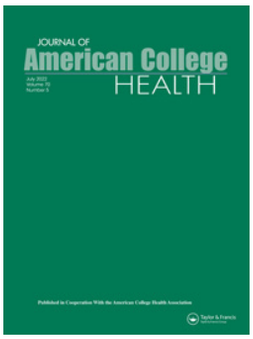

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MAJOR ARTICLE

Emotion regulation difficulties as common and unique predictors of impulsive behaviors in university students

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ABSTRACT

Objectives: Researchers examined associations between specific forms of emotion dysregulation and numerous behavioral manifestations of impulsivity (i.e., problematic alcohol use, drug use, risky sexual activity, binge eating, non-suicidal self-injury). **Participants:** Participants were 238 undergraduate students (69% female). **Method:** Emotion dysregulation was assessed using the Difficulties in Emotion Regulation Scale (DERS). Path models examined each DERS subscale on its own, and all DERS subscales together, as predictors of all impulsive behaviors. **Results:** Lack of emotional clarity predicted the largest number of impulsive behaviors, both on its own and after controlling for other forms of emotion dysregulation. Non-acceptance of emotions and difficulties achieving goals when upset also related to several impulsive behaviors. **Conclusions:** Certain emotion regulation difficulties, particularly poor emotional clarity, may represent specific mechanisms that lead to maladaptive impulsive behaviors. Findings provide useful information for incorporating specific emotion regulation skills in harm prevention programs and treatments for university students.

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The years spent as an undergraduate in university are a critical developmental period for many individuals. The many changes that accompany the transition to university, such as adjusting to a new environment and newfound independence, combined with the academic expectations, make this time particularly stressful. Indeed, research has shown that first-year university students experience a steep decline in psychosocial wellbeing and are at high risk for developing psychological problems.[1] Students may engage in maladaptive behaviors to cope with this newfound stress. The literature suggests that behaviors such as substance use, risky sexual activity, disordered eating, and self-harm typically emerge during late adolescence and young adulthood.[2–4] It is well-known that engaging in the aforementioned impulsive behaviors is associated with many negative outcomes, including decreased physical safety, poor psychosocial wellbeing, and increased risk for psychopathology.[5–8] Therefore, a better understanding of the mechanisms that underlie behavioral manifestations of impulsivity is important for preventing and treating psychological disorders and associated morbidity in university students.

Research suggests that emotion dysregulation may be a common mechanism that underlies engagement in various impulsive behaviors.[9–11] Individuals experiencing negative emotions may impulsively engage in maladaptive and often harmful behaviors in an effort to minimize emotional distress in the short-term.[12–14] Indeed, behaviors such as binge eating, substance use, and non-suicidal self-injury have been found to occur in response to heightened negative emotions and function to reduce aversive emotional states.[15–17] Further, both emotion dysregulation and impulsivity have been found to play a role in the development and maintenance of various forms of psychopathology, including borderline personality disorder (BPD), substance use disorders, and eating disorders.[14,18–20] Thus, understanding the relationship between emotion dysregulation and impulsive behaviors is important for identifying factors involved in various psychological disorders that can potentially be targeted in prevention and treatment efforts.

Notably, emotion dysregulation is a multidimensional construct, and it may be that some forms of emotion dysregulation relate to multiple impulsive behaviors, whereas others are uniquely associated with specific impulsive behaviors. Gratz and Roemer's model of emotion dysregulation posits that adaptive emotion regulation involves (1) awareness and understanding of emotions (e.g., being able to identity the specific emotion one is experiencing when feeling "upset" and being able to understand the reason one is experiencing that specific emotion); (2) acceptance of emotions (e.g., approaching emotions in a non-judgmental manner and accepting specific emotions one is experiencing when feeling "upset"; (3) ability to control impulses and behave in accordance with desired goals when upset (e.g., being able to remain in control and behave in a desired way when one is feeling "upset"; and (4) ability to use appropriate emotion regulation strategies to modulate emotional

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responses based on individual goals and situational demands.[21] Understanding which forms of emotion dysregulation relate to specific impulsive behaviors may allow for better prevention efforts at the university level as well as more targeted treatment of the behavioral consequences of impulsivity. For example, by understanding which emotion regulation difficulties lead to the greatest number of impulsive behaviors, universities can work toward implementing prevention plans to help first-year university students better cope with stress and negative emotions. Additionally, treatments that target emotion dysregulation, such as dialectical behavior therapy (DBT) and acceptance and commitment therapy, focus on many different skills to improve an individual's ability to regulate emotions (e.g., mindfulness, tolerating strong emotions). Knowing which specific emotion regulation difficulties lead to the greatest number of impulsive behaviors will allow for a more targeted selection of the emotion regulation skills to prioritize in treatment with university students seeking help.

