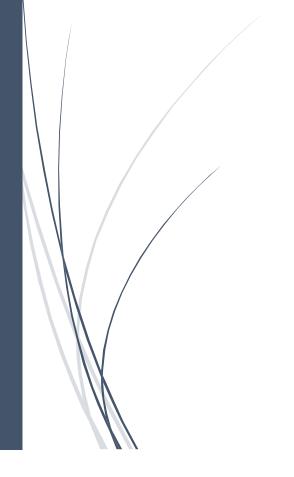4/1/2021

Emerging Interventions: Updating Georgia's Compendium, Part II

PROSPECTUS GROUP·LLC

Introduction

In general, social indicators tell us that alcohol, tobacco and other drug use are having significant consequences on youth, and warrant prevention efforts. Drug use is having a significant impact on student achievement; 41% of youth admitted to having used alcohol, 31% used marijuana and 8% used other drugs including cocaine and prescription drugs.

A substantial portion of adolescents and young adults engage in heavy, problematic consumption of alcohol and illegal drug use, putting them at risk for numerous detrimental consequences for their mental, physical, and social well-being. By 2005, 12 to 20-year-olds drank 11% of all alcohol consumed in the United States, with more than 90% consumed in the form of binge drinking (DOJ, 2005). In 2016, 19% of youth aged 12 to 20 years drank alcohol and 12% reported binge drinking in the past 30 days (SAMHSA, 2017). 18 to 25-year-olds display even higher rates of alcohol initiation, alcohol use disorder, and illicit drug use than their younger and older counterparts, with increasing rates of serious mental illness and major depressive episodes (SAMHSA, 2018). Furthermore, excessive drinking is responsible for more than 4,300 deaths among underage youth each year and costs the U.S. $24 billion in economic tolls in 2010 (CDC, 2018; Sacks, 2015).

Investigating this potential, current research has sought to examine the methods and effectiveness of various alcohol prevention programs. Many of the most promising prevention and intervention programs utilize the affordances (i.e., possibilities) of technology to leverage cost, reach, and access to provide vital support to reach large numbers of people, and many have shown significant positive outcomes in preventing and managing problematic alcohol use.

This review aims to provide an overview of emerging interventions that can be integrated into comprehensive public health systems to address the negative consequences of alcohol and other substance use disorders. There are three parts to this review, corresponding to different approaches that various approaches take with the design of their initiatives. Part I describes four promising technology-based interventions. Part II reports on three brief interventions. Part III demonstrates the potential of integrated interventions (i.e., those that combine different theoretical approaches) to support overall behavioral health outcomes.

PART I: TECHNOLOGY BASED INTERVENTIONS (ONLINE, MOBILE, AND DIGITAL)

Article 1: Technology-based Interventions for Substance Use and Comorbid Disorders: An Examination of the Emerging Literature

Summary

Approximately 40% of the roughly 20 million individuals with a substance use disorder (SUD) have a comorbid psychiatric disorder. However less than 55% of individuals with SUDs and comorbid diagnoses receive professional treatment. While integrated treatments for comorbid diagnoses are recommended and have demonstrated effectiveness, they are limited in availability and accessibility. **Technology-based interventions (TBIs)—interventions delivered by automated computer, mobile system, or internet with little to no live therapist involvement—have the potential to overcome these treatment barriers and reach both a larger number of individuals and a broader demographic by offering flexible, cost-effective, and easily accessible alternatives to in-person care.** Due to the importance of developing TBIs for co-occurring SUDs and other mental illnesses, and the shortage of such TBIs, this study evaluated the current state of research on TBIs targeting SUDs and comorbid disorders toward guiding next steps to raise the effectiveness and accessibility of these interventions (p. 1-3, 8, 9).

Searching articles, feasibility and acceptability pilot studies, protocols of planned studies, and randomized control trials, researchers identified nine distinct TBIs for SUDs and comorbid disorders. **The two TBIs with the strongest results were the computer-delivered SHADE program developed for depression and comorbid alcohol and/or other drug use, and the web-based VetChange program for veterans with problematic alcohol use and PTSD symptoms.** Both skills-focused TBIs were associated with reductions in psychiatric symptoms and substance use. Duration and intensity appeared to be an important factor in TBI efficacy, as limited-session integrated intervention and low-intensive text messaging intervention showed little success in reducing alcohol use and depressive symptoms. However, TBIs focused on co-occurring SUDs and borderline personality disorder, as well as disaster-affected individuals with substance use, depression, and anxiety demonstrated feasibility and acceptability (p. 4-8, 11).

