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ASSOCIATIONS BETWEEN COPING MOTIVES FOR ALCOHOL AND MARIJUANA USE AND ENGAGEMENT AND DISENGAGEMENT EMOTION REGULATION STRATEGIES?

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Metadata

Study Information

Research Questions

RQ1: How do global self-reports of coping motives for alcohol and marijuana use relate to momentary and global self-report coping/emotion regulation strategies?

RQ2: What are the associations with coping motives and theoretically near constructs (e.g. convergent validity)?

RQ3: What are the bivariate associations of global self-reports of coping motives with substance use?

RQ4: Do coping motives uniquely predict use after controlling for emotion regulation (ER)/coping strategies and theoretically near constructs?

Hypotheses

The theoretical ground for substance use coping motives assumes that these motives are an internal (affective) and negative-reinforcing process (Cooper, 1994; Kuntsche, 2016). The key question here is the degree to which global self-reports of coping motives are a general process reflecting a broad tendency towards avoidance, or a specific process related to alcohol and marijuana use. In this project we label any construct that is both affective and negative reinforcing as a "theoretically near" construct, and any construct that is either affective or negative reinforcing as a "theoretically similar" construct.

H1a: Global self-report of disengagement ER/coping strategies are positively associated with global self-report coping motives for alcohol and marijuana use.

H1b: EMA reports of disengagement ER/coping strategies are positively associated with global self-report coping motives for alcohol and marijuana use.

H2a: Coping motives for both alcohol and marijuana are positively associated with theoretically similar constructs and measures which reflect aspects of negative emotionality, which include: disengagement (from Emotional Reactivity Scale (ERS); Impulsive Behavior Scale (UPPS-P) subscale: Negative & Positive Urgency; PROMIS Scale: Anxiety and PROMIS Scale: Depression.

H2b: Coping motives for both alcohol and marijuana are not associated with constructs unrelated to motivational model of substance use, which will include Impulsive Behavior Scale (UPPS-P) Subscale: Low Premeditation.

H3a: Global self-report alcohol coping motives positively predict aggregated reports of EMA assessed alcohol use

H3b: Global self-report alcohol coping motives positively predict global self-report alcohol use

H3c: Global self-report marijuana coping motives positively predict aggregated reports of EMA assessed marijuana use

H3d: Global self-report marijuana coping motives positively predict global self-report marijuana use

Data Description

Datasets used

We used data from two EMA samples. 258 students enrolled at the University of Washington aged 18 to 22 who reported drinking alcohol at least once per week filled in EMA questionnaires on 2224 EMA days (82.3% compliance). Participants were 62.4% female, 79.6% White, 22.6% Asian and Asian American, 8.4% Hispanic/Latino, 2.2% Black, and 11.9% reporting mixed or other ethnic identities. Participants could choose more than one ethnicity, which is why the totals exceed 100%.

Sample 1: Participants completed an in-lab baseline questionnaire followed by 10 consecutive days of EMA measures beginning on the Thursday following the baseline interview. Participants received 3 EMA prompts per day (morning, midday, evening).

Sample 2: Participants completed an in-lab baseline questionnaire followed by 8 days of EMA measures (two weekends Thursday – Sunday). Participants received 5 EMA prompts per day (morning, midday, afternoon, evening, night).

All participants received course credit for participation. Participants in both samples first completed an in-lab baseline self-report survey, and were then trained on an EMA protocol. Participants in the first sample received three text messages including a survey link per day (randomly during the morning, midday, and evening) for ten consecutive days. Participants in the second sample received five text messages including a survey link per day (randomly during the morning, midday, afternoon, evening, and night) for eight days (Thursday-Sunday for two consecutive weeks). Surveys were sent at least two hours apart; participants always had one hour to complete each survey and received a reminder after 30 minutes. The study protocol was approved by the local ethics review board.

Data availability

The dataset is available through protected access

The dataset is not publicly available

Data access

Data is currently not available, but exists on the PI's (Kevin King) Onedrive server, and can be accessed upon request.