Past research has examined the relationship between specific facets of emotion dysregulation and various maladaptive behaviors in university students. For example, in a study of alcohol use in a large sample of college students, difficulties with one's ability to control impulses when upset was associated with more frequent alcohol use and alcohol-related consequences.[22] In relation to disordered eating, Whiteside et al.[23] reported that limited access to effective emotion regulation strategies when upset and poor emotional clarity were the forms of emotion dysregulation that uniquely predicted more frequent binge eating episodes in university men and women. Gratz and Roemer[24] found that these same specific emotion regulation difficulties distinguished university women who reported self-harm from those who did not. Finally, Buckholdt et al.[25] found that limited access to emotion regulation strategies and difficulty controlling impulses when upset were the facets of emotion dysregulation most strongly associated with the co-occurrence of clinically relevant levels of disordered eating and self-harm in college students. While past research demonstrates that specific facets of emotion dysregulation play an important role in individual or combinations of maladaptive behaviors during university, no study to date has examined a wide range of different maladaptive behaviors within the same sample of college students.

Consequently, the current study examined whether particular forms of emotion dysregulation predict multiple behavioral manifestations of impulsivity (i.e., problematic alcohol use, drug use, risky sexual behavior, binge eating, and non-suicidal self-injury) in a non-clinical, college student population. Consistent with the impulsive nature of the behaviors being investigated and with past research examining emotion dysregulation and maladaptive behaviors, it was hypothesized that difficulty controlling impulses when upset and limited access to emotion regulation strategies would exhibit the strongest and most consistent relations to impulsive behaviors.[23,24,26,27] We explored whether other facets of emotion dysregulation might be uniquely related to one or more of the impulsive behaviors.

Methods

Participants

This study utilized a convenience sample of 238 undergraduate students who enrolled in a larger study assessing impulsivity using behavioral tasks. Participants were recruited from the psychology department participant pool. Participants completed a battery of questionnaires as part of the larger study; all enrolled participants provided questionnaire data. Participants were between the ages of 18–25 (M [SD] = 19.42 [1.24]) years and were mostly female (69.0%). Participants primarily identified as Caucasian (89.9%), with 8.8% identifying as African American, 3.8% as Asian, 1.7% as multi-racial, and 0.8% as Hawaiian/Pacific Islander. All participants provided informed consent prior to participation, and the research was approved by the institutional review board. Participants received extra course credit for a variety of psychology course (e.g., introduction to psychology, social psychology, abnormal psychology) after completing all parts of the study.

Measures

The Difficulties in Emotion Regulation Scale

The Difficulties in Emotion Regulation Scale (DERS)[21] is a 36-item measure examining the multidimensional construct of emotion dysregulation. Participants are asked to indicate how often the items apply to them on a scale from 1 (almost never) to 5 (almost always). This measure includes six subscales assessing the following facets of emotion dysregulation: (1) lack of emotional awareness, (2) lack of emotional clarity (3) non-acceptance of emotional responses, (4) limited access to emotion regulation strategies perceived as effective, (5) impulse control difficulties when upset, and (6) difficulties engaging in goal-directed behaviors when upset. The DERS has demonstrated excellent internal consistency ($\alpha s > .80$) and strong evidence of convergent validity in past research.[21] In our sample, internal consistency estimates for the DERS subscales were excellent: Awareness ($\alpha = .86$), Clarity ($\alpha = .81$), Non-acceptance ($\alpha = .92$), Strategies ($\alpha = .87$), Impulse ($\alpha = .80$), Goals ($\alpha = .87$).