Although very limited, varied, and in need of substantial growth, **the emerging literature on TBIs that address SUDs and comorbid psychiatric disorders is overall promising, particularly for TBIs focused on problematic alcohol use, depression, and/or anxiety.** Future research developing TBIs for SUDs and comorbid eating disorders and psychotic disorders is needed, as is designing more randomized control trials of comorbid TBIs. The majority of TBIs to date have emphasized adapting traditional clinician-delivered content for transmission via

computer, mobile phone, or internet. While this is an important first step, ongoing efforts should explore and utilize dynamic means of harnessing the full potential of technology (p. 8-11).

CITATION

Sugarman, D. E., Campbell, A. N., Iles, B. R., & Greenfield, S. F. (2017). Technology-based interventions for substance use and comorbid disorders: an examination of the emerging literature. *Harvard Review of Psychiatry*, 25(3), 123.

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Article 2: Prevention of Alcohol Use in Older Teens: A Randomized Trial of an Online Family Prevention Program

Summary

Increasing rates of alcohol use during teen years create an important public health issue, with alcohol use and related problem behaviors greatly affected by parents, and many aspects of the parent-teen relationship demonstrated to be important for older teen alcohol use. However, family-based prevention programs are frequently focused on younger adults. To address this issue, researchers examined outcomes for alcohol use and related behaviors for families participating in Smart Choices 4 Teens, an online, interactive, family-based prevention program for older teens, aged 16-17 (p. 1-4).

In the study, parents and teens navigated the online program separately and had off-line, structured discussions using hypothetical scenarios of teen alcohol use, designed to promote teen skill building. Outcomes were measured by intent to treat (ITT) and variations in dosage. In ITT measures at 6-month follow-ups, teens taking the program reported fewer friends who had been drunk in the past six months compared to teens not enrolled in the program, and parents reported higher levels of communication about social host laws. At 12-month follow-ups, parents additionally reported consuming fewer drinks (p. 4-9).

In program dosage results at 6-month follow-ups, **"higher program dosage was significantly related to primary outcomes related to alcohol consumption including a lower likelihood of teens' reporting any alcohol use the past six months or past 30 days**, less frequent drinking during the past six months and past 30 days, fewer drinks consumed over the past 6 months, and less drunkenness and binge-drinking during the past 30 days" (p. 14). At 12-month follow-ups, dosage was also positively related to similar outcomes, demonstrating the program's sustained effects.

Findings from the Smart Choices 4 Teens program suggest that its use is advantageous for families and effective in preventing teen alcohol use, particularly as parents and teens completed more of the program content—specifically the Alcohol Prevention component. As delaying the onset of drinking is associated with better results for teens during their adult years, "efforts to engage parents and teens in changing teens' behaviors and attitudes toward alcohol use should produce beneficial health outcomes in the future" (p. 14-16).

CITATION

Byrnes, H. F., Miller, B. A., Grube, J. W., Bourdeau, B., Buller, D. B., Wang-Schweig, M., & Woodall, W. G. (2019). Prevention of alcohol use in older teens: A randomized trial of an online family prevention program. Psychology of Addictive Behaviors, 33(1), 1.

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Article 3: A Pre-Post Study on the Appropriateness and Effectiveness of a Web- and Text Messaging-Based Intervention to Reduce Problem Drinking in Emerging Adults

Summary

Binge drinking, or risky single-occasion drinking (RSOD) is common in the youth and young adults of Western countries, yet there is little work done to evaluate interventions aiming to reduce RSOD in young people with lower educational backgrounds--such as vocational school students in the Swiss educational system. **The authors of the study posited that social norms interventions to reduce problem drinking can be more effective for individuals with lower educational levels if they use shorter, more recurrent feedback messages, particular using text messaging (SMS).** Their study aimed to test the relevance of a combined web and SMS-based intervention to reduce problem drinking in vocational school students, and to test its effectiveness. To do so, they used a longitudinal pre-post design baseline assessment and follow-up at 3 months using questionnaires. The program itself, Alk-Check, created individualized feedback and text messages based on the data from the initial assessment, and was thus based on gender, age, number of drinks in a typical week, and frequency of RSOD in the last 30 days.

