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The Role of Impulsivity in Relation to the Co-Occurrence of Binge Eating and Binge Drinking

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ABSTRACT

Binge eating and binge drinking often co-occur, but the role of impulsivity in accounting for this relationship is under-investigated. Existing research acknowledges shared risk factors, yet the specific impact of impulsivity is a critical gap. Impulsivity, characterized by impulsive decision-making, is known in addictive behaviors. This research with a sample of college and community participants assessed binge eating, binge drinking, and impulsivity. Overall, binge eating and binge drinking were uncorrelated, contrary to previous research. However, impulsivity was associated with both binge eating and binge drinking. Gender differences were also noted, along with differences between the community and college samples. The research suggests that understanding these dynamics can inform targeted interventions, contributing both theoretically and practically to mental health strategies, ultimately improving outcomes by addressing impulsivity's role in the simultaneous occurrence of binge eating and binge drinking.

The Role of Impulsivity in Relation to the Co-Occurrence of Binge Eating and Binge
Drinking

A Thesis

Presented to

The Faculty of the Department of Psychology

Abilene Christian University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

By

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May 2024

This thesis, directed and approved by the committee for the thesis candidate Hannah Holst, has been accepted by the Office of Graduate Programs of Abilene Christian University in partial fulfillment of the requirements for the degree

Master of Science in Psychology

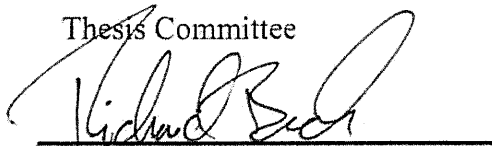


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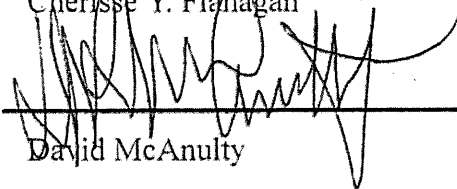
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I would like to thank my wonderful parents without your endless love and support I would not be where I am today. I would also like to give all the glory to God because without him none of this would be possible.

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CHAPTER I

INTRODUCTION

Binge Eating Clinical Description

Binge eating disorder (BED) is a complex eating disorder that can affect a person not only physically, but emotionally as well. *Binge eating disorder*, according to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (2022; *DSM-5-TR*), is defined as an eating disorder that is diagnosed by recurrent episodes of binge eating. An episode of binge eating is characterized by eating in a discrete period of time (typically within any two-hour period) and consuming a larger than typical amount of food. Binge eating episodes are commonly associated with three or more of the following: eating more rapidly than usual, eating until uncomfortably full, eating large amounts of foods even when one is not hungry, feeling embarrassed by the amount one is eating, and feeling disgusted with oneself, depressed, or guilty afterwards. Binge eating occurs, on average, at least once a week for three months and it is not associated with the recurrent use of inappropriate compensatory behavior as in bulimia nervosa or anorexia nervosa (American Psychiatric Association, 2022).

Binge eating has been associated with a variety of behavioral and psychological variables, from loss of control, secretive behavior, isolation, shame, guilt, and accelerated consumption (Giel et al., 2022; Mustelin et al., 2017). To prevent weight gain caused by binge eating episodes, people will often develop bulimia nervosa by fasting, use of laxatives, vomiting, or other compensatory behavior. While people can turn to those

strategies to avoid weight gain, these behaviors are not characteristic of typical binge eating routines. Those who have BED typically have a higher BMI with associated body image issues (Mustelin et al., 2017).

Correlates of Binge Eating

Conditions commonly co-occurring with BED include obesity, heart conditions, arthritis, high cholesterol, Type 2 diabetes, and problems sleeping (Giel et al., 2022; Mustelin et al., 2017). Common comorbid mental health conditions of BED include lifetime vulnerability to mood disorders, post-traumatic stress disorder, and anxiety disorders (Giel et al., 2022). Women are more likely to have BED than men (Giel et al., 2022; Mustelin et al., 2017). Although Black women have similar or higher rates of BED than White women, most research on BED has focused on White women, with Black individuals underrepresented in clinical trials (Goode et al., 2020).

