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Innovative Interventions & Prevention Efforts

Highlights from the Field

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Introduction

Emerging field research has demonstrated that innovative intervention and prevention efforts can have a significant impact on adolescent substance use and mental health concerns. Online public health interventions in particular have shown positive results in delivering meaning results through their accessibility, usability, broad reach, and cost-effectiveness. To measure the efficacy of current efforts to stem youth substance abuse and mental health risks, and address the need for developing further successful programs, recent studies have attempted to implement and document novel interventions that show promise in curbing youth health risks.

Investigating the potential of online interventions to confront teenage use of new and emerging drugs, Champion et al. (2015) developed the first school- and Internet-based prevention program targeting these drugs, and found that the program was effective, widely used, and easily spread.

Weinstock et al. (2017) analyzed a new, integrated exercise intervention combining motivational interviewing and contingency management that showed significant benefits for individuals recovering from substance abuse disorders, with results both suggesting that exercise may be a viable adjunctive treatment in interventions and demonstrating a novel and promising opportunity to improve treatment outcomes.

To address the connection between youth substance use experimentation and youth exposure to pro-substance use media messages, Scull et al. (2017) examined a media literacy education program (MLE) that proved to be an effective intervention for reducing substance use in children, and provided the first evidence that a web-based substance abuse prevention program using an MLE framework could reduce children's substance use experimentation.

Research by Teesson et al. (2020) explored the effectiveness of a combined online universal school-based intervention targeting youth depression, anxiety, and substance use, providing the first study to demonstrate the effectiveness of a universal online combined approach for preventing such health risks.

Assessing the ongoing need for accessible and effective prevention interventions for adolescent substance use and depression, Lattie et al. (2017) examined a field trial of an online intervention based on cognitive-behavioral therapy techniques and found that it decreased depressive symptoms and perceived stress and increased positive affect.

Article 1: Development of a Universal Internet-Based Prevention Program for Ecstasy and New Psychoactive Substances

Summary

Over the past decade, the Internet has emerged as a promising, recognized, and effective means of delivering public health interventions. Additionally, there has been considerable attention among researchers, policymakers, and the media regarding the manufacture and misuse of new and emerging drugs (NEDs), also known as Novel or Emerging Psychoactive Substances, “synthetic drugs” and “legal highs.” Given the potential of online interventions, and the rising danger of NEDs as a public health threat, researchers developed the first school- and Internet-based prevention program targeting NEDs. They proposed that prevention for NEDs can be delivered via the Internet, in conjunction with an existing prevention program for ecstasy, known as the *Climate Schools: Ecstasy Module* (p. 23-25).

The *Climate Schools: Ecstasy Module* is a four-lesson, ecstasy-prevention course designed to be delivered to Australian adolescents (aged 15 to 16 years) during their standard health education classes at school. **Based on a harm-minimization and social influence approach, the course utilizes cartoon storylines to engage students and impart knowledge about drugs.** Expanding this program to form the new and integrated *Climate Schools: Ecstasy and Emerging Drugs Module* consisted of two stages (p. 25, 26).

Stage 1 involved updating the existing program content relating to ecstasy by seeking feedback from young people to ensure that the nuances of language and changes in technology were taken into account. Student responses indicated that, on the whole, they enjoyed the program and found it to be an informative resource. Stage 2 incorporated new material about NEDs into the existing cartoon storyline and student and teacher resources.

Researchers decided on four key educational messages:

- legal does not mean safe;
- NEDs are not necessarily legal;
- taking NEDs is a gamble, and;
- most young people in Australia do not take NEDs.

The final teacher manual included three components for each lesson: a teacher summary, a student summary, and optional class activities. Student activities such as a “Stop and Think” component were added to each lesson to increase the level of interactivity and reinforce goal setting, peer pressure resistance, and decision-making (p. 26-28).

Overall, the strength and potential of the program derives from the fact that it will be among the first Internet-based interventions designed to specifically target ecstasy and NED

use among adolescents. If further revealed to be effective, **“the module will provide schools with an interactive prevention program for ecstasy and NEDs that can be easily disseminated among schools and readily implemented by teachers via the Internet.”** (p. 29).

Reference

Champion, K. E., Teesson, M., & Newton, N. C. (2015). Development of a universal internet-based prevention program for ecstasy and new psychoactive substances. *Open Journal of Preventive Medicine*, 5(01), 23.

Article 2: Combined Prevention for Substance Use, Depression and Anxiety in Adolescents: A Clusters Randomized Controlled Trial of a Digital Online Intervention

Summary

Recognizing that depression, anxiety, and substance use are a significant public health challenge that requires novel and scalable solutions, researchers investigated the effectiveness of a combined online universal school-based intervention targeting these concerns. Built on a social influence approach engaging youth through cartoon storylines, the Climate Schools-Combined program—merging two proven interventions in mental health and substance abuse—uses an online format designed to overcome common barriers to effective implementation (p. 74-77).

The program trial involved 6386 students 13-14 years old in 71 secondary schools across three Australian states, with various schools assigned to either the mental health program, the substance abuse program, the combined program, or a control group. Increases in alcohol knowledge scores were greater in the combined substance use groups than in the control group, and cannabis knowledge increased more in the combined than the control group. The combined group also showed greater increases in alcohol and cannabis knowledge than the mental health group (p. 77-79).