The feedback included information about i) drinks per week based on age and gender-specific reference group, ii) financial cost of drinking, iii) calories of alcoholic drinks, and iv) number of heavy drinking occasions based on age and gender-specific reference group. The quantity of SMS was tailored according to baseline patterns, according to which participants were placed in one of the following groups: non-risk, low-risk, or high-risk.

The content of the SMS was based on: gender, motivation for reduced alcohol consumption, alcohol-related problems, typical drinking day and time, number of standard drinks in a week, and number of drinks on a single occasion within the past 30 days. The non-risk group received one weekly SMS with general information about drinking, the low-risk group received one weekly SMS with the same information and additional messaging around risks of binge drinking, and the high-risk group received one weekly SMS with the information the other groups got, plus information about services for alcohol counseling and a bi-weekly SMS focused on strategies to reduce alcohol consumption.

The outcome criteria to measure the effectiveness of the intervention was the reported frequency of risky single-occasion drinking in the past 30 days, the number of drinks in a standard week, the number of drinks on one occasion in the past 30 days, and alcohol-related problems in the last 3 months. The study's main findings were that: i) many vocational students were reached by the program, ii) the program was widely accepted (94% of participants finished the program), and iii) the program reduced problematic alcohol consumption in that population. **Indeed, the authors report that the data showed a statistically significant reduction in the number of individuals with at least one RSOD in the past month compared to baseline, along with a statistically significant decrease in alcohol-related problems.** For the researchers, the promising effectiveness of the program using comprehensive individualized feedback through SMS could encourage sensible drinking and be used with a variety of student populations.

CITATION Haug, S., Schaub, M. P., Venzin, V., Meyer, C., John, U., & Gmel, G. (2013). A pre-post study on the appropriateness and effectiveness of a Web-and text messaging-based intervention to reduce problem drinking in emerging adults. J*ournal of Medical Internet Research*, 15(9).

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Article 4: A Randomized Controlled Trial Testing the Efficacy of a Brief Online Alcohol Intervention for High School Seniors

Summary

Seeking to identify effective interventions for high school students that disrupt patterns of heavy drinking, researchers examined the impact of the **brief, web-based personalized feedback intervention eCHECKUP TO GO on alcohol use and related consequences among high school seniors.** Such school-based interventions are an opportunity to reach large groups of adolescents who may not receive services elsewhere, and computer-based interventions

show potential based on their cost-effectiveness, novelty, improved access, and treatment fidelity.

Study participants were high school seniors who received either the eCHECKUP TO GO intervention or assessment only, with students completing online surveys at baseline and 6-week follow-up. Results demonstrated several findings favorable to students who used the intervention versus students who received assessment only. Intervention participants reported a significant reduction in peak drinking quantity, weekly drinking quantity, and frequency of drinking to intoxication relative to the assessment-only group.

High-risk students (students having one or more episodes of heavy episodic drinking in the past two weeks at baseline) in particular benefited significantly from a greater reduction in alcohol use relative to students in the assessment-only group. High-risk students in the intervention group reported a 15% reduction in weekly drinking, a 42% reduction in peak drinking, and a 33% reduction in drinking to intoxication, versus a 37% increase in weekly drinking, a 7% reduction in peak drinking, and a 17% reduction in drinking to intoxication in the assessment-only group. Although there was a significant decrease in alcohol-related consequences for all participants, there were no differences in alcohol-related consequences between the intervention group and assessment group.

Overall, the eCHECKUP TO GO intervention showed significant effects in reducing alcohol use among high school seniors engaged in risky drinking behavior. Because the progression through high school is marked by an increase in alcohol use, identifying programming for this age group is critical. Study outcomes suggest that "providing a brief, web-based personalized feedback intervention in the school setting is a promising approach for reducing problems alcohol use among high school seniors who report recent heavy episodic drinking" (p. 706).

CITATION
Doumas, D. M., Esp, S., Flay, B., & Bond, L. (2017). A randomized controlled trial testing the efficacy of a brief online alcohol intervention for high school seniors. *Journal of Studies on Alcohol and Drugs*, 78(5), 706-715.