Alcohol Use Disorders Identification Test

The Alcohol Use Disorders Identification Test (AUDIT)[28] is a 10-item questionnaire assessing alcohol consumption, dependence, and consequences. The AUDIT has shown excellent reliability, with a median internal consistency of $\alpha = .83$ and test-retest reliabilities of $r = .87–.95$ over 1–4 weeks.[29] In addition, the AUDIT exhibits good sensitivity (82%) and specificity (78%) for identifying high-risk drinking college students.[30] In our sample, internal consistency was excellent ($\alpha = .82$).

Cognitive Appraisal of Risky Events-Revised

The Cognitive Appraisal of Risky Events-Revised (CARE-R)[31] is a questionnaire measuring the occurrence and frequency of risky behaviors, including drug use and risky

Table 1. Descriptive statistics.

Variables	*M* (*SD*)	Range	Frequency (%)
DERS awareness	15.43 (5.03)	6–30	–
DERS clarity	11.18 (3.85)	5–22	–
DERS non-acceptance	12.48 (5.86)	6–30	–
DERS strategies	15.88 (6.30)	8–38	–
DERS impulsivity	10.38 (3.76)	6–24	–
DERS goals	13.71 (4.79)	5–25	–
AUDIT	7.40 (5.51)	0–26	–
CARE-R drugs	–	–	0 (53.3) 1–6 (35.6) 6–12 (12.0) 12–18 (2.5)
CARE-R partner	–	–	0 (49.8) 1–6 (26.3) 6–12 (14.4) 12–19 (12.1)
CARE-R stranger	–	–	0 (78.3) 1–4 (12.2) 5–8 (6.5)
EPSI binge eating	9.79 (5.68)	5–32	–
DSHI self-harm	–	–	No (81.8) Yes (18.2)

DERS, Difficulties in Emotion Regulation Scale; AUDIT, Alcohol Use Disorders Identification Test; CARE-R, Cognitive Appraisal of Risky Events-Revised; EPSI, Eating Pathology Symptoms Inventory; DSHI, Deliberate Self Harm Inventory.

sexual behavior. Items are rated on a 7-point scale ranging from 0 to 31+ to index the number of times the behavior occurred over the past 6 months. Drug use is measured by assessing the frequency of use of marijuana, cocaine, hallucinogens, amphetamines, inhalants, and other specified drugs. Internal consistency for the drug use subscale in our sample was low ($\alpha = .59$). This is likely because of a large number of people reporting marijuana use (44.6%), but a smaller number of people reporting use of the other drugs (0.5%–8%).

Risky sexual behavior is measured using six questions (e.g., "leaving a social event with someone I just met"). In a previous college sample, the CARE-R risky sexual behavior items had high internal consistency ($\alpha = .83$).[31] Previous studies using the CARE-R have examined risky sexual behavior by separating questions assessing risky sexual behavior with a partner versus a stranger.[31,32] Using this method, internal consistency for risky sexual behavior in our sample was adequate for both the partner and stranger subscales: Partner ($\alpha = .77$); Stranger ($\alpha = .84$).

Eating Pathology Symptoms Inventory

The Eating Pathology Symptoms Inventory (EPSI)[33] is a 45-item multidimensional measure that assesses eating disorder psychopathology via eight subscales. This study examined the EPSI Binge Eating subscale, which includes eight items (e.g., "I ate a very large amount of food in a short period of time"). Internal consistency for EPSI Binge Eating was excellent in both patients with eating disorders and college students ($\alpha = .93$ and $\alpha = .83$, respectively).[33] Test-retest reliability over 2–4 weeks was high ($r = .71$).[33] The scale was also found to have good convergent and discriminant validity with other measures of eating disorder symptoms and measures of internalizing symptoms, respectively.[33] The internal consistency for EPSI Binge Eating in our sample was high ($\alpha = .85$).

Deliberate Self-Harm Inventory

The Deliberate Self-Harm Inventory (DSHI)[34] is a 17-item questionnaire assessing the lifetime presence, frequency, severity, and duration of seventeen different forms of non-suicidal self-injurious behavior (e.g., cutting, burning, biting, banging head). The DSHI has been used to examine both frequency of self-harm (continuous variable) and the presence versus absence of self-harm (dichotomous variable).[34] For the current study, a dichotomous variable was created using the presence of any form of self-harm versus a complete absence of self-harm over one's lifetime. The DSHI has demonstrated significant correlations with other measures of self-harm and a measure of BPD.[34] Previous studies have found that individuals with versus without a lifetime history of self-harm, as indexed by the dichotomous DSHI variable, have greater emotion regulation difficulties, borderline personality disorder symptoms, and negative consequences related to alcohol consumption.[35–38]

