

This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Contents lists available at ScienceDirect

# Eating Behaviors



## Effects of stress and coping on binge eating in female college students

Michael L. Sulkowski<sup>a,\*</sup>, Jack Dempsey<sup>b</sup>, Allison G. Dempsey<sup>c</sup>

<sup>a</sup> Department of Special Education, School Psychology and Early Childhood Studies, College of Education, University of Florida, United States

<sup>b</sup> Baylor College of Medicine, United States

<sup>c</sup> University of Houston, United States

### ARTICLE INFO

#### Article history:

Received 20 October 2010

Received in revised form 18 March 2011

Accepted 14 April 2011

Available online 20 April 2011

#### Keywords:

Binge eating

Stress

Coping

College students

### ABSTRACT

Limited research exists on the association between stress, coping, and binge eating. To address this paucity, this study explores these associations in a sample of 147 female college students, an at-risk population for binge eating. We hypothesized that emotional and avoidant coping would be positively associated with stress and binge eating. Conversely, we expected that rational and detached coping would be negatively related to stress and binge eating. Furthermore, we expected these coping styles to mediate the relationship between stress and binge eating. As predicted, emotion-focused and avoidant coping were positively associated with stress and binge eating. Additionally, emotion-focused coping partially mediated the relationship between stress and binge eating. However, no association was found between stress, rational or detached coping, and binge eating. These results are discussed within the context of a negative reinforcement model of binge eating. Lastly, the importance of providing evidence-based treatment for individuals with binge eating symptomatology is discussed in light of our findings.

© 2011 Elsevier Ltd. All rights reserved.

### 1. Introduction

Binge eating involves consuming large quantities of food during a discrete time period and having a sense of loss of control over food consumption (American Psychiatric Association, 2000). Binge eating episodes are associated with rapid eating, being unable to control food consumption, feeling uncomfortably full, gorging when not hungry, secrecy overeating due to embarrassment over the quantity of food consumed, and experiencing negative emotions or thoughts related to overeating. Thus, binge eating is a serious condition that also can contribute to physical health problems (e.g., obesity, hypertension, dyslipidemia and type 2 diabetes), as well as significant psychosocial dysfunction (Hudson et al., 2010; Yanovski, 2003).

A variety of triggers are associated with binge eating, including the presence of large quantities of food, being alone, the use of fasting or restrictive eating, and experiencing dysphoric thoughts (Craighead, Allen, Craighead, & DeRosa, 1996; Deaver, Miltenberger, Smyth, Meidinger, & Crosby, 2003; Heatherton & Baumeister, 1991; McManus & Waller, 1995; Schlundt & Johnson, 1990; Telch & Agras, 1993). Additionally, several studies have established an association between psychological stress and binge eating (e.g. Crowther, Snafner, Bonifazi, & Shepherd, 2001; Freeman & Gil, 2004; Tuschen-Caffier & Vögele, 1999; Wolff, Crosby, Roberts, & Wittrock, 2000). Experimentally-induced stress has been linked to binge eating urges in women (Tuschen-Caffier & Vögele, 1999) and women who binge eat tend to

perceive stress more intensely than do women who do not binge eat (Crowther et al., 2001). Lastly, one study found women who binge eat to experience higher stress levels compared to a control group of women who do not binge eat (Wolff et al., 2000). Further, women who engaged in binge eating also experienced increased stress on binge eating days than on non-binge eating days in this study.

Despite the established relationship between psychological stress and binge eating, different coping styles may mediate this relationship. Women who engage in disordered eating tend to respond poorly to stress and may display maladaptive coping styles that exacerbate their binge eating (Freeman & Gil, 2004). Conversely, they may fail to engage in adaptive forms of coping that can relieve stress and mitigate binge eating urges. Thus, although research on the associations between these variables is limited (Blaase & Elklit, 2001), an investigation of the relationships between stress, the use of adaptive and maladaptive coping styles, and binge eating may advance knowledge of binge eating and have important treatment implications.