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PART II: BRIEF INTERVENTIONS

Article 5: Preventing Drug Use Among Sexual-Minority Youths: Findings from a Tailored, Web-Based Intervention

Summary

While LGBTQ adolescents use substances for the same reason as their heterosexual peers, they also use substances because of the chronic stress of identifying as part of a sexual-minority group. These unique stressors indicate that LGBTQ youth need targeted interventions. However, targeting interventions to LGBTQ youth in the traditional intervention modes (that is, interventions that occur in schools or other face-to-face environments) require LGBTQ youth to self-disclose sexual identity. This limits interventions to adolescents who are already "out" to themselves, their peers, and their parents.

This study developed a web-based drug abuse prevention program for sexual-minority youths. It used Facebook ads to recruit 15-16 year old LGBTQ youths to take part in the program. The program used an animated young adult narrator to guide the participants through the three-session program. Session 1 focused on skills for identifying and managing stress; session 2 provided a five-step guide for making decisions; and session 3 addressed drug use rates and refusal skills. After three months, participants noted that they felt less stress, less peer drug use, and less past 30-day other drug use, and higher coping, problem solving, and drug-use refusal skills.

This study suggests that interventions should be targeted to LGBTQ adolescents. The interventions should allow young people to participate without parent permission and without publicly disclosing their orientation. **Online interventions allow for a safe, non-stigmatizing environment for these interventions.** Online interventions also benefit from a broad reach and low administrative costs.

CITATION

Schwinn, T. M., Thom, B., Schinke, S. P., & Hopkins, J. (2015). Preventing drug use among sexual-minority youths: findings from a tailored, web-based intervention. J*ournal of Adolescent Health*, 56(5), 571-573.

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Article 6: Brief Alcohol Interventions for Adolescents and Young Adults: A Systematic Review and Meta-analysis

Summary

Responding to evidence that a significant number of adolescents (ages 11-18) and young adults (ages 19-30) put themselves at risk for multiple detrimental health consequences due to heavy consumption of alcohol, r**esearch has increasingly sought to both identify effective intervention programs that hinder or prevent initiating alcohol use and intervene in the**

progression of heavier users toward increased problematic use. This meta-analysis of 185 such studies examined the effects of brief alcohol interventions on alcohol-related outcomes for adolescents and young adults not seeking treatment (p. 1-5).

Advantageous due to their brevity and the varied settings in which they can be delivered, **brief interventions—interventions aimed at providing motivation for behavior change in a relatively short time period (one to five session)—were associated with significant post-intervention reductions in alcohol consumption and problematic alcohol-related outcomes.** These effects were modest, though positive and significant, for both adolescents and young adults, however somewhat smaller in magnitude for young adults.

Further findings indicated that the positive effects of brief alcohol interventions lasted up to one year after the end of intervention. Additionally, though these effects were found to be consistent across different intervention formats and participant demographics, different forms of treatment and therapeutic components were associated with different levels of effectiveness. **For example, single session interventions delivered with less than five minutes of total contact time—e.g. offering personalized feedback reports to read—yielded the largest mean effect on both alcohol consumption and problematic alcohol-related outcomes (p. 6-13).**

Overall findings demonstrate that brief alcohol interventions led to significant decreases in alcohol-related problems and alcohol consumption among young adults and adolescents. Effects were consistent across diverse settings, formats, and populations and persisted up to one year after intervention, with motivational interviewing combined with goal-setting exercises and decisional balance associated with the most beneficial outcomes. **Despite the magnitude of effects being generally modest, brief alcohol interventions are potentially worthwhile given that, "the brevity and low-cost of these interventions allow them to be applied on a relatively large scale where they may add incrementally to the influences that deter risky drinking among youth"** (p. 16). To optimize beneficial effects, providers may want to incorporate findings suggesting that delivery aspects, site, and modality may affect positive outcomes (p. 1-3, 14-16).

CITATION

Tanner-Smith, E. E., & Lipsey, M. W. (2015). Brief alcohol interventions for adolescents and young adults: A systematic review and meta-analysis. *Journal of Substance Abuse Treatment*, *51*, 1-18.

