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The relationship between general causality orientation and treatment outcome among marijuana-dependent adults

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HIGHLIGHTS

- General causality orientations classify motivational styles into three orientations
- Outcomes from a marijuana treatment trial were examined according to orientation
- Posttreatment causality orientations were associated with differential outcomes

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ABSTRACT

General causality orientations are motivational styles that are indicative of a person's belief about personal change and their motivation to change. The purpose of the current study was to investigate whether causality orientations were associated with marijuana treatment outcomes in a sample of marijuana-dependent individuals. A total of 74 participants (66% male) were recruited from the Seattle, Washington area and randomly assigned to receive a combination of motivational enhancement and cognitive behavioral therapy or the combination treatment plus additional "check-up" sessions. Follow-up assessments evaluated frequency of use, use-related problems, and marijuana use disorder symptoms through 9 months. Causality orientations were relatively stable over time. Posttreatment Autonomy orientations were associated with lower frequency of use and Controlled orientations were associated with a reduction in use, problems, and marijuana use disorder symptoms. Autonomy and Controlled orientations were associated with readiness to change. Results suggest that both autonomous and controlled orientations have implications for response to treatment; perhaps for different reasons. Causality orientations may be a promising avenue of research to predict treatment response and outcome.

1. Introduction

Self-determination theory is a meta-theory that describes the relationships between internal and external factors on intrinsic and extrinsic motivation (Deci & Ryan, 2011). Causality Orientations Theory, a component of self-determination theory, describes an individual's pattern of motivation and behavior. General causality orientations are relatively enduring, trait-like characteristics reflective of an individual's belief about their ability to promote or cause change (Deci & Ryan, 1985). These beliefs regarding locus of causality correspond with an individual's motivational pattern. Three distinct orientations have been evaluated: *Autonomy*, associated with an internal locus of causality and intrinsic motivation; *Controlled*, related with an external locus of causality and extrinsic motivation; and *Impersonal*, associated with a lack of control over causality leading to a lack of motivation.

Previous studies report that causality orientations are related to treatment outcomes. For example, Autonomy orientations were associated with lower rates of depression among individuals in a brief depression treatment (Zuroff et al., 2007) and higher attendance rates and more sustained weight loss among individuals enrolled in a long-term weight loss program (Williams, Grow, Freedman, Ryan, & Deci, 1996). The majority of research has focused on the superiority of Autonomy orientations in the promotion of behavior change. However, individuals with Controlled orientations may increasingly benefit from some types of treatment modalities (Neighbors, Lewis, Bergstrom, & Larimer, 2006). Indeed, individuals with Controlled orientations are concerned with rules, perceptions of social norms, and other external factors. Thus, treatments that incorporate these principles may be especially beneficial to such individuals.

The substance-using population may provide a valuable population from which to study causality orientations (Smith, 2011). Recent Substance Abuse and Mental Health Services Administration (SAMHSA) data indicates that the most prevalent illicit drug of use is marijuana,

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with 51.2% of individuals aged 18–25 reporting lifetime use and 19.1% reporting current use (Substance Abuse and Mental Heath Services Administration, 2014). Although now legal for recreational use in several states, marijuana use leads to negative consequences for some individuals. According to reviews of the literature and recent epidemiological studies, approximately 5–9% of marijuana users and 25–50% of daily users meet diagnostic criteria for marijuana abuse or dependence (Hall & Degenhardt, 2010; Substance Abuse and Mental Heath Services Administration, 2014; Volkow, Baler, Compton, & Weiss, 2014). Additionally, rates of treatment-seeking for marijuana use have increased in the past decade (UNODC, 2014). Thus, there is a need to gain information on individual characteristics that may promote substance use treatment success.

Previous research has highlighted the importance of motivation in behavior change among substance users (DiClemente & Prochaska, 1998; Miller & Tonigan, 1996; Ryan, Plant, & O'Malley, 1995; Zeldman, Ryan, & Fiscella, 2004). Given the predominance of literature suggesting the importance of motivation for treatment success, many motivation-based treatments have been developed, most notably those based on motivational interviewing principles (Miller & Rollnick, 2012). Several researchers have noted the theoretical links between motivation-based treatments, such as motivational interviewing, with facets of self-determination theory (Markland & Ryan, 2005; Neighbors, Walker, Roffman, Mbilinyi, & Edelson, 2008). Namely, motivational interviewing may provide individuals an opportunity to find and enhance their own motivation through an autonomy-supportive environment (Neighbors et al., 2008). Motivational enhancement therapy (MET) utilizes motivational interviewing plus personalized feedback to promote motivation for behavioral change. Although motivational interviewing was primarily thought to enhance Autonomous orientations, the personalized feedback utilized in MET typically provides information on normative use and may harness social expectations in those with Controlled orientations.