Additionally, knowledge about mental health rose more in the combined group than the control group, and the combined group also showed greater increases in cannabis and alcohol knowledge than the mental health group. **The odds of heavy episodic drinking in the combined group increased less than in the control and mental health groups, and depression and anxiety outcomes in the combined group were significantly lower than in the mental health group at 12 and 30 months.** Anxiety symptoms scores increased less in the combined group compared to the control and mental health groups at 12 and 30 months. (p. 79- 80).

The study is the first to demonstrate the effectiveness of a universal, online combined approach for preventing anxiety, depression, and alcohol use in young people. **Results support**

the efficacy of a combined intervention compared with school-based health education as usual and the standalone mental health course. However, study outcomes found no significant evidence for the superiority of the combined intervention compared with the standalone substance abuse course; and found no differences over time in the odds of probable anxiety and depression diagnoses between the combined and any other groups (p. 80-82).

Overall, the Climate-Schools Combined program was found to be “an effective model for increasing knowledge of alcohol, cannabis, and mental health; preventing alcohol use, including heavy episodic drinking; and reducing symptoms of anxiety and depression up to 30 months after baseline” (p. 83).

Reference

Teesson, M., Newton, N. C., Slade, T., Chapman, C., Birrell, L., Mewton, L., ... & Andrews, G. (2020). Combined prevention for substance use, depression, and anxiety in adolescence: a cluster-randomised controlled trial of a digital online intervention. *The Lancet Digital Health*, 2(2), e74-e84.

Article 3: Exercise as an Adjunctive Treatment for Substance Abuse Disorders: Rationale and Intervention Description

Summary

Exercise is associated with a broad range of focussed and long-term benefits for both mental and physical health, and is a promising adjunctive treatment for substance use disorders (SUD). Despite this, low adherence, lack of motivation, and high attrition rates limit the benefits of exercise interventions. To address these impediments, researchers analyzed a new, integrated exercise intervention combining *motivational interviewing* (MI), a client-centered approach to enhance internal motivation and resolve ambivalence towards change, and *contingency management* (CM), which provides monetary incentives for the completion of target behaviors (p. 1-3).

Occurring over six months and individually delivered in monitoring exercise, the MI+CM intervention consists of three MI sessions with weekly price-based CM sessions for specific exercise behaviors. The initial MI session introduces the program and incorporates an explanation of the CM components of the program; the second MI session after 3 months seeks to renew commitment and motivation; and the final MI session explores progress made over the length of the program and motivation to continue without the CM intervention’s external reinforcers (p. 4-8).

Introduction of the CM component at the first MI session involves explaining weekly exercise contracts, the CM reinforcement schedule, verification of exercise, and possible reinforcers such as prizes and gift certificates. Patients are given a heart rate monitor to verify exercise duration and intensity levels required to earn draws for prizes. With verification of all three activities in one week, a patient earns 3 draws plus bonus draws that start at 3 and rise to 10 over time with successful completion of all three exercise activities. After program introduction, patients meet with researchers to review progress on the prior week's exercise contract and develop a new contract for the upcoming week (p. 8-10).

The study concluded that **“exercise appears to be a viable adjunctive treatment for SUD with many benefits for patients and clinics,” with the present MI+CM intervention addressing key obstacles associated with initiation and continuance of exercise behaviors.** This integrated intervention demonstrates a novel and promising opportunity to improve treatment outcomes, with the potential for both increases clinic revenue and physical and psychological benefits for individuals recovering from SUD. (p. 12) (p. 11, 12)

Reference

Weinstock, J., Farney, M. R., Elrod, N. M., Henderson, C. E., & Weiss, E. P. (2017). Exercise as an adjunctive treatment for substance use disorders: Rationale and intervention description. *Journal of Substance Abuse Treatment, 72*, 40-47.

[Article 4: The Effectiveness of Online, Family-Based Media Literacy Education for Substance Abuse Prevention in Elementary School Children: Study of the Media Detective Family Program](#)

Summary

To confront the well-documented association between youth exposure to pro-substance use media messages and youth substance use experimentation, media literacy education programs (MLE) are designed to make youth more aware of their emotional responses to the media, and strengthen their logical responses to media messages. The current study examined the effectiveness of one such program, Media Detective Family, (MDF) in changing skills, attitudes, and behaviors associated with the interpretation of media messages and substance use in third-to-fifth grade children living in rural communities (p. 1-3).