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Summary

Examining whether the Brief Alcohol Screening and Intervention for College Students (BASICS) program would benefit heavy-drinking undergraduates mandated to the program versus volunteers following a campus alcohol violation, researchers developed the first randomized BASICS trial to study disciplinary-related and naturalistic changes in drinking up to one year post-intervention. **As a brief motivational intervention (BMI), BASICS includes an assessment of drinking practices and alcohol problems, providing face-to-face sessions with participant self-monitoring of alcohol use and personalized written feedback presented in a motivational interviewing format.** Previous research has established that BASICS is associated with decreased drinking and alcohol problems among heavy-drinking student volunteers, however no previous studies have tested whether mandated student participants benefit as much as their volunteer counterparts. (p. 1-4)

225 undergraduates between the ages of 18 and 24 enrolled in the study. Inclusion criteria consisted of:

- drinking at least monthly and endorsing past month binge drinking (e.g., consuming more than five drinks per 2-hour drinking occasion for men, four for women);
- reporting at least three alcohol-related problems on three to five occasions in the past year;
- scoring greater than 6 on the Alcohol Use Disorder Identification Test (AUDIT), indicating risky drinking practices.

Intervention outcome assessments were collected at baseline, 4 weeks, 3, 6, and 12 months post-intervention. **At both 4 weeks and 12 months post intervention, BASICS significantly reduced typical drinking, peak drinking, and alcohol-related problems. (p. 5-12)**

Results of the study indicate that BASICS led to sustained, long-term reductions in drinking and alcohol-related problems in both volunteer and mandated participants. **BASICS produced "significant decreases in weekly drinking, typical alcohol consumption, and peak alcohol consumption," with a large effect on decreases in alcohol problems** (p. 11). Researchers recommend the provision of programs within a disciplinary setting, screening for alcohol risk severity to inform treatment referral decisions, and the use of face-to-face assessment and feedback sessions involving self-monitoring of drinking. **As BASICS-style BMI appears to be as effective in decreasing risky alcohol use among heavy-drinking mandated students as for volunteer students, the application of these programs within disciplinary**

settings may assist in decreasing problematic and heavy drinking among at-risk students (p. 1, 11-13).

CITATION

Terlecki, M. A., Buckner, J. D., Larimer, M. E., & Copeland, A. L. (2015). Randomized controlled trial of brief alcohol screening and intervention for college students for heavy-drinking mandated and volunteer undergraduates: 12-month outcomes. *Psychology of Addictive Behaviors*, *29*(1), 2.

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PART III: INTEGRATED INTERVENTIONS

Article 8: Questions and Reflections: The Use of Motivational Interviewing Microskills in a Peer-Led Brief Alcohol Intervention for College Students

Summary

In this article, the authors explain that many preventive intervention programs have been created to address high-risk drinking among college students, and that further examination and evaluation of these programs is necessary for the efficaciousness of interventions. As such, the authors look at the Brief Alcohol Screening and Intervention for College Students motivational program (BASICS) to investigate how the peer facilitator use of questions and reflections relates to participant outcome. **BASICS is a recognized program based on brief motivational interventions that has displayed evidence of efficacy in reducing drinking rates and frequency, alcohol-related problems, as well as heavy drinking in college students, high risk college freshmen, fraternity members, and students who were mandated to take the intervention**. With BASICS, students receive feedback on: their own drinking, perceived and actual norms, strategies for reducing use and preventing consequences, in addition to cognitive behavioral skills aiming to modify beliefs and behaviors linked to high risk drinking, and motivational enhancement techniques to change the target behavior.

Alcohol interventions like BASICS therefore use motivational interviewing (MI), a client-centered method that relies on specific questions and reflective statements to direct the conversation toward behavior change in relation to alcohol. Questions are closed or open to elicit information, beliefs, and feelings, while reflective statements range from simple to complex to interpret a client's statement about drinking behaviors. The Motivational Interviewing Treatment Integrity (MITI) is a coding system used to assess the therapist's delivery of MI. The present study thus assessed the integrity of peer facilitator delivery of MI in

BASICS at one college campus to evaluate changes in drinking as a function of the peer facilitator's use of questions and reflections.