Binge Drinking Clinical Description

Binge drinking can be defined as a pattern of episodic alcohol use characterized by heavy alcohol intake during a short period. Binge drinking has been studied and described in different ways, such as the 5/4 method and the .08% BAC threshold. The 5/4 method defines binge drinking as having five or four drinks (or more) per occasion; the ratio is four drinks for females and five drinks for males (Wechsler & Kuo, 2000; White et al., 2018). The .08% BAC method defines binge drinking as reaching a blood alcohol content (BAC) level of .08%, which is a common threshold of impairment. In order to achieve a BAC of .08%, an individual would have consumed alcohol at a rate greater than what the body can eliminate via metabolic processes. Compared with the 5/4

definition, the 0.08% definition is able to take into account factors such as the drinker's body weight, gender, and the duration of consumption (Filmore & Jude, 2011).

When drinking, crossing the binge threshold increases the risk of acute harm, such as injuries, memory blackouts, and overdoses, and the risk of negative outcomes increases at higher levels of consumption (Kuntsche et al., 2017; White et al., 2018).

Binge drinkers are often extroverted, have impulsivity issues, increased stress, greater anxiety, exposure to traumatic events in their past, depression, and hang out with friends who drink (Kuntsche et al., 2017).

Correlates of Binge Drinking

Some studies have shown that binge drinking has declined in recent years for men in some age groups (White et al., 2018). On the other hand, binge drinking among women has not declined as rapidly, and there has been some increase which has led to a gender convergence in alcohol use and related harms (White et al., 2018). Binge drinking levels vary for different races. For example, White youth have been shown to be at most at risk for binge drinking. Comparatively, African American youth have been reported to be less at risk than both Caucasian and Hispanic counterparts. Hispanic youth have been reported to be somewhere in the middle when it comes to risk of binge drinking (Krieg & Kuhl, 2016). Income also appears to be a factor in the risk of binge drinking.

Specifically, people that have higher income (both men and women) are more likely to binge drink. When it comes to higher education, there is a disconnect between genders. Women who have a higher education are more at risk for binge drinking, but men with a higher education have a decreased likelihood to binge drink (Al-Rousan et al., 2022; White et al., 2018). African Americans are less likely to binge drink than their Caucasian

counterparts. Hispanics, by contrast, are at a lesser risk than Caucasians to binge drink but are more at risk than African Americans (Krieg & Kuhl, 2016).

Binge Drinking and Binge Eating in College Students

A number of investigations have examined the relationship between binge drinking and binge eating in college students (Castañeda et al., 2020; Trojanowski et al., 2019; Ward et al., 2016). College is a time where students find themselves living on their own for the first time. While there are opportunities in the freedom of the college experience, there are some challenges as well. For example, binge drinking and high alcohol consumption among college students are extremely high (Castañeda et al., 2020; Trojanowski et al., 2019). College students also tend to underestimate if they are binge drinking, as “average” alcohol consumption among college students is higher than other norms (Wechsler & Kuo, 2000). College students, especially females, can also develop disordered eating habits in order to consume more alcohol, a phenomenon known as “drunkorexia” that is gaining popularity among college students (Ward et al., 2016). For example, some college students restrict their caloric intake to save calories for drinks, often followed by binge eating to compensate for hunger later on. Disordered eating, especially binge eating and purging, has been associated with other risky behaviors involving alcohol and drug misuse (Ward et al., 2016).

Overall, a variety of variables have been found to predict increased risk binge drinking and eating disorders: Greek life (fraternities and sororities), freshmen classification, lower low self-esteem, ethnicity (with Caucasians being more prone), and higher socio-economic status. As Trojanowski, Adams, and Fischer (2019, p.152) have observed, “Binge drinking and binge eating occur frequently in undergraduates; however,

the mechanism driving their co-occurrence is not well-understood, but is beginning to get studied more.”

