

ABSTRACT

How Coping Styles Impact Emotional Eating in College Students

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The college experience for the typical American student has two major components: stress and eating, which tend to work in tandem. However, despite the prevalence and impact of this relationship, relatively few studies have been published exploring the manifestation of stress on eating habits in college students. More specifically, can specific coping styles predict emotional eating behavior? To assess this, approximately 200 undergraduate students were evaluated on dimensions of coping styles, eating habits, and height and weight. Through correlations, regression analyses, and ANOVAs, it was found that depressive and anxious states were associated with avoidance coping, a lower BMI suggested more self-controlling coping, and that negative states could be predicted with other variables.

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HOW COPING STYLES IMPACT EMOTIONAL EATING IN COLLEGE STUDENTS

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TABLE OF CONTENTS

Acknowledgements.	iii
Dedication	iv
Chapter One: Introduction	1
Chapter Two: Materials and Methods.	10
Chapter Three: Results	13
Chapter Four: Discussion and Conclusions	15
Appendices	20
Appendix A: Study Questionnaire	21
Appendix B: Complete Results Tables	28
References	35

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DEDICATION

For my Heroes for Life:
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CHAPTER ONE

Introduction

As any college student can attest, the university experience has two main components: stress and eating. The relationship between these elements has never been in question, but its extent and depth is only just beginning to be understood. How do other aspects of life affect eating behavior? More specifically, do a person's coping styles predict his or her eating habits, especially in college?

Eating is more than satisfying a physiological need—researchers have found that humans have evolved to crave certain kinds of food, especially fat or sweet food, leading to a subsequent rise in obesity and diabetes. The first study in this area, published in the 1960s, coined this phenomenon the “thrifty gene” hypothesis (Neel, 1962): genes that favored high-insulin-producing foods were once advantageous to primitive peoples in finding foods with high caloric value. However, as food production and human society changed, these genes were passed on with more deleterious effects (Neel, 1962). The original study concerns the emergence and prevalence of diabetes, but in 1999 Neel expanded his hypothesis to include hypertension and obesity. Despite articles challenging Neel's original hypothesis (Speakman, 2008), and Neel's own work in which he disproved some of his own assumptions (Neel, 1998), the “thrifty hypothesis” theory is still central to explaining modern obesity and fat storage, even if done with skepticism (Bouchard, 2008; Prentice, Hennig, & Fulford, 2008).

Genetics alone can't be blamed for the evolutionary rise in obesity—the industrialization of society has also played a part in humans' fat storage. Our Paleolithic predecessors lived in a society that necessitated physical fitness, one in which food had to be hunted and gathered. In contrast, food today is readily available without effort and is specifically engineered for our sweet-craving palates, negating the need for physical labor. Thus, our genetic predisposition for high-calorie food is compounded by a sedentary culture (Bellisari, 2008). Moreover, though obesity is not a desirable trait, it is now increasingly easier to be passed through generations; improved medical care and the decline of infectious diseases have allowed the obese to live longer (albeit perhaps less healthy) lives, thereby increasing the likelihood of genetic transmission to the next generation (Lev-Ran, 2001).

However, evolutionary and cultural histories are not singularly responsible for obesity; temperament has been found to contribute to a person's body mass index as well. Originally only thought to be four different types (choleric, sanguine, phlegmatic, and melancholic), the concept has expanded as research has explored the concept further. As defined by Rothbart and Bates (1998), temperament is “individual differences in emotional, motor and attentional reactivity and self-regulation” (p. 109). Though temperament may change over time, this generally only happens within the first two years of life then becomes relatively stable (Lemery, Goldsmith, Klinnert, & Mrazcek, 1999). Temperament has also been found to be the precursor of personality later in life (Caspi, 2000).

In their review of temperament and childhood obesity risk, Anzman-Frasca, Stifter, and Birch (2012) found that negative temperament and low self-regulation during

childhood are correlated with higher weight in adulthood. For example, one of the earliest studies in this area looked at twins with discordant birth weights and found that the twin with the higher weight later in life was generally the more irritable and difficult to soothe (Riese, 1994). In 2006, researchers in the United Kingdom built upon these findings by discovering a positive relationship between weight gain and distress (Darlington & Wright, 2006). More recent studies have found the relationship to be more complex than originally thought: mother's sensitivity plays a role (Wu, 2011), and body mass indices are not always predicted by temperament (Pryor et al., 2011). However, the fact that the relationship was robust over several longitudinal and cross-sectional studies from various decades and countries indicates that this connection is very present and most likely continues into adulthood.

One minor but telling finding from Anzman-Frasca's review is that negative babies are often fed to be soothed, not simply to satisfy hunger. The link between soothing and later weight is still somewhat tenuous and needs more data to be upheld, but it seems to exist nonetheless, with negative temperament exacerbating the link between being fed to soothe and weight (Stifter, Anzman-Frasca, Birch, & Voegtline, 2011). Recent evidence suggests that parents may feed their fussy children foods high in fat and sugar, as this is thought to quell negative emotions (Vollrath, Tonstad, Rothbart, & Hampson, 2011). These findings naturally lead to questions about progression over time: is "eating to soothe" likely to continue throughout life? Do adults with negative temperament perpetuate these eating habits?