The authors looked at these measured through the frequency of closed and open questions in a 20-minute session, the number of simple or complex reflections, the Daily Drinking Questionnaire for alcohol use, and the Readiness to Change Scale to assess motivation to reduce alcohol use behaviors. Their findings highlight that peer facilitators met the criteria for beginning proficiency on empathy, MI-adherent statements, and percent of open questions, but did not meet criteria for proficiency on MI spirit, ratio of reflections to questions, or percent of complex reflections, according to the MITI. Neither types of questions (open or closed) related to changes in participant drinking, and reflections were not related to changes in behavior. **As a result, the authors conclude that the MITI is a valuable tool to assess and improve foundational skills in MI, as well as a preliminary step in developing the overall quality of MI delivery by peer facilitators.**

CITATION

Tollison, S. J., Lee, C. M., Neighbors, C., Neil, T. A., Olson, N. D., & Larimer, M. E. (2008). Questions and reflections: the use of motivational interviewing microskills in a peer-led brief alcohol intervention for college students. *Behavior Therapy*, *39*(2), 183-194.

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Article 9: Treating Adolescent Drug Abuse: a Randomized Trial Comparing Multidimensional Family Therapy and Cognitive Behavior Therapy

Summary

In addition to the effectiveness of environmental strategies, which aim to make changes in the ecological context around substance use, emerging substance abuse prevention research has begun to explore the connection between cognition, interpersonal dynamics, and behavioral health. According to Liddle (2008), **interventions that include cognitive-behavioral therapy (CBT) and multidimension family therapy approaches (MDFT) can be considered promising approaches to reducing adolescent substance use and misuse.**

Liddle and colleagues conducted a randomized control study, in which participants received either a CBT or MDFT-based intervention. Participants were mainly low-income, African-American young men, aged 15 years old, most of whom were referred from the juvenile justice system. 75 percent of study participants were classified as being "cannabis dependent," and 20 percent of whom were classified as being "alcohol dependent." Thirteen percent were

classified as "other drug dependent" (Liddle, 2008, p. 1661). Participants were randomly assigned to receive either CBT or MDFT.

Cognitive-behavioral therapy suggests that substance use is a learned behavior, and acknowledges that environmental factors (e.g., the household, community, social networks, and others) can lead to substance use and misuse, and cognition plays a role in this use/misuse. In conjunction with their parents, school officials, and juvenile justice officials, participants identified problem areas to focus on, with the goal of increasing coping skills and reducing unhealthy behaviors (i.e., substance use).

Multi-dimensional family therapy is a treatment option that aims to provide tools for communication, coping, interpersonal relationships (i.e., including working with parents to set appropriate boundaries, and decreasing emotional conflict and increasing problem-solving), and navigating systems (e.g., the juvenile justice system) in order to foster a number of different competencies.

The results found that both CBT and MDFT are "efficacious treatments" (p. 1667) under certain conditions; however MDFT is more successful in "decreasing drug severity…[which] is important because they reveal the extent of impairment resulting from drug use" (p. 1667). In addition, **the effects of MDFT were found to be significant one-year after treatment completion; one year later, 64% of youth receiving MDFT treatment showed minimal drug use**, compared to 44% of youth in CBT condition.

CITATION

Liddle, H. A., Dakof, G. A., Turner, R. M., Henderson, C. E., & Greenbaum, P. E. (2008). Treating adolescent drug abuse: A randomized trial comparing multidimensional family therapy and cognitive behavior therapy. *Addiction*, *103*(10), 1660-1670.

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Article 10: Emerging Adults in Substance Misuse Intervention: Pre-Intervention Characteristics and Responses to a Motivation-Enhancing Program

Summary

Emerging adulthood (EA), roughly between the ages of 18-25, is a time of particularly high risk-taking behavior, especially regarding substance use. Intervention programs during EA are distinctly necessary as substance misuse at this age can indicate longer-term problems. Classifying drinking patterns among emerging adults required to attend a motivational-enhancing (ME) intervention into four alcohol use profile groups—two low-risk statuses (abstinence and light drinking) and two high-risk statuses (occasional heavy drinking and

frequent heavy drinking)—**this study examined changes among individuals undertaking the Prime For Life (PFL) program, and sought to determine whether sex and being of legal drinking age were predictors of transitions to lower alcohol use intentions. (p. 1-3)**