Statistical analyses

Data were analyzed using the Statistical Package for the Social Sciences version 24 and Mplus version 8.1.[39,40] First, the distribution of each continuous variable was examined via skewness and kurtosis statistics, and no transformations were deemed necessary. The CARE-R drugs and risky sex with partners and strangers variables were treated as count variables, given that participants rate the frequency of various risky behaviors using the CARE-R. Next, Pearson (for continuous variables), Spearman (for count variables) and point-biserial (for the dichotomous DSHI variable) correlations were conducted to examine bivariate relations among the independent variables (i.e., forms of emotion dysregulation) and dependent variables (i.e., alcohol use, drug use, risky sex with partner, risky sex with stranger, non-suicidal self injury). Lastly, path models in Mplus examined emotion dysregulation as a predictor of impulsive behaviors. The advantage of path models is that they allow for multiple independent and dependent variables to be included in a single analysis. Individual DERS subscales were first entered as independent variables in separate path models and then examined as unique predictors of impulsive behaviors in a path model that included all DERS subscales together. All impulsive behaviors were entered simultaneously as dependent variables in each model. Linear regression was used for continuous variables, negative binomial regression was used for count variables, and logistic regression was used for the categorical DSHI variable. All path models controlled for sex.

Results

Descriptive statistics and Pearson correlations

Descriptive statistics are presented in Table 1. Scores on each measure are largely similar to previous studies of university students examining the same variables. Mean DERS scores are comparable to those presented in the validation

Table 2. Correlations between difficulties in emotion regulation and impulsive behaviors.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Awareness	–	–	–	–	–	–	–	–	–	–	–	–
2. Clarity	.50***	–	–	–	–	–	–	–	–	–	–	–
3. Non-Acceptance	.28***	.52***	–	–	–	–	–	–	–	–	–	–
4. Strategies	.16*	.50***	.65***	–	–	–	–	–	–	–	–	–
5. Impulse	.24***	.48***	.41***	.62***	–	–	–	–	–	–	–	–
6. Goals	.0001	.34***	.47***	.66***	.44***	–	–	–	–	–	–	–
7. Alcohol	.18**	.35***	.20**	.13	.18**	.12	–	–	–	–	–	–
8. Drugs	.07	.14	−.003	.04	.07	.12	.53***	–	–	–	–	–
9. Sex-partner	−.07	.02	.09	.06	.08	.16*	.33***	.38***	–	–	–	–
10. Sex-stranger	.06	.13*	.02	.08	.08	.06	.41***	.36***	.13	–	–	–
11. Binge eating	.13	.42***	.25***	.33***	.36***	.25***	.25***	.19**	.08	.13	–	–
12. Self-harm	.05	.19**	.18**	.18**	.10	.13*	.19**	.18*	.16*	.16*	.04	–

DERS, Difficulties in Emotion Regulation Scale; Pearson correlations are presented for variables: awareness, clarity, non-acceptance, strategies, impulse, goals; Spearman's correlations are presented for count variables: drugs, sex-partner, sex-stranger; point biserial correlation is presented for self-harm.
*$p < .05$, **$p < .01$, ***$p < .001$.