There has been extensive evidence that eating habits in childhood persist into adulthood (Branen & Fletcher, 1999; Kotler, Cohen, Davie, Pine, & Walsh, 2001). For

example, binge-eating habits are longitudinal: children who saw food as a reward or a comfort carry those thoughts into adulthood, leading to similar adult perceptions (Puhl & Schwartz, 2013). These findings indicate that seeing food as a comfort in childhood may form later relationships to food. Moreover, a child's family dynamic has a significant effect on his later eating behaviors: those who grew up in negative or angry households tend to be heavier in weight in adulthood (Ganley, 1992). From this, it's clear that the emotional salience of food operates as a coping mechanism for many people over a lifetime.

The preeminent model of coping was developed by Lazarus and Folkman in 1984 and defined coping as a response to stressors that may protect individuals from psychological and physiological harm (p. 141). Indeed, coping strategies have been found to have a significant effect on a person's mental and physical health. In 1986, Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen identified eight principle ways of coping (confronting, distancing, self-controlling, seeking support, accepting responsibility, escape-avoidance, problem solving, positive reappraisal) and formulated a 66-point scale by which to measure them. Since the development of the Ways of Coping Questionnaire, it has been cited by thousands of other articles and studies, demonstrating that coping assessment is important in a variety of environments, from medical care (Franczak, 2013; Huang et al., 2013) to sports psychology (Verardi et al., 2013) to child motivation and classroom performance (Skinner, Pitzer, & Steele, 2013). Though the present study examines coping with relation to eating, it's clear that coping strategies are pervasive within almost all aspects of an individual's life.

The coping styles most often implicated in eating disorders are distancing, self-controlling, and escape-avoidance (García-Grau, Fusté, Miró, Saldaña, & Bados, 2004; Mayhew & Edelmann, 1989; Shatford & Evans, 1987). Distancing is as a coping strategy that involves removing one's self from the problem to avoid it (Galende, de Miguél, & Arranz, 2012; Kolar, Erikson, & Stewart, 2012). Those who display distancing behavior are more likely to have insecure attachment styles (Mikulciner, Florian, & Weller, 1993). Self-control is being in command of one's emotions and behavior. Its use has been strongly implicated in the development of anorexia, as these individuals are likely to control and suppress their desires for food (Butler & Montgomery, 2005). Escape-avoidance coping has been defined as "an attempt to minimize, deny, or otherwise circumvent managing specific stressful situations" (Grant, 2013; Penley, Tomaka, Weibe, 2002). Avoidance is linked to high levels of depression and anxiety, indicating that this style of "coping" may only exacerbate and prolong the stress (Grant, 2013; MacNeil, Esposito-Smythers, Mehlenbeck, & Weismoore, 2012). When looked at as a whole, there are clear commonalities between these three strategies. Most significantly, all three are related to negativity, which relates back to temperament development.

The link between eating and coping was established in the mid 20th century with the anxiety-reduction theory: overeating reduces anxiety, thus creating a vicious circle of hyperphagia (Kaplan & Kaplan, 1957). As early as the 1980s, subjects reported eating in response to emotional arousal, including (but not limited to) anxiety, depression and other negative affects (Baucom & Aiken, 1992; Ruderman, 1985; Wardle & Beales, 1988). Emotional eating was found to have a high correlation with overweight history and food obsession, suggesting that some sort of emotional component connects these three

together (Hoiberg, Berard, & Watten, 1980). In the later part of the 20th century, researchers began to create scales by which to objectively measure this phenomenon, including the Dutch Eating Behavior Questionnaire (van Strien, Frijters, Bergers, & Defares, 1986) and the Emotional Eating Scale (Arnold, Kenardy, & Agras 1995). This solidified “emotional eating” as a measurable concept and integrated the phrase and its components into the psychological lexicon.

The first empirical studies in the area of emotional eating almost exclusively focused on its psychopathology and implications. Because of the link between obesity and emotional eating, much of the early research looked at the consequences of emotional and binge eating on weight control and obesity. One of the earliest studies on this subject reported that overweight people responded to situations with prolonged negativity and stress, thus leading to food binges (Lingswiler, Crowther, & Stephens, 1987). More recent research has corroborated this, adding that those with binge eating disorder are often unable to regulate their emotions, leading to subsequent binges with food (Gianini, White, & Masheb, 2013). In addition, frustration and binge eating are closely related and tend to fluctuate concurrently (Verstuyf, 2013) and those with obesity tend to suffer from lower self-esteem (Andrews, Lowe & Clair, 2011). Indeed, the link between personality traits and bingeing is strong: neuroticism, low conscientiousness, and low extraversion are highly correlated with emotional eating (Elfhag & Morey, 2008). In 1989, the average person with obesity was estimated to carry 25 pounds of “stress weight” as a result of his eating habits. Those these data are outdated, it stands to reason that this has persisted or increased over time, given that the population of adults who are overweight and obese

skyrocketed from 50% in 1980 to 70% in 2010 (National Institutes of Health [NIH], 2012)

In the late 1980s and 1990s, research switched from a focus on obesity to eating disorders including anorexia and bulimia nervosas. For example, it was found that women with anorexia often score highly on self-restraint, indicating that they cope with stress by seeking to control feelings (Wardle, 1987) as well as score lower on scores of psychological well being (Lindeman & Stark, 2001) and their desire to eat was often triggered by food cues in a period of self-deprivation (Mauler, Hamm, Weike, & Tuschen-Caffier, 2006). Those with anorexia or bulimia nervosas have been shown to fear losing control and seek to compensate for this by employing strict control over all food (Ricca et al., 2013).