Impulsivity

Impulsivity is defined as a predisposition toward rapid, unplanned reactions to internal or external stimuli with diminished regard to the negative consequences of these reactions to the impulsive individual or to others (Chamberlain & Sahakian, 2007). There are four constructs that are typically associated with impulsivity, including: lack of premeditation, sensation seeking, lack of perseverance, and urgency (Kozak et al., 2019; Zald, 2015). Urgency is understood to have two traits, positive and negative. Positive and negative urgency refers to the disposition to act rashly to extreme positive or negative emotions (Kozak et al., 2019; Smith & Cyders, 2016). Impulsivity is a risk factor for substance-use disorders and is present in different forms of psychopathology (Kozak et al., 2019; Zald, 2015). Impulsivity varies from person to person, but different studies have shown that impulsivity is most common among males, people who grew up in homes with money problems, individuals who had a family member with a mental health problem, and younger age groups—especially before the prefrontal cortex is fully developed (Chamorro et al., 2021; Smith & Cyders, 2016). When individuals struggle with impulsivity, they have been shown to be more likely to engage in dangerous behaviors that could hurt themselves or others, such as reckless driving, getting into fights, domestic violence and trying to hurt or kill themselves (Chamorro et al., 2012).

Binge Eating and Impulsivity

Impulsivity has been shown to be closely associated with binge eating (Carr et al., 2021). Those that suffer from BED consume large amounts of food in a short amount of

time and report “losing control,” which has been shown to be due to a lack of impulse control (Boswell et al., 2023; Carr et al., 2022; Giel et al., 2017). One thing that has been thought to contribute to the maintenance of binge eating is poor reward-related decision making. Impulsivity and compulsivity are distinct constructs, but obsessions/compulsions about food have also been associated with BED and contribute to severity (Boswell et al., 2023). Overall, people with impulsivity issues have a greater risk of having an eating disorder, especially with binge eating behavior (Ince et al., 2021; Boswell et al., 2023). Different studies have shown that if someone with binge eating disorder can manage their impulsivity, they are predicted to have a greater chance of recovering from BED (Carr et al., 2021; Ince et al., 2021).

Binge Drinking and Impulsivity

The relationship between binge drinking and impulsivity has been extensively investigated. It has been shown that binge drinking is associated with both the negative and positive traits of urgency in impulsivity (Bo et al., 2016). Binge drinking in regard to the positive trait of urgency appears to be due to a person acting rashly when they get elated. For example, if a college student gets attention from a person they have a crush on at a party, this can trigger a euphoric feeling that exacerbates drinking. Concerning the negative trait of urgency, an example would be an individual binge drinking to “drown the sadness out” after having been fired from a job. Overall, when it comes to the treatment of binge drinking, positive outcomes are more likely observed when impulsivity is effectively managed (Kozak et al., 2019).

The Present Study

Binge eating and binge drinking have been shown to be strongly correlated and have been studied together more recently. However, mysteries remain about the source of their co-occurrence (Laghi et al., 2021; Trojanowski et al., 2019). Studies have shown correlations between impulsivity and binge drinking as well as between impulsivity with binge eating. However, no study has yet assessed binge eating, binge drinking, and impulsivity in the same sample. Such an analysis will help illuminate the degree to which impulsivity is a shared feature between these disorders, providing a possible etiological explanation for their common co-occurrence in college samples. Identifying that shared etiology could also aid and direct preventive and clinical interventions. Overall, it was predicted that binge eating and binge drinking behavior will be positively correlated among college participants. It was also predicted that both binge eating and binge drinking would each be positively correlated with impulsivity. Finally, it was predicted that a significant amount of the statistical association between binge eating, and binge drinking would be accounted for by their shared association with impulsivity.

CHAPTER II

METHODS

Participants and Procedure

A total of 261 participants consented and completed the survey. Participants were recruited from Abilene Christian University (ACU) classes and convenience sampling by soliciting volunteers from social and family connections. The majority of participants were ACU students (65%), with approximately (35%) being from the community. Out of the 261 participants, there were 167 females (64%) and 94 males (36%). The ethnicity breakdown was as follows: 57% Caucasian/White, 20% Hispanic/Latino, 14% African American/Black, and 9% other. The mean ages among the different groups were as follows: college males ($n = 60$; mean age = 20.30, $SD = 3.01$), college females ($n = 106$; mean age = 19.57, $SD = 1.52$), community males ($n = 25$; mean age = 31.28, $SD = 14.53$), and community females ($n = 46$; mean age = 31.67, $SD = 11.85$).

A survey was sent out using Qualtrics to undergraduate and graduate volunteers at ACU. Additional participants outside of ACU were solicited through social media and personal contacts.