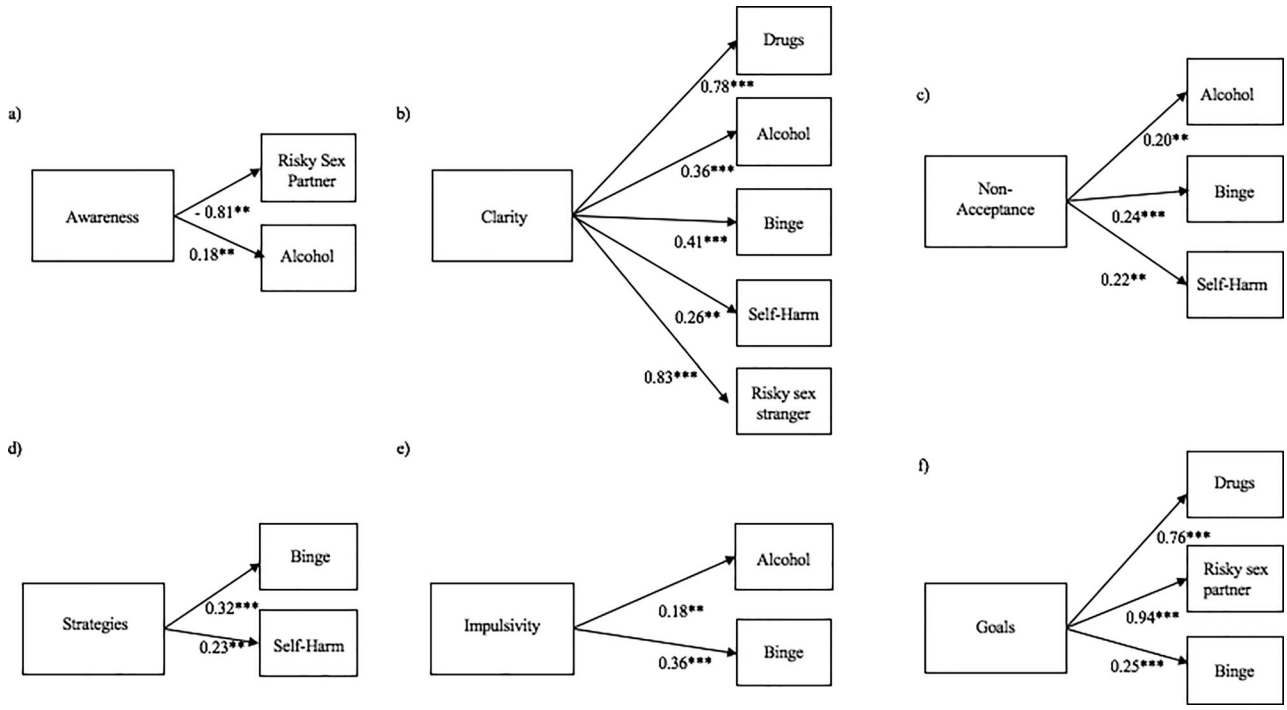

Figure 1. Path models examining difficulties in emotion regulation subscales as predictors of impulsive behaviors.
DERS, Difficulties in Emotion Regulation Scale; only significant paths are included; standardized coefficients are presented; negative binomial regressions used for variables: risky sex partner, risky sex stranger, drugs; logistic regression used for self-harm; all path models controlled for sex. **$p < .01$; ***$p < .001$.

study by Gratz and Roemer.[21] The mean score for AUDIT is similar to the mean score reported by Kokotailo et al.[30] Almost half of our participants (45.2%) met the suggested AUDIT cutoff (i.e., a score of 8 or higher), indicating problematic or hazardous drinking. The mean EPSI Binge Eating score is highly similar to that reported in a previous study with university students.[33] The one exception was the prevalence of non-suicidal self-injury, which was lower in our sample (18%) than the DSHI validation study by Gratz and colleagues (35%).[34] Notably, the Gratz study mentioned self-harm in the recruitment advertisements, which may have led to a higher number of participants whom engaged in self-harm, as compared to our unselected sample.

Correlations are presented in Table 2. DERS Clarity was significantly correlated with problematic alcohol use, risky sex with a stranger, binge eating, and self-harm. DERS Non-acceptance was significantly correlated with problematic alcohol use, binge eating, and self-harm, while DERS Goals was significantly correlated with risky sex with a partner, binge eating, and self-harm. The Impulse subscale was significantly correlated with problematic alcohol use and binge eating, and the Strategies subscale was significantly correlated with binge eating and self-harm. The only impulsive behavior significantly correlated with the DERS Awareness subscale was problematic alcohol use.