Most current publications (research done after 2000) about emotional eating focus on the cognitions that lead to bingeing behavior. For example, simply expecting that food will alleviate boredom or negative feelings generally lead to more emotional eating (Hennegan, Loxton, & Mattar, 2013). Also, other psychological disorders and factors are related to emotional eating, including posttraumatic stress disorder (Talbot, 2013) and social anxiety (Ostrovsky, Swencionis, Wylie-Rosett, & Isasi, 2013). This indicates that stress can be manifest in many forms with similarly detrimental effects.

The relationship between coping and emotional eating is newer to the peer-reviewed literature, but many researchers have tried to find patterns in the emotional states of those with eating disorders. From this, similarities in coping and dealing with stress have emerged. For example, those who use emotion-oriented coping strategies are significantly likely to develop negative body image and subsequent eating disturbances

(Koff & Sangani, 1997). A 2007 study strengthened this finding with the addition that women engaging in emotional eating tend to cope with problems by avoiding them (Spoor, Bekker, van Strien, & van Heck, 2007).

College-aged adults are not only above average in personal stress levels (D’Zurilla & Sheedy, 1991; Towbes & Cohen, 1996); they are also more likely to report being unable to reach their stress management goals (American Psychological Association [APA], 2013). The combination of financial problems, interpersonal conflict, and growing personal responsibility leads to stress (Ross, Niebling, & Heckert, 1999), which in turn leads to stress management behaviors such as eating. This chain of events makes the college population ideal to study in terms of the relationship between eating and stress. However, few studies have looked at this relationship in depth in college-aged adults. In the earliest publications, females with eating disorders were found to engage in more emotion-oriented coping strategies than their non-afflicted counterparts (Koff & Sangani, 1997), later expanded with the finding that students with eating disorders are more likely to engage in maladaptive strategies (VanBoven & Espelage, 2006). In 2004, researchers examined the link between coping styles and eating but focused primarily on the role of exercise, finding that higher exercise levels are correlated with more negative affect if a subject scores high in disordered eating behavior (Thome & Espelage, 2004). However, these studies looked at eating attitudes in general, not specifically emotional eating. More recently, researchers examined disordered eating in Asian university populations (Gan, Nasir, Zalilah, & Hazizi, 2012). The researchers in this study found that Malaysian university students had a high prevalence of disordered eating, especially in response to depression and anxiety. However, this study focused mainly on depression-

-not coping styles--and eating in a non-Western population, making it difficult to draw conclusions for an American student population.

The aim of the present study is to evaluate how college students' coping styles impact emotional eating habits. Based on previous research done in this area, I hypothesize that distancing and escape-avoidance coping styles will be related to a higher incidence of emotional eating. Though self-controlling has been implicated in eating disorders, it has only been associated with limiting food intake, not bingeing or eating out of emotion. I also hypothesize that those with many commitments, and therefore ostensibly more stress, will have a higher incidence of emotional eating than those with fewer commitments.

CHAPTER TWO

Materials and Methods

Participants

Participants were undergraduate students ($n = 185$) who signed up for the study using an online system. These were generally lowerclassmen enrolled in introductory psychology courses at Baylor University. Participants were recruited using the online Baylor SONA system. They would then report to the testing room in weekly groups of 20 to fill out questionnaires. The full battery of surveys can be found in Appendix A.

Materials

Demographics

A short demographics questionnaire was given to subjects to measure basic characteristics. This included questions about year at Baylor, hometown, major, GPA, and extracurricular activities. This not only allowed for a more complete picture of the subject pool, but also provided a way to see if there were any correlations between personal characteristics and eating habits.

Emotional Eating Scale

The Emotional Eating Scale (EES; Arnow, Kenardy & Agras, 1994) was developed as a self-report measure to provide a more detailed analysis of the relationship between negative affect and disordered eating. The scale uses a Likert-esque format in

order to have subjects rate intensity of the negative feeling to eating. The negative mood states used on the questionnaire fall into the categories of anger/frustration, anxiety, and sadness/depression, which were found to precede 95% of binge eating episodes (Arnold et al., 1992).

Ways of Coping

The Ways of Coping questionnaire is an often-cited scale developed to assess how people cope with stressful situations (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). A subject recounts a stressful situation and then describes strategies for dealing with his problem. There are 66 items measuring eight different coping styles: confrontive, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving, and positive reappraisal. The coping style outcomes will be compared to the EES scores to see if there are any correlations.