Coping styles differ in their relative effectiveness. Unless a problem is not changeable, rational coping (e.g., planning to solve a problem and thinking of alternative ways to view a problem) generally is more effective than emotion-focused coping (e.g., rumination and blaming oneself) at resolving the issue (Kelly, Tyrka, Price, & Carpenter, 2008). Furthermore, the heavy use of emotion-focused coping is associated with negative outcomes such as poor adjustment to trauma, depression, and anxiety (Bauman, Haaga, & Dutton, 2008; Li, DiGiuseppe, & Froh, 2006; Staiger, Melville, Hides, Kambouropoulos, & Lubman, 2009; Whatley, Foreman, & Richards, 1998). Similarly, avoidant coping (e.g., pretending that nothing is wrong and day-dreaming) is associated with poor adjustment to problems, mood

\* Corresponding author at: 1403 Norman Hall, Box 117050, Gainesville, FL 32611-7050, United States. Tel.: +1 352 392 0701; fax: +1 352 392 2655.

E-mail address: sulkowsm@ufl.edu (M.L. Sulkowski).

regulation problems, and suicidality (Catanzaro, Horaney, & Creasey, 1995; Heckman, Kochman, Sikkema, & Kalichman, 1999; Marusic & Goodwin, 2006). Lastly, detached coping (e.g., viewing a problem as separate from oneself and not taking things personally) is under researched as it relates to other constructs, yet it is associated with rational coping and inversely related to emotion-focused and avoidant coping. Thus, rational and detached coping generally are adaptive whereas emotion-focused and avoidant coping are maladaptive (Roger, Jarvis, & Najarian, 1993).

In this study, we investigated the relationship between stress, coping, and binge eating in a sample of female college students. Based on available literature, we hypothesized that emotion-focused coping and rational coping would be positively associated with stress and binge eating. On the other hand, we expected rational and detached coping to be negatively related to stress and binge eating. Furthermore, consistent with previous findings (e.g., Freeman & Gil, 2004), we expected coping styles to mediate the relationship between stress and binge eating. Specifically, we expected maladaptive coping styles (e.g., avoidant and emotion-focused) to mediate the relationship between stress and binge eating. However, due to a paucity of guiding research, we did not form specific hypotheses about the relationship between adaptive coping styles (e.g., rational and detached) and stress and binge eating. We chose to use a mediation analysis approach to answer our study questions because mediating variables provide information regarding the variables that explain the relationship between two other variables. We hypothesized that avoidant and emotion-focused coping styles serve as cognitive mechanisms that explain the relationship stress and binge eating.

## 2. Methods

### 2.1. Participants and procedures

Participants included 147 female undergraduates from a large university in the Southeastern United States. All participants were enrolled in educational psychology classes and received course credit for their participation. Students were offered an alternative activity for earning extra credit if they preferred not to participate in the study. Participants ranged in age from 18 to 25 years. Due to missing data or failure to meet age criteria (older than 25 years), 12 of the participants (8% of the initial sample) were omitted from the study. Participants were ethnically diverse, as 64% listed their ethnic background as White/Caucasian, 19% as Black/African American, 10% as Hispanic/Latino, 3% as Asian, and 4% as Mixed/Other. A university institutional review board approved all study procedures.

### 2.2. Measures

#### 2.2.1. Stress

The Undergraduate Stress Questionnaire (USQ; Crandall, Preisler, & Ausprung, 1992) contains a list of 82 common life stressors that undergraduate students may encounter. Participants are instructed to indicate whether they have experienced each life event within the past semester by checking “yes” or “no.” The USQ demonstrated good reliability in the current study ( $\alpha = .89$ ).

#### 2.2.2. Coping style

The Coping Styles Questionnaire (CSQ; Roger et al., 1993) includes 60 items that assess the frequency that students display specific behaviors/emotions in reaction to stress. Items are rated on a four-point scale and assess the following four general coping strategies: (a) Rational Coping (RATCOP; e.g., “I try to find out more information to help make a decision about things”); (b) Detached Coping (DETCOP; “I decide it’s useless to get upset and just get on with things”); (c) Emotional Coping (EMCOP; “I feel worthless and unimportant”); and (d) Avoidance Coping (AVCOP; “I trust in fate—that things have a way of working out for the best”). In general,

RATCOP and DETCOP are considered adaptive forms of coping whereas EMCOP and AVCOP are maladaptive (Roger et al., 1993). In the current study, internal consistency estimates for RATCOP, DETCOP, EMCOP, and AVCOP were in the acceptable to good range:  $\alpha = .87$ ,  $\alpha = .78$ ,  $\alpha = .80$ , and  $\alpha = .70$ , respectively.

#### 2.2.3. Binge eating

The Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982) is a 16-item measure that assesses frequency and severity of binge eating behaviors among young adults. Participants are instructed to read a group of statements and indicate the statement that is most true of their behaviors or beliefs. The BES displayed good reliability in the current study ( $\alpha = .89$ ).

