Published in final edited form as:

Psychol Women Q. 2021 June ; 45(2): 243–254. doi:10.1177/0361684320987126.

Victimization and Food Addiction Symptoms: Direct and Indirect Effects through Emotion Dysregulation, Impulsivity, and Loss-of-Control Eating

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Abstract

Previous research suggests that dating, intimate partner, and sexual violence victimization throughout the lifespan are predictive of numerous adverse health outcomes including addictive behaviors, psychopathology, and physical health symptoms. Self-medication hypotheses posit that victims may drink heavily, use substances, or rely on food to cope with negative affect and psychological symptoms. We examined a self-medication hypothesis-driven model linking dating and sexual violence victimization with food addiction symptoms through their relationships with emotion regulation, impulsivity, and loss-of-control eating in a sample of 313 single, non-treatment-engaged, college student women aged 18–25 years old enrolled in a minority serving, urban university. Participants completed an online survey with measures of dating and sexual violence victimization since age 14 years, emotion regulation, impulsivity, loss-of-control eating, and food addiction symptoms. Seventy-nine percent of participants reported experiencing some form of intimate partner violence victimization. Using path analyses, we found some support for our model, as well as significant, positive, direct pathways from victimization to loss-of-control eating and food addiction symptoms. Clinicians and policy makers should incorporate these findings into practice by honoring the experiences of past victimizations in current health behaviors and by utilizing trauma-informed care practices. To extend this study's findings, researchers should examine the role of trauma-informed interventions targeting emotional regulation and impulsivity to decrease loss-of-control eating and food addiction symptoms.

Keywords

food addiction; intimate partner violence; emotion dysregulation; self-medication hypothesis; loss-of-control eating

Intimate partner and sexual violence against adolescent and young adult women are pervasive problems that can have life-altering effects. Although numerous scholars have noted many methodological challenges to examining and comparing rates of violence victimization, such as the use of different time frames, question phrasing, and sampling, several reviews, meta-analyses, and studies using national samples indicate high rates that have changed little in the past few decades (Dworkin et al., 2017; Fedina et al., 2018; Wincentak et al., 2017). Wincentak et al. (2017) conducted a meta-analysis of teen dating violence prevalence rates. With 101 samples of youth aged 13–18 years old, they concluded that 21% of girls (and boys) reported physical dating violence victimization. In a recent study with over 3,100 heterosexual women college students from eight New England universities, 13% reported physical dating violence victimization and 14% reported sexual violence victimization in the past six months (Edwards et al., 2015). Among the 5,758 women completing the 2015 National Intimate Partner and Sexual Violence Survey (NISVS; Smith et al., 2018), 31% experienced physical violence and 36% experienced psychological aggression by an intimate partner in their lifetime, 44% experienced some form of contact sexual violence in their lifetime, and over 70% of victimization experiences occurred before age 25. Taken together, there is a need to focus on understanding how these forms of violence impact young women specifically.

Intimate partner and sexual violence victimization have both short- and long-term adverse implications for survivors (Dworkin et al., 2017; Lagdon et al., 2014). Sexual violence and intimate partner violence experiences are independently and cumulatively associated with numerous adverse health outcomes including disordered eating behaviors and eating disorders, alcohol misuse, posttraumatic stress disorder and depressive symptoms, physical health problems, and additional victimization (Davis et al., 2018; Devries et al., 2014; Elliott et al., 2004; Exner-Cortens et al., 2012; Silverman et al., 2001; Spencer et al., 2020; Ullman et al., 2007). One mechanism suggested for understanding the relationship between victimization and maladaptive use of addictive behaviors is self-medication. The self-medication model (Khantzian, 1997; Miranda et al., 2002) posits that victims may drink heavily, use substances, or rely on food to cope with negative affect and psychological symptoms. The goal of the current study was to examine a self-medication hypothesis-driven model in which intimate partner and sexual violence victimization are positively associated with food addiction symptoms through their relationships with emotion regulation, impulsivity, and loss-of-control eating.

Health problems and maladaptive behaviors following intimate partner and/or sexual violence experiences can linger and are not restricted to the days or weeks following the assault experience (Abbey et al., 2010). In their review of primarily biological mechanisms linking victimization with psychosocial problems, Walsh et al. (2012) highlighted the role of emotion (dys)regulation as an intrapersonal mechanism whereby victimization disrupts emotional regulation, which sets the stage for risky and maladaptive behaviors (Weiss et al., 2015). For example, in two samples of urban youth, Marusak et al. (2015) and Thomason et al. (2015) found that youth exposed to trauma had altered connectivity between the prefrontal cortex and the amygdala, which is suggested to be critical to emotion regulation. Similarly, Bickel et al. (2012) reviewed the literature on executive functions, impulsivity, and addictive behaviors. They conceptualized emotion regulation processes

as falling under the executive functions umbrella and concluded both impulsivity and emotion (dys)regulation are predictive of engaging in addictive behaviors. Further, although both emotion dysregulation and impulsivity share some features, there are key differences between the two. Emotion regulation refers to attempts to alter how, when, and what type of emotions are expressed (Gross, 1998); whereas, impulsivity refers to a disposition that rapidly engages in rewarding behavior without regard to potential negative consequences of one's actions to oneself or others (Moeller et al., 2001). As the definitions imply, impulsivity is considered to be a more automatic process while emotion regulation is considered to be a more effortful process.

Previous research has found significant relationships between traumatic victimization, impulsivity and emotion regulation difficulties, and eating disorders (see Madowitz et al., 2015, for a recent review). Although much of this research has focused on the effects of childhood sexual and emotional abuse, Fischer et al. (2010) found a significant effect of recent adult sexual assault victimization over and above the significant effect of childhood emotional abuse on eating disorder symptoms using a sample of 489 undergraduate women. Trottier and MacDonald (2017) recently reviewed the literature on eating disorder pathology, sexual assault victimization and other traumatic events, and other adverse experiences. They concluded that emotion dysregulation and pathology drive the relationships between experiencing adverse events and later eating disorder psychopathology.

Recent research demonstrates that food consumption can be used to modulate affect and may induce physiological responses similar to those produced by addictive drugs such as withdrawal-like symptoms (Burgess et al., 2014; Gearhardt et al., 2011; Renner et al., 2012; Schulte, Smeal et al., 2018; Volkow et al., 2017). Food addiction refers to a pattern of abnormal and excessive consumption of certain foods, particularly highly processed palatable foods (Pursey et al., 2014). Beyond similar behavioral patterns, both binge eating disorder and alcohol use disorder have similar correlates such as impulsivity and emotional dysregulation (Dawe & Loxton, 2004; Kring & Sloan, 2009). Food addiction can be measured behaviorally with the Yale Food Addiction Scale (YFAS; Gearhardt et al., 2009), which assesses symptoms that correspond to criteria for alcohol and substance use dependence. These symptom clusters include needing a greater amount of food consumed or for a longer period than intended; having a persistent desire for or repeated unsuccessful quit attempts; taking much time or effort to obtain, use, or recover; giving up or reducing important social, occupational, or recreational activities; use that continues despite knowledge of adverse consequences; tolerance; and withdrawal. Pursey et al.'s (2014) meta-analysis determined that in 16 samples of participants without clinically diagnosed disordered eating, a mean of 16.2% of adults met criteria for food addiction diagnosis, whereas 57.6% of participants in four clinical samples met criteria.