Height and Weight

Each subject had his height and weight measured by a research assistant for the purposes of determining body mass index. Subjects' Body Mass Indices were calculated to assess possible physical effects of emotional eating. The formula for calculating BMI (according to current CDC methodology) is as follows:

$$\text{Weight (lbs)} / [\text{height(in)}]^2 \times 703$$

Classification of BMI followed CDC guidelines: 18.5% or lower for underweight, between 18.6% and 24.9% for normal weight, 25% to 29.9% for overweight, and above 30% for obese.

Procedure

After signing up using the online system, subjects reported to the specific room and time to complete the study. Subjects were given the questionnaire packet consisting of the demographics, EES, Ways of Coping, and Height/Weight sheet. They were measured one at a time by the research assistant as they completed the packets.

Statistical Analyses

Descriptive statistics were computed to describe the sample in terms of demographic variables. An analysis of Pearson's Product Moment Correlations among the Emotional Eating Scale and Ways of Coping Questionnaire, were examined to assess for any associations between these two scales. ANOVAs and regression analyses were also computed between the demographic variables and EES and WOC to determine if there were significant differences between groups and if any of the variables had predictive power over the others. Pearson's Product Moment Correlation coefficient effect sizes are small (.10-.29), medium (.30-.49), and large ($\geq .50$).

CHAPTER THREE

Results

The majority of the 140 females (76%) and 43 males (23%) were freshmen or sophomores (85%). Most of the students had GPAs between 2.6 and 3.5 (54%) out of a 4.0 scale. In terms of race/ethnicity, the sample contained 20 (11%) African Americans, 21 (11%) Asians, 110 (59%) Caucasians, 29 (15%) Hispanics, and six (3%) identifying as “other.” Most subjects were unemployed (83%), For BMI, 15 (8%) were classified as “underweight,” 119 (64%) as normal, 39 (21%) as overweight, and 12 (6%) as obese. The average emotional eating score (a summation of all the EES categories) for the 185 participants was 53.3 out of a possible 125. However, this may not be fully reflective of emotional eating differences, as noted in the discussion. Full demographics can be found in Table 1.

To analyze the data, Pearson correlations, ANOVAs, and regression analyses were run. Significant correlations emerged between demographic factors such as classification and GPA ($r = .28, p < .05$) and gender and GPA ($r = .16, p < .05$).

When examining specific emotions, angry emotional eating was associated with both classification and escape/avoidance coping ($r = -.14, p < .05$; $r = .172, p < .05$, respectively). Specifically, greater anger in the context of emotional eating was associated with more avoidant coping. In the regression model, none of the variables significantly predicted anger. Additionally, in the ANOVA analysis, there were no

significant differences between demographic groups and coping styles in terms of anger ($F(15, 169) = 1.214, p = .265$).

Anxiety also evidenced some significant associations, such as with classification ($r = -.17, p < .05$), GPA ($r = -.13, p < .05$), and employment ($r = -.14, p < .05$). However, there were no significant correlations related to coping style and eating. When looking at the regression analyses, demographic factors including classification and employment status were significant predictors of anxious eating behavior ($b = -1.104, t(177) = -2.287, p < .05$; $b = -2.589, t(177) = -2.572, p < .05$, respectively); coping styles were not a significant predictor of emotional eating in the regression analyses. An ANOVA reinforced this finding: there were significant differences between demographic groups in terms of anxiety ($F(7, 177) = 2.327, p = .027$), but these differences were insignificant with coping styles ($F(15, 169) = 1.370, p = .167$).

Finally, depression was negatively correlated with classification and employment status ($r = -.20, p < .05$; $r = -.184, p < .05$, respectively) and positively correlated with escape/avoidance coping ($r = .14, p = .032$). Regression results demonstrated that both coping styles and demographic factors (BMI, state residency, ethnicity, gender, GPA and classification) significantly predicted depressive eating ($b = 26.526, t(177) = 8.259, p < .05$). The ANOVA for depression indicated that not only was depression significantly different across demographic factors ($F(7, 177) = 3.684, p = .001$), but also coping styles ($F(15, 169) = 2.104, p = .012$). Complete tables of results can be found in Appendix B.

CHAPTER FOUR

Discussion and Conclusions

The general initial hypothesis that coping styles and emotional eating would have a clear, definitive link could not be fully supported in the present data. However, there were indications that associations exist between coping styles and emotional eating. There was a positive significant correlation between angry eating and escape/avoidance coping demonstrating that those who eat in response to anger tend to avoid problems rather than face them. This same association was found between depressive eating and escape/avoidance coping indicating that those who eat in response to depression tend to avoid their problems. There was not a significant association between any of the coping styles and anxious eating. The connection between angry eating, depressive eating, and escape/avoidance coping underscore the idea that negative moods may play a role in eating behavior, especially if one uses food to avoid problems.

It was also hypothesized that distancing coping styles would be associated with eating in relation to negative moods, but this was not supported by the data. The association between depression and distancing was marginally significant ($r = .20, p = .053$), but it was not strong enough to draw conclusions.