### 2.3. Statistical analyses

Binge eating scores were transformed using a square root transformation to account for positive skew. Pearson product correlations between all variables were examined to identify the associations among specific coping styles and stress and binge eating. To test mediation, associations were first established between initial and mediating variables and then between the mediating and outcome variables (Baron & Kenny, 1986). No violations in basic regression assumptions were observed in data. All analyses were performed using the Statistical Package for the Social Sciences (SPSS) for Windows version 17.0.

## 3. Results

### 3.1. Correlations

All correlations, means, and standard deviations are presented in Table 1. As expected, stress and binge eating were significantly and positively correlated. Additionally, stress was positively associated with EMCOP and AVCOP. However, stress was not associated with RATCOP and DETCOP. Binge eating was significantly associated with EMCOP and AVCOP but not with RATCOP or DETCOP. Following recommendations by Barron and Kenny (1986), mediators must be significantly related to the dependent variable, independent variable, and be significantly related to the dependent variable when controlling for the influence of the independent variable. Thus, variables were excluded from mediational testing if they were uncorrelated with stress or binge eating; thus, RATCOP and DETCOP were not tested as potential mediators in mediation analyses.

### 3.2. Mediation analyses

Both EMCOP and AVCOP were tested as mediators of the relationship between stress and binge eating. Initial model testing with EMCOP and AVCOP mediating the relationship between stress

**Table 1**  
Pearson product-moment correlations, means, and standard deviations.

| Variable                  | Binge eating <sup>a</sup> | Stress | EMCOP | AVCOP | DETCOP | RATCOP |
|---------------------------|---------------------------|--------|-------|-------|--------|--------|
| Binge eating <sup>a</sup> | –                         | .32**  | .44** | .27*  | .02    | –.02   |
| Stress                    |                           | –      | .32** | .24*  | .03    | .02    |
| EMCOP                     |                           |        | –     | .43** | –.08   | –.04   |
| AVCOP                     |                           |        |       | –     | .44**  | .27*   |
| DETCOP                    |                           |        |       |       | –      | .66**  |
| RATCOP                    |                           |        |       |       |        | –      |
| Mean                      | 2.89                      | 9.80   | 40.97 | 44.27 | 41.47  | 33.14  |
| SD                        | 1.21                      | 7.31   | 6.86  | 5.35  | 5.78   | 4.81   |

Note. RATCOP = Rational Coping; DETCOP = Detached Coping; EMCOP = Emotional Coping; and AVCOP = Avoidance Coping.

<sup>a</sup> Square root value reported.

\*\*  $p < .001$ .

\*  $p < .01$ .

and binge eating revealed that AVCOP was not significantly related to binge eating when controlling for EMCOP. Because these results preclude AVCOP from serving as a mediator, the model was subsequently redesigned using EMCOP as the sole mediator of the relationship between stress and binge eating.

As specified by Baron and Kenny (1986), mediation testing involves conducting three separate regression analyses. Results of the first two analyses revealed that stress predicted binge eating,  $t(145) = 4.02, p < .01$ , and EMCOP,  $t(145) = 4.11, p < .01$ . Results of the third analysis revealed that EMCOP predicted binge eating when controlling for stress,  $t(145) = 4.80, p < .01$ . Furthermore, the relationship between stress and binge eating decreased yet remained significant when EMCOP was controlled,  $t(145) = 2.52, p < .05$ . These results indicate that EMCOP partially mediates the relationship between stress and binge eating. Sobel's (1982) test for mediation confirmed that the mediated (indirect) effect of stress on binge eating was significant (Sobel's  $z = 3.14, p < .01$ ) (Fig. 1).

#### 4. Discussion

This study examined the relationship between stress, coping, and binge eating in a sample of female college students. As hypothesized, emotion-focused and avoidant coping were positively associated with stress and binge eating. Additionally, emotion-focused coping partially mediated the relationship between stress and binge eating. However, avoidant coping and binge eating were unrelated when emotion-focused coping was controlled. Thus, emotion-focused coping better accounts for the association between stress and binge eating than avoidant coping does. In other words, people are more likely to binge eat and engage in emotion-focused coping (but not avoidant coping) when under stress. Stress may then cause some individuals to ruminate and experience self-blame as well as other aspects of emotion-focused coping that are associated with binge eating (Whatley et al., 1998).

