first be approved by the supervisors at the facility. Adolescents can be prescribed psychiatric medication while staying at the programs, however they have no say in which medication they want to take. These programs are also extremely expensive, and the industry receives an estimated \$23 billion dollars annually (Krebs, 2021).

Research on the efficacy of wilderness programs and therapeutic boarding schools is limited since many of these organizations are extremely private about what happens behind closed doors. The articles that have been written focus on stories and reflections rather than the method of a case control study which limits the strength of the findings. Another important note is that many parents hire ‘transporters’ to perform a legal kidnapping in order to send their child away to one of these programs. When parents hire these transporters, their children typically have no idea they are being sent away and are woken up to the legal kidnapping and taken to a plane to go to the program of choice.

Many of the case studies echo the loss of trust between the parents and children after being sent to these types of programs against their will (Golightley, 2020). The event of being legally kidnapped was traumatic for most teens who shared their reflections. Another article was evaluated in which one specific all girls boarding school program was interviewed and studied. This program also exercised intense control over the adolescents in the program. One specific example was shared in which one student attempted suicide through consuming shampoo, so the program confiscated everyone’s shampoos for some time as a collective punishment (Marchant, 2013). These programs also do not specialize in certain disorders so the adolescent’s that get sent tend to have a variety of issues ranging from depression to substance use issues. Therefore, the treatment cannot be as effective since it doesn’t necessarily cater to all the adolescents’ individual and specific needs.

Wilderness programs and therapeutic boarding schools have not been thoroughly evaluated for efficacy, especially with the specific issue of substance use in adolescents. Systematic research is almost nonexistent and the case studies that have been published show little to no sign of efficacy. Such treatments also have no consistent theory of change or treatment

modality, and no extant research would suggest it as an effective treatment. Given the cost and lack of theoretical basis, it is difficult to recommend this form of treatment.

Residential Programs

Residential programs are an intensive form of treatment for adolescents with substance use issues. The program format can range from large, locked facilities to more group home styled living (Development Services Group, 2019). These programs focus on improving two aspects of the adolescents' lives: school and family. Residential programs can be both public and private and can sometimes be covered by insurance.

Research was conducted by Behrens and Satterfield (2007) to evaluate the long-term effects on family function and academics for adolescents who were enrolled in a residential program. The review evaluated data collected from nine private residential programs to evaluate efficacy. The review found that due to adolescent participation in the residential programs both youth and parents reported significant positive effects on family function. Even after the 12 month follow up there was still a significant positive effect in comparison to intake surveys (Behrens & Satterfield, 2007). Similar results were found for academic function. However, it is important to note that the two researchers work at a therapeutic boarding school which makes them biased. Additionally, the review revealed that family participation in therapy was the only significant predictor of successful discharge and that parents receiving separate teletherapy resulted in significant improvement for family function and communication (Behrens & Satterfield, 2007).

A second research article looked at what factors were predictive of long-term positive effects of residential treatment for adolescent substance use after discharge. The researchers

found that continual care adherence after discharge from residential treatment is associated with reduced substance use and substance related problems 9 months after discharge (Garner et al., 2007). However, the authors do not seem to provide a clear definition of adherence. Another study followed 105 adolescents through residential treatment and compared the data between the 68 who completed treatment and the 37 who did not complete (Wei et al., 2011). There were no differences found between the two groups on any demographic, psychosocial, and behavioral measures both before and after the treatment. The 68 adolescents that completed the residential treatment self-reported significant increases in coping skills and attachment and self-reported increase in motivation to avoid using substances (Wei et al., 2011). Residential programs have shown through research to be effective in reducing substance use behavior and related problems in adolescents.

Research has shown that residential programs are an effective form of treatment for adolescent substance use issues. Two factors that contribute to the success of residential programs in family function and academics is family participation in treatment and continual care adherence after discharge. Residential programs are successful at improving family function and academics past a 12 month follow up of discharge. For these reasons, residential programs are an effective form of treatment for adolescent substance use issues.

Family Therapy

Family therapy is a form of therapy that includes the whole family. The aim of family therapy is to examine the dynamics within the family to target behavioral problems that are due to unhealthy or problematic dynamics. Unhealthy or negative dynamics include power struggles, poor communication, excessive criticism, and unpredictable interactions. Family therapy can be

used to address substance use behaviors within adolescents by conceptualizing alcohol and drug abuse as behaviors that develop and are maintained in the context of maladaptive family relationships (Weisz & Kazdin, 2017). Family therapy typically consists of weekly sessions for several months.