As with eating disorder etiology, there is evidence for links between emotion regulation, impulsivity, and food addiction symptoms (Brockmeyer et al., 2014). For example, Pivarunas and Conner (2015) examined how impulsivity and emotion regulation predict food addiction symptomatology. With a large sample of undergraduates, they demonstrated that two facets of impulsivity (acting impulsively when under distress and difficulties with considering consequences), and higher difficulties in emotion regulation predicted higher

food addiction symptom count. We contend that loss-of-control eating may also bridge the relationship between impulsivity and emotion dysregulation, and food addiction symptoms. Meadows et al. (2017) demonstrated that college students meeting Gearhardt et al.'s (2009) YFAS cutoff for food addiction "diagnosis" reported significantly greater difficulties with controlling their eating than those who self-diagnosed themselves as being addicted to food but did not meet the YFAS cut-off. The self-diagnosed group reported significantly greater difficulties than those who did not perceive themselves as food addicted or meet the YFAS cut-off for diagnosis. Loss-of-control eating is a term for the experience of feeling out of control when eating. Loss-of-control eating is a key component of eating disorders such as binge eating disorder and bulimia nervosa (Latner et al., 2014; Mond et al., 2010). Loss-of-control eating is also related to emotion (dys)regulation and impulsivity (Byrne et al., 2019; Kelly et al., 2016; Reinblatt et al., 2015). For example, individuals with a high degree of impulsivity may have a harder time controlling their eating behavior (Espel et al., 2017). Similarly, individuals with loss-of-control eating tend to use more maladaptive emotion regulation strategies to regulate their eating behavior when distressed (Goossens et al., 2016).

Current Study

Our goal was to test a theoretically driven model linking intimate partner and sexual violence victimization with food addiction symptomatology in a cross-sectional sample of emerging adult college women. We are not aware of any previous research linking the three construct areas of victimization, executive function, and food addiction, although the previously reviewed research supports the links we hypothesize. Figure 1 displays our hypothesized model. We expected that higher levels of intimate partner and sexual violence victimization would predict higher levels of emotion regulation difficulties and impulsivity. Next, we expected that higher emotion regulation difficulties and higher impulsivity would independently predict higher levels of loss-of-control eating. In turn, higher levels of loss-of-control eating would predict more symptoms of food addiction.

Method

Participants and Procedure

All aspects of the study were approved by the Wayne State University Institutional Review Board. Potential participants were recruited online between March and August 2017 through the university's internal web portal (i.e., academica.wayne.edu), online posts on Facebook, flyers posted throughout campus, and word of mouth. Ads included: (a) a description that the study involved completing an online survey of women's beliefs and behaviors related to their experiences with eating and drinking, good and bad dating experiences, personality factors, and emotions; (b) a link to the eligibility screening questionnaire; (c) a link to email the research team for more information; and (d) a statement that eligible participants who completed the study would be compensated with a \$25 gift card.

The screening questionnaire was administered through Qualtrics. It began with an online Screening Research Information Sheet, which included elements of an Informed Consent document and was specific to the screening questionnaire. The screening questionnaire

consisted of assessing inclusion and exclusion criteria and collecting contact information. Exclusion criteria consisted of (a) not identifying as a woman; (b) being younger than 18 years or older than 25 years; (c) being uninterested in dating men; (d) not being a student at the university; (e) currently being in treatment for substance use, psychological distress, eating disorders, or weight loss; or (f) failing attention check items in the screening questionnaire. After potential participants finished the screening questionnaire, we examined their responses. We then contacted everyone who completed the screening questionnaire via email. If they were not eligible, we thanked them for their time and interest. If they were eligible, we thanked them and sent them a personalized link to the main survey, also administered through Qualtrics. Using the personalized link kept their main survey responses completely separate from any personally identifying information but allowed us to follow up with them to send study reminders and their compensation once they completed the survey.

Of the 836 persons who completed the screening survey, 409 women were considered eligible and invited by email to complete the main survey. The main survey began with a Research Information Sheet, which again included all elements of an Informed Consent document and included a button for participants to indicate agreement to participate. The Information Sheet explained the study purpose, study activities, the Certificate of Confidentiality from the National Institutes of Health, the voluntary nature of the study, how to contact the study team, and compensation. At all times, there was a link at the top to a list of local on- and off-campus resources for mental health and victim services. Once participants completed the survey, they were compensated with a \$25 e-gift card. Of the 321 participants who completed the approximately 1-hour survey, two were found to have been ineligible and were excluded, resulting in a sample of 319 women (for the current analyses, $N = 313$). Table 1 includes participants' demographics, which are in line with the minority serving, urban university's racial, ethnic, and age composition.

Measures

All items included a response option of "prefer not to answer," which was coded as missing data, to allow participants to skip any items that they did not feel comfortable answering. Scale scores were considered missing if the participant skipped all items; and, as noted below, participants with missing scale scores were excluded from the current analyses. We did not include attention checking items within the main survey; however, we examined all data for data quality concerns. There were no concerns with the main study data. Full text, participant instruction sets, and scoring information of all measures are available from the authors.

Sexual and Intimate Partner Violence Victimization—We assessed sexual violence victimization with a modified version of the Sexual Experiences Survey (SES), the gold standard measure for behavior-specific assessment of sexual assault victimization and perpetration among diverse populations (Abbey et al., 2004; 2011; Jacques-Tiura et al., 2010; Koss et al., 2007). Across 21 items, participants were asked to indicate how often, since age 14 years old, they had experienced various types of sexual activity (i.e., non-penetrative sexual contact; oral, vaginal, and anal sex) when they did not want to,

with a man who used various types of tactics (i.e., verbally coercing by lying, swearing, getting angry, making the woman feel guilty; giving the woman alcohol or drugs; using her incapacitation; threatening to or actually using physical force or violence to hold her down). In line with Abbey et al. (2005), we used a “tactics first” phrasing set, in which the given perpetration tactic was presented first, followed by the type of nonconsensual sexual activity. A sample item is “Since the age of 14, has a man ever told lies or made promises to you that he knew were untrue in order to make you have oral sex or anal sex, or insert an object into you?” Response options ranged from *0* to *5 or more times*. For the current study, sexual victimization was scored as the number of affirmative items endorsed (Davis et al., 2014). Littleton et al. (2019) examined convergent validity and reliability of the SES-Revised in a sample of 1,263 undergraduate students. They found two-week test-retest reliability estimates ranging from $\kappa = .33$ for any victimization experience of attempted rape to $\kappa = .69$ for use of physical force as a tactic to obtain sex, and 79.7% concordance for endorsing a victimization experience on the SES-Revised and providing a written description of an unwanted sexual experience independently coded as some form of sexual assault. Regarding convergent validity, Littleton et al. found participants with sexual violence victimization reported significantly higher current levels of post-traumatic stress symptomology, depressive symptoms, and hazardous drinking. In the current sample, Cronbach’s alpha was .91.

