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Sexual HIV risk behavior outcomes of brief interventions for drug use in an inner-city emergency department: Secondary outcomes from a randomized controlled trial

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ABSTRACT

Background: Drug use is an established risk factor for HIV. Brief Interventions (BIs) targeting reductions in both drug use and HIV risk behaviors may help curtail these related epidemics. The present study evaluates the impact of BIs for drug use and HIV risk reduction on sexual HIV risk behaviors among a primarily marijuana-using sample during a 12-month post-intervention follow-up period.

Methods: We conducted a randomized controlled trial of 780 adult patients in an Emergency Department (ED) with past 3-month drug use (primarily non-injecting). This study used a 3 × 2 factorial design (3 ED-based conditions: computer-delivered brief intervention [Computer BI], therapist-delivered, computer-guided BI [Therapist BI], or enhanced usual care (EUC-ED) for drug-using adults; 2 follow-up conditions at 3 months: booster or control). This analysis examines the outcomes of the BIs on sexual HIV risk behaviors at 3-, 6-, and 12-months.

Results: Compared to the enhanced usual care control, the combined Therapist BI with booster resulted in significant reductions in scores on the sexual risk subscale of the HIV Risk Taking Behaviour Scale over 12-months, when controlling for baseline sexual risk, gender, and drug dependency status. The baseline interventions alone, booster alone, and Computer BI plus booster did not differ from the comparison group (EUC plus control).

Conclusions: A therapist-delivered BI for drug use and HIV risk behaviors, combined with a follow-up therapist-delivered booster, shows promise for reducing sexual HIV risk behaviors among a primarily marijuana using, non-injecting sample.

1. Introduction

Drug use is a risk factor for human immunodeficiency virus (HIV) infection with drug-using individuals encountering risk via engaging in sexual risk behaviors (e.g., multiple partners, condomless intercourse) and sharing injection equipment (Centers for Disease Control, 2013; El-Bassel et al., 2014). Most drug-using adults do not inject (Center for Behavioral Health Statistics and Quality, 2016); however, many are still at risk for HIV (and related outcomes including sexually transmitted infections [STIs] and Hepatitis C virus [HCV]) through sexual transmission (Epstein et al., 2015; Hearn et al., 2015). Research has identified associations between substance use and infrequent condom use and risky sexual decision-making (Berry and Johnson, 2017; Patrick et al., 2012). Adults in urban, resource-poor environments are at

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increased risk given the relative concentration of HIV in urban centers (Center for Disease Control and Prevention, 2015). Given the co-occurrence of drug use and HIV risk behaviors, brief interventions (BIs) addressing both may be needed (Edelman et al., 2012). Among a drug-using sample (91% used marijuana) with low rates of drug injection (4%), we describe intervention outcomes for sexual HIV risk behaviors among urban adults receiving Emergency Department (ED)-based BIs that primarily target drug use, but address HIV risk behaviors as a secondary behavioral target.

1.1. The emergency department as a setting for drug and HIV-related brief interventions

The hospital ED is a location where BIs may capitalize on a "teachable moment" when patients may have heightened health concerns. Also, people who use drugs are more likely to seek ED care than people who do not (Cherpitel, 2003; Sohler et al., 2007). Although up to 40% of ED patients have positive toxicology screens for illicit drugs, suggesting recent use (Vitale and van de Mheen, 2006), toxicology screens may be limited in their utility to detect involvement with drug use relative to self-report. Self-report data from ED samples also indicate that many ED patients are willing to disclose drug use and other risk behaviors (Bogenschutz et al., 2014; Bonar et al., 2014; Cherpitel et al., 2017; Macdonald et al., 2014), creating an opportunity for intervention following broader screening approaches using self-report. Further, BIs in urban EDs can provide a way to reach a low socio-economic status population that may not have access to or be seeking treatment (Geurts et al., 2012; Harris et al., 2011). Prior research has identified that many adult ED patients perceive themselves not to be at risk for HIV even when they have engaged in HIV risk behaviors (Pringle et al., 2013).

1.2. Brief interventions targeting drug use

The success of BIs targeting drug use is rather mixed. Some U.S. studies have reported no significant effects of BIs for drugs (Guan et al., 2015; Humeniuk et al., 2012; Saitz, 2014; Saitz et al., 2014; Woodruff et al., 2014), including BIs followed by boosters (Bogenschutz et al., 2014; Roy-Byrne et al., 2014). Other results are more promising; for example, a drug BI for post-partum women reduced illicit drug use (Ondersma et al., 2007; Ondersma et al., 2014). Project Reduce involved a combined alcohol and marijuana-focused two-session BI for adult ED patients and found significant 12-month reductions in binge drinking and conjoint alcohol/marijuana use (Woolard et al., 2013). In both ED and primary care settings, therapist-delivered and computer-delivered BIs have reduced drug use (Gelberg et al., 2015; Gryczynski et al., 2015). Primary outcome analyses from the *Healthi*ER You trial (described in this paper) indicated that both a computer-delivered and a therapist-delivered, computer-guided BI for adult ED patients reduced drug use, although there was no beneficial effect on drug use for a 3-month therapist-delivered booster session; HIV risk behaviors were not primary outcomes of this trial and were not previously examined (Blow et al., 2017).