Weisz & Kazdin (2017) evaluated the efficacy of functional family therapy for substance use disorders in adolescents. They report that improving family function and interactions is key to reducing the adolescents substance use disorder. Functional family therapy focuses on changing interaction patterns in the family so that the functions served by drinking or taking drugs are met through other, more adaptive behaviors. Research has supported that functional family treatment is effective for severely delinquent youth and helps decrease recidivism and is more cost effective than any other out of home placement for youth (Hartnett, D., Carr, A., Hamilton, E., & O'Reilly, G., 2017).

Another article discussed adolescent substance abuse treatment options as a whole and cited family therapy as a promising option. The article mentioned that family interventions have significant short term outcome effects on adolescent substance use (Kaminer, 2001). Importantly, the authors noted that family therapy includes many different types, such as multisystemic therapy, functional therapy, motivational interviewing, community reinforcement, 12 step approach and CBT, all of which show promise in reducing substance abuse in adolescents (Kaminer, 2001). A third article looked at the efficacy of multidimensional family therapy for adolescent substance use through a randomized control trial. MDFT was compared to peer group intervention and the research found several differences. MDFT demonstrated better treatment completion rates and reported more positive family functioning (Liddle et al., 2009). Both treatments showed significant effect on substance use and delinquency (Liddle et al., 2009).

Family therapy has been shown to be an effective way to treat adolescent substance use disorders by addressing family dynamics to support the adolescent. More research should be done on the different types of family therapy to evaluate if one type is more effective for adolescent substance use disorders. Though the types are not as individualized in most research, family therapy has been shown to have significant positive effects on adolescent substance use behaviors.

Harm Reduction

Harm reduction is a category of services such as needle exchange programs, peer naloxone distribution, and drug consumption rooms (Kimber et al., 2010). These services are all provided with the intention of keeping those who are currently using drugs safer. These are not services that focus on abstinence for substance use disorders but rather aim to help keep those who are currently using substances stay safer by lowering risk of contracting HIV and overdosing. These types of efforts are typically government sponsored and are accessible in most large cities within the United States.

Researchers conducted a literature review to evaluate efficacy of harm reduction methods on lowering HIV transmission rates and overdoses (Kimber et al., 2010). This review looked at nine papers. When evaluating the association between needles exchange programs and HIV incidence the results were inconclusive. Most of the research found no association while some found a positive association, and others found a negative association (Kimber et al., 2010). The results are therefore inconclusive on whether needle exchange programs have an effect on HIV transmission rates. For drug consumption rooms' effect on overdose deaths there is some evidence that at the community level these rooms can reduce about 2% of deaths per year

(Kimber et al., 2010). However, drug consumption rooms are not accessible to the majority of the population that uses drugs so they cannot have a significant effect on overdose deaths for most of the population. For peer naloxone distribution a study was reviewed from Chicago in which the city implements more than 3500 vials of naloxone amongst drug users and within the three years that followed overdose deaths reduced by 20%, 10%, and an additional 10% consecutively (Maxwell et al., 2006). This study helped conclude that peer naloxone distribution was an effective way to have a significant impact on overdose death rates.

Harm reduction methods differ in efficacy however some methods such as peer naloxone distribution prove to be effective when looking at research. Harm reduction may not be available to adolescents as a resource for substance use issues since legality issues can be a problem with offering these services since adolescents are considered minors when under the age of 18. More research needs to be done on harm reduction efficacy specifically looking at needle exchange programs associated with HIV transmission rates. Additionally, research needs to be done on harm reduction efficacy for adolescent populations.

Discussion

In examining the research, several limitations become apparent. Overall, there is a lack of research done on the variety of treatment methods offered. Some of the research is also not necessarily reliable or validated. Furthermore, most of the available research does not directly compare multiple treatment modalities simultaneously. Therefore, while it is sometimes possible to conclude that a treatment is effective, it is frequently more difficult to conclude which treatment is more effective.

A good example of the research limitations comes from work on wilderness programs, therapeutic boarding schools, and residential programs. In those cases, each program is unique, and therefore research done for one program has no external validity for another program in the same category. The research that has been done comprises case studies, so there is a lack of scientific research. Furthermore, the research lacks internal validity because many of these programs are private and therefore control the information and data they share with researchers.

