PARENT PERCEIVED STRESS IN RELATION TO PARENT MALADAPTIVE EATING BEHAVIORS

A thesis submitted to the Kent State University Honors College in partial fulfillment of the requirements

for University Honors

by Lindsay N. Scott

May, 2023

Thesis written by

Lindsay N. Scott

Approved by			
			_,
	, Chair,	Department	of
Accepted by			
	, Dear	, Honors Colleg	ge
	Approved by Accepted by	Approved by , Chair, Accepted by , Dean	Approved by , Chair, Department Accepted by , Dean, Honors Colleg

TABLE OF CONTENTS

LIST OF TABLES	V
LIST OF FIGURES	vi
ACKNOWLEDGMENTS	vii
ABSTRACT	viii
CHAPTER	

II. I	M	ETHODS	11
	a.	Participants	11
	b.	Procedure	12
	c.	Measures	13
	d.	Data Analytic Plan	16

RESULTS	19
a. Sample Characteristics	19
b. Descriptive Findings	19
i. Main Study Hypothesis	19
ii. Aim 1: Perceived Stress and Maladaptive Eating	20
iii. Aim 2: Household Structure as a Moderator	
iv. Aim 3: SES as a Moderator	22
DISCUSSION	24
	 RESULTS

a.	Hypothesis 1	24
b.	Hypothesis 2	25
c.	Hypothesis 3	27
d.	Strengths	
e.	Limitations	32
f.	Future Directions	
g.	Conclusions	35
-		

REFERENCE	ES	37
APPENDICE	S	50
1.	Parent Demographics Questionnaire	50
2.	Perceived Stress Scale	68
3.	Three Factor Eating Questionnaire	69

LIST OF TABLES

Table 1.	Sample Characteristics and Demographics46
Table 2.	Pearson Correlations Examining Associations Between Stress and Maladaptive Eating
Table 3.	Effect of Parent Perceived Stress on Uncontrolled Eating at Three Levels of Income-to-Poverty
Table 4.	Effect of Parent Perceived Stress on Emotional Eating at Three Levels of Income-to-Poverty

LIST OF FIGURES

Figure 1. SES as a Moderator of Parent Perceived Stress and Uncontrolled Eating......49 Figure 2. SES as a Moderator of Parent Perceived Stress and Emotional Eating49

ACKNOWLEDGMENTS

I would like to acknowledge and give my warmest thanks to my thesis advisor and lab supervisor, Dr. Amy Sato. Dr. Sato's guidance and support have made this thesis possible, and her advice and mentorship have helped me navigate this process from start to finish. I also appreciate the support I have received from graduate students in her Pediatric Health and Stress Lab. I would specifically like to thank Caroline West for being an invaluable mentor and supporter throughout preparing this document. I cannot express enough gratitude for her encouragement and dedication to assisting with this process. Additionally, I would like to express thanks for members of my thesis committee: Dr. Chris Flessner, Dr. Angela Neal-Barnett, and Dr. Manacy Pai. I would also like to thank my honors thesis advisor, Marsha Kraus, for her guidance with the writing process. Finally, I would like to thank friends and family for their unconditional love and support. Their unwavering faith kept me going throughout this process.

Funding disclosure: Data for this study were collected via funding from the National Institutes of Health (NIH/NICHD R21HD095099 to PI Sato).

ABSTRACT

Stress has been shown to impact eating. Parents may be at risk for experiencing heightened stress, given their additional caregiving demands. The current study examined 1) the association between parent perceived stress and parent maladaptive eating behaviors, and 2) potential moderators of this association (i.e., household structure [single-parent versus two-parent households] and ratio of income-to-poverty). Participants were 92 parents/primary caregivers of adolescents who indicated interest in a larger study designed to develop and test a mindfulness-based weight management intervention for adolescents ages 13-18 with overweight or obesity. Parents completed a demographics questionnaire, the Perceived Stress Scale, and the Three Factor Eating Questionnaire. There was not a significant correlation between parent perceived stress and parental eating behaviors. However, results indicated that higher levels of the ratio of income-to-poverty significantly strengthened the positive association between parent perceived stress and parental maladaptive eating behaviors, including uncontrolled eating (p = .02) and emotional eating (p = .01). Household structure did not emerge as a significant moderator. The association between parent perceived stress and maladaptive eating appears to be stronger among households with higher income. It is possible that a broad measure of self-reported stress is a less salient predictor of maladaptive eating among parents living within lower-income households. Additional research is needed to further understand the relationship between parent perceived stress and eating behaviors among households of differing income levels.

CHAPTER ONE: INTRODUCTION

Stress

Stress is pervasive in the United States (APA, 2020) and has been shown to stimulate eating, especially in the consumption of comfort and calorie-dense foods (Gonzalez et al., 2022). Biologically, stress is a modifiable experience in which individuals can redirect their resources to manage actual or anticipated danger. However, if stress becomes chronic or excessive, it may affect individuals' eating processes by stimulating or suppressing their appetite and impacting the food they consume (e.g., highcalorie foods; Sominsky, 2014). Excessive or chronic stress can impact the amount and quality of calories an individual consumes, as well (Ulrich et al., 2015). Moreover, stress is linked with the modification of the food selection process in which individuals are more likely to select foods that are high in carbohydrates and sugar and that are typically calorie-dense (Ulrich et al., 2015; Groesz et al., 2012). While stress is a broad domain that encompasses factors including chronic stress, daily stressors, and biological markers of stress, perceived stress is especially important to consider in the context of eating, given its good prediction of health-related outcomes (Cohen et al., 1983).