We assessed dating and intimate partner violence victimization with the Conflicts in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001). Although written as a measure of adolescent dating interactions, previous researchers have concluded that the CADRI is appropriate for emerging adults as well (Cascardi et al., 2019). As part of the CADRI instructions, only participants who had begun dating were given the CADRI ($n = 43$ excluded) because being in a dating or intimate partner relationship is prerequisite for dating or intimate partner violence victimization. Both perpetration and victimization were assessed although only results from the victimization items were included in the current study. Subscales include physical (4 items, $\alpha = .82$), threatening (4 items, $\alpha = .81$), relational (3 items, $\alpha = .79$), and emotional/verbal (10 items, $\alpha = .84$) victimization (we did not assess sexual violence with the CADRI because we used the SES, and we did not include the positive relationship behaviors subscale in the current analyses because they were not the focus of this study). Wolfe et al. (2001) reported significant partner agreement for threatening ($r = .64$) and emotional/verbal ($r = .41$) abuse subscales among male perpetrator and female victimization (agreement was not calculated for the physical or relational abuse subscales). Items began with the stem, “During a conflict or argument with my boyfriend.” The following are sample items from each subscale: “he threw something at me” (physical), “he deliberately tried to frighten me” (threatening), “he tried to turn my friends against me” (relational), and “he said things just to make me angry” (emotional/verbal). Response options were modified to include a past timeframe matching the SES time frame: *never*, *seldom in the past year*, *sometimes in the past year*, *often in the past year*, and *this has happened since age 14 in a relationship, but not in the past year*. In line with the SES scoring, overall intimate partner violence victimization since age 14 was scored as the number of affirmative items endorsed (participants who did not complete the CADRI because they had not begun dating were assigned a score of 0).

Emotion Dysregulation—We used the 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) to assess how often participants experienced problems with identifying and managing feelings and emotions. Included subscales (and sample items) are nonacceptance of emotional responses (“When I’m upset, I feel guilty for feeling that way”), difficulties in engaging in goal-directed behavior (“When I’m upset, I have difficulty concentrating”), impulse control difficulties (“When I’m upset, I lose control over my behaviors”), limited access to emotion regulation strategies (“When I’m upset, I believe that I’ll end up feeling very depressed”), and lack of emotional clarity (“I have difficulty making sense out of my feelings”). Response options ranged from 1 (*almost never [0–10%]*) to 5 (*almost always [91–100%]*) so that higher scores indicate more difficulties with emotion regulation. In line with research examining the latent structure and validity information of the DERS (Bardeen et al., 2012), the lack of emotional awareness subscale was excluded from the final score; emotion dysregulation was scored as the sum of the other 30 items. Bardeen et al. reported that participants’ score on this version of the DERS, without the awareness subscale, was significantly correlated with their scale scores on measures of psychological symptoms (r ’s ranged from .49 to .65). In the current sample, alpha was .95.

Impulsivity—We assessed impulsivity with the 30-item Barratt Impulsiveness Scale (BIS-11; Patton et al., 1995; Stanford et al., 2009). The BIS-11 was developed to cover the multi-dimensionality of impulsivity. The six factors assess attention (“I don’t ‘pay attention’”), cognitive instability (“I often have extraneous thoughts when thinking”), motor (“I act on the spur of the moment”), perseverance (“I change residences”), self-control (“I am a careful thinker” [reverse-scored]), and cognitive complexity (“I like to think about complex problems” [reverse-scored]). Participants indicated how often they engage each of the indicated behaviors and thought patterns, on a 1 (*rarely/never*) to 4 (*almost always/always*) scale. Per Patton et al. (1995), we computed the total score by summing responses to all items so that higher scores indicate higher levels of impulsiveness. In the current sample, alpha was .84 and in line with reliability estimates provided by Patton et al. (alphas ranged from .79 to .83 in four samples) and Stanford et al. (2009) (alpha = .83). Stanford et al. also provided one-month test-retest reliability information, with Spearman’s rho = .83, and convergent validity information with a significant correlation between the BIS-11 and the impulsiveness subscale of the Eysenck Impulsiveness Scale, $r = .63$.

Loss-of-Control Over Eating—We assessed loss-of-control eating with the 24-item Loss of Control over Eating Scale (LOCES; Latner et al., 2014). The LOCES assesses how often over the past 28 days participants experienced a feeling of being out of control during eating episodes. Response options ranged from 1 (*never*) to 5 (*very often*). Sample items include “I felt helpless about controlling my eating” and “I felt I had lost control over eating.” The mean was computed so that higher scores indicate higher levels of loss-of-control eating. In the current sample alpha was .96 and matched the coefficient reported by Latner et al. (2014). Latner et al. also reported 2–4-week test-retest reliability of $r = .86$ and evidence of convergent validity with r ’s = .59 to .71 when participants’ LOCES scores were correlated with their scores on three measures of eating disturbances.

Food Addiction—We assessed food addiction symptoms with the 26-item Yale Food Addiction Scale (YFAS; Gearhardt et al., 2009). YFAS items were written to correspond to symptoms of dependent substance use outlined in the DSM-IV-TR (American Psychiatric Association, 2000). Seven symptoms are assessed with one to four items each: greater amount of food consumed and/or for a longer period than intended; persistent desire and/or repeated unsuccessful quit attempts; much time/effort expended to obtain, use, and/or recover; important social, occupational, or recreational activities given up/reduced; use continues despite knowledge of adverse consequences; tolerance; and withdrawal. Participants indicated how often they experienced each event described or whether a described event occurred in the past year. Each item is then dichotomized with 0 = *criterion not met*, 1 = *criterion met*, according to Gearhardt et al. (2009), and summed for each symptom category. A criterion score is then provided for each symptom category; if the criterion score is met across the items, the symptom is coded present and scored as a 1. The number of symptoms are then summed. Cronbach's alpha for the current sample was .83, which is similar to Gearhardt et al.'s initial reliability estimate (Kuder-Richardson $\alpha = .86$) in a college student sample. Gearhardt et al. examined convergent and discriminant validity estimates of the YFAS. They found significant correlations between the YFAS symptom count and measures of emotional eating ($r = .51$) and eating troubles ($r = .46$), and nonsignificant correlation estimates between YFAS symptom counts and daily alcohol consumption quantity ($r = -.032$) and frequency ($r = -.063$). Flint et al. (2014) and Schulte, Jacques-Tiura et al. (2018) also provided convergent validity information in diverse samples.