Data identifiers

N/A

Access date

Data cleaning has been started by two authors of the paper (K.M. King & J. Dora) c. 1/2022. M.A. Halvorson has previously accessed the data for a previous paper (See Q17). D.J. Moss has not yet accessed the data.

Data collection procedures

See above in "Datasets used"

No files selected

Codebook

Codebooks are uploaded as Word Documents below.

- Pilot Study EMA Codebook (1).docx
- Pilot Study Baseline Codebook (1).docx

Variables

Manipulated variables

No use of manipulated variables.

No files selected

Measured variables

RQ1: Coping motives
1.   DMQ-R: Motivations for drinking alcohol
A.   The DMQ-R (short form) measures how participants score on four drinking motives: coping (5 items). These four motives serve as the four subscales for the items. Participants are asked to rate the frequency with which an item motivates their drinking using a 1-5 Likert scale where 1=Almost never/never and 5=Almost always/always across twenty total items. This abbreviated version was developed from Cooper's 1994 version by Kuntsche & Kuntsche in 2009. Scoring yields mean values for each subscale (Kunstche & Kuntsche, 2009; Cooper, 1994).
B.   All factor loadings are significant at p<0.001. The DMQ (full-length) was found to be reliable and internally consistent, α = 0.63 (Cooper, 1994). For the short form, internal consistency was also found to be satisfactory, α>0.70 (Kuntsche & Kuntsche, 2009).

2.   MMQ: Motivations for Using marijuana.
A.   The Marijuana Motives Questionnaire was developed in 1998 as a measure capable of evaluating participants' motives for using marijuana. Factor analysis during measure development supported a five-factor scale that included coping (5 items), conformity (5 items), social (5 items), enhancement (5 items), and expansion (5 items). The original scale contains 25 items rated according to the frequency with which a participant's marijuana use is motivated by that construct. Participants rate items on a 1-5 Likert scale where 1=Almost never/never and 5=Almost always/always (Simons, Correia, Carey, & Borsari, 1998). In this study we will be using only the coping motives measure.
B.   Validity and reliability are reported to be strong; internal consistency among motive items were measured as follows in initial validation:
•   Coping α=0.89
•   Conformity α=0.86
•   Social α=0.86
•   Enhancement α=0.92
•   Expansion α=0.93

RQ1: Coping/emotion regulation
3.   Emotion Regulation Strategies
A.   Global Self Report: Cognitive Emotion Regulation Questionnaire (CERQ): The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski & Kraaij, 2001) is a 36-item measure that examines individuals' typical cognitions when experiencing negative or unpleasant events. The CERQ measures cognitive coping strategies after negative life events. For each item, participants are prompted to report what they generally think when they experience negative or unpleasant events. Response options ranged from 1 = Almost never to 5 = Almost always. There are 9 subscales: self-blame, other-blame, rumination, and catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and refocus on planning. Scoring yields mean scores for each subscale (Garnefski & Kraaij, 2001).
i.   For the current study, we will compute a proportion of disengagement strategy use, as in our prior work (King et al., 2018), by calculating the sum off all disengagement strategy scores and dividing it by the total possible score of all disengagement and engagement strategies.
B.   Momentary Self Report: COPE (Modified to match an EMA design): Participants indicate which of the following emotion regulation strategies they employed since the last assessment from a "check all that apply" style of question. This question includes 8 statements. Six items for this construct were taken from a similar protocol designed by Tan et al. (2012) for a cell-phone EMA study of adolescents. These items were designed to assess six emotion regulation strategies commonly defined in the literature (acceptance, problem-solving, rumination, reframing, avoidance, and distraction). For the current study, an additional item was included in the same style which assessed the use of suppression, given a growing body of literature indicating that expressive suppression is linked to some aspects of mental health (Hu, Zhang, Wang, Mistry, Ran, & Wang, 2014). The eighth and final statement is "none of the above."
i.   For the current study, we will compute a ratio of disengagement strategy use by dividing the number of disengagement strategies endorsed at an EMA by the total number of strategies endorsed at that same EMA, then average this across all EMAs.

