



Substance use recovery outcomes among a cohort of youth participating in a mobile-based texting aftercare pilot program



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ABSTRACT

Project ESQYIR (Educating & Supporting Inquisitive Youth in Recovery) is a pilot study examining the feasibility of a 12-week mobile-based aftercare intervention for youth (ages 12 to 24) transitioning out of community-based substance abuse treatment programs. From January 2012 through July 2013, a total of 80 youth were recruited from outpatient and residential treatment programs, geographically dispersed throughout Los Angeles County, California. Results revealed that youth who participated in the texting mobile pilot intervention were significantly less likely to relapse to their primary compared to the aftercare as usual control condition ($OR = 0.52, p = 0.002$) over time (from baseline throughout the 12-week aftercare pilot program to a 90-day follow-up). Participants in the texting aftercare pilot program also reported significantly less substance use problem severity ($\beta = -0.46, p = 0.03$) and were more likely to participate in extracurricular recovery behaviors ($\beta = 1.63, p = 0.03$) compared to participants in the standard aftercare group. Collectively, findings from this pilot aftercare study suggest that mobile texting could provide a feasible way to engage youth in recovery after substance abuse treatment to aid with reducing relapse and promoting lifestyle behavior change.

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1. Introduction

A growing majority of adults currently in treatment for substance abuse are early-onset users, those who initiated first-time use within the adolescent or young adult time period (Dennis & Kaminer, 2006). Within early/middle adolescent to late adolescent/young adult developmental stages, data trends reveal that substance use problems increase with age. Specifically, current illicit drug use and binge drinking (in the past 30 days) among youth increased from 12% and 10% among 12 to 17 year olds to 26% and 32% among 18 to 25 year olds (Johnston, O'Malley, Bachman, & Schulenberg, 2012). A similar upward trend with age is seen in rates of substance use diagnosis and treatment. Past year illicit drug dependence and abuse was estimated at 7.3% for 12–17 year olds, rising to 20% among 18 to 24 year olds (SAMHSA, 2012). These statistics are troubling since research links substance use behaviors to problematic health, interpersonal, and social (i.e., school, work, legal) outcomes (Center for Disease Control and Prevention, 2012a, 2012b).

Although most substance abuse behavioral treatments show promise in producing immediate measureable changes in post-

treatment substance use, relapse in the initial year post-treatment remains a major concern for youth populations (Godley, Godley, & Dennis, 2001; Williams & Chang, 2000). Research shows that a majority will return to treatment, often more than once (Cornelius et al., 2003; Godley, Godley, Dennis, Funk, & Passetti, 2002; Winters, Botzet, & Fahnhorst, 2011). It is these relapse patterns that commonly lead to the development of the cyclic substance use-treatment trajectory commonly found among adult users (Anglin, Hser, & Grella, 1997). With over 18.9 million adults exhibiting substance use disorder in this past year, the importance of prevention at the youth developmental period cannot be overstated. Successful post-treatment aftercare efforts aimed at reinforcing relapse prevention are absolutely essential to help ward off the risk for these cyclic trajectories into adulthood (Kaminer & Godley, 2010).

Post treatment aftercare, also referred to as continuing care, has been recommended as an essential factor for maintaining treatment gains after treatment for both adults and adolescents with substance use disorders (Godley, Godley, Dennis, Funk, & Passetti, 2006; McKay, 2009). To date, however, there is little research on post-treatment aftercare programs for youth (White & Godley, 2007), with efforts often limited to traditional adult-modeled social support 12-step approaches (Kelly, Myers, & Brown, 2005). Although these approaches have been referred to as the perfect aftercare, most research on these type of social support programs have found poor

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compliance and limited engagement among young people with substance use problems post-treatment (Alcoholics Anonymous, 2007; Sussman, 2010). This is concerning since research has established that a significant predictor of positive treatment outcomes, i.e., reduced relapse at 1-year post-treatment follow-up is aftercare participation (Brown, D'Amico, McCarthy, et al., 2011; Burleson, Kaminer, & Burke, 2012).

There is a substantial unmet need for novel and innovative aftercare recovery support programs for engaging substance abusing youth post-treatment (Kaminer & Godley, 2010; Winters, Botzet, Fahnhorst, Stinchfield, & Koskey, 2009). Increasingly, mobile methods, using text-messaging models, have been widely embraced as promising behavior change interventions for youth populations (Patrick, Griswold, Raab, & Intille, 2008), especially within the healthcare arena of disease management (Cole-Lewis & Kershaw, 2010), addressing a variety of issues, including weight/obesity (Gerber, Melinda, Thompson, Shark, & Fitzgibbon, 2009), diabetes (Franklin, Waller, Pagliari, & Greene, 2006; Hanauer, Wentzell, Laffel, & Laffel, 2009), asthma (Dowshen, Kuhns, Johnson, et al., 2002), tobacco dependence (Rodgers et al., 2005), and sexual health (Leach-Lemens, 2009; Lim, Hocking, Hellard, et al., 2008). Collectively, such research has demonstrated that text messaging can produce effective behavior change results across diverse youth populations using relatively short behavioral based interventions (Fjeldsoe, Marshall, & Miller, 2009; Krishna, Boren, & Balas, 2009; Bauer, Percevic, Okon, Meermann, & Kordy, 2003). For instance, a text messaging behavioral intervention designed for smoking cessation among youth demonstrated improved quit rates at 6 weeks (Rodgers et al., 2005).