Data Analytic Strategy

Descriptive and preliminary analyses were conducted with IBM SPSS Statistics (Version 26). Six participants with missing data on indicators were excluded from the analyses (final $N = 313$). Path analysis models were analyzed using Mplus version 7.3 (Muthén & Muthén, 2014). Previous work suggests using multiple fit indices to evaluate a model during path analysis (Bollen, 1989; Kenny, 2015); thus, all models were assessed using the Root Mean Square Error of Approximation (RMSEA; MacCallum & Austin, 2000; Steiger & Lind, 1980), the Comparative Fit Index (CFI; Bentler & Bonett, 1980; Browne & Cudeck, 1993), the Standardized Root Mean Residual (SRMR; Hu & Bentler, 1999), and the traditional chi-square test. The indirect effects from victimization to food addiction symptoms were calculated in the final model as the product of each standardized pathway coefficient along the pathway from victimization to the outcome variable (i.e., the effect coefficient from victimization to loss-of-control eating to food addiction symptoms was the product of the coefficient of loss-of-control eating regressed on victimization and the coefficient of food addiction symptoms regressed on loss-of-control eating). The calculated indirect effects were specified as a model constraint, and we examined the significance of each indirect effect using 1,000 bootstrapped samples and 95% confidence intervals.

Results

Preliminary Analyses

Descriptive statistics for scale scores can be found in Table 2. There were no significant racial, all $F(5, 307)$'s 1.94 , p 's $.09$, or ethnic, all $t(311)$'s 1.77 , p 's $.08$, differences

in scale scores. Since age 14, 79.2% ($n = 248$) of participants indicated experiencing some form of dating or intimate partner victimization based on their responses to the CADRI. These non-mutually exclusive forms of intimate partner violence victimization include 15.3% ($n = 48$) of women reporting physical violence victimization, 21.1% ($n = 66$) reporting threatening violence victimization, 17.6% ($n = 55$) reporting relational victimization, and 78.3% ($n = 245$) reporting emotional/verbal victimization. Sixty-one percent ($n = 190$) of the sample indicated experiencing some form of sexual assault victimization based on their responses to the SES. Using the mutually exclusive categorical SES severity scoring method, 21.1% ($n = 66$) reported completed rape, 5.4% ($n = 17$) reported attempted rape, 21.7% ($n = 68$) reported verbal coercion, and 12.5% ($n = 39$) reported unwanted sexual contact as their highest victimization severity level.

We also examined the distributions for our other study variables. The mean level of emotion dysregulation ($M = 69.14$, $SD = 22.00$) was just higher in this sample than in Bardeen et al.'s (2012) confirmatory factor analysis sample of undergraduate females ($M = 62.59$, $SD = 19.82$). The mean level of impulsivity ($M = 59.05$, $SD = 10.99$) was just lower than the mean level reported in a validation sample of 279 undergraduate females ($M = 63.32$, $SD = 10.16$) (Patton et al., 1995). The mean level of loss-of-control eating ($M = 1.70$, $SD = 0.72$) was just higher than the mean level found in a validation sample of 476 undergraduates ($M = 1.92$, $SD = 0.80$) (Latner et al., 2014). Finally, the mean number of food addiction symptoms in the current sample was 1.95 ($SD = 1.59$), with a median number of 1 symptom, matching the median reported by Gearhardt et al. (2009) in their validation sample of 233 undergraduate students. Furthermore, 8.90% of the current sample met Gearhardt et al.'s criteria for food dependence diagnosis, a rate lower than Gearhardt et al.'s 11.4% and the 16.2% weighted mean prevalence among 16 not clinically diagnosed for disordered eating samples in Pursey et al.'s (2014) meta-analysis of prevalence rates.

Bivariate correlations between study variables can also be found in Table 2. All variables were significantly, positively correlated with each other; thus, here we describe the bivariate relationships most relevant to our model. The more forms of sexual violence victimization women reported, the more forms of intimate partner violence they reported ($r = .39$, $p < .01$). The higher the levels of emotion dysregulation women reported, the higher the levels of impulsivity they reported ($r = .43$, $p < .01$). The higher the levels of emotion dysregulation and impulsivity women reported, the more loss-of-control eating they reported ($r = .46$ and $r = .42$, respectively, both p 's $< .01$). The more loss-of-control eating women reported, the more food addiction symptoms they reported ($r = .67$, $p < .01$).

Path Analysis

Hypothesized Model—We hypothesized that sexual and intimate partner violence victimization would both be positively associated with emotion dysregulation and impulsivity, then that emotion dysregulation and impulsivity would be positively associated with loss-of-control eating, then that loss-of-control eating would be positively associated with food addiction symptoms. The full results of the hypothesized model are available in Figure 1. The model hypothesized in the present study did not fit the data well, $\chi^2(7, N = 313) = 85.32$, $p < .001$; RMSEA = 0.189; CFI = 0.804; SRMR = 0.107. When further

examining the model results, it became apparent that the hypothesized model was missing pathways. Namely, the modification indices suggested including a correlation between emotion dysregulation and impulsivity, a direct pathway from sexual violence victimization to loss-of-control eating, and a direct pathway from emotion dysregulation to food addiction symptoms.

Final Model—After allowing emotion dysregulation and impulsivity to correlate and adding the two suggested direct pathways, the final model fit the data well, $\chi^2(4, N=313) = 9.92, p = .042$; RMSEA = 0.069; CFI = 0.985; SRMR = 0.023. The final model predicted 45.5% of the variance in food addiction symptoms. Full results of this final model can be found in Figure 2. Intimate partner violence victimization was significantly positively associated with emotion dysregulation ($b = 0.51, p = .049$) and impulsivity ($b = 0.32, p = .013$). Similarly, sexual violence victimization was also significantly positively associated with emotion dysregulation ($b = 1.04, p < .001$) and impulsivity ($b = 0.40, p = .005$). Both emotion dysregulation ($b = 0.01, p < .001$) and impulsivity ($b = 0.02, p < .001$) were significantly positively associated with loss-of-control eating, which predicted food addiction symptoms ($b = 1.22, p < .001$). Additionally, there were significant direct pathways from sexual violence victimization to loss-of-control eating ($b = 0.04, p < .001$), and from emotion dysregulation to food addiction symptoms ($b = 0.01, p = .008$).