Convergent validity
4.   Emotional Reactivity Scale (ERS): The tendency to experience severe and persisting emotional arousal.
A.   The ERS is a 21-item self-report measure designed to assess individuals' experience of emotion reactivity. Participants are asked to rate a series of statements about the three aspects of emotion reactivity; these aspects are also the subscales of the measure (sensitivity, 8 items, arousal/intensity, 10 items, and persistence, 3 items). Rating is on a 0-4 Likert scale where 0=Not at all like me and 4=completely like me. Total possible scores range from 0-84.
B.   The ERS showed strong internal consistency, α=0.94. The measure has strong criterion-related validity as measured by associations with specific types of psychopathology and self-injurious thoughts and behaviors (SITB). Factor loadings for each item range from 0.40 to 0.86. Internal consistency has been measured for each factor: Emotion Sensitivity (α=0.88), Emotion Intensity (α=0.86), and Emotion Persistence (α=0.81; Nock, Wedig, Holmberg, & Hooley, 2008).
C.   For the current study, we will compute a total score as the average of all subscales.

5.   Impulsive Behavior Scale (UPPS-P): Operationalization of impulsivity.

A.   In the 59-item UPPS-P, participants report their levels of impulsivity in response to a number of situations, attitudes, and behaviors. The UPPS-P is a revised version of the UPPS. In the present study we include three factors: premeditation, positive urgency, and negative urgency. The UPPS-P divided urgency into positive and negative factors. Participants were asked how well each of these statements fit them using a 1-4 Likert scale where 1 = agree strongly to 4 = disagree strongly. Scoring yields means for each subscale (Whiteside & Lynam, 2001; Lynam, Smith, Whiteside, & Cyders, 2006).

B.   The 59-item UPPS-P Scale has demonstrated good convergent and discriminant validity (Cyders & Smith, 2007; Whiteside & Lynam, 2005). Cronbach's alpha reliabilities for each subscale on the original UPPS are: Premeditation (α = 0.91), Urgency (α = 0.86). Cyders et al. (2007) validated the construct of positive urgency which demonstrated strong internal consistency (α = 0.94).

6.   Anxiety (Promis): General anxiety over past week

A.   The PROMIS-Anxiety long-form measure asks respondents to answer a series of questions about their anxiety and fear. Participants are asked to consider their anxiety over the past week, then answer all 29 items on a 1-5 Likert scale, where 1=Never and 5=Always (Cella et al., 2010). The 8-item short form measure (8a) follows the same scale (Pilkonis, Choi, Reise, Stover, Riley, & Cella, 2011). The measure targets four subscales: self-reported fear (fearfulness and panic), anxious misery (worry and dread), hyperarousal (tension, nervousness, and restlessness), and arousal-related somatic symptoms (racing heart and dizziness).

7.   Depression (Promis): General depression over past week.

A.   The PROMIS Depression scale is a 28-item self-report test that assesses depression. A short-form version (8a) contains eight items and can be extracted from the full-scale measure (Pilkonis, Choi, Reise, Stover, Riley, & Cella, 2011) The responses reflect frequency of test items. Respondents answer each item on a 1-5 Likert scale where 1=never and 5=always. These responses are based on the participant's experience of depressive symptoms over the past 7 days. The measure examines negative mood, decrease in positive affect, information-processing deficits, negative views of the self, and negative social cognition. Scoring yields a standardized T-score for the full measure (Cella et al., 2010).

