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Does Change in Readiness Influence Retention among African American Women and Men in Substance Abuse Treatment?

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Abstract

African Americans are less likely than other racial groups to engage in and complete outpatient substance abuse treatment. The current study, conducted as a secondary analysis of a multisite randomized clinical trial, examined if readiness to change (RTC) over time influences retention and if gender moderates the relationship between changes in RTC and retention among 194 African American women and men. Participants completed the University of Rhode Island Change Assessment at baseline and at the end of the 16 week study. Findings revealed a significant relationship between RTC over time and retention. Specifically, the more RTC increased throughout the 16 week study, the longer participants remained in treatment. In addition, gender moderated the relationship between changes in RTC and retention, with a stronger association between changes in RTC and retention among men relative to women. One approach to improving substance abuse treatment retention rates is to focus on increasing RTC during treatment, especially among African American men.

Keywords

African Americans; Readiness to Change; Treatment; Retention

Despite several studies highlighting the positive outcomes from evidence-based treatments for substance use disorders (Dutra, Stathopoulou, Basden et al., 2008; Tanner-Smith, Wilson, & Lipsey, 2013), research suggests that African Americans report less satisfaction with treatment, have more barriers to accessing treatment and have lower utilization rates relative to Whites (Keen, Whitehead, Clifford, Rose, & Latimer, 2014; Peters, Hendricks, Clark, Vocci, & Cropsey, 2014; Yерger, Wertz, McGruder et al., 2008). For example, a recent study found that African Americans are less likely to complete outpatient treatment episodes than Whites across all substances, but especially among users of alcohol and methamphetamine (Mennis & Stahler, 2016). Given the disproportionately high rates of

negative drug-related social and medical consequences found among African Americans (Kerr, Karriker-Jaffe, & Ye, 2013; Scott & Easton, 2010), more research is needed to gain a better understanding of factors that influence treatment retention in this underserved community. The purpose of the current study is to examine the relationship between readiness to change (RTC) over time and retention among African American men and women participating in a multisite randomized clinical trial.

The length of stay in treatment has been positively and consistently associated with better substance use outcomes (Connors, Grant, Crone, & Whiteside-Mansell, 2006; Greenfield et al., 2007). Several factors have been shown to influence treatment retention, such as age, gender, socioeconomic status, cognitive deficits and therapeutic alliance (Brorson et al., 2013). However, the findings in the limited number of studies focusing on factors associated with retention among African American substance users are inconclusive (Davis, Ancis, & Ashby, 2015). For example, many of the studies highlight lower (e.g., Arndt, Acion, & White, 2013), higher (e.g., Stack, Cortina, Samples, Zapata, & Arcand, 2000) or comparable (e.g., Niv, Pham & Hser, 2009) retention rates among African Americans relative to other racial ethnic groups, but do not identify factors that might be linked to treatment retention among African Americans. However, recent studies have begun to shed light on the racial disparities observed in substance abuse treatment retention. For example, one study found that retention rates among racial/ethnic groups vary considerably by state of residence (Arndt et al., 2013). However, no studies, to the authors' knowledge, have examined if RTC, or stages of change, influences retention among African American substance users.

The stage-of-change concept is grounded in the transtheoretical model of how people change maladaptive behaviors (DiClemente, Schlundt, & Gemmell, 2004; Erol & Erdogan, 2008), such as substance abuse. The transtheoretical model posits that individuals move through a series of distinct changes as they progress in modifying addictive behaviors. These five stages include precontemplation (i.e., no perceived need for change), contemplation (i.e., some ambivalence about changing), preparation (i.e., resolved ambivalence enough to consider changing), action (i.e., taking steps toward change), and maintenance (i.e., implementing strategies to maintain behavior change) (DiClemente et al., 2004; Erol & Erdogan, 2008). Each of these stages consists of tasks to be accomplished and goals to be achieved (DiClemente et al., 2004; Erol & Erdogan, 2008) and, together, they signify an increasing readiness or motivation to change maladaptive behaviors, or RTC.

To the authors' knowledge, only four studies have focused on the role of RTC among African American adults participating in substance abuse treatment. Two of these studies focused on the influence of Motivational Interviewing ("a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence"; Miller & Rollnick, 2002, pg. 25) or an adaptation of MI, Motivational Enhancement Therapy (MET), on RTC among African American substance users (Longshore, Grills, & Annon, 1999; Voorhees, Stillman, Swank et al., 1996). Both studies demonstrated that culturally congruent interventions based on principles of MI were effective in increasing readiness to reduce illegal drug use (Longshore et al. (1999) and readiness to quit smoking (Voorhees et al., 1996) among African American adults. The other two studies focused on the link between RTC and treatment attitudes (Schorling, 1995) and the influence of RTC on