The patterns that emerged in the present study reinforced previous research. For example, individuals with bulimia nervosa reported higher levels of avoidance in response to depression, which they resolve through food (Shatford & Evans, 1987). A similar pattern has been observed in those with anorexia nervosa: they are likely to use

avoidance coping in combination with irrational beliefs when faced with a problem (Mayhew & Edelmann, 1989). More recently, evidence has emerged that these patterns apply to the larger population, not just those with disordered eating. In a 2013 study, anxiety and depression in a group of university students predicted avoidance coping behavior over an eight-week period (Grant, 2013). These findings along with the current study suggest that those facing negative emotions often avoid their problems. Instead of turning to active problem-solving methods, students may use food, something with instant gratification that can be controlled, as a way to ignore problems.

In the present study self-controlling was not associated with a lower incidence of emotional eating through correlations; however, those who reported higher self-controlling coping styles had a lower BMI. While no causal relationship can be established, this suggests that those who are self-controlling in nature may limit their food intake, whether consciously or not. This finding is consistent with past literature. In a 2005 study, Butler and Montgomery found that girls with anorexia nervosa were significantly more likely than a control group to report higher levels of self-control. Researchers in 2011 found that self-control does not necessarily have to be pathological: women with higher levels of self-control lost more weight and exercised more frequently than their non-controlling counterparts (Crescioni et al., 2011). The subjects in the present study are similar to the latter group in that their eating is most likely not disordered, but regardless of specifics they reinforce the fact that a lower BMI is connected to self-controlling behavior. This is most likely because, unlike emotional eaters, these individuals are able to control their eating in response to emotion and cope in other ways.

It was hypothesized in the present study that those students who reported more stress, whether with more extracurricular activities or more time in class, would demonstrate an increase in emotional eating. However, this could not be supported with the data. Though several demographic factors correlated with each other, such as gender and GPA ($r = .164, p < .05$), there was no association found between an increase in stress and emotional eating. In fact, one of the commonalities between the emotions was the fact that classification in school was significantly related to a *lower* incidence of emotional eating; upperclassmen did not appear to eat in response to negative emotions as often as underclassmen (anxiety: $r = -.17, p < .05$; depression: $r = -.20, p < .05$; anger: $r = -.14, p < .05$). Additionally, there was no significant difference between genders in terms of emotional eating. This was surprising given the fact that females have consistently been reported to eat out of response to negative feelings in previous literature (Spoor, Bekker, van Strien, & van Heck, 2007; Pinaquy, Chabroi, Simin, Louvet, & Barbe, 2012). Males, on the other hand, have been shown to eat more in response to stress, not specific emotions (Tanofsky, Wilfley, Spurrell, Welch, & Brownell, 1998). This finding may be a result of the sample, which was 74% female and may have diluted the results.

However, while these results may broaden the perspective and knowledge of emotional eating within this population, they must come with a caveat: people are often inaccurate in assessing their emotional eating habits. This could be due to a myriad of reasons. Individuals are notorious for underreporting or omitting behavior in questionnaires that may be seen as unattractive. This social desirability is especially salient with respect to caloric intake and eating; individuals, especially the obese,

regularly misreport how many calories they consume (Lichtman et al., 1992). Coupled with reporting negative emotions, a subject could be very reluctant to be honest in his eating behavior (Evers, de Ridder, & Adriaanse, 2009).

Emotional eating scales can also be problematic in that states of emotional eating and states of reporting emotional eating can be very different. An emotional experience is remembered less emotionally, and therefore less powerfully, in a neutral situation (Van Boven & Loewenstein, 2003). Asking subjects to recall responses to emotional events in a mundane study setting will most likely not elicit the same intuitive reaction as an actual depression-, anxiety-, or anger-producing event, thus affecting EES responses.

With this in mind, the lack of significant differences between weight groups may not be due to an actual absence of differences, but rather due to the inherent problems of an emotional eating scale. The current scale is adequate in that it allows the construct of emotional eating to be measured with some accuracy, but perhaps a scale that measures these same outcomes in a more indirect or situational way is warranted.

College students are stressed by their social, financial, and academic obligations in a new, transitional life stage (Ross, Niebling, & Heckert, 1999). In fact, it seems that negative emotional eating decreases with increased stress, such as with job. It could be that while students *enter* college stressed, they learn to adequately cope with their responsibilities over time, which decreases anxiety, depression, and anger in response to increased demands. Another explanation could be that the ostensibly stressful events of having a job and being an upperclassman are not what students consider stressful. If the questionnaire had included other categories or a broader definition of “stress,” such as financial or social aspects of collegiate living, the responses may have been different.

The main limitation of this study was the homogeneity of the sample. Though this sample was representative of Baylor students in introductory Psychology courses, it is unlikely to be able to be generalized to the college population as a whole due to its high proportions of females and lowerclassmen. This homogenous sample may have diluted findings, such as between genders or classifications. A similar study with a more diverse subject pool would help to elucidate findings. In addition, this was a self-report study that relied on information directly from the subjects; a more objective study may yield different results.

