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Drinking Motives Mediate the Associations between Urgency and Hazardous/Harmful Alcohol Use among Moderate-to-Heavy Drinking Men Who Have Sex with Men (MSM)

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Abstract

Urgency, the tendency to act rashly under extreme emotions, has been associated with higher rates of hazardous/harmful drinking. Moreover, previous work suggests that the association between urgency and hazardous/harmful drinking may be mediated by drinking motives. The current study sought to replicate and extend this research to men who have sex with men (MSM), a population that has shown increased alcohol-related health risk behavior.

Methods: Two-hundred-and-fifty-six moderate-to-heavy drinking MSM completed questionnaires assessing urgency, drinking motives, and hazardous/harmful drinking. Regression models were conducted to examine the direct effect of Urgency on heavy episodic drinking and alcohol-related consequences and its indirect effects on these outcomes through drinking motives.

Results: Urgency was significantly associated with heavy episodic drinking and alcohol-related consequences. Bootstrapping procedures indicated significant indirect effects through coping and enhancement motives for both outcomes and also conformity for consequences.

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Statement 2: Contributors

Anderson and Palfai conducted the literature review and developed hypotheses and analytic plan for the study. Palfai, Maisto, and Simons contributed to measure selection and procedures related to the study (e.g., recruitment, assessment). All authors contributed to the interpretation of results, writing and editing of the manuscript.

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Declarations of Interest

There are no competing interests to declare for any of the authors of this manuscript

Statement 3: Conflict of Interest

There are no conflicts to declare

Conclusions: These results indicate urgency may be an important risk factor for hazardous/harmful drinking among adult MSM that may operate in part through its effects on coping and enhancement motives.

Keywords

Urgency; Alcohol; Heavy Drinking; Men who have Sex with Men (MSM); HIV Prevention

1. Introduction

Men who have sex with men (MSM) have higher rates of heavy episodic drinking compared to the heterosexual male population (Hughes, 2016; Puckett, Newcomb, Garafalo, & Mustanski, 2017) and greater risk of negative alcohol-related consequences (Talley, Sher, Steinley, Wood, Lillienfeld, 2012), including health risk behaviors related to HIV transmission (Shuper, Joharchi, Monti, Loutfy, & Rehm, 2018). Given the higher rates of hazardous/harmful drinking among MSM, it is important to better understand individual difference factors that may contribute to alcohol outcomes in this population.

Urgency, the tendency to act rashly and impulsively under intense emotional states, has been identified as a particularly important risk factor for problematic alcohol use (see Smith & Cyders, 2016). A number of studies have shown that urgency is associated with hazardous/harmful alcohol use (e.g. see Cyders, Coskunpinar, & Vanderveen, 2016; Peterson, Davis & Smith, 2018; Stautz & Cooper, 2013). Urgency is comprised of two highly correlated features; negative urgency, defined as the tendency to act impulsively under extreme negative emotional states, and positive urgency, defined as the tendency for impulsive action under extreme positive emotional states (Smith & Cyders, 2016). As a more recent construct, positive urgency has been studied in relation to alcohol outcomes less frequently than negative urgency, however, both positive and negative urgency appear to show similar associations with alcohol problems and indices of heavy drinking (see Coskunpinar, Dir, & Cyders, 2013; Cyders et al., 2016). It has been suggested that these facets of urgency be combined into a single urgency construct when they are highly correlated and similarly predict alcohol outcomes (Peterson et al., 2018; Smith & Cyders, 2016).

Although the potential importance of urgency as trait level risk factor for hazardous/harmful drinking has been established in college student populations, little research has examined this construct among MSM and what has been done has focused on young MSM (ages 16–20; Puckett et al., 2017). The role of urgency in hazardous/harmful drinking associated among adult MSM populations who drink regularly is largely unknown. Given the higher rates of heavy episodic drinking and alcohol-related problems, and the differential impact of individual difference (e.g., discrimination) and contextual (e.g., venues) risks for hazardous/harmful drinking among MSM (Ristuccia, LoSchiavo, Kapadia, Halkidis, 2019; Maisto & Simons, 2016), it is important to specifically examine the role of urgency as a risk factor for hazardous/harmful drinking in this population.