Assessment Instruments

Barratt Impulsiveness Scale-11 (BIS-11)

This instrument is a 30-item self-report questionnaire that was designed as a multifaceted measure of trait impulsivity (Patton et al., 1995). This scale has three subdomains: attention, motor, and non-planning. The Barratt Impulsivity Scale uses a

Likert scale from 1 to 4 (1 = “rarely/never”, 4 = “almost always”). Example items in each subdomain include: “I act on the spur of the moment” (non-planning), “I don’t pay attention” (attention), and “I squirm at plays or lectures” (motor). Scores on the BIS-11 have good test–retest reliability at 1 month (Spearman’s $\rho = 0.83$) and good internal consistency (Cronbach’s $\alpha = .83$) (Stanford et al., 2009). The Barratt Impulsiveness Scale can be found in Appendix B.

Three-Factor Eating Questionnaire – Revised 18 (TFEQ-R18)

This instrument is a brief version of the Three Factor Eating Questionnaire (Karlsson et al., 2000). The original TFEQ was a 51-item tool constructed in 1985 by Stunkard and Messick in an obese sample that defined three dimensions of eating behaviors: (1) cognitive restraint of eating, (2) disinhibition, and (3) hunger. Using principal component analysis, Karlsson and colleagues derived the 18-item revised version (TFEQ-R18; Karlsson et al., 2000) from the original 51-item TFEQ (Stunkard & Messick, 1985), increasing the relevancy of the tool while reducing length and respondent burden. The TFEQ-R18 is an 18-item self-report scale designed to assess different aspects of eating behavior. This scale has three different subdomains: cognitive restraint, uncontrolled eating, and emotional eating. The TFEQ-R18 uses a Likert scale from 4 to 1 (4 = definitely true, 1 = definitely false) or (1 = almost never, 4 = almost always) or (1 = unlikely, 4 = very likely) or (1 = never, 4 = at least once a week). The test also includes one question that has an open-ended response where the test taker answers on a scale from 1 to 8 how much restraint they have in eating. Example items in each subdomain include: “How frequently do you avoid ‘stocking up’ on tempting foods?” (cognitive restraint), “Sometimes when you start eating, do you feel you just can’t seem

to stop?” (uncontrolled eating), and “When you feel lonely, do you console yourself by eating?” (emotional eating). The internal-consistency reliability coefficients (Cronbach’s α) for each of the three scales have been reported to be above 0.70 (Blandine de Lauzon et al., 2004). The TFEQ-R18 can be found in Appendix C.

AUDIT

The Alcohol Use Disorders Identification Test (AUDIT) is a 10-question self-report questionnaire that was designed to measure harmful alcohol use (Saunders et al., 1993). Scores for each question range from 0 to 4, with the first response for each question (“never”) scoring 0, the second (“less than monthly”) scoring 1, the third (“monthly”) scoring 2, the fourth (“weekly”) scoring 3, and the last response (“daily or almost daily”) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from left to right). A score of 8 or more is associated with harmful or hazardous drinking. A score of 13 or more in women and 15 or more in men is likely to indicate alcohol dependence (Saunders et al., 1993). The AUDIT has a high level of internal consistency and high reliability and validity in relation to clinical diagnosis (Moussas et al., 2009). The AUDIT can be found in Appendix D.

CHAPTER III

RESULTS

Correlations Between Binge Drinking and Binge Eating

One goal of this study was to examine the relationship between binge drinking and binge eating. It was predicted that binge eating (uncontrolled eating and emotional eating) would be positively correlated with binge drinking, and that restraint in eating would be negatively correlated with binge drinking. To test this prediction, correlations were conducted on the TFEQ-R18 and the AUDIT scores. These correlations can be found in Table 1. As can be seen in Table 1, the predictions were generally not supported. Contrary to predictions, binge drinking and binge eating were not positively correlated in the college males, community males, and community females. However, among the college females, there was a weak positive correlation between binge drinking and binge eating (uncontrolled eating and emotional eating).

Table 1

Correlations of TFEQ-R18 Subscales with AUDIT Scores by Sample

| Sample: | Uncontrolled | TFEQ-R 18 | |
|-------------------------|--------------|-----------|-----------|
| | | Emotional | Restraint |
| College Males | -.09 | .06 | .12 |
| College Females | .22* | .20* | -.15 |
| Community (21+) Males | .02 | -.03 | -.11 |
| Community (21+) Females | .00 | .06 | -.23 |

* $p < .05$; all correlations are between TFEQ-R 18 (binge eating) and AUDIT (binge

drinking) ratings

Relationship of Impulsivity with Binge Eating and Binge Drinking

Another goal of this study was to observe the relationship impulsivity has with binge eating and binge drinking. To clarify these analyses, the sample was broken down by gender and college versus community samples.