treatment outcomes (Burlew, Montgomery, Kosinski, & Forcehimes, 2013). Specifically, Schorling (1995) found a positive relationship between RTC and African Americans' attitudes towards smoking cessation. Burlew et al. (2013) categorized African Americans participating in a MET intervention into lower RTC and high RTC categories based on their scores on the University of Rhode Island Change Assessment (URICA). Among participants in the high RTC group, those in MET reported fewer days of substance use as compared to their counterparts in Counseling as Usual (CAU). However, among African Americans in the lower RTC categories, CAU participants reported fewer days of substance use than those in MET. Findings from this study suggest that MET might be more effective for African American adults in the high RTC group than the lower RTC group, contrary to previous studies of predominately White samples that emphasize the effectiveness of MET for individuals who are ambivalent about change, or low in RTC (Bien, Miller, & Tonigan, 1993; Hettema, Steele, & Miler, 2005). This contrast is further evidence of the need to examine the role of RTC among African American substance abusers rather than to assume that findings from other groups are generalizable to African Americans.

Although studies have found a relationship between RTC and substance use treatment outcomes among African Americans, a few gaps exist in the literature. First, although studies have found a positive association between RTC and retention (Choi, Adams, Morse, & MacMaster, 2015; Haller, Miles & Cropsey, 2004), no studies, to the authors' knowledge, have examined the relationship between RTC *or* changes in RTC over time and retention among African Americans. Second, several gender differences have been observed in treatment completion rates among African Americans. For example, Montgomery, Burlew, Kosinski and Forcehimes (2011) found higher retention rates among women in MET than those in CAU. However, men in MET and CAU did not differ in retention. In addition, another study of predominately White adults found that RTC differentially influenced retention rates among men and women with co-occurring substance abuse and mental health disorders (Choi, Adams, Morse, & MacMaster, 2015). More research is needed to determine if and how changes in RTC influence retention among African Americans and if gender moderates the relationship between the aforementioned variables.

The present study was designed to address these gaps in the literature. The primary aim of this study was to determine the association between changes in RTC and retention among African American substance users. Further, we sought to determine if gender moderated the relationship between changes in RTC and retention. The present study is a secondary analysis of African American adults who participated in a 16-week multisite randomized clinical trial (CTN-0004) sponsored by the National Drug Abuse Treatment Clinical Trials Network (CTN). The trial compared MET to CAU among adults participating in 1 of 5 outpatient substance abuse treatment settings.

METHOD

Participants

The inclusion criteria for CTN-004 required participants to be (1) seeking outpatient treatment for any substance use disorder; (2) acknowledging substance use within 28 days prior to the study; (3) 18 years of age or older; (4) willing to participate in the protocol and

(5) able to understand and provide written informed consent. Individuals who were not medically or psychiatrically stable enough to participate in outpatient treatment and/or individuals seeking detoxification, methadone maintenance treatment, or residential treatment were excluded from the study. Of the 461 participants in the parent study (Ball, Martino, Nich et al., 2007), 194 self-identified as African American or Black and were included in the present study.

Participants were enrolled in one of the five community based treatment programs (CTPs). Inclusion criteria for the CTPs included: (1) program offered outpatient, non-methadone maintenance treatment; (2) patient flow sufficient to enroll target number of participants (i.e., 100 participants per CTP, with 50 participants per treatment group); and (3) at least six clinicians were willing to participate in the 16 week protocol. Further information on this CTN study can be found in the CTN -0004 protocol (Carroll, Ball, Crits-Cristoph, et al., 2001) and CTN-0004 publications (Ball et al., 2007; Burlew et al., 2013; Montgomery et al., 2011).

Measures

The following measures were used to assess each of the variables in the present secondary analysis.

Demographic Form—A demographic form was used to collect data such as age, race, primary substance use at baseline, and other demographic variables.

University of Rhode Island Change Assessment (URICA)—The URICA is a validated 32-item self-report measure that assesses RTC (Blanchard et al., 2003; DiClemente et al., 2004). The RTC composite scale was derived by subtracting the precontemplation score from the sum of the contemplation, action and maintenance scales (Blanchard et al., 2003). The change in RTC from baseline to week 16 was derived by subtracting the RTC composite score at baseline from the RTC composite score at week 16.

Retention—Retention was defined as the number of days between the day of enrollment and the last day the participant received services at the clinic during the 16 study weeks. The client disposition-end of trial status form includes information on the date of the last treatment session.