1183 study participants from ten U.S. states—court-ordered to attend PFL after arrest for driving while intoxicated—were categorized into pre-intervention and post-intervention profiles based on their 90-day drinking behavior before intervention and their 90-day drinking intentions after intervention. Results showed that many participants had lower-risk intentions for future drinking compared to pre-intervention alcohol use. **Despite over two-thirds reporting high-risk drinking prior to PFL, less than a third expressed the intention to do so post-intervention.** Participants in both low-risk status groups largely remained in the same status post-intervention —specifically 93% of low-risk abstinence participants and 84% of low-risk light drinkers—with transition to a higher-risk profile extremely rare. **Additionally, many participants in high-risk statuses transitioned to lower-risk statuses, reflecting future intentions of lesser drinking.** For example, three-quarters of participants in the high-risk frequent heavy drinking status transitioned to a lower-risk intention status. (p. 4-10)

Overall findings indicated that many participants in the ME program PFL showed transitions to lower-risk profiles, regardless of sex or being above versus below the legal drinking age, albeit for more women than men in the heaviest drinking group. **These results demonstrate that positive short-term changes are possible in emerging adults during ME intervention.** Further research is needed to examine longer-term outcomes and may benefit from this method of classifying individuals according to alcohol use profiles (p. 11-12, 3, 1).

CITATION
Beadnell, B., Crisafulli, M. A., Stafford, P. A., & Casey, E. A. (2016). Emerging adults in substance misuse intervention: preintervention characteristics and responses to a motivation-enhancing program. *Addiction Science & Clinical Practice*, *11*(1), 16.

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Conclusion

There is a strong need for substance abuse prevention and intervention initiatives aimed at reducing the negative consequences of adolescents and emerging adults aged 18-25, as this group "endorses the highest rates of cannabis use (19%), alcohol use (59%), binge drinking (38%), and illicit drug use (21%), compared with adolescents and older adults" (Davis et al, 2017, p. 242). In addition, one-quarter of all heroin users in the US are emerging adults, and their treatment outcomes are worse than other groups'. While interventions for adolescents are numerous, there are fewer interventions for emerging adults of this age group.

In this research review, we highlighted a number of promising interventions for emerging adults, many of which utilized two significant features: 1) using technology in an innovative manner; 2) brief intervention or limited number of sessions; 3) integrated interventions. Of the articles included in this review, many of them integrated psychological treatment strategies, such as cognitive behavior therapy (CBT), motivational interviewing (MI), and motivational enhancement, often in some combination with an innovative technology.

For example, Sugarman et al (2017) described a technology-based intervention aimed at substance users with a comorbid psychiatric disorder that can overcome barriers to treatment and take advantage of efficiencies of scale. Byrnes et al (2019) reported on an online family prevention aimed at older adoldscents, aged 16-17, who are influenced by parental attitudes and behaviors around alcohol. Haug and colleagues (2013) found that providing information about alcohol via text and online programs, as a follow-up to an initial assessment, was effective in reducing the incidence of risky drinking. Doumas (2017) described a similar alcohol-related intervention (delivered by text messages) to high school seniors, finding that risky behavior decreased as a result of the program.

Schwinn et al (2015) noted that, as a result of being part of a stigmatized group, teens who identify as LGBTQ should receive tailored interventions that take advantage of the affordances of the internet (i.e., availability, reduce barriers to access, cost-effective). Tanner-Smith & Lipsey (2015) conducted a meta-analysis of research on brief alcohol interventions for youth, finding that many of these interventions are promising. Despite showing modest results, the researchers noted that the brevity and scale allowed them to reach large number of users quickly and easily. Terklecki et al (2015) investigated a brief intervention that integrated brief motivational interviewing approaches, finding that this integrated approach produced significant decreases in drinking, especially among heavy-drinking users.

Finally, Tollison et al (2008) explored the use of motivational interviewing through an assessment tool called MITI that encourages program fidelity through the use of interviewing, questioning, and dialogue. Liddle et al (2008) compared multidimensional family therapy (MDFT) and cognitive behavior therapy (CBT), as interventions to reduce adolescent substance use. While both are efficacious, MDFT is more successful in treating drug severity while also having a somewhat longer treatment effect.

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Author Biographical Information

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