In addition to identifying whether urgency is associated with alcohol outcomes in this population, it is important to understand the mechanisms through which this trait may be linked to hazardous/harmful drinking. It has been hypothesized that urgency may operate

through various mechanisms including reduced cognitive resources and specific emotion-related drinking motives (Coskunpinar & Cyders, 2012; Curcio & George, 2011). Drinking motives (Cox & Klinger, 1988; Cooper, 1994) reflect direct and indirect affective regulation functions of alcohol use. Motives that are most directly related to the tendency to act rashly due to emotions are coping (negative emotions) and enhancement motives (positive emotions). Previous work has suggested that coping and enhancement motives may be positively associated with hazardous/harmful drinking patterns, with coping motives most consistently linked with negative alcohol-related consequences (Cooper, 1994; Read et al., 2003). Coping motives have been shown to be higher among men who identify as homosexual compared to their heterosexual identified peers (Talley et al., 2012).

Research has suggested that coping motives may be a significant mediator of the association between negative urgency and alcohol outcomes (e.g., Coskunpinar & Cyders, 2012; Jones, Chrysanthakis, & Groom, 2014; Yang, Borges, & Leyro, 2019), though there have been equivocal findings with some studies indicating that enhancement motives may also mediate this association (Adams, Kaiser, Lynam, Charnigo, & Milich; Anthenien, Lembo & Neighbors, 2017). The potential role of drinking motives as a mediator of urgency and drinking behavior among MSM has not been examined. Further research on this issue could help identify risk factors for problematic drinking behavior among MSM and help identify targets for HIV-risk reduction interventions for MSM.

Despite the number of studies that have been conducted on urgency and alcohol use outcomes, the large majority of them have been conducted with college student populations that have had large representations of female students and have used various indices of alcohol use. The few studies conducted with MSM populations have been with adolescents and young adults. To our knowledge, there have been no studies that have examined the potential mediational role of drinking motives among an adult MSM sample of moderate-to-heavy drinkers. To examine this question, we conducted analyses on questionnaire data from a study on alcohol use and decision-making among moderate-to-heavy drinking MSM. It was hypothesized that urgency would be associated with both heavy episodic drinking and alcohol-related consequences and that these associations would be mediated by enhancement motives and coping motives.

2. Methods

2.1. Participants

Participants were 256 moderate- and heavy-drinking MSM. Reported race was 65.7% White, 12.6% Black or African American, 7.5% Asian, 3.9% mixed race, 0.8% American Indian or Alaska Native, 0.4% Native Hawaiian or Pacific Islander, 8.7% other, and 0.4% missing. Approximately 17.6% of the sample identified as Hispanic or Latino. The majority of the sample identified as mostly or exclusively homosexual (79%). Inclusion criteria included (1) being single or in a non-monogamous relationship, and (2) having engaged in sexual intercourse with a man at least monthly (on average) in the three months prior to enrollment in the study and (3) being a moderate-to-heavy drinker as defined by the Quantity-Variability-Frequency (QVF) Index (Calahan, Cisin, & Crossley, 1969); a measure that classifies individuals into drinking categories based on frequency and amounts of

drinking. Potential participants were recruited through print and social media platforms in two urban areas in the northeastern United States as part of a study on alcohol and decision-making among MSM (see Simons, Maisto, & Palfai, 2019; Tahaney et al., 2019 for more detail). Participants completed initial screening by phone and then in-person prior to completion of self-report questionnaires. Recruitment ads specified that interested individuals should be gay or bisexual men who drink alcohol. Study procedures described herein were approved by University Institutional Review Boards (IRB), and all participants gave informed consent prior to enrolling in the study and were compensated \$50 for their time and effort.