Among college males, it was predicted that impulsivity would have a positive correlation with both binge drinking and binge eating. To test this hypothesis, correlations were conducted on the BIS-11, TFEQ-R18, and AUDIT ratings. These correlations can be found in Table 2. As seen in Table 2, the predictions were only partially supported. Contrary to predictions, impulsivity, as a whole, did not correlate with both binge drinking and binge eating. However, binge drinking showed to be positively and moderately correlated with the attention aspect of impulsivity. The non-planning aspect of impulsiveness was also positively significantly correlated with both binge eating scales of the TFEQ-R18 (uncontrolled eating and emotional eating). Emotional eating also had a positive significant correlation with impulsiveness as a whole, but not with binge drinking.

Table 2

BIS-11 Scores Correlated with TFEQ-R18 and AUDIT Scores for College Males

| Binge Eating/Drinking: | BIS-11 Scales | | | |
|------------------------|---------------|-------|-------------|-------|
| | Attention | Motor | Non-Panning | Total |
| TFEQ-R18: Uncontrolled | -.03 | .18 | .23* | .16 |
| TFEQ-R18: Emotional | .10 | .10 | .32** | .22* |
| TFEQ-R18: Restraint | .12 | -.05 | .02 | .04 |
| AUDIT | .36* | .08 | .10 | .23* |

* $p < .05$; ** $p < .01$

Concerning college females, it was also predicted that impulsivity would have a positive correlation with both binge drinking and binge eating. These correlations can be found in Table 3. As seen in Table 3, the predictions were only partially correlated.

Contrary to predictions, impulsivity, as a whole, was uncorrelated with binge drinking. However, as predicted, impulsivity was moderately correlated with binge eating (uncontrolled and emotional). Also, the motor subscale of impulsiveness was positively correlated with both binge drinking and binge eating (uncontrolled and emotional).

Table 3

BIS-11 Scores Correlated with TFEQ-R18 and AUDIT Scores for College Females

| Binge Eating/Drinking: | BIS-11 Scales | | | |
|------------------------|---------------|-------|-------------|-------|
| | Attention | Motor | Non-Panning | Total |
| TFEQ-R18:Uncontrolled | .29** | .44** | .27** | .41* |
| TFEQ-R18:Emotional | .13 | .22* | .19* | .22* |
| TFEQ-R19:Restraint | -.15 | -.07 | -.01 | -.10 |
| AUDIT | .12 | .17* | .06 | .14 |

* $p < .05$; ** $p < .01$

The correlations between the BIS-11, TFEQ-R18, and AUDIT scores among community males can be found in Table 4. As can be seen in Table 4, impulsiveness was positively correlated with ratings of uncontrolled binge eating. The attention ratings BIS-11 were also correlated with emotional eating. Lastly, the attention subscale of impulsivity was correlated with binge drinking.

Table 4

BIS-11 Scores Correlated with TFEQ-R18 and AUDIT Scores for Community Males

| Binge Eating/Drinking: | BIS-11 Scales | | | |
|------------------------|---------------|-------|-------------|-------|
| | Attention | Motor | Non-Panning | Total |
| TFEQ-R18:Uncontrolled | .53* | .47* | .42* | .66** |
| TFEQ-R18:Emotional | .42* | .11 | .20 | .35 |
| TFEQ-R18:Restraint | .14 | -.20 | .13 | .05 |
| AUDIT | .40* | -.03 | .36 | .46* |

* $p < .05$; ** $p < .01$

Finally, correlations between BIS-11, TFEQ-R18, and AUDIT ratings were examined among the community female sample. These correlations can be found in

Table 5. As can be seen in Table 5, no correlations were observed between impulsivity, binge drinking and binge eating.