The mediational relationship identified between stress, emotion-focused coping, and binge eating is consistent with a negative reinforcement or "escape theory" of binge eating (Paxton & Diggins, 1997). According to this theory, psychological stress arising from negative external events produces dysphoric emotions that binge eating can temporarily alleviate. In this vein, individuals in the midst of a binge eating episode often experience a decrease in negative self-awareness and thus temporarily escape negative thoughts and emotions (Heatherton & Baumeister, 1991). Furthermore, they also commonly report feeling reductions in negative feelings and states of relative calm (Stickney, Miltenberger, & Wolff, 1999). Therefore, binge eating may mitigate negative emotions as well as decrease stress temporarily (Crowther et al., 2001; Freeman & Gil, 2004; Tuschen-Caffier & Vögele, 1999; Wolff et al., 2000).

However, additional research to elucidate the functional relationship between these variables is needed since mixed research exists on the association between binge eating and emotion. For example, one

study found the strength of negative emotions to decrease during a binge eating episode and then to increase again after the episode (Stickney et al., 1999), whereas another study found no significant mood differences 30–60 min prior to or after bingeing episodes in college students (Wegner et al., 2002). Perhaps as these findings seem to suggest, the relationship between emotion and binge eating depends on the time when emotion is assessed. In other words, the previous association may be obscured by only assessing emotion prior to or after a binge eating episode.

Contrary to our expectations, no association was found between rational coping or detached coping and stress or binge eating. Therefore, these coping styles did not mediate the relationship between stress and binge eating aside from emotion-focused coping. Collectively, these results suggest that binge eating is associated with maladaptive coping styles and generally is unrelated to adaptive forms of coping in female college students.

Overall, results of this study underscore the importance of increasing the availability of effective binge eating treatments for college females since adaptive coping is not associated with lower binge eating reports. Instead, a therapist may need to teach clients to use alternative interventions for binge eating. Findings from a recent study suggest that cognitive-behavioral therapy (CBT) and interpersonal psychotherapy (IPT) are effective treatments for binge eating (Wilson, Wilfley, Agras, & Bryson, 2010). These two therapies involve addressing maladaptive thoughts, feelings, and behaviors that engender stress and may facilitate binge eating. Results of the aforementioned study indicate that individuals who received CBT or IPT experienced significant long-term (>two years) reductions in binge eating compared to individuals who participated in a behavioral weight loss treatment program.

Several limitations in this study warrant consideration. First, results obtained with a nonclinical sample of undergraduate females may not generalize to dissimilar populations. For example, gender differences exist in reactions to stress and the use of coping styles in which females tend to use more coping styles than do their male counterparts (Tamres, Janicki, & Helgeson, 2002). Second, we were unable to distinguish between participants who may have clinically significant eating disorders and participants with sub-clinical symptomatology. Individuals with eating disorders may differ in important ways from those who do not such as in overall psychopathology and relative comorbidities. Third, this study may suffer from a mono-method bias since only self-report measures were used to assess each construct. Follow up research may improve on our findings by using multiple measures of each construct and measures that include different response formats. Fourth, the cross-sectional design of this study did not allow for the evaluation of causal relationships or the durability of our results across time. Similarly, assessing constructs of interest across multiple time points would strengthen the results of this study. Ideally, mediational tests should be conducted with data collected across three points of measurement. Lastly, participants' self-reports were assessed rather than their actual behaviors. A

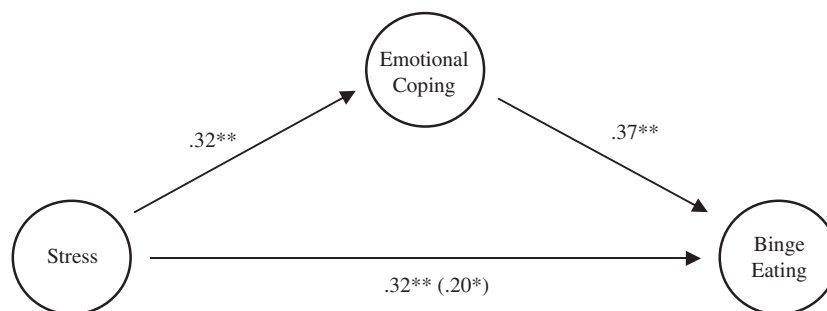


Fig. 1. Emotional coping as a mediator of stress and binge eating. Standardized regression coefficients for relevant paths are presented. The value in parenthesis is the standardized regression coefficient for the stress-to-binge eating path following the inclusion of emotional coping in the regression model. \* $p < .05$ . \*\* $p < .01$ .



discrepancy may exist between participants' self-reports about eating and their actual behaviors.

