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The interactive effects of emotional clarity and cognitive reappraisal on problematic cannabis use among medical cannabis users☆

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HIGHLIGHTS

- Current debates on legalization of cannabis for medical reasons not informed by data.
- Investigated two factors that may lead to problematic use in medical cannabis users.
- Low emotional clarity associated with problematic cannabis use.
- Use of cognitive reappraisal, an emotion regulation strategy, influenced this relation.
- Low clarity and frequent cognitive reappraisal predicted more problematic use.

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ABSTRACT

This study examined whether emotional clarity (i.e., the extent to which one can identify and understand the type and source of emotions one experiences) and cognitive reappraisal (i.e., altering how potentially emotion-eliciting situations are construed to change their emotional impact) would individually or jointly be associated with problematic cannabis use among individuals receiving cannabis for medical reasons ($n = 153$). Findings indicated that problematic cannabis use was predicted by the interaction between emotional clarity and cognitive reappraisal. In particular, low levels of emotional clarity combined with high levels of cognitive reappraisal predicted problematic cannabis use. The current study is the first to demonstrate the interactive effects of emotional clarity and the use of cognitive reappraisal in predicting substance use disorder outcomes. Such findings are important given the lack of empirical data demonstrating for whom and for which conditions cannabis is either beneficial or detrimental.

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1. Introduction

Prominent theories of substance abuse, such as self-medication and negative-reinforcement theories, posit that emotional processes and related disturbances are a primary contributing factor to substance use and abuse, and related outcomes (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Duncan, 1975; Khantzian, 1985). Two emotional factors that have received particular attention in this regard are low emotional awareness (e.g., Thorberg, Young, Sullivan, & Lyvers, 2009) and problems with emotion regulation (e.g., Sher & Grekin, 2007). These constructs are rarely studied together despite strong theoretical links between them (Barrett & Gross, 2001) and studies demonstrating that they are associated among a sample seeking treatment for alcohol dependence (Stasiewicz et al., 2011), and interactively predict at least one type of psychopathology, PTSD severity (Boden, Bonn-Miller, Kashdan, Alvarez, & Gross, 2012). The goal of the present study was to examine the main and interactive effects of one facet of emotional awareness (i.e., emotional clarity) and one type of emotion regulation strategy (i.e., cognitive reappraisal), on problematic cannabis use among medical cannabis users.

Cannabis is the most widely used illicit substance and the most prevalent drug of new initiation as of 2010 (SAMHSA, 2011a). Seventeen states, and the District of Columbia, have enacted laws that allow the use of cannabis for medicinal purposes. Medical cannabis users are an ideal population in which to study relations between

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emotional processes and problematic cannabis use because they frequently use cannabis and at high quantities, have generally high distress (due to physical and mental conditions), and vary considerably in terms of degree of problematic and disordered use (Bonn-Miller, Boden, Bucossi, & Babson, submitted for publication). Investigation of these factors may yield a greater understanding of for whom and for which medical and psychological conditions cannabis is either beneficial or detrimental. Additionally, significant findings would suggest potential targets (i.e., emotional clarity, cognitive reappraisal) for future interventions designed to reduce problematic cannabis use among medical cannabis users.

Emotional awareness consists of two dimensions representing (1) the extent to which one attends to emotions (i.e., attention to emotions), and (2) the extent to which one can identify and understand the type and source of emotions one experiences (i.e., emotional clarity; Boden & Berenbaum, 2011; Coffey, Berenbaum, & Kerns, 2003; Gohm & Clore, 2000, 2002). Individual differences in attention to emotions and emotional clarity underlie related constructs such as alexithymia (i.e., low attention to emotions and emotional clarity), and emotional intelligence (i.e., high attention to emotions and emotional clarity; Coffey et al., 2003; Gohm & Clore, 2000, 2002). Research has found that low levels of emotional awareness, and especially, low levels of emotional clarity are an independent and strong predictor of a range of psychopathology (e.g., Berenbaum, Bredemeier, Thompson, & Boden, 2012; Berenbaum et al., 2006; Boden & Berenbaum, 2012), including substance abuse (Thorberg et al., 2009). Emotional clarity has also been found to be associated specifically with cannabis use (Dorard, Berthoz, Phan, Corcos, & Bungener, 2008; Limonero, Tomas-Sabado, & Fernandez-Castro, 2006). In particular, low levels of emotional clarity have been associated with higher levels of cannabis consumption (Limonero et al., 2006) and cannabis abuse (Dorard et al., 2008).