Table 5

BIS-11 Scores Correlated with TFEQ-R18 and AUDIT Scores for Community Females

| Binge Eating/Drinking: | <u>BIS-11 Scales</u> | | | |
|------------------------|----------------------|-------|-------------|-------|
| | Attention | Motor | Non-Panning | Total |
| TFEQ-R18:Uncontrolled | .19 | .02 | .20 | .18 |
| TFEQ-R18:Emotional | .23 | .07 | .26 | .28 |
| TFEQ-R18:Restraint | -.17 | -.00 | .09 | -.02 |
| AUDIT | .17 | .14 | -.01 | .11 |

CHAPTER IV

DISCUSSION

Summary of Findings

The purpose of this study was to examine the relationship impulsivity has with binge drinking and binge eating. Research over the years has indicated that binge eating and binge drinking are correlated (Castañeda et al., 2020; Trojanowski et al., 2019; Ward et al., 2016). In addition, impulsivity has been correlated with both binge drinking (Bo et al., 2016; Kozak et al., 2019) and binge eating (Boswell et al., 2023; Carr et al., 2021; Girl et al., 2017). However, to date, no research has examined binge eating, binge drinking, and impulsivity in the same sample.

It was predicted that there would be a positive correlation between impulsivity, binge drinking, and binge eating. Overall, these predictions received partial support. In every sample, besides the community females, some subscale of impulsivity was correlated with some aspect of either binge eating or binge drinking. Among female college students and community males, binge eating, particularly uncontrolled eating, was significantly correlated with every aspect of impulsivity. In both the college male and community male samples, total impulsivity ratings were positively correlated with binge drinking. One surprising finding concerned the community female sample. Unlike the other samples, there was no significant correlation observed between any aspect of binge drinking, binge eating, and impulsivity.

When looking exclusively at the college samples, there was a distinct difference in the results. For example, impulsivity in relation to binge eating appears to be a bigger issue for college females compared to college males. This may be due to females facing greater societal expectations when it comes to weight. College is a time when females can be self-conscious about gaining the “freshman 15” and are constantly reminded to not “let themselves go” in college in regard to gaining weight. This likely leads to females restricting their food intake in order to lose weight. However, college is a season of stress that can lead to binge eating (uncontrolled eating and emotional eating) as a means to cope and self-soothe. This can create a pattern of restriction followed by uncontrolled eating.

Another example where college males and females appear to differ concerns the relation of impulsivity to binge drinking. Specifically, in this sample impulsivity with binge drinking appeared to have a higher correlation among the college males. This may be due to the influence of Greek Life among college males where drinking in fraternities reflects a desire to look “cool” (Ward et al., 2016). Overall, then, in this college sample binge eating was associated with females and binge drinking among males.

When looking at the community sample there were also distinctive differences between the genders. For example, among the female sample no correlations were observed between binge drinking, binge eating, or impulsivity. This may be due to the fact, though this cannot be verified, that the female community sample came from social connections in my hometown in rural Iowa.

When comparing the community and college samples results, some differences were also observed. The results showed that males in both college and community

samples displayed correlations between impulsivity and binge drinking. By contrast, when comparing college females with females in the community sample, it appears that in the college female population had a higher correlation with impulsivity issues in relation to uncontrolled and emotional eating. This difference between college age females and community females may be due to differences in social expectations concerning weight and appearance for different age groups and stages of life. Relatedly, the similarities between college males and community males in relation to binge drinking could be due to society having more stable cultural expectations concerning male drinking, allowing males to have more “reckless” fun as a part of male sociability, across the lifespan.

Clinical Implications

This study broke down the sample into college/community and gender. When doing so, it showed that when it comes to impulsivity, binge drinking, and binge eating males and females are very different. The results showed that the college males were not much different from the community males in terms of drinking and impulsivity. College females, by contrast, experienced greater issues with impulsivity in relation to uncontrolled and emotional eating. Males, by contrast, experienced greater impulsivity issues in relation to drinking.

In relation to drinking, one explanation for these findings may be that males have lower levels of impulse control and higher levels of sensation-seeking than females (Heitzeg et al., 2018). Also, females reach peak levels of sensation-seeking earlier than males and decline more rapidly thereafter. Furthermore, the decrease in impulsivity is more gradual in males than females (Heitzeg et al., 2018). This may have important

implications for sex differences in substance use as it has been shown that a slower decline in impulsivity is associated with a more rapid increase in alcohol, marijuana, and tobacco use (Heitzeg et al., 2018; Kozak et al., 2019; Zald, 2015).