A natural extension of these findings would be to extend and apply them to interventions on a college campus. As noted by the demographics, the population most at risk for emotional eating in response to negative emotions is lowerclassmen females. These are individuals who most likely are still dealing with the transition into college and haven't yet adjusted to the new lifestyle. Such students may benefit from social skills training, in which they learn how to develop social support, or stress management training that teaches a problem-focused rather than emotion-focused approach to dealing with stressors. These interventions could not only help with perceptions of stress, but also how students deal with stress and subsequent health responses.

APPENDICES

APPENDIX A

Questionnaire Administered to Subjects

Demographics

- 1) What year (e.g., classification) are you currently at Baylor?

Freshman

Sophomore

Junior

Senior

Greater than senior

- 2) Are you an in-state or out-of-state student?

In-State

Out-of-State

- 3) What is your Race/Ethnicity?

Caucasian

African-American

Hispanic/Latino

Asian

Other

- 4) Are you a male or female?

Male

Female

- 5) What is your current GPA at Baylor University?

Less than 2.0

2.1-2.5

2.6-3.0

3.1-3.5

3.6-4.0

- 6) What is your major at Baylor University?

Business

Health Professions

Biology

Communications/Journalism

Education

Social Sciences

Psychology

Other

Undeclared

- 7) How much time do you spend in class per week (hrs/per week)?
Less than 12
12-15
Greater than 15
- 8) Are you currently employed?
Yes
No
- 9) If you are currently employed, how many hours per week do you work?
Not applicable, I am not currently employed
Less than 10 hours
10-12 hours
12-15 hours
Greater than 15 hours
- 10) How many hours per week do you participate in extracurricular activities?
Less than 5 hours
5-7 hours
8-10 hours
Greater than 10 hours

Height/Weight Form

Height/Weight Information (FOR RESEARCH ASSISTANT TO COMPLETE)

Participant Number: _____

Height: _____

Weight: _____

Body Mass Index: _____

Ways of Coping

Briefly describe the most stressful situation you have encountered:

WAYS OF COPING (Revised)

Please read each item below and indicate, by using the following rating scale, to what extent you used it in the situation you have just described.

Not Used	Used Somewhat	Used Quite A Bit	Used A great deal
0	1	2	3

- _____ 1. Just concentrated on what I had to do next – the next step.
- _____ 2. I tried to analyze the problem in order to understand it better.
- _____ 3. Turned to work or substitute activity to take my mind off things.
- _____ 4. I felt that time would make a difference – the only thing to do was to wait.
- _____ 5. Bargained or compromised to get something positive from the situation.
- _____ 6. I did something which I didn't think would work, but at least I was doing something.
- _____ 7. Tried to get the person responsible to change his or her mind.
- _____ 8. Talked to someone to find out more about the situation.
- _____ 9. Criticized or lectured myself.
- _____ 10. Tried not to burn my bridges, but leave things open somewhat.
- _____ 11. Hoped a miracle would happen.
- _____ 12. Went along with fate; sometimes I just have bad luck.
- _____ 13. Went on as if nothing had happened.
- _____ 14. I tried to keep my feelings to myself.
- _____ 15. Looked for the silver lining, so to speak; tried to look on the bright side of things.
- _____ 16. Slept more than usual.
- _____ 17. I expressed anger to the person(s) who caused the problem.
- _____ 18. Accepted sympathy and understanding from someone.

Not Used	Used Somewhat	Used Quite A Bit	Used A great deal
0	1	2	3
_____ 19.			
I told myself things that helped me to feel better.			
_____ 20.			
I was inspired to do something creative.			
_____ 21.			
Tried to forget the whole thing.			
_____ 22.			
I got professional help.			
_____ 23.			
Changed or grew as a person in a good way.			
_____ 24.			
I waited to see what would happen before doing anything.			
_____ 25.			
I apologized or did something to make up.			
_____ 26.			
I made a plan of action and followed it.			
_____ 27.			
I accepted the next best thing to what I wanted.			
_____ 28.			
I let my feelings out somehow.			
_____ 29.			
Realized I brought the problem on myself.			
_____ 30.			
I came out of the experience better than when I went in.			
_____ 31.			
Talked to someone who could do something concrete about the problem.			
_____ 32.			
Got away from it for a while; tried to rest or take a vacation.			
_____ 33.			
Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.			
_____ 34.			
Took a big chance or did something very risky.			
_____ 35.			
I tried not to act too hastily or follow my first hunch.			
_____ 36.			
Found new faith.			
_____ 37.			
Maintained my pride and kept a stiff upper lip.			
_____ 38.			
Rediscovered what is important in life.			

Not Used	Used Somewhat	Used Quite A Bit	Used A great deal
0	1	2	3
..... 39.			
..... 40.			
_____ 41.			
..... 42.			
..... 43.			
_____ 44.			
..... 45.			
..... 46.			
_____ 47.			
_____ 48.			
..... 49.			
_____ 50.			
_____ 51.			
_____ 52.			
_____ 53.			
_____ 54.			
..... 55.			
_____ 56.			
_____ 57.			
_____ 58.			
_____ 59.			