Often, treatment providers also over-rely on research done on adults and fail to validate models specifically for adolescents. . While research done on substance use treatments for adults is valuable, the results and efficacy cannot be blindly transferred to an adolescent population. Adolescents have a developing brain that is different from the adult developed brain, and therefore need treatments that are tailored to their stage of brain development (AACAP, 2016). Additionally, there is a lack of strong theoretical basis for many modalities. The so-called wilderness treatment programs, for example, do not articulate any clear theory of change. They also do not appear to be based on any body of scientific or theoretical literature. While it is possible to study any intervention to see if it is effective, a lack of valid theoretical underpinnings raises questions about the reliability of results. It is also important that treatments are developed on the basis of validated psychological theories in order to be considered scientific best practice. Research has also failed to systematically assess the cost effectiveness of interventions aimed at adolescents. While effectiveness is important, the financial impact of treatment is also valuable knowledge. . It is important to find cost effective treatments so that adolescents can recover without parents having to be concerned about finances. Many residential programs, therapeutic boarding schools, and wilderness programs cost more than college tuition, so it is important that

whatever treatments are being sought out are as cost effective as possible to protect the adolescent and their families. .

Comorbidity of substance use issues and other psychological disorders also play a role in treatment efficacy. However, in the industry of substance use treatment for adolescents there is a general theme of over-specialization in which they only focus on the substance use and do not look at other possible comorbidities. This could hinder the ability of the treatment having long term efficacy if other problems that are comorbid are being ignored. Additionally, due to all substances being illegal for adolescents, there is an over focus on abstinence even though it may not be the most beneficial for the individual. With adults there are moderated drinking programs that help practice healthy use behaviors so that adults can learn to use alcohol in a moderate way. Since all substances are illegal for adolescents, these options are never pursued even though they may be beneficial in the long run. Finally, research tends to group all substance use disorders together. However, treatments efficacy may vary depending on the substance the adolescent is addicted to. There is a lack of research done on the varying substances and the difference in efficacy of treatment amongst them.

What we do know is that out of the treatment modalities discussed two different treatment methods stand out as the most effective based on validated and reliable research. The first treatment method is cognitive behavioral therapy. Cognitive behavioral therapy has been researched thoroughly while specifically focusing on the population of adolescents and how CBT addresses substance use issues. It also conceptualizes treatment in a way that is tailored for adolescents and founded in evidence-based theory.

Though CBT is effective, it is ultimately designed for use in adults. However, family therapy is designed specifically for use with children and families.. Family therapy is an

umbrella term that includes many different types of family therapy. However, research has shown that overall, regardless of the type of family therapy it is effective in treating adolescent substance use issues. Though more research should be done comparing the different types of family therapy for efficacy, family therapy is a beneficial treatment type.

Future Directions

In general, more high-quality research needs to be done on all the treatment modalities mentioned in order to better understand their level of efficacy and how cost effective they are. Research should focus on case control studies and head-to-head comparisons in order to improve the utility of findings. It is also important that research is conducted by individuals that hold no stake in the results for research to be valid and as unbiased as possible.

Moderating factors need to be further investigated as well. One of the most common moderating factors is that a lot of research looks specifically at the population of adolescents that have been involved with court mandated treatment. Treatment that is beneficial for adolescents that have been involved with legal issues may not be directly transferred to adolescents who have not had involvement with court. Furthermore, factors such as culture, SES, family dynamic, gender, religion and more could moderate which treatments may be most effective for specific adolescents. Ultimately, the question of which treatment is effective may not have a single answer, and moderating factors can help answer the question of which treatment is effective for which types of people.

Research into therapeutic boarding schools, wilderness programs, and residential programs would also benefit from expansion into questions about ethics and trauma. There have

been well-reported issues of abuse, trauma, and false advertisement at these programs and should be considered when evaluating not only efficacy, but also costs and benefits.

Conclusion

Treatment modalities which have been evaluated to be effective by high quality research, such as cognitive behavioral therapy and family therapy, should be prioritized by parents when searching for treatment for their adolescents with substance use issues. Treatment options that are as invasive as therapeutic boarding schools, residential programs, and wilderness programs should be avoided since they have not been evaluated to be effective, and difficult to evaluate in their present form. It is important for parents to focus their resources on treatments that have been shown to be effective through validated research.

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