B.   The PROMIS Emotional Distress-Depression has shown strong construct validity (Riley et al., 2010). Reliability was shown to be greater than 0.92 for most of the score distribution. It has also been shown to be valid, as indicated by strong correlation with legacy measures such as the Center for Epidemiological Studies-Depression Scale (r=0.83) and the Mood and Anxiety Symptom Questionnaire (r=0.72). An eight-item short form for this measure is also available and has been shown to correlate with the longer version at 0.96 (Cella et al., 2010; Pilkonis et al., 2011).

8.   Alcohol Use:

Global Self Report: Daily Drinking Questionnaire.

A.   The Daily Drinking Questionnaire (DDQ-R) assesses drinking patterns over the prior three months. Note that in the present (pilot EMA) study, drinking patterns over the prior 30 days were studied, and the measure was amended in the study to reflect that. The DDQ-R was adapted from the original DDQ, published in 1985 by Collins, Parks, & Marlatt; the primary difference between the versions is that the frequency and quantity information is disaggregated in the revised version. The DDQ was itself distilled from a longer measure, the Drinking Practices Questionnaire (DPQ) (Cahalan, Cisin, & Crossley, 1969). Drinking volume is assessed by asking for an estimate of average alcohol consumption for each day of the week over the prior three months. Drinking frequency is assessed by how many weeks alcohol was consumed per day of week. Scoring will yield weekly drinking frequency, average drinks per drinking day, and average total drinks per week. Values will be scored by number of use days of a typical week (Collins, Parks, & Marlatt, 1985).

B.   Convergent validity with DPQ is high (r = 0.50, p = 0.001) (Collins, Parks, & Marlatt, 1985). Further details on validity and reliability not available in literature (not highly applicable to this measure of frequency).

EMA: Previous Night Alcohol Use

C.   Alcohol use during the night prior to the Momentary assessment. Measured through a numeric response to the following question: "How many alcoholic drinks did you have yesterday? Please remember that a drink refers to a "standard" drink size: 12 oz. beer, 8-9 oz. malt liquor, 5 oz. wine, 1.5 oz. hard liquor. Select 0 if you didn't drink yesterday." Values will be aggregated to use or non-use, being coded as 0 or 1 respectively, then will be averaged across EMAs to get a proportion of days on which participants used alcohol.

9.   Marijuana Use:

Global Self Report: Marijuana-Specific Daily Drug Taking Questionnaire

A.   The Daily Drug Taking Questionnaire (original version) is from an unpublished manuscript describing a measure that assesses typical and peak drug use (Parks, 2001). The Marijuana-Specific version used here was adapted by the lab for assessing cannabis use. Three prompts are used to ask the respondent about two time periods: their use during a typical week from the last month and their heaviest week of use in the last month. The respondent records whether or not they consumed marijuana on a given day, the number of hours spent using marijuana or intoxicated on that day, and the amount of marijuana consumed on that day. Values will be scored by number of use days of a typical week.

EMA: Previous Night Marijuana Use

B.   Marijuana use during the night prior to the Momentary assessment. Measured through a numeric response to the following question: "How much marijuana did you use yesterday? (Estimate in joints)." Values will be aggregated to use or non-use, being coded as 0 or 1 respectively, then will be averaged across EMAs to get a proportion of Marijuana use

Unit of analysis

Sample 1: Participants completed an average of 84% EMAs.

Sample 2: Participants completed an average of 80% of EMAs.

In each sample there may be participants who have completed the baseline but have not completed EMAs, or vice-versa. We do not expect this number to be greater than ~ 10 participants. Thus, our estimated sample size is around 250, but this will vary across analyses. Participants will only be removed if they do not have data for a specific analysis.

Missing data

Units of measurement will be at the participant level. Individuals who are missing data on key variables of analyses will be excluded. Analyses will have a maximum sample size of 258. As of now, we are unaware how many cases will need to be removed.

Statistical outliers

We don't plan to remove outliers.