Indirect Effects—The indirect effects from victimization to food addiction were examined to determine significance. As shown in Table 3, both sexual and intimate partner violence victimization had significant indirect effects through multiple pathways, implying that intimate partner and sexual violence victimization are positively associated with food addiction symptoms through their relationships with emotion dysregulation, impulsivity, and loss-of-control eating. The standardized total indirect effects of sexual violence and intimate partner violence victimization on food addiction symptoms was 0.22 ($SE = 0.037, 95\% CI = [0.145, 0.291]$) and 0.06 ($SE = 0.024, 95\% CI = [0.011, 0.279]$), respectively.

Discussion

Intimate partner and sexual violence victimization remains a pervasive issue in emerging adult women's lives. In line with research published over the last four decades (e.g., Dworkin et al., 2017; Fedina et al., 2018; Wincentak et al., 2017), the vast majority of our non-treatment seeking, college-enrolled emerging adult women participants experienced some form of intimate partner violence victimization since age 14. The most common form of victimization was emotional and verbal violence victimization, followed by sexual violence victimization. Further, multiple forms of sexual and intimate partner violence were extremely common.

In line with previous research that has often focused on alcohol use as self-medication for intimate partner and sexual assault victimization (Devries et al., 2014; Miranda et al., 2002), we found some support for our model predicting food addiction symptoms. The more intimate partner and sexual violence victimization experiences women reported, the more food addiction symptoms they reported, through pathways of heightened emotion dysregulation, impulsivity, and loss-of-control eating. Our support for the self-

medication model suggests that women try to cope with their dysregulated emotions and impulsive thoughts and actions by eating and, more specifically, eating without feeling in control over their consumption. As with other addictive behaviors governed by the self-medication hypothesis and stemming from traumatic victimization, the emotion dysregulation—impulsivity—loss-of-control eating likely becomes a cyclical pattern over time that, in the case of food consumption, culminates in more symptoms of food addiction.

We expected that victimization's downstream influence on food addiction symptoms would be fully mediated by direct effects on emotion dysregulation and impulsivity first, with emotion dysregulation and impulsivity leading to loss-of-control eating (Bickel et al., 2012; Latner et al., 2014; Madowitz et al., 2015; Trottier & MacDonald, 2017). In line with our hypothesized model, we found that more experiences with intimate partner and sexual violence victimization since age 14, were significantly related to higher levels of current emotion dysregulation and impulsivity, and then in turn, more loss-of-control eating was strongly related to experiencing more symptoms of food addiction. However, we also found direct links from sexual victimization to loss-of-control eating, and from emotion dysregulation to food addiction symptoms. These additional pathways possibly suggest that other psychological factors not included in our model may further account for the relationships between victimization and food addiction symptoms. Notably, we did not assess for mental health symptoms of depression, anxiety, or post-traumatic stress disorder, all of which are strongly associated with sexual and other forms of intimate partner violence victimization (Dworkin et al., 2017; Lagdon et al., 2014).

Limitations

Although our study has many strengths, there are also several limitations. One major limitation with the current study is that the intimate partner violence measure likely results in underreporting of intimate partner violence incidents because the CADRI implies incidents with participants' current or ex-boyfriend, within the context of a relationship, and while having a conflict or argument. It would be possible for some of these events to occur with a potential partner, such as before actually considering the person to be a significant other or with someone the participant just met (e.g., as in a "hook up" situation). Relatedly, the CADRI and SES use gendered language and thus do not assess violence experiences with women or people with non-binary gender identities. Constraining the sample to women who are interested in dating men and not currently in any sort of mental health, substance use, or weight loss treatment reduces generalizability of the findings. The related exclusion criteria (i.e., being not interested in dating men or being in such treatment) also likely led to lower overall victimization prevalence rates and severity rates than would be found with a truly random sample of female students at this university as prevalence rates of intimate partner and sexual violence are higher among sexual minority women and clinical samples. Additionally, sexual orientation was not directly assessed.

Another limitation is related to the measurement of SES and DERS. Although the versions of both the SES and DERS we included in the survey itself and in the analyses here reflect suggestions and changes made in previous research (Abbey et al., 2004; 2011; Bardeen et al., 2012; Jacques-Tiura et al., 2010), the versions are modifications of the original scales

and may have different psychometric properties from the originals. A third limitation is that the time frame for the eating measures was not ideal, as the LOCES concerns problems in the past 28 days and the YFAS spans the past year. However, loss-of-control over eating is seen as a component of several eating disorders; thus it was modeled here as a predictor, rather than as an outcome, of food addiction. Finally, this is a cross-sectional study and causal statements cannot be made from these findings.

Practice and Research Implications

The current study suggests that interpersonal violence victimization continues to be a pervasive issue for many emerging adult college women. In addition to other outcomes previously identified including alcohol misuse, risky sexual decision making, and physical health concerns, the relationships found here between victimization and emotion regulation and impulsivity, loss-of-control eating, and symptoms of food addiction, provide additional evidence that violence victimization has far-ranging health implications. Mental and physical health clinicians and other practitioners should be aware of the multitude of potential downstream effects of victimization and demonstrate commitment to victims through engaging in trauma-informed care practices (Raja et al., 2015). Although our study is cross-sectional and not intervention-based, our findings suggest that future research testing interventions targeting emotion regulation or impulsivity, or their more broadly subsuming construct of executive functioning (Diamond & Ling, 2016), may in turn contribute to decreasing loss-of-control eating and food addiction symptoms. Much future research is needed to develop efficacious treatments and prevention programs to improve emotion regulation and impulsive actions and to reduce loss-of-control eating episodes and food addiction symptoms, particularly among women who have experienced intimate partner or sexual violence victimization.

Acknowledgments

This work was funded by the National Institutes of Health (grant #K01AA024500).