Procedures

The eligibility, enrollment, randomization and treatment and follow-up rates for CTN 0004 are described in further detail elsewhere (Montgomery et al., 2011; Burlew et al., 2013). Briefly, individuals who enrolled in substance abuse treatment at 1 of the 5 CTPs were referred to research assistants who introduced the study and obtained written consent. Participants who were ineligible and/or uninterested were returned immediately to standard treatment at the CTP. Research assistants collected baseline information from consented participants who were then randomly assigned to either MET or CAU via urn randomization (Stout, Wirtz, Carbonari, & DelBoca, 1994). Gender, race, primary drug, referral type

(mandated or voluntary) and employment status were included as variables in the urn randomization process.

The participants received either three sessions of MET or CAU followed by standard treatment and other services offered in their outpatient program. The MET protocol focused on reviewing personal feedback about substance use and discussing plans to change substance use (Carroll et al., 2001). The clinician's goal was to enhance the client's own motivation and commitment to change. Clinicians in the CAU session inquired about substance use and psychosocial functioning, while also addressing clients' questions about the treatment program, discussing treatment goals with clients, providing case management and substance use counseling and encouraging attendance at all treatment activities, such as 12-step meetings (Ball et al., 2007). The current study used data from the URICA questionnaire that was administered by research assistants at baseline and at the 16 week follow up.

Data Analysis

The primary outcome measure for this study was retention at 16 weeks post randomization. The predictor variables were treatment assignment, change in RTC, gender, and the interaction of change in RTC X gender. Given the influence of treatment assignment on retention differences noted in a previous study (Montgomery et al., 2011), we included treatment assignment as a covariate in the model. To lessen the correlation between the interaction term and its components, the interaction term (change in RTC X gender) was centered. Preliminary analyses revealed that neither retention nor the centered version of change in RTC required transformation. Other preliminary analyses were conducted to ensure that no violations of the assumptions of linearity, normality, and homoscedasticity of residuals were present.

RESULTS

Characteristics of the Sample

Table 1 presents the demographic characteristics of the sample. The mean age was 37.5 (SD = 9.9). However, participants' ages ranged from 18 to 64. Women were approximately one fourth (24.7%) of the sample. Also, approximately one fourth (27.3%) of the participants were court mandated to substance use treatment. Although approximately 80% had completed high school, only 34 % were employed fulltime. The others were mainly unemployed (42%). The majority had never married (59%). Few were married (16%) or cohabitating (1%). The two most commonly reported primary drugs were alcohol (26%) and cocaine (26%). Participants remained in treatment for an average of 64 out of a possible 112 days.

Main Findings

Standard multiple regression was conducted using SPSS (version 23) to examine the relationship between change in RTC and retention and whether gender moderated the relationship of retention to the change in RTC. The findings are summarized in Table 2. The findings partially supported the moderator relationship. The overall F only approached

significance ($F=.2.09$, $p=.08$). Treatment assignment did not contribute to the model. However, both change in RTC ($t=2.33$, $p=.02$) and the gender X change in RTC interaction term ($t=-2.1$, $p=.03$) contributed significantly to the model. Overall, the more RTC increased, the longer participants were likely to remain in treatment. Follow up analyses revealed that the correlations between change in RTC and retention approached significance for males ($p=.055$) but not females ($p=.353$).

DISCUSSION

Although retention is one of the most significant predictors of substance abuse treatment outcomes (Connors et al., 2006), very few studies have examined how to improve the low retention rates among African American substance users. The present study was designed to address this gap by examining the relationship between changes in RTC and retention and to determine whether gender moderated the aforementioned relationship. Findings from this study suggest a positive association between improvements in RTC and increased retention among African Americans. In addition, the relationship between changes in RTC and retention was stronger for men relative to women.

Positive increases in RTC from baseline to week 16 were associated with higher retention rates among African American substance users. This finding is consistent with the stage of change model suggesting that the emergence of positive behaviors may be associated with an increasing motivation (i.e. readiness) to change maladaptive behaviors. While previous research supports the stage of change model by demonstrating a link between initial readiness to change and retention (Haller, Miles, & Cropsey, 2004; Henderson, Saules, & Galen, 2004; Joe, Simpson, & Broome, 1998), these findings further contribute to the model by providing convincing evidence that an increase in readiness to change is also associated with treatment retention.

The relationship between changes in RTC and retention was stronger for men than women. Although no previous studies, to the authors' knowledge, have focused on gender differences in the relationship between changes in RTC and retention, some studies have examined gender differences in retention. For example, Arfken, Klein, di Menza, and Schuster (2001) found that women were less likely to stay in treatment for 30 days or complete treatment than men. In addition, studies have found gender differences in factors that predict retention. For example, although RTC was not a significant predictor of treatment completion for men or women in a Health Maintenance Organization (HMO) based substance abuse treatment program, higher income and legal/agency referral predicted treatment completion among women, while older age predicted treatment completion among men (Green, Polen, Dickinson et al., 2002). The present study suggests that change in RTC is another factor that differentially influences retention for African American women and men. It is important to note that the sample was predominately male, suggesting that the relationship between changes in RTC scores and retention might have been easier to detect among men than women. Therefore, this finding should be interpreted with caution. Nevertheless, additional research is needed to examine why changes in RTC is more strongly associated with retention among African American men.