Sampling weights

No

Knowledge of Data

Prior Publication/Dissemination

D.J. Moss: Dora, J., Kuczynski, A., Schultz, M., Seldin, K., Smith, M., Moss, D., Carpenter, R., & King, K. (in preparation). Exploring affect motivation and regulation of marijuana use in everyday life via specification curve analysis: No variables analyzed. However, worked with co-author (J.Dora) who ran the analyses of marijuana use and affect related variables. Marijuana use is the only variable looked at in both studies.

J. Dora: Dora, J., Schultz, M., Lee, C., Shoda, Y., & King, K. (2022). No evidence for trait- and state-level urgency moderating the daily association between negative affect and subsequent alcohol use in two college samples. Brain and Neuroscience Advances. Used both pilot datasets to look at associations between affect and alcohol use in EMA and the moderating role of urgency at baseline and in EMA. Did not look at motives at all in these analyses.

Used both pilot datasets to explore associations between affect and marijuana use in EMA. Marijuana use motives at baseline were added as control variables in some of the specifications but I have no idea whether they predicted marijuana use (I could have explored that but did not). I only pulled the effects of affect out of the thousands of models.

Dora, J., Piccirillo, M., Foster, K., Arbeau, K., Armeli, S., Auriacombe, M., Bartholow, B., Beltz, A., Blumenstock, S., Bold, K., Bonar, E., Braitman, A., Carpenter, R., Creswell, K., DeHart, T., Dvorak, R., Emery, N., Enkema, M., Fairbairn, C., Fairlie, A., Ferguson, S., Freire, T., Goodman, F., Gottfredson, N., Halvorson, M., Haroon, M., Howard, A., Hussong, A., Jackson, K., Jenzer, T., Kelly, D., Kuczynski, A., Kuerbis, A., Lee, C., Lewis, M., Linden-Carmichael, A., Littlefield, A., Lydon-Staley, D., Merrill, J., Miranda Jr., R., Mohr, C., Read, J., Richardson, C., O'Connor, R., O'Malley, S., Papp, L., Piasecki, T., Sacco, P., Scaglione, N., Serre, F., Shadur, J., Sher, K., Shoda, Y., Smith, M., Simpson, T., Stevens, A., Stevenson, B., Tennen, H., Todd, M., Treloar Padovano, H., Trull, T., Waddell, J., Walukevich-Dienst, K., Witkiewitz, K., Wray, T., Wright, A., Wycoff, A., & King, K. (preprint): The daily association between affect and alcohol use: A meta-analysis of individual participant data. Both pilots were included in this meta-analysis which showed that coping and enhancement motives at baseline predict alcohol use in EMA but do not moderate the association between EMA affect and alcohol use. But since those are meta-analytic effects I don't know the effect in just these two samples. I could have explored that but didn't.

K.M. King: King, K.M., Halvorson, M.H., Kuehn, K.S., Feil, M.C., & Lengua, L.J. (in press). Cross-study, cross-method associations between negative urgency and internalizing symptoms. Assessment.

Halvorson, M.A., Feil, Pedersen, S.L., M.C., Lengua, L.J., Molina, B.S.G., & King, K.M. (in press). Impulsive states and impulsive traits: A study of the multilevel factor structure and validity of a multifaceted measure of impulsive states. Assessment. Feil, M.C., Halvorson,

M.A., Lengua, L.J., & King, K.M. (in press). A state model of negative urgency: Do momentary reports of emotional impulsivity reflect global self-report? Journal of Research in Personality.

Feil, M., Halvorson, M. A., Lengua, L., & King, K. M. (2020). A state model of negative urgency: Do momentary reports of emotional impulsivity reflect global self-report? Journal of Research in Personality. https://doi.org/10.31219/osf.io/qxwhs

Dora, J., Schultz, M. E., Lee, C. M., Shoda, Y., & King, K. (2022). No evidence for trait-and state-level urgency moderating the daily association between negative affect and subsequent alcohol use in two college samples.