References

- Abbey A, BeShears R, Clinton-Sherrod AM, & McAuslan P (2004). Similarities and differences in women's sexual assault experiences based on tactics used by the perpetrator. *Psychology of Women Quarterly*, 28(4), 323–332. 10.1111/j.1471-6402.2004.00149.x [PubMed: 26257466]
- Abbey A, Jacques-Tiura AJ, & LeBreton JM (2011). Risk factors for sexual aggression in young men: An expansion of the confluence model. *Aggressive Behavior*, 37(5), 450–464. 10.1002/ab.20399 [PubMed: 21678429]
- Abbey A, Jacques-Tiura AJ, & Parkhill MR (2010). Sexual assault among diverse populations of women. In Landrine H & Russo N (Eds.), *Handbook of diversity in feminist psychology* (pp. 391–425). Springer.
- Abbey A, Parkhill MR, & Koss MP (2005). The effects of frame of reference on responses to questions about sexual assault victimization and perpetration. *Psychology of Women Quarterly*, 29(4), 364–373. 10.1111/j.1471-6402.2005.00236.x [PubMed: 26451071]
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, 4th ed. text revision. American Psychiatric Publishing.
- Bardeen JR, Fergus TA, & Orcutt HK (2012). An examination of the latent structure of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment*, 34(3), 382–392. 10.1007/s10862-012-9280-y

- Bentler PM, & Bonett DG (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588–606. 10.1037/0033-2909.88.3.588
- Bickel WK, Jarmolowicz DP, Mueller ET, Gatchalian KM, & McClure SM (2012). Are executive function and impulsivity antipodes? A conceptual reconstruction with special reference to addiction. *Psychopharmacology*, 221(3), 361–387. 10.1007/s00213-012-2689-x [PubMed: 22441659]
- Bollen KA (1989). *Structural equations with latent variables*. Wiley.
- Brockmeyer T, Skunde M, Wu M, Bresslein E, Rudofsky G, Herzog W, & Friederich HC (2014). Difficulties in emotion regulation across the spectrum of eating disorders. *Comprehensive Psychiatry*, 55(3), 465–571. 10.1016/j.comppsy.2013.12.001
- Browne MW, & Cudeck R (1993). Alternative ways of assessing model fit. In Bollen KA and Long JS (Eds.), *Testing structural equation models* (pp. 136–162). Sage.
- Burgess EE, Turan B, Lokken KL, Morse A, & Boggiano MM (2014). Profiling motives behind hedonic eating. Preliminary validation of the Palatable Eating Motives Scale. *Appetite*, 72(1), 66–72. 10.1016/j.appet.2013.09.016 [PubMed: 24076018]
- Byrne ME, LeMay-Russell S, & Tanofsky-Kraff M (2019). Loss-of-control eating and obesity among children and adolescents. *Current Obesity Reviews*, 8(1), 33–42. 10.1007/s13679-019-0327-1
- Cascardi M, Blank S, & Dodani V (2019). Comparison of the CADRI and CTS2 for measuring psychological and physical dating violence perpetration and victimization. *Journal of Interpersonal Violence*, 34(16), 3466–3491. 10.1177/0886260516670182 [PubMed: 27760876]
- Davis KC, Gilmore AK, Stappenbeck CA, Balsan MJ, George WH, & Norris J (2014). How to score the sexual experiences survey? A comparison of nine methods. *Psychology of Violence*, 4(4), 445–461. 10.1037/a0037494 [PubMed: 25512879]
- Davis KC, Neilson EC, Wegner R, Stappenbeck CA, George WH, & Morris J (2018). Women's sexual violence victimization and sexual health: Implications for risk reduction. In Orchowski LM & Gidycz CA (Eds.), *Sexual assault risk reduction and resistance* (pp. 379–406). Academic Press. 10.1016/B978-0-12-805389-8.00016-5
- Dawe S, & Loxton NJ (2004). The role of impulsivity in the development of substance use and eating disorders. *Neuroscience & Biobehavioral Reviews*, 28(3), 343–351. 10.1016/j.neubiorev.2004.03.007 [PubMed: 15225976]
- Devries KM, Child JC, Baccus LJ, Mak J, Falder G, Graham K, Watts C, & Heise L (2014). Intimate partner violence victimization and alcohol consumption in women: A systematic review and meta-analysis. *Addiction*, 109(3), 379–391. 10.1111/add.12393 [PubMed: 24329907]
- Diamond A, & Ling DS (2016). Conclusions about interventions, programs, and approaches for improving executive functions that appear justified as those that, despite much hype, do not. *Developmental Cognitive Neuroscience*, 18, 34–48. 10.1016/j.dcn.2015.11.005 [PubMed: 26749076]
- Dworkin ER, Menon SV, Bystrynski J, & Allen NE (2017). Sexual assault victimization and psychopathology: A review and meta-analysis. *Clinical Psychology Reviews*, 56, 65–81. 10.1016/j.cpr.2017.06.002
- Edwards KM, Sylaska KM, Barry JE, Moynihan MM, Banyard VL, Cohn ES, Walsh WA, & Ward SK (2015). Physical dating violence, sexual violence, and unwanted pursuit victimization: A comparison of incidence rates among sexual-minority and heterosexual college students. *Journal of Interpersonal Violence*, 30(4), 580–600. 10.1177/0886260514535260 [PubMed: 24923891]
- Elliott DM, Mok DS, & Briere J (2004). Adult sexual assault: Prevalence, symptomatology, and sex differences in the general population. *Journal of Traumatic Stress*, 17(3), 203–211. 10.1023/b:jots.0000029263.11104.23 [PubMed: 15253092]
- Espel HM, Muratore AF, & Lowe MR (2017). An investigation of two dimensions of impulsivity as predictors of loss-of-control eating severity and frequency. *Appetite*, 117, 9–16. 10.1016/j.appet.2017.06.004 [PubMed: 28601678]
- Exner-Cortens D, Eckenrode J, & Rothman E (2012). Longitudinal associations between teen dating violence victimization and adverse health outcomes. *Pediatrics*, 131(1), 71–78. 10.1542/peds.2012-1029 [PubMed: 23230075]

