



Gender and ethnic differences in primary care patients' response to computerized vs. in-person brief intervention for illicit drug misuse



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ARTICLE INFO

Article history:

Received 12 April 2017

Received in revised form 17 October 2017

Accepted 17 October 2017

Keywords:

Brief intervention

Primary care

Gender

Ethnicity

Hispanic

ABSTRACT

This study is a secondary analysis from a randomized clinical trial of computerized vs. in-person brief intervention (BI) for illicit drug misuse among adult primary care patients ($N = 359$; 45% Female; 47% Hispanic) with moderate-risk illicit drug misuse as measured by the World Health Organization's Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST). This study examined differences in response to the two brief intervention strategies (both based on motivational interviewing) on the basis of gender and ethnicity, comparing non-Hispanic males, non-Hispanic females, Hispanic males, and Hispanic females. Participants were assessed at baseline, 3-, 6-, and 12-month follow-up with the ASSIST. Trajectories in Global Continuum of Illicit Drug Risk Scores were examined using a generalized linear mixed model. There were significant differences in response to computerized vs. in-person BI over time on the basis of gender-ethnic subgroups (Gender \times Ethnicity \times Condition \times Time interaction; $p = 0.03$), with Hispanic males tending to respond more favorably to the computerized BI and Hispanic females tending to respond more favorably to the in-person BI. There was no clear differentiation in response to the two BIs among non-Hispanic males, while among non-Hispanic females the pattern of change converged following baseline differences. Consideration of gender and ethnic differences in future studies of BI is warranted.

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1. Introduction

Illicit drug use remains highly prevalent in the US and epidemiological surveillance surveys estimate that in 2015 over 27 million individuals (10.1% of the US population) 12 years of age or older used illicit drugs in the past 30 days. These substances included marijuana (8.3%), non-medical use of psychotherapeutic medications including opioid analgesics, stimulants, sedatives and tranquilizers (2.4%), and cocaine (0.7%) (SAMHSA, 2016a). Substance use disorders (SUDs), characterized by the recurrent use of alcohol or drugs leading to significant clinical or functional impairment, continue to be a prevalent and serious public health problem in the US. In 2015, approximately 20.8 million individuals (7.8% of the US population) 12 years of age or older met diagnostic criteria for abuse or dependence related to alcohol or illicit drug use in the past year (SAMHSA, 2016a). Substance use has been associated with a range of adverse health outcomes, including increased risk of mental disorders, injury, cardiovascular disease, HIV infection, stroke, and premature death, to name a few (Deegenhardt & Hall, 2012; Rehm, Rehm, Taylor, et al., 2006).

1.1. Screening, brief intervention, and referral to treatment

The screening, brief intervention, and referral to treatment (SBIRT) service model is increasingly being used in healthcare settings to identify and intervene with individuals with substance use problems, particularly the large number of people with unhealthy substance use who may not fully meet SUD diagnostic criteria (Agerwala & McCance-Katz, 2012; Babor et al., 2007). Primary care in particular has been considered a promising setting in which to identify and engage patients with unhealthy substance use, based on findings that most individuals with substance use problems do not seek treatment (SAMHSA, 2016a), that most people (~80%) see a healthcare provider on a yearly basis (Blackwell, Lucas, & Clarke, 2014), and the strong evidence base for brief interventions in reducing alcohol and tobacco use (Jonas, Garbutt, Amick, et al., 2012; Siu, 2015). Moreover, primary care settings often serve diverse patient populations, including members of racial and ethnic minority communities (Manuel et al., 2015). Racial/ethnic minorities have previously been found to be more likely to receive substance use services in non-specialty facilities (e.g., primary care) compared to non-Hispanic Whites, who are more likely to access SUD treatment in specialty facilities (Lo & Cheng, 2011). Thus, primary care can be an important access point for substance use services, particularly for racial/ethnic minority communities.

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There is good empirical support regarding both the efficacy and cost-effectiveness of screening and brief intervention (SBI), a key component of SBIRT, to reduce risky alcohol use in healthcare settings (Babor et al., 2007; Jonas et al., 2012; Saitz, 2007), although evidence is lacking that SBI can successfully address alcohol dependence (Saitz, 2010). The corresponding empirical support regarding SBI for drug misuse has been mixed. For example, several randomized trials found that SBI is effective in reducing illicit drug use and associated risks (Bernstein et al., 2005; Gelberg et al., 2015; Gelberg et al., in press; Humeniuk et al., 2012; Ondersma, Sviki, & Schuster, 2007; Ondersma, Sviki, Thacker, Beatty, & Lockhart, 2014). However, other studies have not found SBI to be effective for drug use, including two large randomized trials conducted in primary care settings (Roy-Byrne et al., 2014; Saitz et al., 2014). Moreover, brief intervention was not successful in securing referral to SUD treatment (Kim et al., 2017). The international World Health Organization trial of BI (Humeniuk et al., 2012) found that BI was effective in reducing drug use risks in Brazil, India, and Australia, but not in the US, which may be due to research design or implementation factors, or to population differences.

Given the mixed findings for SBI for illicit drug use, questions remain whether particular sub-populations (including women and minorities) may benefit from brief interventions, or respond more positively to certain approaches.