Given that most youth regularly use several diverse technology-based platforms, like laptops, tablets, kindles, iPads, and phones for entertainment, general information, and social interactions (Lenhart, Madden, & Hitlin, 2005; Rainee, 2008), a mobile-based, text-messaging approach is a potentially promising method to effectively reach youth challenged by substance abuse issues after treatment. The use of text-messaging in particular is appealing as a platform for youth, as it is supported by current U.S. based market sources which show texting to be the primary way that youth communicate, exceeding face-to-face contact, email, and voice-phone calls (Battestini, Setlur, & Sohn, 2010; Nielson Reports, 2010). Data reveal that the median number of texts sent on a typical day by teens 12–17 rose from 50 in 2009 to 60 in 2011 (Pew Internet & American Life Project, 2012). Moreover, American youth have been identified as perpetual texters, with adolescents (aged 13–17) sending or receiving 3,339 texts a month (six text per waking hour) and young adults (aged 18–24) sending or receiving 1,630 (three texts per waking hour) (Fox & Duggan, 2012).

The importance of appropriate aftercare services for substance abusing youth cannot be overemphasized. Without such services, the return to high risk environments and risk for relapse is extremely high (Brown & Ramo, 2006). This paper provides results of a pilot study examining the feasibility of a 12-week aftercare mobile intervention compared to standard aftercare for substance abuse recovery among youth aged 12–24.

2. Method

2.1. Participants

This pilot study included 80 substance abusing youth who participated in a randomized, controlled pilot trial of a mobile-based aftercare project called Project ESQYIR (Educating & Supporting Inquisitive Youth in Recovery). Inclusion criteria for study participation was youth between the ages of 12 to 25 years old, completing treatment for substance abuse, owning a cell phone with short message service (SMS) texting capabilities, willing to comply to study procedures, and providing parental consent (if an adolescent under 18). Study exclusion occurred if individuals exhibited severe medical

and psychiatric impairment that warranted hospitalization or referral to other treatment.

2.2. Procedures

All procedures for this study were approved by the institutional review boards of the University of California, Los Angeles, and Azusa Pacific University. Study recruitment for Project ESQYIR occurred at six community-based substance abuse programs that delivered treatment ranging from 12 to 16 weeks. A total of 3 outpatient and 3 residential programs located throughout diverse areas of Los Angeles County, California were used for study recruitment as they offered substance abuse treatment services to youth populations. Study research associates (RAs) recruited youth at these participating programs between January 2012 and July 2013 using in-person advertisement during treatment groups or posting brochure/fliers in treatment waiting areas and group rooms. Study information, including consent form materials were also left with treatment counselors to provide to youth who were approaching treatment completion and expressed interest in Project ESQYIR.

Study recruitment material conveyed project information, eligibility criteria, and a study contact phone number to call for obtaining more details. Interested youth who contacted the RA about study participation were screened for eligibility. Adolescent youth (under 18) were told to obtain parental consent and youth assent forms from their counselor to take home for approval and were instructed to contact the study RA after completing the forms for scheduling an appointment to enroll in the project. Similarly, young adult youth (18 years or older) who expressed interest with the study RA were scheduled for an enrollment session after the screening. RAs met with interested youth during a scheduled appointment at the treatment programs at a convenient time for them (i.e., before or after treatment groups) to review the consent forms.

During consent, youth were informed that they would be using their personal mobile phones while in the program and may experience costs of incoming and outgoing text messages. It should be noted that there were no refusals because of this aspect of the project and almost all of the youth expressed having unlimited free texting plans. Youth were also informed that, although their participation in the study was confidential and their personal information would be safeguarded for privacy (i.e., personal information would be de-identified using unique identification numbers and secured on an encrypted database), they should use a password protected sign-in for their phones during their participation in the program as well as engage in a process of cleaning or deleting the information they receive after viewing it to protect their privacy in the event they lost their phones. After consent, participants completed a battery of self-administered baseline assessments (see measures section below). After completion of assessments, participants met with the RA for an overview of Project ESQYIR and their study assignment that was obtained using a random generator number method to one of two study conditions (see details below) as well as an information card highlighting the importance of participating in 12-step (self-help groups) and a phone number they could call if they had questions or emergencies during the project.

2.2.1. Study conditions

Project ESQYIR consisted of a 12-week aftercare pilot program that randomly assigned youth who completed substance abuse treatment to one of two study conditions: (1) mobile-based aftercare intervention or (2) aftercare as usual standard control. Participants in both conditions received two monthly telephone calls for recovery monitoring during the active 12-week program. Participants were randomly assigned via research randomizer (see <http://www.randomizer.org/>). Participants in both conditions received two monthly telephone calls for recovery monitoring during the active

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