- Fedina L, Holmes JL, Backes BL (2018). Campus sexual assault: A systematic review of prevalence research from 2000 to 2015. *Trauma, Violence, & Abuse*, 19(1), 76–93. 10.1177/1524838016631129
- Fischer S, Stojek M, & Hartzell E (2010). Effects of multiple forms of childhood abuse and adult sexual assault on current eating disorder symptoms. *Eating Behaviors*, 11(3), 190–192. 10.1016/j.eatbeh.2010.01.001 [PubMed: 20434068]
- Flint AJ, Gearhardt AN, Corbin WR, Bronell KD, Field AE, & Rimm EB (2014). Food-addiction scale measurement in 2 cohorts of middle-aged and older women. *American Journal of Clinical Nutrition*, 99(3), 578–586. 10.3945/ajcn.113.068965
- Gearhardt AN, Corbin WR, & Brownell KD (2009). Preliminary validation of the Yale food addiction scale. *Appetite*, 52(2), 430–436. 10.1016/j.appet.2008.12.003 [PubMed: 19121351]
- Gearhardt AN, Grilo CM, DiLeone RJ, Brownell KD, & Potenza MN (2011). Can food be addictive? Public health and policy implications. *Addiction*, 106(7), 1208–1212. 10.1111/j.1360-0443.2010.03301.x [PubMed: 21635588]
- Goossens L, Van Malderen E, Van Durme K, & Braet C (2016). Loss of control eating in adolescents: Associations with adaptive and maladaptive emotion regulation strategies. *Eating Behaviors*, 22, 156–163. 10.1016/j.eatbeh.2016.06.015 [PubMed: 27289522]
- Gratz KL, & Roemer L (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41–54. 10.1023/b:joba.0000007455.08539.94
- Gross JJ (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271–299. 10.1037/1089-2680.2.3.271
- Hu L, & Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. 10.1080/10705519909540118
- Jacques-Tiura AJ, Tkatch R, Abbey A, & Wegner R (2010). Disclosure of sexual assault: Characteristics and implications for posttraumatic stress symptoms among African American and Caucasian survivors. *Journal of Trauma & Dissociation*, 11(2), 174–192. 10.1080/15299730903502938 [PubMed: 20373205]
- Kelly NR, Tanofsky-Kraff M, Vannucci A, Ranzenhofer LM, Altschul AM, Schvey NA, Shank LM, Brady SM, Galescu O, Yanovski SZ, Yanovski JA, (2016). Emotion dysregulation and loss-of-control eating in children and adolescents. *Health Psychology*, 35(10), 1110–1119. 10.1037/hea0000389 [PubMed: 27505194]
- Kenny DA (2015). Measuring model fit. <http://davidakenny.net/cm/fit.htm>
- Khantzian EJ (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry*, 4(5), 231–244. 10.3109/10673229709030550 [PubMed: 9385000]
- Koss MP, Abbey A, Campbell R, Cook S, Norris J, Testa M, Ullman S, West C, & White J (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology of Women Quarterly*, 31(4), 357–370. 10.1111/j.1471-6402.2007.00385.x
- Kring AM, & Sloan DM (Eds.). (2009). *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment*. Guilford.
- Lagdon S, Armour C, & Stringer M (2014). Adult experience of mental health outcomes as a result of intimate partner violence victimisation: A systematic review. *European Journal of Psychotraumatology*, 5, 24794. 10.3402/ejpt.v5.24794
- Latner JD, Mond JM, Kelly MC, Haynes SN, & Hay PJ (2014). The loss of control over eating scale: Development and psychometric evaluation. *International Journal of Eating Disorders*, 47(6), 647–659. 10.1002/eat.22296
- Littleton H, Layh M, Rudolph K, & Haney H (2019). Evaluation of the Sexual Experiences Survey-Revised as a screening measure for sexual assault victimization among college students. *Psychology of Violence*, 9(5), 555–563. 10.1037/vio0000191

- MacCallum RC, & Austin JT (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, 51, 201–226. 10.1146/annurev.psych.51.1.201
- Madowitz J, Matheson BE, & Liang J (2015). The relationship between eating disorders and sexual trauma. *Eating and Weight Disorders*, 20(3), 281–293. 10.1007/s40519-015-0195-y [PubMed: 25976911]
- Marusak HA, Martin KR, Etkin A, & Thomason ME (2015). Childhood trauma exposure disrupts the automatic regulation of emotional processing. *Neuropsychopharmacology*, 40(5), 1250–1258. 10.1038/npp.2014.311 [PubMed: 25413183]
- Meadows A, Nolan LJ, & Higgs S (2017). Self-perceived food addiction: Prevalence, predictors, and prognosis. *Appetite*, 114, 282–298. 10.1016/j.appet.2017.03.051 [PubMed: 28385581]
- Miranda R Jr., Meyerson LA, Long PJ, Marx BP, & Simpson SM (2002). Sexual assault and alcohol use: Exploring the self-medication hypothesis. *Violence and Victims*, 17(2), 205–217. 10.1891/vivi.17.2.205.33650 [PubMed: 12033555]
- Moeller FG, Barratt ES, Dougherty DM, Schmitz JM, & Swann AC (2001). Psychiatric aspects of impulsivity. *American Journal of Psychiatry*, 158(11), 1783–1793. 10.1176/appi.ajp.158.11.1783
- Mond JM, Latner JD, Hay PH, Owen C, & Rodgers B (2010). Objective and subjective bulimic episodes in the classification of bulimic-type eating disorders: Another nail in the coffin of a problematic distinction. *Behaviour Research and Therapy*, 48(7), 661–669. 10.1016/j.brat.2010.03.020 [PubMed: 20434132]
- Muthén LK, & Muthén BO (2014). Mplus version 7.3 Muthén & Muthén.
- Patton JH, Stanford MS, & Barratt ES (1995). Factors structure of the Barratt impulsiveness scale. *Journal of Clinical Psychology*, 51(6), 768–774. 10.1002/1097-4679(199511)51:6<768::aid-jclp2270510607>3.0.co;2-1 [PubMed: 8778124]
- Pivarunas B, & Conner BT (2015). Impulsivity and emotion dysregulation as predictors of food addiction. *Eating Behaviors*, 19, 9–14. 10.1016/j.eatbeh.2015.06.007 [PubMed: 26164390]
- Pursey KM, Stanwell P, Gearhardt AN, Collins CE, & Burrows TL (2014). The prevalence of food addiction as assessed by the Yale Food Addiction Scale: A systematic review. *Nutrients*, 6(10), 4552–4590. 10.3390/nu6104552 [PubMed: 25338274]
- Raja S, Hasnain M, Hoersch M, Gove-Yin S, & Rajagopalan C (2015). Trauma informed care in medicine. *Family and Community Health*, 38(3), 216–226. 10.1097/fch.0000000000000071 [PubMed: 26017000]
- Reinblatt SP, Mahone EM, Tanofsky-Kraff M, Lee-Winn AE, Yenokyan G, Leoutsakos J-MS, Moran TH, Guarda AS, & Riddle MA (2015). Pediatric loss of control eating syndrome: Association with attention-deficit/hyperactivity disorder and impulsivity. *International Journal of Eating Disorders*, 48(6), 580–588. 10.1002/eat.22404
- Renner B, Sproesser G, Strohbach S, & Schupp HT (2012). Why we eat what we eat. The Eating Motivation Survey (TEMS). *Appetite*, 59(1), 117–128. 10.1016/j.appet.2012.04.004 [PubMed: 22521515]
- Schulte E, Jacques-Tiura AJ, Gearhardt AN, & Naar S (2018). Food addiction prevalence and concurrent validity in African American adolescents with obesity. *Psychology of Addictive Behaviors*, 32(2), 187–196. 10.1037/adb0000325 [PubMed: 29094956]
- Schulte EM, Smeal JK, Lewis J, & Gearhardt AN (2018). Development of the highly processed food withdrawal scale. *Appetite*, 131, 148–154. 10.1016/j.appet.2018.09.013 [PubMed: 30227182]
- Silverman JG, Raj A, Mucci LA, & Hathaway JE (2001). Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *Journal of the American Medical Association*, 286(5), 572–579. 10.1001/jama.286.5.572 [PubMed: 11476659]
- Smith SG, Zhang X, Basile KC, Merrick MT, Wang J, Kresnow MJ, & Chen J (2018). The National Intimate Partner and Sexual Violence Survey (NISVS): 2015 data brief – Updated release. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. <https://www.cdc.gov/violenceprevention/pdf/2015data-brief508.pdf>
- Spencer CM, Anders KM, Toews ML, & Emanuels SK (2020). Risk markers for physical teen dating violence victimization in the United States: A meta-analysis. *Journal of Youth and Adolescence*, 49(3), 575–589. 10.1007/s10964-020-01194-1 [PubMed: 31974737]