1.2. Women and Hispanics

Epidemiological surveys in the US have found higher prevalence of illicit drug use among males as compared to females (SAMHSA, 2016b). However, even though women initially engage in lower levels of illicit drug use, they tend to experience an accelerated progression of drug use behaviors resulting in regular use, addiction, and first treatment episode, known as telescoping (Greenfield et al., 2007; Greenfield, Back, Lawson, & Brady, 2010; Hernandez-Avila, Rounsaville, & Kranzler, 2004). There are important differences between males and females across virtually all aspects of substance use, with women initiating substance use at lower doses, developing addiction more quickly, and being more likely to relapse after ceasing substance use (Becker & Hu, 2008). Hence, it is plausible that women would exhibit different patterns of response to substance use interventions than men.

Recent findings from the National Survey on Drug Use and Health indicate that rates of past 30-day illicit drug use were 12.5% among African Americans, 9.2% among Hispanics, and 10.2% among Whites (SAMHSA, 2016b). Research indicates that Hispanics often experience considerable disparities in SUD treatment length and completion, as well as indicators of quality care (Alegria et al., 2006; Alvarez, Jason, Olson, Ferrari, & Davis, 2007; Guerrero, Marsh, Khachikian, Amaro, & Vega, 2013). Hispanics and other racial/ethnic minorities are less likely to complete SUD treatment compared to Whites (Guerrero et al., 2013), and may respond differently to SUD treatment based on social, cultural, and environmental factors that influence drug use (Alvarez et al., 2007; Amaro, Arévalo, Gonzalez, Szapocznik, & Iguchi, 2006; Guerrero et al., 2013). Moreover, Hispanics are underrepresented in clinical trials and, thus, may not fully benefit from substance use treatment advances (Burlaw et al., 2011).

Research also suggests a possible interaction between gender and ethnicity with respect to substance use, SUD treatment services, and patient outcomes. For example, persistence of SUDs over the longer-term has been found to vary markedly across gender and race/ethnic subgroups (Evans, Grella, Washington, & Upchurch, 2017). A national study found that the link between SUD treatment services and drug use outcomes varied considerably by gender and ethnicity, and that gender differences in this relationship were particularly prominent in the Hispanic subgroup (Guerrero, Marsh, Cao, Shin, & Andrews, 2014). Thus, an examination of response patterns to different substance use interventions by gender and ethnicity is warranted to better identify the types of interventions that are most likely to be beneficial for different patient groups.

1.3. Gender and ethnic differences in SBI

Recently, researchers and practitioners have emphasized adaptation of SBI to patient populations from varied racial and ethnic backgrounds, as research indicates that substance use patterns and consequences vary by ethnicity (Alvarez et al., 2007; Manuel et al., 2015; Mukku, Benson, Alam, Richie, & Bailey, 2012; Pacek, Malcolm, & Martins, 2012). Research in the Veterans Affairs system has found that BIs are more likely to be delivered to minority group members compared to non-Hispanic Whites (Dobscha, Dickinson, Lasarev, & Lee, 2009; Manuel et al., 2015; Williams et al., 2012). With respect to gender and racial/ethnic considerations specifically, only a few studies have reported on differential outcomes (Manuel et al., 2015). For example, in subgroup analyses of the Quit Using Drugs Intervention Trial (QUIT), there was some evidence to suggest that female participants experienced greater reductions in drug use after BI than male participants (Gelberg et al., 2015). More research is needed to determine the most effective intervention strategies for different patient groups because of a lack of focus in these areas (Manuel et al., 2015).

1.4. Brief intervention delivery methods

Typically, BIs are conducted in-person by trained physicians, counselors, social workers, or other service providers (Agerwala & McCance-Katz, 2012; Babor et al., 2007). However, the use of computerized brief interventions (CBIs) has been growing in recent years (Carey, Scott-Sheldon, Elliott, Bolles, & Carey, 2009; Ondersma et al., 2007; Ondersma et al., 2014; Schwartz et al., 2014). An important potential advantage of CBIs is that they may reduce some of the implementation challenges with respect to conducting in-person BIs (as physician and staff time is often limited) and decrease costs related to staff education and technical training, while potentially increasing patient disclosure of substance use problems and improving BI reliability (Babor et al., 2007; Gryczynski et al., 2015; Newman et al., 2002; Schwartz et al., 2014). Empirical evidence is emerging regarding the efficacy of using CBIs for both alcohol and drug use, with positive findings reported regarding reductions in alcohol misuse (Carey et al., 2009) and illicit drug use (Gilbert et al., 2008; Ondersma et al., 2007; Ondersma et al., 2014). Although many BI studies have included substantial numbers of female and Hispanic participants, there has not been much research on how different population subgroups respond to different BI delivery formats, such as in-person versus computerized delivery.

1.5. The present study

The present study is a secondary analysis from a randomized trial comparing a computerized BI (CBI) vs. an in-person BI (IBI) delivered by a behavioral health counselor for medical patients with moderate-risk illicit drug use (Schwartz et al., 2014). Previously, we reported findings from this study at a 3-month endpoint (Schwartz et al., 2014), and through 12 months of follow-up (Gryczynski et al., 2015), with results indicating no significant differences between CBI and IBI regarding global ASSIST drug scores or drug-positive hair tests, the primary outcomes under examination. The focus of the present study is to examine the relationship between two specific patient factors - Gender (male vs. female) and ethnicity (non-Hispanic vs. Hispanic) - and responsiveness to different BI strategies (in-person vs. computerized BI). We sought to examine outcome trajectories for these different BI strategies on the basis of Gender-Ethnic subgroups, comparing non-Hispanic Males, non-Hispanic Females, Hispanic Males, and Hispanic Females.

2. Methods

2.1. Design

This study was a randomized clinical trial in which 360 participants with moderate-risk illicit drug use, who were not seeking substance use

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