Not
Used

Used
Somewhat

Used
Quite A Bit

Used
A great deal

0

1

2

3

____ 60. I prayed.

____ 61. I prepared myself for the worst.

____ 62. I went over in my mind what I would say or do.

____ 63. I thought about how a person I admire would handle this situation and used that as a model.

____ 64. I tried to see things from the other person's point of view.

____ 65. I reminded myself how much worse things could be.

____ 66. I jogged or exercised.

Emotional Eating Scale

Emotional Eating Scale

We all respond to different emotions in different ways. Some types of feelings lead people to experience an urge to eat. Please indicate the extent to which the following feelings lead you to feel an urge to eat by checking the appropriate box.

	No Desire to Eat	A Small Desire to Eat	A Moderate Desire to Eat	A Strong Urge to Eat	An Overwhelming Urge to Eat
Resentful					
Discouraged					
Shaky					
Worn Out					
Inadequate					
Excited					
Rebellious					
Blue					
Jittery					
Sad					
Uneasy					
Irritated					
Jealous					
Worried					
Frustrated					
Lonely					
Furious					
On edge					
Confused					
Nervous					
Angry					
Guilty					
Bored					
Helpless					
Upset					

APPENDIX B

Table B.1

Descriptive Statistics: Demographics

<u>Category</u>	<u>Number</u>	<u>Percentage</u>
Classification		
Freshman	100	54%
Sophomore	58	31%
Junior	16	8%
Senior	11	6%
State		
In State	131	71%
Out of State	54	29%
Race		
White	110	59%
African American	20	11%
Latino	29	15%
Asian	21	11%
Other	6	3%
Gender		
Male	43	23%
Female	140	76%
No Answer	2	1%
GPA		
2.0-2.4	1	0.50%
2.1-2.5	5	3%
2.6-3.0	41	22%
3.1-3.5	60	32%
3.6-4.0	49	26%
No Answer	29	16%
Job		
Employed	31	17%
Unemployed	154	83%
BMI		
Underweight	15	8%
Normal weight	119	64%
Overweight	39	21%
Obese	12	6%
Average EES Score	53.3	

$n = 185$

Table B.2

*Descriptive Statistics: Emotional Eating and
Ways of Coping*

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Maximum Value</u>	<u>Minimum Value</u>
Anger Eating	20.661	7.553	55	0
Anxiety Eating	16.452	5.366	40	0
Depression Eating	15.923	4.398	30	0
Confrontative Coping	6.424	3.435	24	0
Distancing Coping	7.394	5.067	24	0
Self-Controlling Coping	9.915	3.842	28	0
Social Support Coping	9.424	3.975	24	0
Accept Responsibility Coping	5.496	3.192	16	0
Escape/Avoidance Coping	10.177	4.268	32	0
Planful Problem Solving Coping	10.314	4.07	24	0
Positive Reappraisal Coping	11.155	4.325	28	0
<i>n</i> = 185				

Table B.3

Correlations Between Demographic, Emotional Eating, and Coping Variables

Variable	Anger	Anxiety	Depression	Class	State	Race	Gender	GPA	Job	BMI	Confrontative	Distancing	Self-Controlling	Social Support	Accept Responsibility	Escape/Avoidance	Problem Solving	Partial Positive Reappraisal
Anger	1.00																	
Anxiety	.60*	1.00																
Depression	.60*	.49*	1.00															
Class	-.14*	-.17*	-.20*	1.00														
State	-.02	-.05	-.12	.12*	1.00													
Race	.02	-.10	-.01	.11	-.07	1.00												
Gender	-.04	.00	.02	-.07	-.01	.04	1.00											
GPA	.05	-.13*	.03	-.28*	.10	-.02	.16*	1.00										
Job	.11	-.14*	-.18*	-.25*	.00	-.03	-.05	-.04	1.00									
BMI	.11	.08	.11	.08	.01	.03	.09	.01	.07	1.00								
Confrontative	.04	.05	.05	.12	.09	.01	.07	.05	.07	.08	1.00							
Distancing	.03	-.07	.12	.00	.05	.10	.11	.04	.05	.16*	.16*	1.00						
Self-Controlling	.06	.10	.10	.03	.04	.16*	.04	.01	.04	.17*	.27*	.36*	1.00					
Social Support	.05	.11	.02	.02	.03	.02	.00	.01	.04	.00	.27*	.27*	.11	1.00				
Accept Responsibility	.06	.03	.02	-.02	.09	.03	.09	.25*	.05	.07	.37*	.19*	.25*	.16*	1.00			
Escape/Avoidance	.17*	.08	.14*	.03	.09	.32*	.04	.04	.05	.17*	.44*	.20*	.25*	.11	.49*	1.00		
Problem Solving	.00	.05	.03	.15*	.06	.05	.06	.05	.04	.13	.19*	.13*	.19*	.13*	.29*	.07	1.00	
Partial Positive Reappraisal	.06	.11	.10	-.04	.01	.02	.06	.02	.06	.07	.06	.06	.31*	.34*	.10	.17*	.16*	1.00

