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# Distress tolerance interacts with circumstances, motivation, and readiness to predict substance abuse treatment retention



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## ABSTRACT

*Background*: Our understanding of the conditions that influence substance abuse treatment retention in urban African American substance users is limited. This study examined the interacting effect of circumstances, motivation, and readiness (CMR) with distress tolerance to predict substance abuse treatment retention in a sample of urban African American treatment-seeking substance users.

*Methods:* Data were collected from 81 African American substance users entering residential substance abuse treatment facility in an urban setting. Participants completed self-reported measures on CMR and distress tolerance. In addition, participants were assessed on psychiatric comorbidities, substance use severity, number of previous treatments, and demographic characteristics. Data on substance abuse treatment retention were obtained using administrative records of the treatment center.

*Results*: Logistic regression analysis found that the interaction of CMR and distress tolerance was significant in predicting substance abuse treatment retention. Higher score on CMR was significantly associated with increased likelihood of treatment retention in substance users with higher distress tolerance, but not in substance users with lower distress tolerance.

*Conclusions:* Findings of the study indicate that at higher level of distress tolerance, favorable external circumstances, higher internal motivation, and greater readiness to treatment are important indicators of substance abuse treatment retention. The study highlights the need for assessing CMR and distress tolerance levels among substance users entering treatment, and providing targeted interventions to increase substance abuse treatment retention and subsequent recovery from substance abuse among urban African American substance users.

#### 1. Introduction

Chronic substance use is a major public health concern, with substance use disorders costing more than half a trillion dollars a year in medical, economic, criminal, and social costs, and contributing to more than 100,000 deaths in the United States (U.S.; National Institute on Drug Abuse [NIDA], 2010). Conversely, substance abuse treatment is linked to decreases in substance use and criminal activity, as well as improvement in occupational, social, and psychological functioning (Hubbard, Craddock, & Anderson, 2003; McCusker, Stoddard, Frost, & Zorn, 1996; Simpson, Joe, & Brown, 1997). Despite the knowledge that receipt and completion of substance abuse treatment ameliorate substance use problems, only a small proportion of the population in need of substance abuse treatment actually receives any specialty treatment at drug and alcohol rehabilitation facility, hospital, or mental health center (Center for Behavioral Health Statistics and Quality, 2014; Han, Clinton-Sherrod, Gfroerer, Pemberton, & Calvin, 2011).

Further, racial differences have been noted among those receiving substance abuse treatment. African American treatment-seeking substance users experience higher risk for dropping out of substance abuse treatment programs compared to their White counterparts (Bluthenthal, Jacobson, & Robinson, 2007; Jacobson, Robinson, & Bluthenthal, 2007; Substance Abuse and Mental Health Services Administration [SAMHSA], 2009). In residential treatment facilities that offer integrated substance abuse and mental health services, the increased risk of treatment dropout among African American substance users remains even after accounting for important individual characteristics, such as sex, types of substance abuse disorders, and mental health disorders (Choi, Adams, MacMaster, & Seiters, 2013). The rate of dropout is

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http://dx.doi.org/10.1016/j.addbeh.2017.04.016 Received 16 January 2017; Received in revised form 24 March 2017; Accepted 26 April 2017 Available online 27 April 2017 0306-4603/ © 2017 Elsevier Ltd. All rights reserved. especially high among African American residential treatment-seek substance users in urban settings (Lejuez et al., 2008), suggesting that this high-risk population in intensive treatment often does not receive adequate treatment. Although a great deal of research has been conducted to understand factors related to substance abuse treatment retention, less is known about the underlying psychosocial factors that influence treatment retention in urban African American substance users.

The constructs of circumstances (i.e., external conditions that affects decision to change a behavior), motivation (i.e., internal recognition of the need to change a behavior), and readiness (i.e., availability and desire for changed behavior) have been identified as significant predictors of substance abuse treatment retention (de Leon, Melnick, Kressel, & Jainchill, 1994). These constructs conceptually align with the Stages of Change model, which states that behavior change occurs through a series of steps consisting of pre-contemplation, contemplation, preparation for change, action, and maintenance (Prochaska & DiClemente, 1984). Conceptually, circumstances and motivation subscales correspond to pre-contemplation, contemplation, and preparation stages of the Stages of Change model, and readiness correspond to action and maintenance stages of the Stages of Change model. With this perspective, an individual in pre-action stages develops goals to change substance use behavior and commits to seek substance abuse treatment based on external circumstances (e.g., family relationships, finances) and internal motivation. Gradually, the person moves to action stage of completing substance abuse treatment program based on readiness to treatment.