King, K.M., Feil, M.C., & Halvorson, M.A. (2018). Negative urgency is correlated with the use of reflexive and disengagement emotion regulation strategies. Clinical Psychological Science, 6, 822-834. https://doi.org/10.1177%2F2167702618785619

Prior knowledge

D.J. Moss: Has seen codebook and it currently on another paper using these datasets to look at marijuana and affect (see Q17). Has not been involved in any data analysis in the other project.

J. Dora: I suspect that drinking motives at baseline will be associated with substance use in EMA based on our meta-analysis. I don't have any other knowledge with regards to potential associations between motives and other variables in the baseline or EMA datasets.

K.M King: I have prior knowledge of the data related to the frequencies and patterns of alcohol use in the EMA data, and descriptive information about urgency and emotion regulation in the baseline data. I have not analyzed or examined data related to the primary variables of interest (motives)

Analyses

Statistical models

H1: We will use a correlations matrix to see the bivariate associations between coping motives and disengagement/engagement coping strategies in global self-report and EMA.

H2: We will also estimate the correlations between coping motives and other theoretically near (Negative Urgency) and related (emotional reactivity, depression, and anxiety) constructs.

H3: We will use several bivariate regressions investigating the association between coping motives and global and EMA reports of alcohol and marijuana use frequency.

H4: Building on the models in H3, we will add covariates in three model steps: 1) include relevant demographic information 2) constructs from H2, and 3) constructs from H1.

Effect size

H1: A minimum effect size of r > .3 would be of interest between coping motives and momentary emotion regulation strategies, and a minimum effect size of r > .5 would be of interest between coping motives and global self-report emotion regulation strategies.

H2: A small effect size would be r < .2, a medium size would be r < .5, and a large size would by r > .5. We consider a good indicator of convergent validity for our theoretically near constructs to be r > .5, and an effect size we consider to be a good indicator of convergent validity of our theoretically related but not theoretically near constructs to be r > .3. We expect a small effect size for our divergent validity construct.

H3: According to previous literature, the relationship between global self-report motives and momentary use has a range of a high beta value of ~ .18, and a low of ~.02. We're expecting an effect size between .1 and .2 to consider these two related to an important degree.

Statistical power

The estimated sample size for our analyses is 258, however we have run simulations and sensitivity analyses to gather the powers where a sample size of 250 can detect various effect sizes of our variable of interest. After simulating data using r code from Hughes (2017), we find a power of .898 to detect an effect size of .2 and a power of .357 to detect an effect size of .1 for bivariate

relationships. For our first multiple regressions (including simulated demographic variables and our disengagement variable), we have a power of .374 to detect an effect size of .1, a power of .677 to detect an effect size of .15, and a power of .899 to detect an effect size of .2. For available code and a more exhaustive sensitivity analysis list, see supplemental materials.

Inference criteria

We will be using one-tailed tests for our analyses. We are expected significant results for the majority of our analyses, and so we will primarily be using our effect-size cutoffs for inference testing.

Any non-significant findings or findings which are below our effect-size cut-offs will be considered unsupportive of our hypotheses. We will report the weight of the evidence for and countering support of our hypotheses via these tests and cut-offs.

Assumption Violation/ Model Non-Convergence

We will check our model for large residuals and influential data points. If we find problematically influential data points, we will re-run the analysis without these data points, and we will report the results as an additional analysis (this may be in a footnote or in supplementary materials).

Reliability and Robustness testing

N/A

Exploratory analysis

RQ4: How well does coping motives predict use when controlling for relevant coping strategies and theoretical constructs?

This question is exploratory. There will be three sets of regressions for this question, and we will compare the beta and confidence intervals of coping motives in these regressions with the bivariate regressions in RQ3. This tells us how much unique vs. shared variance global self-reports of coping motives predicts alcohol and marijuana use.

The first set will include demographic covariates, including age, race/ethnicity, (white v nonwhite), and gender identity (man, woman, other gender). The second set will include the above demographic variables and maladaptive and adaptive ER/coping strategies. Finally, the third set will include the previous covariates and theoretically near/related variables established in RQ2.