MDF is a family-based, online prevention program in which parents and children are trained together to become media detectives who can solve a series of mysteries related to advertising, thus enabling children and parents to develop and practice critical thinking and communication skills to reduce their susceptibility to media persuasion. A total of 83 families

across Texas and North Carolina were randomly assigned to receive the MDF program or a control computer program. Researchers investigated program implementation with pretest, posttest, and three-month follow-up data collected through administration of self-interview questionnaires. (p. 4-7)

Children who received MDF reported a significant reduction in their use of tobacco and alcohol over time compared to children in the control group. **Although conceptualized as a preventive intervention, these results suggest that “the program can also be a successful intervention for high-risk children who are currently experimenting with alcohol or tobacco.”** Additionally, effect size analyses revealed a small but clinically meaningful reduction in willingness to use substances in the MDF group versus control group. Though study results found the MDF intervention had no significant effect versus control group on parent or child media deconstruction skills, and led to no meaningful changes on parent-child communication, they did provide evidence MDF positively impacted parents’ preparedness for having conversations with their children about substance use and the media. (p. 10) (p. 8-10)

On whole, study outcomes demonstrated that the MDF program was effective in decreasing substance use in children, and “provides the first evidence that a web-based substance abuse prevention program using an MLE framework and designed for use by families could be an effective intervention for reduction of children’s substance use experimentation” (p. 12) (p. 11, 12).

Reference

Scull, T. M., Kupersmidt, J. B., & Weatherholt, T. N. (2017). The effectiveness of online, family-based media literacy education for substance abuse prevention in elementary school children: Study of the Media Detective Family Program. *Journal Of Community Psychology*, 45(6), 796-809.

[Article 5: Teens Engaged in Collaborative Health: The Feasibility and Acceptability of an Online Skill-Building Intervention for Adolescents at Risk for Depression](#)

Summary

To address the continuing need for accessible and effective prevention interventions for adolescent substance use and depression, researchers examined a field trial of ProjectTECH, an online intervention based on *cognitive-behavioral therapy* (CBT) techniques. The study sought to gain information about the acceptability and feasibility of the program, compare differences between groups led by a peer versus a licensed clinician, and investigate the program’s impact on depressive symptoms, positive affect, perceived stress, and substance use (p. 15, 16).

The intervention recruited high school students primarily through social media and assigned them to four groups of 8-12 persons, jointly participating in an 8 week peer network based program led by a trained peer guide or licensed clinician. **Participants utilized instructional lessons, peer networking features, and CBT-based mood management tools, and completed online questionnaires at midpoint, post-intervention, and 1 month follow-up.** Lessons were released five times per week and required about 5 minutes to read, each concluding with a call to action to practice skills by using site tools or communicating with the peer group (p. 16-20).

Study results found that use of the program was higher than other online, mental health interventions targeting adolescents and primarily conducted in school settings. Outcomes further showed high program completion compared to similarly structured online programs for high school students. **While users identified areas for improvement—such as allowing for more personalization by the individual user and including more prompts to engage with the social network—the program yielded psychological benefits in reducing depressive symptoms and perceived stress, and increasing positive affect throughout the study period.** However there were no observed changes in substance use, and no evidence of any difference between clinician- and peer-led groups in program use, system usability, or psychological outcomes. (p. 20-23)

While future iterations of ProjectTECH would benefit from focussed attention to enhancing the user experience through program design—including modifications to the functionality of social network features, and broadening the extent to which users can personalize their experience—participants overall rated the program as usable. Though further research is needed to determine the efficacy of the program over a longer period of time, **overall results showed that ProjectTECH demonstrated feasibility, acceptability, and short-term benefits for participants (p. 24, 25).**

Reference

Lattie, E. G., Ho, J., Sargent, E., Tomasino, K. N., Smith, J. D., Brown, C. H., & Mohr, D. C. (2017). Teens engaged in collaborative health: the feasibility and acceptability of an online skill-building intervention for adolescents at risk for depression. *Internet Interventions*, 8, 15-26.

Conclusion

This review of research addressed the need for innovative interventions that leverage the affordances of technology, emerging approaches, and combinatorial strategies that aim to reduce the negative effects of substance use. There were many innovative interventions

described in this review, from internet-based approaches for new and emerging drugs to online skill-building programs.

The first article (Champion et al, 2015) described an innovative intervention that used cartoon storytelling to inform and educate young people about new and emerging drugs, aiming to reinforce that most youth, in fact, do not take ecstasy or NEDs. The second article, by Teeson et al (2020) investigated a digital program that combined two proven interventions in mental health and substance abuse, finding that the intervention was effective at increasing knowledge and preventing alcohol use. The third article (Weinstock et al, 2017), explored the use of exercise as an adjunctive (or additional) treatment, finding that exercise is aligned with a number of useful physical and mental health benefits. The fourth article, by Scull et al (2017), investigated a family-based, online media literacy program called Media Detective Family, finding that the program aimed at reducing drinking among young, rural users. In the final article (Lattie et al, 2017), investigators tested an intervention that mobilized cognitive behavioral therapy (CBT), finding that the intervention reduced depressive symptoms and perceived stress.

Author Information

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Tanner Brooks earned his BA in Political Science from Oberlin College and an MA (Distinction) International Studies and Diplomacy from the University of London School of Oriental and African Studies, where his thesis focused on examining the application of international human rights norms to the experience of child soldiers in Sierra Leone. He has a decade of experience in national and international activism, advocacy, and education, from working on political campaigns, nonprofits, and political action committees to writing and teaching politics and sociology as a professor in Tunisia. His recent work involves mentoring and tutoring teenage survivors of sex trafficking and providing counseling services at a suicide prevention call-line.