2.2. Measures

2.2.1. Urgency—Urgency is a general tendency to respond rashly to intense emotional states, comprised of two related components, Negative Urgency (NU) and Positive Urgency (PU). Urgency was assessed using the mean of the PU and NU subscale scores from the Short Urgency, Premeditation, Perseverance, and Sensation Seeking Impulsive Behavior Scale (Cyders et al., 2014)¹. Cronbach's alphas for the Negative Urgency scale was .71 and Positive Urgency scale was .76.

2.2.2. Heavy drinking episodes—The number of heavy drinking episodes in the past 90 days was assessed with the question, "How often in the past 90 days did you consume 5 or more drinks within a 2-hour period" scored on a 9-point incremental scale from "not at all" to "everyday" (U.S. Department of Health and Human Services, 2015).

2.2.3. Alcohol-related consequences—Alcohol-related consequences were assessed using the 15-item Short Inventory of Problems (SIP-R), a shortened version of the Drinker Inventory of Consequences (Miller, Tonigan, Longabaugh & National Institute on Alcohol Abuse and Alcoholism U.S., 1995). The measure utilized a 4-point Likert-based scale to record the frequency of alcohol-related consequences over the past 3 months on a scale of 0 (never) to 3 (daily or almost daily). Outliers for the total scores (3SD+) were each recoded to 1 + the next highest score (Tabachnick & Fidel, 1996).

2.2.4. Drinking motives—Drinking motives were assessed using the Drinking Motives Questionnaire (DMQ), which is comprised of four subscale Likert-based measure (Cooper et al., 1994). The coefficient alphas for the coping (coefficient alpha = .81) and enhancement subscales (coefficient alpha = .81) were both adequate. The other motive subscales also showed adequate reliability, Conformity (coefficient alpha = .82) and Social (coefficient alpha = .86)

¹One item on the negative urgency subscale was inadvertently omitted in the measure. Positive and negative urgency are facets of an overall urgency construct (Cyders & Smith, 2007). Following the recommendation to model facets separately only when they produce different results (Strauss & Smith, 2009), we ran preliminary analyses that indicated that all predictive effects were the same for the two facets, and the traits were highly correlated ($r = .59$). We thus concluded there was no basis for studying the facets separately, so they were combined as a single urgency measure and used as the primary independent variable.

3. Results

3.1. Descriptive statistics

Descriptive statistics were calculated for alcohol use and motives measures. Two responses were missing from the heavy episodic drinking data. Participants reported a mean of 5.34 (SD = 1.60), which corresponds to “once or twice a week” on the heavy episodic drinking scale and reported a mean of 4.74 (SD = 4.51) on the SIP-R. Social (M = 3.62 SD = 0.90) and Enhancement (M = 3.30; SD = 0.88) while Coping (M = 2.04; SD = 0.79) and Conformity (M = 1.55 (SD = 0.65) were the least frequently endorsed motives.