Despite these limitations, the results of this study fill a gap in research on stress, coping, and binge eating in female college students. Emotion-focused coping partially mediated the relationship between stress and binge eating, which is consistent with a negative reinforcement model of binge eating (i.e., binge eating may neutralize negative emotional states that are triggered by stress). Additionally, results of this study suggest that none of the assessed coping styles are associated with lower binge eating reports. This finding highlights the importance of providing evidenced-based treatments for individuals with binge eating problems because adaptive coping in itself may not sufficiently reduce binge eating symptomatology.

#### Role of funding sources

No funding sources contributed to this research.

#### Contributors

All authors made substantive contributions to this study and manuscript. Each author was involved with designing the study and literature review, data collection, and manuscript writing/editing. All authors agree to the ordering of authorship as well as the submission of this manuscript to *Eating Behaviors*.

#### Conflict of interest

Authors of this manuscript had no conflicts of interest.

#### References

- American Psychiatric Association (2000). Diagnostic and Statistics Manual of Mental Disorders—Fourth Edition Text Revision. Washington DC: American Psychiatric Publishing. Association, A. P. (2000). Diagnostic and Statistical Manual of Mental Disorders—Fourth edition—Test Revision. : Author.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182. doi:10.1037/0022-3514.51.6.1173.
- Bauman, E. M., Haaga, D. A. F., & Dutton, M. A. (2008). Coping with intimate partner violence: Battered women's use and perceived helpfulness of emotion-focused coping strategies. *Journal of Aggression, Maltreatment & Trauma*, 17, 23–41. doi:10.1080/10926770802250942.
- Blaase, H., & Elklit, A. (2001). Psychological characteristics of women with eating disorders: Permanent or transient features? *Scandinavian Journal of Psychology*, 42, 467–478. doi:10.1111/1467-9450.00260.
- Catanzaro, S. J., Horaney, F., & Creasey, G. (1995). Hassles, coping, and depressive symptoms in an elderly community sample: The role of mood regulation expectancies. *Journal of Counseling Psychology*, 42, 259–265. doi:10.1037/0022-0167.42.3.259.
- Craighead, L. W., Allen, H. N., Craighead, W. E., & DeRosa, R. (1996). Effect of social feedback on learning rate and cognitive distortions among women with bulimia. *Behavior Therapy*, 27, 551–563. doi:10.1016/s0005-7894(96)80043-8.
- Crandall, C. S., Preisler, J. J., & Ausprung, J. (1992). Measuring life event stress in the lives of college students: The Undergraduate Stress Questionnaire (USQ). *Journal of Behavioral Medicine*, 15, 627–662. doi:10.1007/bf00844860.
- Crowther, J. H., Snafner, J., Bonifazi, D. Z., & Shepherd, K. L. (2001). The role of daily hassles in binge eating. *The International Journal of Eating Disorders*, 29, 449–454. doi:10.1002/eat.1041.
- Deaver, C. M., Miltenberger, R. G., Smyth, J., Meidinger, A., & Crosby, R. (2003). An evaluation of affect and binge eating. *Behavior Modification*, 27, 578–599. doi:10.1177/0145445503255571.
- Freeman, L. M. Y., & Gil, K. M. (2004). Daily stress, coping, and dietary restraint in binge eating. *The International Journal of Eating Disorders*, 36, 204–212. doi:10.1002/eat.20012.
- Gormally, J., Black, S., Daston, S., & Rardin, D. (1982). The assessment of binge eating severity among obese persons. *Addictive Behaviors*, 7, 47–55. doi:10.1016/0306-4603(82)90024-7.
- Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, 110, 86–108. doi:10.1037/0033-2909.110.1.86.
- Heckman, T. G., Kochman, A., Sikkema, K. J., & Kalichman, S. C. (1999). Depressive symptomatology, daily stressors, and ways of coping among middle-age and older adults living with HIV disease. *Journal of Mental Health and Aging*, 5, 311–322.