In relation to eating issues, women are more likely to have BED than men (Giel et al., 2022; Mustelin et al., 2017). This study supported that observation in that the college females showed correlations between impulsivity and binge eating (uncontrolled and emotional). Males, by contrast, showed impulsivity issues in relation to drinking. Overall, then, these findings suggest different clinical presentations (eating versus drinking) for what are underlying impulsivity issues among men and women.

Limitations and Future Direction

There were a few limitations of the current study. First, the community sample was smaller than the college sample. The college sample consisted of 170 participants (65%), while the community sample had 91 participants (35%). The participants in the college community were volunteers from a small Christian college, which could have affected the binge drinking results due to moral concerns about alcohol consumption. In addition, the mean age of the college sample was under 21 years of age, the legal age of drinking. This might have limited the amount of alcohol in this sample, so research in the future might focus on an upperclassman population. Future research should gain participants from a state university to investigate this possible confound. The community population also mainly came from a small rural town in Iowa. This also could have influenced the results. Further research using community participants from different environments would also be beneficial.

Another limitation concerned the use of self-report measurement. Self-report assessment can have validity problems. In self-report, participants might exaggerate their answers to make themselves look worse, or they could minimize their answers to make themselves look better. Future studies should use multiple methods of assessment to examine impulsivity, binge eating and binge drinking.

Conclusion

Binge eating and binge drinking often co-occur, but the role of impulsivity in accounting for this relationship is under-investigated. This research with a sample of college and community participants assessed binge eating, binge drinking and impulsivity. Overall, binge eating and binge drinking were uncorrelated in this sample. However, impulsivity was associated with both binge eating and binge drinking. Gender differences were also noted, along with differences between the community and college samples. Specifically, impulsivity was related to binge drinking among males, in both the community and college samples. Among college females, binge eating was associated with impulsivity. This research suggests that understanding these dynamics can inform targeted interventions, contributing both theoretically and practically to mental health strategies, ultimately improving outcomes by addressing impulsivity's role in the simultaneous occurrence of binge eating and binge drinking. Further research could include looking into different kinds of universities (Christian, State, or HBCUs). Further research could also include focusing on more diverse community populations.

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APPENDIX A

Institutional Review Board Approval

The Institutional Review Board at Abilene Christian University states that Hannah Holst's project titled "The Role of Impulsivity in Relation to the Co-Occurrence of Binge Eating and Binge Drinking," which is IRB #2023-291, is exempt under Federal Policy for the Protection of Human Subjects. This approval is dated 12/18/23. Please contact the ACU Office of Research and Sponsored Programs at orsp@acu.edu with any questions.

APPENDIX B

Barratt Impulsiveness Scale (BIS-11)

Following are the items included in the Barratt Impulsiveness Scale (BIS-11). All items were answered on a 4-point Likert scale ranging from rarely/never to almost always.

1. I plan tasks carefully. (Non-planning)
2. I do things without thinking (motor)
3. I make up my mind quickly (motor)
4. I am happy-go-lucky (motor)
5. I don't pay attention (attention)
6. I have racing thoughts (attention)
7. I plan trips well ahead of time (Non-planning)
8. I am self-controlled (Non-planning)
9. I concentrate easily (attention)
10. I save regularly (non-planning)
11. I squirm at plays or lectures (attention)
12. I am a careful thinker (non-planning)
13. I plan for job security (non-planning)
14. I say things without thinking (non-planning)
15. I like to think about complex problems (non-planning)
16. I change jobs (motor)

17. I act on impulse (motor)
18. I get easily bored when solving thought problems (non-planning)
19. I act on the spur of the moment (motor)
20. I am a steady thinker (attention)
21. I change where I live [I change residences]. (motor)
22. I buy things on impulse (motor)
23. I can only think about one problem at a time (motor)
24. I change hobbies (attention)
25. I spend more than I earn [I spend or charge more than I earn]. (motor)
26. I have outside thoughts when thinking [I often have extraneous thoughts when thinking]. (attention)
27. I am more interested in the present than the future (non-planning)
28. I am restless at lectures or talks (attention)
29. I like puzzles (non-planning)
30. I plan for the future [I am future oriented]. (motor)

APPENDIX C

Three-Factor Eating Questionnaire – Revised 18 (TFEQ-R18)

Following are the items included in the Three Factor Eating Questionnaire Revised 18 (TFEQ-R18). Select the answer that best describes what you find yourself feeling or experiencing.