Path models

Figure 1 presents the path models examining each form of emotion dysregulation separately as a predictor of impulsive behaviors (i.e., problematic alcohol use, drug use, risky sexual activity, binge eating, and non-suicidal self-harm). Lack of clarity regarding one's emotions significantly predicted all impulsive behaviors, except risky sexual activity with a

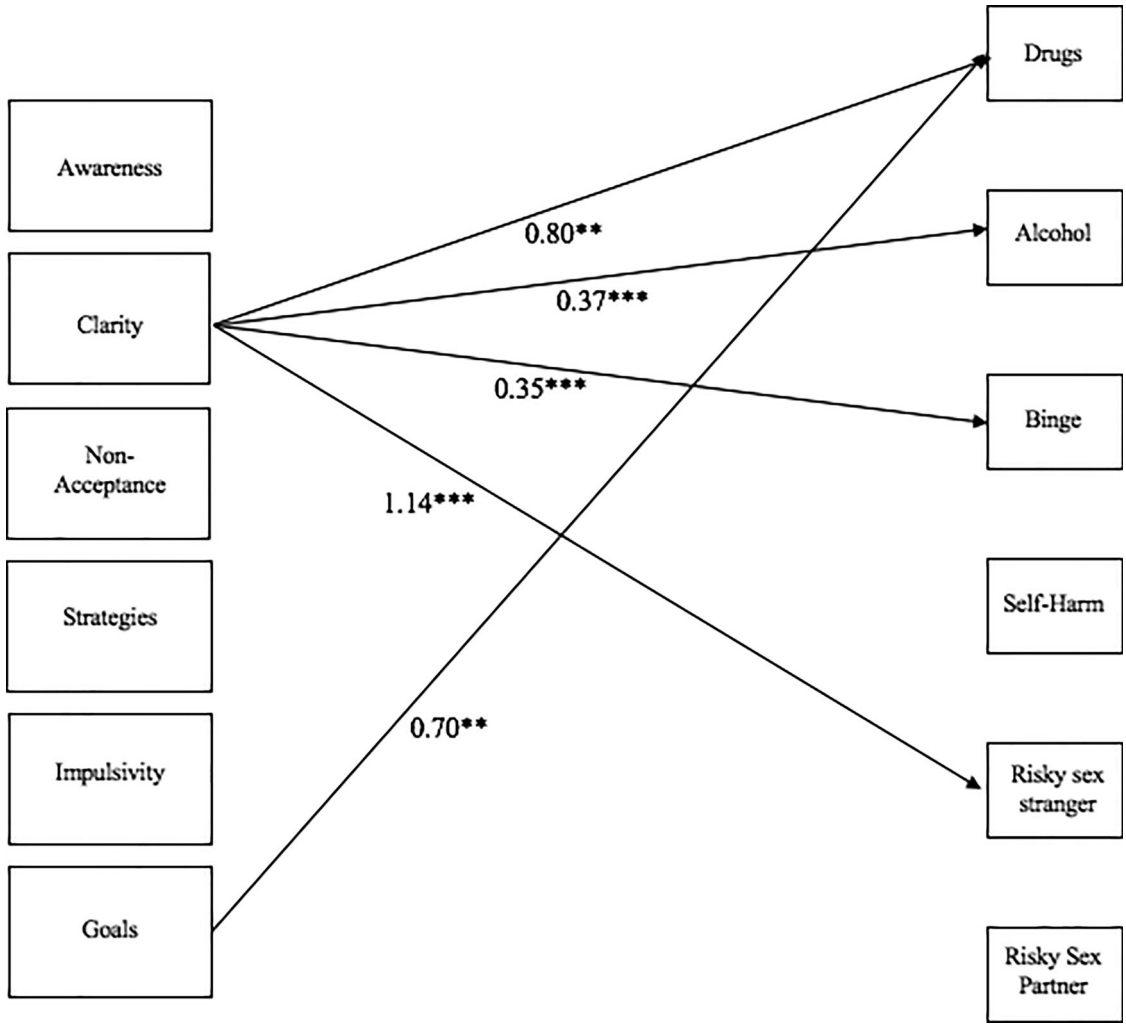

Figure 2. Path model examining difficulties in emotion regulation as unique predictors of impulsive behaviors.
DERS, Difficulties in Emotion Regulation Scale; only significant paths are included; standardized coefficients are presented; negative binomial regressions used for variables: risky sex partner, risky sex stranger, drugs. Logistic regression used for self-harm; all path models controlled for sex. $^{**}p < .01$; $^{***}p < .00$.

partner. Non-acceptance of emotions predicted problematic alcohol use, binge eating, and self-harm, while difficulties with goal-directed behavior when upset related to drug use, risky sex with partner, and binge eating. Difficulties with impulse control when upset predicted alcohol use and binge eating, limited access to emotion regulation strategies perceived as effective predicted binge eating and self-harm, and poor awareness of one's emotions positively predicted alcohol use and negatively predicted risky sex with a partner.