- Hudson, J. I., Lalonde, J. K., Coit, C. E., Tsuang, M. T., McElroy, S. L., Crow, S. J., Bulik, C. M., Hudson, M. S., Yanovski, J. A., Rosenthal, N. R., & Pope, H. G., Jr. (2010). Longitudinal study of the diagnosis of components of the metabolic syndrome in individuals with binge-eating disorder. *American Journal of Clinical Nutrition*, 91, 1568–1573. doi:10.3945/ajcn.2010.29203.
- Kelly, M. M., Tyrka, A. R., Price, L. H., & Carpenter, L. L. (2008). Sex differences in the use of coping strategies: Predictors of anxiety and depressive symptoms. *Depression and Anxiety*, 25, 839–846. doi:10.1002/da.20341.
- Li, C. E., DiGiuseppe, R., & Froh, J. (2006). The roles of sex, gender, and coping in adolescent depression. *Adolescence*, 41, 409–415.
- Marusic, A., & Goodwin, R. D. (2006). Suicidal and deliberate self-harm ideation among patients with physical illness: The role of coping styles. *Suicide & Life-Threatening Behavior*, 36, 323–328. doi:10.1521/suli.2006.36.3.323.
- McManus, F., & Waller, G. (1995). A functional analysis of binge-eating. *Clinical Psychology Review*, 15, 845–863. doi:10.1016/0272-7358(95)00042-9.
- Paxton, S. J., & Diggins, J. (1997). Avoidance coping, binge eating, and depression: An examination of the escape theory of binge eating. *The International Journal of Eating Disorders*, 22, 83–87. doi:10.1002/(sici)1098-108x(199707)22:1<83::aid-eat11>3.0.co;2-j.
- Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences*, 15, 619–626. doi:10.1016/0191-8869(93)90003-1.
- Schlundt, D. G., & Johnson, W. G. (1990). Eating Disorders: Assessment and Treatment. Needham Heights, MA US: Allyn & Bacon.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology*, 13, 290–312.
- Staiger, P. K., Melville, F., Hides, L., Kambouropoulos, N., & Lubman, D. I. (2009). Can emotion-focused coping help explain the link between posttraumatic stress disorder severity and triggers for substance use in young adults? *Journal of Substance Abuse Treatment*, 36, 220–226. doi:10.1016/j.jsat.2008.05.008.
- Stickney, M. I., Miltenberger, R. G., & Wolff, G. (1999). A descriptive analysis of factors contributing to binge eating. *Journal of Behavior Therapy and Experimental Psychiatry*, 30, 177–189. doi:10.1016/s0005-7916(99)00019-1.
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6, 2–30. doi:10.1207/s15327957pspr0601\_1.
- Telch, C. F., & Agras, W. S. (1993). The effects of a very low calorie diet on binge eating. *Behavior Therapy*, 24, 177–193. doi:10.1016/s0005-7894(05)80262-x.
- Tuschen-Caffier, B., & Vögele, C. (1999). Psychological and physiological reactivity to stress: An experimental study on bulimic patients, restrained eaters and controls. *Psychotherapy and Psychosomatics*, 68, 333–340. doi:10.1159/000012352.
- Wegner, K. E., Smyth, J. M., Crosby, R. D., Wittrock, D., Wonderlich, S. A., & Mitchell, J. E. (2002). An evaluation of the relationship between mood and binge eating in the natural environment using ecological momentary assessment. *The International Journal of Eating Disorders*, 32, 352–361. doi:10.1002/eat.10086.
- Whitley, S. L., Foreman, A. C., & Richards, S. (1998). The relationship of coping style to dysphoria, anxiety, and anger. *Psychological Reports*, 83, 783–791. doi:10.2466/pr0.83.7.783-791.
- Wilson, G. T., Wilfley, D. E., Agras, W. S., & Bryson, S. W. (2010). Psychological treatments of binge eating disorder. *Archives of General Psychiatry*, 67, 94–101. doi:10.1001/archgenpsychiatry.2009.170.
- Wolff, G. E., Crosby, R. D., Roberts, J. A., & Wittrock, D. A. (2000). Differences in daily stress, mood, coping, and eating behavior in binge eating and nonbinge eating college women. *Addictive Behaviors*, 25, 205–216. doi:10.1016/s0306-4603(99)00049-0.
- Yanovski, S. Z. (2003). Binge eating disorder and obesity in 2003: Could treating an eating disorder have a positive effect on the obesity epidemic? *International Journal of Eating Disorders*, 34, S117–S120. doi:10.1002/eat.10211.