- Stanford MS, Mathaias CW, Dougherty DM, Lake SL, Anderson NE, & Patton JH (2009). Fifty years of the Barratt Impulsiveness Scale: An update and review. *Personality and Individual Differences*, 47(5), 385–395. 10.1016/j.paid.2009.04.008
- Steiger JJ, & Lind JC (1980, 5). Statistically based tests for the number of factors [Paper presentation]. Psychometric Society Annual Meeting, Iowa City, IA, United States.
- Thomason ME, Marusak HA, Tocco MA, Vila AM, McGarragle O, & Rosenberg DR (2015). Altered amygdala connectivity in urban youth exposed to trauma. *Social Cognitive and Affective Neuroscience*, 10(11), 1460–1468. 10.1093/scan/nsv030 [PubMed: 25836993]
- Trottier K, & MacDonald DE (2017). Update on psychological trauma, other severe adverse experiences and eating disorders: State of the research and future research directions. *Current Psychiatry Reports*, 19, 45. 10.1007/s11920-017-0806-6 [PubMed: 28624866]
- Ullman SE, Townsend SM, Filipas HH, & Starzynski LL (2007). Structural models of the relations of assault severity, social support, avoidance coping, self-blame, and PTSD among sexual assault survivors. *Psychology of Women Quarterly*, 31(1), 23–37. 10.1111/j.1471-6402.2007.00328.x
- Volkow ND, Wise RA, & Baler R (2017). The dopamine motive system: Implications for drug and food addiction. *Nature Reviews Neuroscience*, 18(12), 741–752. 10.1038/nrn.2017.130 [PubMed: 29142296]
- Walsh K, Galea S, & Koenen KC (2012). Mechanisms underlying sexual violence exposure and psychosocial sequelae: A theoretical and empirical review. *Clinical Psychology Science and Practice*, 19(3), 260–275. 10.1111/cpsp.12004 [PubMed: 25762853]
- Weiss NH, Sullivan TP, & Tull MT (2015). Explicating the role of emotion dysregulation in risky behaviors: A review and synthesis of the literature with directions for future research and clinical practice. *Current Opinion in Psychology*, 3, 22–29. 10.1016/j.copsyc.2015.01.013 [PubMed: 25705711]
- Wincentak K, Connolly J, & Card N (2017). Teen dating violence: A meta-analytic review of prevalence rates. *Psychology of Violence*, 7(2), 224–241. 10.1037/a0040194
- Wolfe DA, Scott K, Reitzel-Jaffe D, Wekerle C, Grasley C, & Straatman AL (2001). Development and validation of the conflict in adolescent dating relationships inventory. *Psychological Assessment*, 13(2), 277–293. 10.1037/1040-3590.13.2.277 [PubMed: 11433803]

Figure 1.
Hypothesized Model Results

Note. Standardized coefficients shown. $*p < .05$. $**p < .01$

Figure 2.

Final Model Results

Note. Standardized coefficients shown. $*p < .05$. $**p < .01$.

Table 1

Participants' Demographic Characteristics (N=313)

Characteristic	<i>M (SD) or n (%)</i>
Age	21.52 (2.09)
Race	
African American/Black	33 (10.5%)
American Indian or Alaskan Native	2 (0.6%)
Asian	44 (14.1%)
Caucasian/White	194 (62%)
More than one race	24 (7.7%)
Other or not reported	15 (5.1%)
Ethnicity	
Hispanic or Latina	22 (7.0%)
Year in college	
1 st year	31 (9.9%)
2 nd year	47 (15.0%)
3 rd year	67 (21.4%)
4 th year or higher but still in undergraduate program	63 (20.1%)
Post-bachelor's program or other professional program	15 (4.8%)
Graduate school	88 (28.1%)
Prefer not to answer	2 (0.6%)

Table 2

Descriptive Statistics and Bivariate Correlations for Study Variables (N = 313)

	1	2	3	4	5	6
1. Sexual Assault Victimization	--					
2. Intimate Partner Victimization	.39**	--				
3. Emotion Dysregulation	.26**	.20**	--			
4. Impulsivity	.22**	.21**	.43**	--		
5. Loss-of-Control Eating	.34**	.17**	.46**	.42**	--	
6. Food Addiction Symptoms	.36**	.15*	.40**	.33**	.67**	--
<i>M</i>	3.52	5.53	69.14	59.05	1.92	1.95
<i>SD</i>	4.56	4.97	22.01	10.99	0.79	1.59
<i>Minimum Value</i>	0.00	0.00	22.00	36.00	1.00	0.00
<i>Maximum Value</i>	21.00	21.00	136.00	94.00	4.75	7.00

Note.

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

Table 3

Indirect Effects Pathways and Betas for the Final Model

Path Description	Estimate	<i>p</i>	95% <i>CI</i>
Sexual Assault Victimization → Loss-of-Control Eating → Food Addiction Symptoms	0.128	< .001	[0.068, 0.189]
Sexual Assault Victimization → Emotion Regulation Difficulties → Food Addiction Symptoms	0.027	.031	[0.002, 0.051]
Sexual Assault Victimization → Impulsivity → Loss-of-Control Eating → Food Addiction Symptoms	0.024	.017	[0.004, 0.044]
Sexual Assault Victimization → Emotion Regulation Difficulties → Loss-of-Control Eating → Food Addiction Symptoms	0.039	.002	[0.014, 0.064]
Intimate Partner Victimization → Emotion Regulation Difficulties → Food Addiction Symptoms	0.014	.113	[−0.003, 0.032]
Intimate Partner Victimization → Impulsivity → Loss-of-Control Eating → Food Addiction Symptoms	0.022	.031	[0.002, 0.041]
Intimate Partner Victimization → Emotion Regulation Difficulties → Loss-of-Control Eating → Food Addiction Symptoms	0.021	.064	[−0.001, 0.043]