3.2. Effects of urgency on alcohol-related outcomes: the mediational role of drinking motives

Multiple regression analyses were conducted using PROCESS (Hayes, 2013) to examine whether association between urgency and alcohol outcomes was mediated by drinking motives. We constructed two multiple mediation models in which we tested indirect effects using non-parametric bootstrapping procedures (Hayes, 2013). This approach allows for the simultaneous assessment of potentially correlated mediators to examine whether the association between urgency and each alcohol outcome can be accounted for by significant indirect effects through drinking motives. Figure 1a and 1b show the unstandardized path coefficients for each drinking variable analysis. As shown by point estimates and bias corrected and accelerated bootstrapping confidence intervals, both coping motives and enhancement motives were significant mediators. For the heavy episodic drinking outcome, significant indirect effects were observed through both coping motives (B = 0.22 [SE = 0.08], 95%CI: 0.08, 0.38), and enhancement motives (B = 0.08 [SE = 0.05], 95%CI: 0.01, 0.20) while the direct effect was not significant (B = 0.21 [SE = 0.18]), $t = 1.13$, $p = ns$. There were no significant mediational effects for either social motives (B = 0.01 [SE = 0.06], 95%CI: -0.11, 0.13) or conformity motives (B = -0.06 [SE = 0.06], 95%CI: -0.20, 0.05). Similarly, in the alcohol negative consequences model, significant indirect effects were observed through both coping motives (B = 0.64 [SE = 0.26], 95%CI: 0.19, 1.20) and enhancement motives (B = 0.21 [SE = 0.11], 95%CI: 0.03, 0.44), while the direct effect was also significant (B = 1.73 [SE = 0.43]), $t = 4.03$, $p < .01$, suggesting that motives only served as partial mediators for the urgency-consequences association. Again, social motives was not a significant mediator (B = -0.11 [SE = 0.13], 95%CI: -0.39, 0.11), however, conformity motives did serve as a significant mediator between urgency and alcohol-related negative consequences (B = .49 [SE = .21], 95%CI: 0.12, 0.93).

4. Discussion

The results of this study suggest that urgency is associated with hazardous/harmful drinking behavior among moderate-to-heavy drinking MSM and that this association is mediated by coping and enhancement motives. Both indices of hazardous drinking, namely heavy episodic drinking and alcohol-related consequences, showed indirect effects through coping and enhancement. Interestingly, there was also an indirect effect of conformity between urgency and alcohol-related consequences.

This study replicates and extends previous work with young MSM as it suggests that among moderate-to-heavy drinking adult MSM, urgency may be an important risk factor for heavy episodic drinking and alcohol-related consequences. Moreover, this study suggests that the rash action under conditions of intense emotion reflected in the urgency trait may influence hazardous/harmful drinking through specific drinking motives to directly regulate positive (enhancement) and negative (coping) affect. The fact that the conformity motives, which showed the lowest rate of endorsement, was linked with alcohol consequences but not heavy episodic drinking may suggest that some individuals may be at greater risk for problems by drinking in risky contexts rather than through consuming high amounts of alcohol per occasion (Majid & Colder, 2007).

The current results support the potential value of targeting urgency as a means of reducing risky alcohol use among MSM. Indeed, urgency has been shown to be modifiable in residential treatment for substance use disorders (Mulhauser et al., 2019). This work suggests that skills to support to affect modulation for both intense positive and negative affect may be an important strategy to reduce the impact of urgency on drinking outcomes (Adams et al., 2012).

It is important to note limitations present within this study. The cross-sectional design of this study limits the conclusions that may be drawn from the data regarding temporal order of relations among variables. This is particularly important when considering the results of mediation. Future work should utilize longitudinal designs to examine if urgency predicts hazardous/harmful drinking in this population over time through drinking motives. Second, the study was conducted across two sites in the Northeast, which means it may not represent the geographic diversity among MSM in the US. Despite these limitations, this work provides evidence regarding the importance of urgency as a risk variable for hazardous/harmful drinking among moderate-to-heavy drinking MSM. This work contributes to our understanding of how urgency may influence alcohol-related risk behavior among MSM and may contribute to intervention efforts to address the role of alcohol use in preventive interventions to reduce HIV transmission.

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Urgency is associated with indices of risky drinking among men-who-have-sex with men
Association between urgency and risky drinking is indirect through drinking motives
Coping motives are most important for the urgency-negative consequences association

Fig. 1a.

Mediation Model – heavy drinking episodes. a = Direct effect of independent variable to mediator. b = Direct effect of mediator to dependent variable. c = Total effect of independent variable on dependent variable. c' = Direct effect of independent variable to dependent variable. * = $p < .05$, ** = $p < .01$

Fig. 1b.

Mediation Model – alcohol-related consequences. a = Direct effect of independent variable to mediator. b = Direct effect of mediator to dependent variable. c = Total effect of independent variable on dependent variable. c' = Direct effect of independent variable to dependent variable. $*$ = $p < .05$, $**$ = $p < .01$