Figure 2 presents the path model examining all forms of emotion dysregulation as simultaneous predictors of all impulsive behaviors. Lack of emotional clarity significantly predicted four impulsive behaviors: alcohol use, drug use, risky sex with a partner, and binge eating, while the goals subscale predicted drug use. No other DERS subscales significantly predicted impulsive behaviors after controlling for the overlapping variance with the other DERS subscales.

Discussion

The purpose of this study was to clarify the contribution of specific forms of emotion dysregulation to behavioral manifestations of impulsivity in a university students. While emotion dysregulation and impulsivity are associated with many forms of psychopathology, little research has investigated the types of emotion dysregulation that are most relevant for the multitude of impulsive behaviors that often emerge throughout university and define many psychological disorders. Results from this study suggest that poor clarity of one's emotions, defined as the inability to recognize and understand the specific emotion one is experiencing when feeling "upset", relates to the greatest number of impulsive behaviors. In path models, lack of emotional clarity significantly predicted five of six impulsive behaviors (i.e., problematic alcohol use, drug use, risky sexual activity with a stranger, binge eating, and self-harm). Non-acceptance of one's emotions and difficulties with goal-directed behavior when upset both predicted three impulsive behaviors (i.e., Non-acceptance: problematic alcohol use, binge eating, and self-harm; Goals: Drug use, risky sex with partner, binge eating). Other DERS subscales (i.e., strategies and impulse) predicted two behaviors, while the awareness subscale only positively predicted one behavior. Notably, when all DERS subscales were included as simultaneous predictors of impulsive behaviors, the Clarity subscale was the only

form of emotion dysregulation to significantly predict multiple impulsive behaviors. These findings suggest that emotion dysregulation, especially difficulties with clarity surrounding one's emotions, may represent a mechanism that, if targeted in prevention and treatment, could reduce rates of impulsive behaviors and associated psychological disorders present in university students.

Of the six DERS subscales, lack of emotional clarity was the subscale predictive of the greatest number of impulsive behaviors, both in univariate and multivariate path models. While research specifically focusing on lack of emotional clarity from the DERS is limited, some past studies using the DERS have highlighted the Clarity subscale as important for various maladaptive behaviors. For example, Gratz & Roemer found that the Clarity subscale (as well as limited access to strategies) distinguished women who self-harm from those who do not; clarity also predicted deliberate self-harm frequency in a university population.[36] Similarly, difficulties with emotional clarity was among the DERS subscales that significantly distinguished individuals addicted to drugs from healthy controls.[41] The Clarity subscale has been found to be associated with both alcohol use and related problems.[22] Finally, in a study examining binge eating in college students, Whiteside and colleagues found that individuals with difficulties with emotional clarity reported more frequent binge eating episodes.[23]

Additional research has examined the construct of alexithymia, defined as the inability to identify and describe emotions, which is strongly correlated with DERS Clarity.[42] Alexithymia has been found to be associated with many of the impulsive behaviors examined in this study, including alcohol use, binge eating, and non-suicidal self-injury.[43–45] Alexithymia has also shown to be related to higher levels of BPD traits in both clinical and non-clinical samples.[46,47] However, poor emotional awareness is also a component of alexithymia and is strongly related to DERS Clarity and yet, the Awareness subscale of the DERS was only positively related to problematic alcohol use. Past research has found that the Awareness subscale demonstrates weak latent factor intercorrelations with the other five DERS subscales and fails to significantly correlate with many related constructs[48,49], which may explain the pattern in our findings. In fact, Bardeen and colleagues have advocated for the removal of the awareness subscale items from the DERS altogether.[48]