1.3. Effects of ED-based BIs on HIV risk behaviors among substance-using individuals

ED BIs have targeted HIV risk behaviors or related outcomes among substance-using individuals, resulting in mixed findings across samples, BI types (i.e., content, length, number of sessions), specific behavioral targets (e.g., HIV testing, sexual risk behavior reduction), and outcomes. Among 18–40 year-old ED patients, a pilot study of a combined alcohol and sexual risk reduction intervention with a follow-up booster call produced significant reductions in both risk behaviors (Edelman et al., 2012). An ED-based BI for alcohol use and sexual risk behaviors among 18–65-year-olds was efficacious over 9 months for alcohol and sexual risk outcomes (Monti et al., 2016). Specifically, unprotected sex with casual partners and sex under the influence of alcohol/drugs were reduced after a 60-min BI compared to brief advice. In contrast, a BI targeting drug misuse and testing for HIV and HCV among patients with recent drug misuse did not significantly alter HIV/HCV risk perceptions or screening behaviors compared to an assessment control (Merchant et al., 2014). Thus, programs that address both drug use and HIV risk reduction may be beneficial, although further research is needed (Bazargan-Hejazi et al., 2005; Carey et al., 2012; Darker et al., 2012; Harris and Knight, 2014; Havard et al., 2008; Longabaugh et al., 2001; Monti et al., 2007; Nilsen et al., 2008).

1.4. Purpose of the present study

Using a randomized controlled trial (RCT), we evaluate the efficacy of ED-delivered Motivational Interviewing-based (MI) therapist- and computer-delivered BIs combined with therapist-delivered booster sessions at 3-months post-baseline compared to a control condition on sexual HIV risk behaviors over 12-months. The interventions primarily focused on drug use behaviors (the primary RCT outcomes, reported in Blow et al., 2017), while including content on and tailoring regarding HIV risk behaviors which was therefore considered a secondary outcome of the RCT and is the focus of the present paper. These ED-based and booster interventions incorporated MI to review substance use, develop discrepancy, elicit change talk, and identify strategies for change. In the ED-based BIs, concerns related to drug use were assessed and included content on the outcomes of HIV risk behaviors (e.g., getting an STD or HIV/AIDS, unplanned pregnancy). In addition, participants could set goals to practice safer sex or avoid HIV and could nominate benefits of reduced drug use that would reflect on reduced HIV risk (e.g., more likely to use condoms, less likely to get an STD or HIV/AIDS). Booster sessions were less structured, but addressed HIV risk content to the extent participants brought up these topics.

We previously showed that our ED-delivered BIs both resulted in immediate post-ED intervention increases in behavioral intentions to use condoms with regular partners relative to a control group (Bonar et al., 2014). We also showed that, compared to an enhanced usual care control condition, the 30-min therapist-delivered BI in the ED reduced drug use days and weighted drug days over 12 months, the therapist-BI and 25-min computer-delivered BI also reduced marijuana use days compared to control, but addition of a 40-min booster session 3 months later did not significantly affect drug use outcomes over 12 months (Blow et al., 2017). Despite promising findings for drug-use, longitudinal behavioral outcomes of the BIs in combination with the boosters are needed to examine effects on HIV risk behaviors. We note that the *Healthi*ER You study (Blow et al., 2017) was not a comparative effectiveness trial powered to detect differences between active interventions; rather we sought to evaluate active interventions versus usual care to provide potential options for future translation of interventions into differently resourced settings (e.g., those with more or less staff availability or computer resources). The current paper adds to the literature by examining the efficacy of drug BIs (primarily for marijuana and non-injection drug use) that incorporated content on HIV risk reduction on sexual HIV risk behaviors over 12-months.

2. Material and methods

2.1. Study design

*Healthi*ER You is a fully-crossed 3 × 2 randomized controlled trial (RCT) for drug-using adults at an inner-city ED. The design, protocol, and patient population are previously described (Blow et al., 2017; Bonar et al., 2014). At the baseline ED visit, participants were randomly assigned to one of three conditions: 1) computer-delivered BI (Computer-BI), 2) therapist-delivered, computer-guided BI (Therapist-BI) or 3) enhanced usual care (EUC-ED). Immediately after an in-person 3-