1. When I smell a delicious food, I find it very difficult to keep from eating, even if I have just finished a meal. (uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

2. I deliberately take small helpings as a means of controlling my weight.(restriction)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

3. When I feel anxious, I find myself eating.(emotional)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

4. Sometimes when I start eating, I just can't seem to stop.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

5. Being with someone who is eating often makes me hungry enough to eat also.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

6. When I feel blue, I often overeat.(emotional)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

7. When I see a real delicacy, I often get so hungry that I have to eat right away.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

8. I get so hungry that my stomach often seems like a bottomless pit.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

9. I am always hungry so it is hard for me to stop eating before I finish the food on my plate.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

10. When I feel lonely, I console myself by eating.(emotional)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

11. I consciously hold back at meals in order not to gain weight.(restriction)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

12. I do not eat some foods because they make me fat.(restriction)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

13. I am always hungry enough to eat at any time.(uncontrolled)

Definitely true (4)/ mostly true (3)/ mostly false (2)/ definitely false (1)

14. How often do you feel hungry?(uncontrolled)

Only at meal times (1)/ sometimes between meals (2)/ often between meals (3)/almost always (4)

15. How frequently do you avoid “stocking up” on tempting foods?(restriction)

Almost never (1)/ seldom (2)/ moderately likely (3)/ almost always (4)

16. How likely are you to consciously eat less than you want?(restriction)

Unlikely (1)/ slightly likely (2)/ moderately likely (3)/ very likely (4)

17. Do you go on eating binges though you are not hungry?(uncontrolled)

Never (1)/ rarely (2)/ sometimes (3)/ at least once a week (4)

18. On a scale of 1 to 8, where 1 means no restraint in eating (eating whatever you want, whenever you want it) and 8 means total restraint (constantly limiting food intake and never “giving in”), what number would you give yourself?(restraint)

APPENDIX D

Alcohol Use Disorders Identification Test (AUDIT)

Following are the items included in the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993). Select the answer that best describes the relationship you have with alcohol.

- 1) How often do you have a drink containing alcohol?
 - Never (0 points)
 - Monthly or less (1 point)
 - 2 to 4 times a month (2 points)
 - 2 to 3 times a week (3 points)
 - 4 or more times a week (4 points)

- 2) How many drinks containing alcohol do you have on a typical day when you are drinking?
 - 1 or 2 (0 points)
 - 3 or 4 (1 point)
 - 5 or 6 (2 points)
 - 7 to 9 (3 points)
 - 10 or more (4 points)

- 3) How often do you have 5 or more drinks on one occasion?
 - Never (0 points)
 - Less than monthly (1 point)
 - Monthly (2 points)
 - Weekly (3 points)
 - Daily or almost daily (4 points)

- 4) How often during the last year have you found that you were not able to stop drinking once you had started?
 - Never (0 points)
 - Less than monthly (1 point)
 - Monthly (2 points)
 - Weekly (3 points)
 - Daily or almost daily (4 points)

5) How often during the last year have you failed to do what was normally expected of you because of drinking?

- Never (0 points)
- Less than monthly (1 point)
- Monthly (2 points)
- Weekly (3 points)
- Daily or almost daily (4 points)

6) How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

- Never (0 points)
- Less than monthly (1 point)
- Monthly (2 points)
- Weekly (3 points)
- Daily or almost daily (4 points)

7) How often during the last year have you had a feeling of guilt or remorse after drinking?

- Never (0 points)
- Less than monthly (1 point)
- Monthly (2 points)
- Weekly (3 points)
- Daily or almost daily (4 points)

8) How often during the last year have you been unable to remember what happened the night before because you had been drinking?

- Never (0 points)
- Less than monthly (1 point)
- Monthly (2 points)
- Weekly (3 points)
- Daily or almost daily (4 points)

9) Have you or someone else been injured as a result of your drinking? No (0 points)

- Yes, but not in the last year (2 points)
- Yes, during the last year (4 points)

10) Has a relative, a friend, a doctor, or another health worker been concerned about your drinking or suggested you cut down?

- No (0 points)
- Yes, but not in the last year (2 points)
- Yes, during the last year (4 points)