*p < .05, one-tailed

Table B.4

<i>Regression Analyses for Variables Predicting Anxiety Emotional Eating</i>						
	Model 1 ^a			Model 2 ^b		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Job	-2.589	1.007	-0.192*	-2.349	1.051	-0.174*
Classification	-1.104	0.483	-0.181*	-0.913	0.508	-0.15
State						
Residency	-0.258	0.854	-0.022	-0.014	0.88	-0.001
Ethnicity	-0.386	0.325	-0.086	-0.534	0.359	-0.12
Gender	-0.153	0.771	-0.015	-0.259	0.789	-0.025
GPA	-0.266	0.245	-0.083	-0.262	0.252	-0.082
BMI	-0.553	0.541	-0.074	-0.747	0.568	-0.1
Confrontative						
Coping				-0.155	0.142	-0.099
Distancing						
Coping				-0.088	0.085	-0.083
Self-						
Controlling						
Coping				-0.018	0.12	-0.013
Social Support						
Coping				-0.06	0.108	-0.045
Accepting						
Responsibility						
Coping				0.002	0.154	0.001
Escape-						
Avoidance						
Coping				0.182	0.121	0.145
Planful						
Problem						
Solving						
Coping				-0.035	0.105	-0.026
Positive						
Reappraisal						
Coping				0.054	0.104	0.044
R^2		0.084			0.024	
F for change in						
R^2		2.327*			0.572	

* $p < .05$

Table B.5

Regression Analyses for Variables Predicting Anger Emotional Eating

	Model 1 ^a			Model 2 ^b		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Job	-3.221	1.425	-0.17*	-2.702	1.489	-0.142
Classification	-1.865	0.684	-0.218*	-1.647	-0.192	-0.192*
State						
Residency	-0.132	1.209	-0.008	0.109	1.247	0.007
Ethnicity	0.277	0.46	0.044	-0.068	0.507	-0.011
Gender	-1.484	1.091	-0.101	-1.419	1.118	-0.097
GPA	0.574	0.347	0.128	0.568	0.357	0.126
BMI	-1.236	0.765	-0.118	-1.34	0.805	-0.128
Confrontative						
Coping				-0.105	0.201	-0.048
Distancing						
Coping				-0.053	0.12	-0.035
Self-						
Controlling						
Coping				0.034	0.171	0.017
Social						
Support						
Coping				0.07	0.153	0.037
Accepting						
Responsibility						
Coping				0.01	0.219	0.004
Escape-						
Avoidance						
Coping				0.299	0.172	0.169
Planful						
Problem						
Solving						
Coping				-0.022	0.149	-0.012
Positive						
Reappraisal						
Coping				0.035	0.148	0.02
R^2		0.074			0.097	
F for change in R^2		2.007			0.556	

* $p < .05$

Table B.6

<i>Regression Analyses for Variables Predicting Depression Emotional Eating</i>						
	Model 1 ^a			Model 2 ^b		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Job	-2.85	0.806	-0.258*	-2.652	0.838	-0.24*
Classification	-1.39	0.387	-0.279*	-1.343	0.404	-0.269*
State						
Residency	-0.924	0.683	-0.096	-0.972	0.702	-0.101
Ethnicity	0.05	0.26	0.014	0.06	0.286	-0.016
Gender	-0.356	0.617	-0.042	-0.23	0.629	-0.027
GPA	0.296	0.196	0.113	-0.23	0.629	-0.027
BMI	-0.651	0.433	-0.107	-0.551	0.453	-0.09
Confrontative						
Coping				0	0.113	0
Distancing						
Coping				0.07	0.068	0.081
Self-						
Controlling						
Coping				0.048	0.096	0.042
Social						
Support						
Coping				0.127	0.086	0.114
Accepting						
Responsibility						
Coping				-0.088	0.123	-0.064
Escape-						
Avoidance						
Coping				0.087	0.097	0.084
Planful						
Problem						
Solving						
Coping				0.008	0.084	0.008
Positive						
Reappraisal						
Coping				-0.002	0.083	-0.002
R^2		0.127			0.157	
F for change in R^2		3.684*			0.757*	

* $p < .05$

Table B.7

*ANOVA for Variables and Anger
Eating*

	<i>df</i>	<i>F</i>	<i>h</i> ²
Model 1 ^a	184	2.007*	0.074
Model 2 ^b	184	1.214	0.1

**p* < .05

Table B.8

*ANOVA for Variables and Anxiety
Eating*

	<i>df</i>	<i>F</i>	<i>h</i> ²
Model 1 ^a	184	2.327*	0.084
Model 2 ^b	184	1.37	0.108

**p* < .05

Table B.9

ANOVA for Variables and Depression Eating

	<i>df</i>	<i>F</i>	<i>h</i> ²
Model 1 ^a	184	3.684*	0.127
Model 2 ^b	184	2.104*	0.157

**p* < .05

^a Predictors: BMI, State Residency, Job, Ethnicity, Gender, GPA, Classification

^b Predictors: BMI, State Residency, Job, Ethnicity, Gender, GPA, Classification, Social Support Coping, Distancing Coping, Planful Problem Solving Coping, Confrontative Coping, Positive Reappraisal Coping, Self-Controlling Coping, Accepting Responsibility Coping, Accepting Responsibility Coping, Escape-Avoidance Coping

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