This research has several strengths. First, this study is the first to examine the relationship between changes in RTC and retention among substance users. Given that most studies focus on the relationship between RTC at one time point (e.g., baseline) and substance use treatment outcomes, this study extends the literature on RTC by focusing on the change in RTC from baseline to week 16. Second, this study also examined gender as a moderator of the relationship between changes in RTC and retention. Third, this study used data from a large, multisite randomized clinical trial.

As with all studies, this study has several limitations. First, the original study was not designed to specifically examine the relationship between changes in RTC and retention. Future research should design studies that are powered to provide a deeper understanding of the relationship between changes in RTC and retention. Second, as noted in a previous study (Burlew et al., 2013), many of the participants were highly motivated at baseline to participate in treatment. Future research should include a wide range of participants with varying levels of RTC, perhaps from a non-treatment seeking sample. Third, it is important to note that the sample was predominately male, suggesting that findings might be more representative of males than females. Therefore, we recommend future studies examining the relationship between changes in RTC and retention among women, specifically.

Despite these limitations, this study has several clinical and research implications. First, given the positive association between changes in RTC and retention, clinicians should focus on improving RTC to increase treatment retention. Improving RTC may increase the probability that even initially unmotivated clients will stay in treatment longer and consequently, perhaps improve their substance use outcomes. Moreover, the association between changes in RTC and retention was found among participants in both MET and CAU, suggesting that improving RTC is an important strategy for clinicians to employ regardless of treatment type. More research is needed to determine how to improve RTC among African Americans and to also examine if there is a causal relationship between changes in RTC and retention. In addition, future research should begin to also focus on changes in RTC over time (e.g., from baseline to the end of treatment) rather than RTC at one time point (e.g., baseline). Second, although this study was not designed to specifically examine the validity of changes in RTC scores, the significant association between changes in RTC scores and retention provides preliminary evidence for the predictive validity of the change/difference scores of the URICA subscales for African American young adults. Future research might examine the reliability and validity of the differences between RTC scores on the URICA subscales. Third, clinicians should specifically focus on improving RTC among African American men. Several studies have discussed strategies to increase readiness to change, such as encouraging change talk (Gaume et al., 2016) and supporting self-efficacy (Bertholet et al., 2012), that might be especially important in treatment sessions with African American men. Given that African American males have several barriers to treatment initiation and completion (Longshore, Hsiesh, & Anglin, 1993; Royster, Richmond, Eng, & Margolis, 2006; Seth, Murray, Braxton, & DiClemente 2013), the identification of changes in RTC as a factor associated with retention is promising. Consideration of changes in RTC during treatment may help to improve retention among African American substance users, especially men, and will also contribute to the reduction of racial/ethnic health disparities found in rates of substance abuse treatment completion.

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Demographic Characteristics of African American Participants in Clinical Trials Network 0004 Study

Table 1

Characteristic	Male		Female		Total	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Age	37.03	9.94	39.02	10.04	37.52	9.98
Years of Education	12.23	1.36	12.34	1.75	12.26	1.46
Baseline RTC Score	10.53	1.91	10.56	1.97	10.54	1.92
16 Week RTC Score	9.75	0.22	9.85	2.10	9.78	2.18
Change in RTC Score	-0.94	1.90	-0.71	2.46	-0.88	2.06
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Employed Full Time In Past 30 days						
Yes	53	36.60	13	27.70	66	34.4
No	92	63.40	34	72.30	126	65.6
Currently married or Or Cohabiting						
Yes	26	18.00	7	15.00	33	17.2
No	119	82.00	40	85.00	159	82.8
Primary Drug						
Cocaine	37	25.50	13	27.70	50	26.00
Alcohol	39	27.00	12	25.50	51	26.60
Marijuana	27	18.60	8	17.00	35	18.20
Two or more drugs	36	24.80	10	21.30	46	24.00
Other Drugs	6	4.10	4	8.50	10	5.20

Note. RTC = Readiness to change. RTC scores range from 2–14, with higher scores indicating a higher level of RTC. Negative differences between the end of treatment and baseline URICA composite scores indicates an increase in readiness to change.

Table 2

Regression Analysis: Predictors of Retention at 16 weeks

Variable	<u>B</u>	<u>SEB</u>	<u>B</u>
Change in RTC (centered)	11.77	5.05	.61 *
Gender	10.73	7.68	.12
Change in RTC X Gender	-7.30	3.46	-.55 *
Treatment Type	9.13	7.00	.11

*
p<.05R²=.062, F=2.08, p=.085