The constructs of circumstances, motivation, and readiness are highly correlated, and combined, they have good predictive validity with respect to retention in treatment (Soyez, De Leon, Broekaert, & Rosseel, 2006). Consistent with previous research, the current study investigated the total effect of circumstances, motivation, and readiness (hereinafter referred to as CMR). Research has repeatedly shown that higher CMR significantly improves the likelihood of substance abuse treatment entry and retention (Cunningham, Sobell, Sobell, & Gaskin, 1994; Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997). Although a strong predictor, CMR does not fully explain substance abuse treatment retention (Soyez et al., 2006). To further elucidate treatment retention, theoretical and empirical evidence provides support for the conditional effect of distress tolerance on the relationship between CMR and substance abuse treatment retention.

Grounded in the Negative Reinforcement Model, distress tolerance is defined as an individual's ability to withstand negative emotional states (Simons & Gaher, 2005). The Negative Reinforcement Model suggests that substance use provides perceived and/or actual relief from negative moods, such as feelings of irritability, anxiety, stress, and depression, which reinforces the behavior and increases the likelihood of substance use in the future (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). This perspective may be extended to the study of substance abuse treatment retention. Substance users in residential settings experience unpleasant and uncomfortable emotions due to their experiences with difficulties in adjusting to a structured environment, withdrawal symptoms and drug cravings (Baker et al., 2004; Bartels & Drake, 1996). Distress tolerance may resemble the ability to cope with negative affect and stress experienced by treatment-seeking substance users in residential substance abuse treatment. Thus, a substance user may need higher distress tolerance, in addition to greater CMR, in order to complete substance abuse treatment program.

In support of the moderating effect of distress tolerance, a few studies have investigated the relations of negative affects with substance use outcomes at varying levels of distress tolerance (Ali, Ryan, Beck, & Daughters, 2013; Gorka, Ali, & Daughters, 2012). The aim of the current study was to examine whether distress tolerance moderates the relationship between CMR and substance abuse treatment retention in urban African American substance users. We hypothesize that urban African American treatment-seeking substance users with greater CMR are more likely to remain in substance abuse treatment if they also evidence higher distress tolerance, but not if they exhibit lower distress tolerance. Thus, CMR predicts substance abuse treatment retention more among those who can tolerate the challenges of the treatment program (i.e., high distress tolerance) than those with low distress tolerance.

### 2. Materials and method

#### 2.1. Participants

The sample included 81 participants recruited from a residential treatment center. The selected residential treatment center offered various contract durations (i.e., 28, 30, 60, 90, and 180 days), but majority of the participants in the study were provided 28 or 30 days of treatment (81.5%). Treatment at this facility consisted of several strategies adopted from Alcoholics Anonymous and Narcotics Anonymous, as well as group sessions that focused on relapse prevention and functional analysis. Prior to coming to this treatment facility, clients were required to abstain from any substance use for at least three days. At the center, clients were required to maintain complete abstinence from drugs and alcohol, and regular drug testing was conducted. Any use of substances was grounds for dismissal from the center.

#### 2.2. Procedure

As a standard practice, all clients completed an intake-screening interview administered by doctoral-level graduate students and senior research staff. The intake-screening interview assessed psychiatric comorbidities, substance use severity, and demographic information. These measures are described in detail below. At the end of the intakescreening interview, clients were invited to take part in research. Inclusion criteria included African American treatment-seeking substance user and ability to speak and read English sufficiently to complete study procedures. Exclusion criterion included any diagnosed psychotic symptoms in the past twelve months that might potentially affect responses on the self-report measures.

Data collection occurred between September 2014 and April 2015. Participants were recruited within 10 days of their treatment entry at the center. Upon providing informed consent for the current study, participants completed a battery of self-report measures, including CMR, distress tolerance, and previous treatments. The measures were administered on a lab computer using a secured anonymous web-based survey tool, Qualtrics Labs, Inc. version 2009 (Qualtrics Labs, Inc., 2012). Information regarding psychiatric comorbidities, substance use severity, and demographic characteristics were obtained from the intake-screening assessment. Participants' treatment retention information was obtained from the administrative offices at the treatment center. The study was reviewed and approved by the University Institutional Review Board.

#### 2.3. Measures

#### 2.3.1. Substance abuse treatment retention

Substance abuse treatment retention, the dependent variable, was coded dichotomously (yes versus no). Treatment non-retention was defined as voluntarily leaving treatment against treatment center staffs recommendations; or being asked to leave treatment due to engagement in treatment-interfering behaviors, such as using substances, breaking rules at the treatment facility, violent or aggressive behavior, selling of substances, or having sexual relations with other clients.

#### 2.3.2. Circumstances, motivation, and readiness (CMR)

The CMR measure was the primary independent variable in the

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