Emotion regulation takes many different forms, and research has demonstrated that disturbances in emotion regulation are associated with problematic cannabis use (Simons & Carey, 2002) and the use of cannabis to cope with unpleasant emotions and experiences in populations with and without co-occurring psychopathology (Bonn-Miller, Vujanovic, Boden, & Gross, 2011; Bonn-Miller, Vujanovic, & Zvolensky, 2008). However, no research has investigated the relations between specific emotion regulation strategies, such as cognitive reappraisal, and problematic cannabis use. Cognitive reappraisal is conceptualized as the alteration of potentially emotion-eliciting situations with the goal of changing their emotional impact (Gross, 1998). The literature on the relations between cognitive reappraisal and psychopathology is mixed, with most studies finding that cognitive reappraisal is associated with lower levels of psychopathology (e.g., Eftekhari, Zoellner, & Vigil, 2009; Gross & John, 2003), but other work showing a negative relation (i.e., frequent use of cognitive reappraisal being associated with increased psychopathology; Westermann, Kesting, & Lincoln, 2012), or no relation (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Thus, research is needed to better understand for whom cognitive reappraisal is most beneficial or harmful.

These effects of emotional clarity and cognitive reappraisal are intriguing. Still more intriguing, however, is the possibility that these two factors might have interactive effects. In particular, there are reasons to suspect that the link between emotional clarity and psychopathology may be to some extent moderated by emotion regulation (Barrett & Gross, 2001). Individuals low (versus high) in emotional clarity may be more limited in their ability to choose when to implement an adaptive emotion regulation strategy, such as cognitive reappraisal. These individuals may have difficulty distinguishing emotions that appropriately should be targeted by cognitive reappraisal from those that shouldn't (e.g., negative emotions that should function as warning signals about imminent harm). Thus, these individuals may successfully implement cognitive reappraisal to down-regulate emotions they should be using to guide their behaviors, including stopping the use of cannabis when it contributes to larger problems in their lives (e.g., inability to meet role obligations). According to this conceptualization, frequency of use of cognitive reappraisal may be associated with substance use outcomes only when in combination with emotional clarity.

This account is consistent with a diverse set of theories. For example, psychoanalytic theory (Freud, 1959) posits that ego defenses are unconsciously implemented to regulate anxiety and other types of unpleasant affect (Paulhus, Fridlandler, & Hayes, 1997). Increases in awareness of the causes and experience of unpleasant affect (i.e., emotional clarity) allow for the use of an evolved set of regulation strategies that are less prone to reality distortion, impairment, and unnecessary repression of impulses (Freud, 1946; Haan, 1977). Similarly, the stress and coping literature has posited and demonstrated that more adaptive coping with environmental and internal stressors results from increased predictability and understanding of a stressor, which is akin to having higher levels of emotional clarity (Davis & Levine, 1982). This account is consistent with the single study that we are aware of that has investigated the interactive effects of emotional clarity and cognitive reappraisal in predicting psychopathology (Boden et al., 2012), which found that among individuals diagnosed with PTSD, emotional clarity was inversely associated with PTSD severity. This relation was further moderated by cognitive reappraisal such that participants with a combination of high levels of emotional clarity and frequent use of cognitive reappraisal reported the lowest levels of PTSD severity.

The goal of the present investigation was to examine the interaction of emotional clarity and cognitive reappraisal in predicting problematic cannabis use among medical cannabis users. We hypothesized that participants with low levels of emotional clarity would report higher levels of problematic cannabis use. Based on mixed evidence regarding the association between cognitive reappraisal and psychopathology (Aldao et al., 2010; Eftekhari, Zoellner, & Vigil, 2009; Gross & John, 2003; Westermann et al., 2012), we did not make a specific prediction regarding associations between cognitive reappraisal and outcomes. We further hypothesized that the impact of emotional clarity on problematic cannabis use would be moderated by frequency of use of cognitive reappraisal. Again based on previous research (Aldao et al., 2010; Eftekhari et al., 2009; Gross & John, 2003; Westermann et al., 2012), we did not make a specific prediction regarding whether low emotional clarity would be more highly associated with problematic cannabis use in combination with frequent or infrequent cognitive reappraisal.

2. Methods

2.1. Participants

Participants were 153 community-based adults (78.4% male; $M_{age} = 42.7$, $SD_{age} = 14.9$) currently receiving medical cannabis for a physical or mental health condition at a cannabis dispensary. Eligibility criteria for this study included: (a) being a current patient receiving cannabis from a dispensary in California, (b) being 18 years or older, and (c) ability to provide written informed consent to participate. The majority of the sample reported their race/ethnicity as White/Caucasian (68.7%), followed by "Other" (9.3%), Hispanic (8.7%), Black/Non-Hispanic (8.0%), Asian (3.3%), and Black/Hispanic (2.0%). The average education level of participants was between graduating from a 2-year college and graduating from a 4-year college. The majority of participants reported working part-time or full-time (55.8%), followed by participants reporting being unemployed due to being retired (14.3%), a disability (12.9%), being a student (8.2%), or no specified reason (8.8%).

Participants in the current study were obtained from a larger sample (see Bonn-Miller et al., submitted for publication). Only those participants who completed all measures used in this study with no more than one item missing from each measure were