The DERS Non-acceptance and Goals subscales were also predictive of several impulsive behaviors. The fact that DERS Non-acceptance predicted multiple impulsive behaviors is in line with various theories of psychopathology, such as the experiential avoidance model[50], in which individuals will turn to impulsive behaviors to avoid or escape from unwanted emotional experiences, and Linehan's theory of "secondary emotions", in which individuals negatively react to their primary emotions (i.e., the initial reaction to an event) with secondary emotions (e.g., shame and guilt) instead of accepting the primary emotion.[51] In both theories, failure to accept current emotions can prolong distress and lead to the use of impulsive behaviors to reduce unwanted emotions. Previous research on individual impulsive behaviors and psychopathology is consistent with our finding that avoiding and not being able to accept one's emotions is associated with engaging in maladaptive impulsive behaviors.[52–54] Unfortunately, while behaviors such as alcohol use, binge eating, and self-harm may be effective for escaping negative emotions in the short term, they are less effective than adaptive emotion regulation strategies (e.g., cognitive defusion, distress tolerance, and mindfulness skills) and often bring many additional problems in the long term. Similarly, the Goals subscale also predicted three maladaptive behaviors in our study. Difficulties engaging in goal directed behavior when upset is not often been associated with the impulsive behaviors examined in this study. However, acting in accordance with one's goals requires executive functioning, and poor executive functioning has been found to play an important role in risky behavior in young adults.[55] It is likely that, when individuals are in distress, their executive functioning skills are compromised and they have trouble pursuing previously established goals. Instead, they turn to behaviors, such as drugs, risky sex with a partner, or binge eating, to relieve distress.

Importantly, two of the subscales found to be most predictive of maladaptive behavior, lack of emotional clarity and non-acceptance of emotions, are both core skills targeted in mindfulness.[56] Mindfulness is described as the ability to be aware, attentive, and accepting of internal and external experiences.[57] Accordingly, mindfulness deficits have been found to be highly associated with impulsivity[58] and many of the maladaptive impulsive behaviors examined in this study. For example, in a meta-analysis, trait mindfulness and substance use behaviors were significantly negatively correlated, with a more robust correlation for problematic substance use compared to non-problematic substance use.[59] Similarly, studies have found that trait mindfulness was significantly lower in individuals with a history of self-injury compared to those without.[60,61] Our findings, combined with previous research, suggest that mindfulness may be a useful technique to improve one's ability to clearly identify and accept emotions, which may help reduce rates of impulsive behaviors. Mindfulness may also be a useful avenue for preventing engagement in these behaviors in the first place. Indeed, mindfulness-based interventions have been shown to increase resilience to stress in university students during the academic year and notably, during exam periods.[62] Encouraging and implementing mindfulness workshops in first-year university students may be a promising method that universities can implement to help give students the skills to cope with their daily stressors without the use of maladaptive behaviors. Additionally, mindfulness is a core component of DBT, a treatment originally developed to target the emotion regulation difficulties central to BPD and that has also demonstrated some success in treating other disorders, such as substance use and eating disorders.[63,64] Moreover, mindfulness as a skill on its own, outside of the full DBT package, has also shown promise for treating conditions such as substance use and binge eating.[65,66] While mindfulness skills can be beneficial to all students, it is especially important that universities screen for

mental health difficulties and make an even stronger effort to encourage and provide mental health skill workshops, such as mindfulness workshops, and treatments for student struggling with active mental health disorders. Additionally, researchers should continue to conduct randomized controlled trials to examine whether a lack of emotional clarity and non-acceptance of emotions can successfully be targeted in mindfulness interventions and in turn, reduce rates of maladaptive behaviors.

To our knowledge, this study is the first to examine relationships between specific forms of emotion dysregulation and multiple impulsive behaviors in college students. While this study provides meaningful findings, it is not without limitations. First, the data were cross-sectional; thus, directional and/or causal relationships between emotion dysregulation and impulsive behaviors cannot be inferred. Second, participants may have provided socially desirable answers based on the sensitive nature of the questions included in this study. However, all questions in this study included a prefer not to answer option, allowing participants to opt out of answering questions to which they did not feel comfortable responding. Additionally, caution should be taken when generalizing results beyond the specific demographic group examined in this study as findings may vary by demographic status such as race, gender, year in school, collegiate athlete, participation in Greek system, etc. Specifically, our sample was primarily Caucasian (89.9%) and female (69%). Additionally, participants in this study were all psychology students. Further, every university has a specific culture and student population depending on the geographic region, size of the institution, whether the university is public or private, etc. It may be that students from certain demographic populations have different emotion regulation difficulties and thus, engage in different sorts of maladaptive behaviors. In conclusion, researchers should continue to further examine the role of emotion dysregulation as a mechanism to prevent and treat impulsive behaviors in university students.

Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of Canada and received approval from the institutional review board.

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