Several studies have examined causality orientations among alcohol-using college students. Among cross-sectional samples, a high level of Controlled orientation and low levels of Autonomy have been associated with rates of alcohol use and related problems (Neighbors, Larimer, Markman Geisner, & Knee, 2004; Neighbors, Walker, & Larimer, 2003),suggesting these individuals may be more at risk for developing long-standing problematic use patterns. A longitudinal evaluation of normative feedback among individuals with varying levels of Controlled orientations revealed significantly reduced alcohol use among those who received feedback as compared to those who did not (Neighbors et al., 2006). Results suggest that individuals with high Controlled orientations may be at higher risk for problematic use patterns and may be differentially impacted by feedback. However, findings from these studies utilizing college students with little psychopathology may not generalize to clinical populations who are initiating an attempt at changing substance use behavior. In addition, little attention has been paid to the Impersonal orientation which measures a tendency to be amotivated towards change due to a belief that one is not capable of causing change. There is reason to believe that such an orientation may work against treatment participation and outcomes.

The current study utilizes data from a randomized, controlled trial for marijuana-dependent adults involving MET and will assess the relationship between causality orientation and treatment outcomes. The following hypotheses will be evaluated:

(1) Autonomy and Controlled orientations will be associated with improved treatment outcomes, including reductions in days of marijuana use, marijuana-related problems, and marijuana use disorder symptoms.
(2) Impersonal orientations will be associated with poorer treatment outcomes.

2. Method

2.1. Overview of parent clinical trial

The current investigation is a secondary analysis of data collected as part of a randomized controlled trial of interventions for marijuana dependent adults (Walker, Stephens, Towe, Banes, & Roffman, 2015). The study was designed to test the incremental utility of Maintenance Check-Ups (MCU) following a 9-session MET/CBT base treatment. All study procedures were approved by the institutional review boards at the University of Washington and Virginia Tech. Participants were randomized to one of two conditions: The MCU condition (n = 37) included a 9-session MET/CBT base treatment plus two additional maintenance check-up sessions. The No-Check-Up condition (NCU; $n = 37$) consisted of the 9-session base treatment alone. Treatment outcomes were assessed 3 and 9 months after intake.

2.2. Participants

A total of 224 participants were screened for eligibility, 75 of whom met final eligibility criteria. Eligibility criteria included: being dependent on marijuana, aged 18 or above, not dependent on other drugs or alcohol, not currently enrolled in substance abuse treatment, no evidence of psychosis, and lived within 60 miles of the research office. Participants were deemed ineligible ($n = 98$) for the study due to: not being dependent on marijuana (n = 45), being dependent on substances other than marijuana (n = 38), lacking residential stability or access to transportation ($n = 19$), living with someone already enrolled in the project ($n = 2$), evidencing current psychosis ($n = 1$), and being a minor ($n = 1$). An additional 51 participants met eligibility criteria but declined to participate. Another participant was derandomized from the study due to a clerical error, resulting in a final sample size of 74. The sample was primarily male (66.20%). Participants' reported racial backgrounds were 77.8% White or Caucasian, 11.1% Black or African American, 8.3% multiracial, 1.4% Alaskan Native or Eskimo, and 1.4% Other. The mean age was 37.73 ($SD = 12.08$). The majority of participants were currently unmarried, with 46% who had never married and 23% who were either divorced or separated. Participants averaged 14.19 years of education (SD = 2.63).

2.3. Measures

2.3.1. General causality orientation scale

Causality orientations were measured at baseline and 3-months using the General Causality Orientations Scale (GCOS), a self-report questionnaire that assesses motivational orientation using 12 vignettes (Deci & Ryan, 1985). Participants imagined themselves in the situation, and then considered three different responses. For example, participants were asked about their initial thoughts and feelings if they received test results that showed poor performance. Responses included: "'I can't do anything right,' and feel sad" (*impersonal*); "'I wonder how it is I did so poorly,' and feel disappointed" (*autonomous*); "'That stupid test doesn't show anything,' and feel angry" (*controlled*). Each response was rated on a Likert scale ranging from 1 (Very unlikely) to 7 (Very likely). Items were summed to obtain three subscales. The measure yielded acceptable internal consistency for the Autonomy (Baseline $\alpha = .63$; 3-month $\alpha = .75$) and Controlled (Baseline $\alpha = .62$; 3-month $\alpha = .63$) orientation scales and good reliability for the Impersonal scale (Baseline $\alpha = .82$; 3-month $\alpha = .83$).

2.3.2. Timeline Follow-Back

The Timeline Follow-Back (TLFB), a semi-structured interview that utilizes key dates as "anchors" for recalling substance use, was administered at baseline and each follow-up to assess for marijuana use frequency (Sobell & Sobell, 1992). The TLFB has good to excellent reliability and validity for calculating use frequency, and is consistent