Several theoretical models have conceptualized how perceived stress and related negative affective states can affect eating behaviors. For instance, the Interpersonal Model of Disordered Eating proposes that individuals who experience strain in their interpersonal relationships may experience negative affect, leading them to engage in binge eating or other disinhibited eating behaviors (Wilfley et al., 2000). Similarly, the Affect Regulation Model suggests that maladaptive eating behaviors, including binge eating, are catalyzed by negative emotions, including stress. In this model, the negative emotions are diminished or alleviated by eating food for comfort (Hawkins & Clement, 1984 as cited in Haedt-Matt & Keel, 2011). In either of these models, stress could be a trigger in producing behavior in which an individual uses food to cope. Given the numerous responsibilities parents encounter regularly, it is critical to further examine the factors that could impact the association between perceived stress and maladaptive eating, specifically under the domains of uncontrolled and emotional eating and cognitive restraint.

Parental Stress and Maladaptive Eating

Uncontrolled Eating

Uncontrolled eating refers to eating more than what is normal because of lack or loss of control over the eating process (de Lauzon-Guillain et al., 2009). It is also associated with numerous adverse outcomes among adults, including mental and physical health issues (NIDDK, 2021). Binge eating, a prevalent form of uncontrolled eating, may act as a method for individuals to regulate their negative emotions (e.g., stress). When used as a maladaptive emotion regulation strategy, binge eating may become negatively reinforced as individuals learn that bingeing will help temporarily assuage negative emotions (Wonderlich et al., 2022). This coincides with the Affect Regulation Model, which examines binge eating as a method to alleviate negative affect (Hawkins & Clement, 1984 as cited in Haedt-Matt & Keel, 2011).

Cognitive Restraint

Cognitive restraint refers to consciously restricting food typically to manage body weight (de Lauzon-Guillain et al., 2009). In parent populations, higher work-life stress has been associated with parents eating fewer breakfast meals, having fewer meals with their families, and consuming less fruits and vegetables (Bauer et al., 2012; Devine et al., 2006). In addition, parents cope with stress and role spillover in different ways when it comes to eating or providing food. Some of these coping strategies involve maladaptive behaviors such as skipping meals (Devine et al., 2006). In addition, according to the American Psychological Association's (APA) study on stress in America in 2015, almost one-third of adults reported skipping a meal due to stress (APA, 2015).

Emotional Eating

Emotional eating is characterized by overeating in response to changes in mood to help cope with negative affective states (de Lauzon-Guillain et al., 2009). In response to role spillover and stress, Devine and colleagues (2006) found that popular coping strategies for parents included treating oneself to comfort foods and speeding up or simplifying the eating process (i.e., purchasing fast-food). Fast-food is typically high calorie, as well as high in fats and sugars, which creates a meal that may more easily help individuals cope with negative emotions (Ulrich et al., 2015; Groesz et al., 2012). Moreover, in the same study conducted by the APA in 2015 as mentioned earlier, twofifths of American adults reported that they overate or ate unhealthy foods because of stress (APA, 2015). Therefore, it would be beneficial to further examine stress as it relates to maladaptive eating outcomes.

Previous research has illustrated that there is a significant association between stress and various adverse eating outcomes. However, much of the previous research has taken a child focus on these behaviors when examining families, specifically how parents may impact their children's eating behaviors. Thus, there is a significant gap in the literature in examining parent stress and maladaptive eating. Additional factors important to examine regarding the association between stress and maladaptive eating include differences in household structure (i.e., single- versus two-parent households) and differing levels of socioeconomic status (SES).

Single- versus Two-Parent Households

While parental stress has been associated with disinhibited and restrictive eating behaviors, few studies have examined how household structure (i.e., single- versus twoparent households) may impact this association. Single-parent households are confronted with various difficulties when handling stressful situations (Devine et al., 2006). Therefore, they may be at a higher risk than partnered parents for experiencing heightened chronic stress. For instance, in Devine et al.'s (2006) study on negative spillover, parents noted circumstances in which they felt increasing stress levels, which included being a single parent and lacking assistance from a partner to prepare food for meals. Additionally, Blake and colleagues (2011) interviewed working parents about their eating habits. They found that the parents who reported not having frequent meals at home, eating something quick after work (e.g, fast-food), and missing family meals consisted of around 50% single parents. It is possible that working single parents may be at risk for heightened perceived stress as a result of being the sole caregiver bringing in income. Additional lack of time spent on meals or decreased awareness regarding eating behavior may result from heightened stress. Thus, there is the potential that among single parents, there may be greater levels of maladaptive eating in response to stress, given the stress-promoting factors related to being a single parent and potential lack of assistance or coping with stress.

One possible theoretical model explaining the stronger association between stress and maladaptive eating behaviors among parents is the Stress Process Model (Pearlin et al., 1981), which contends that chronic exposure to stress and conflicting or converging stressors influence individuals' psychological well-being by exhausting their psychosocial means (Samuels-Dennis, 2007). Given that single parents face various stressors, it is possible that they may resort to maladaptive eating because of experiencing depletions in their psychosocial resources. Stress amongst single parents may also be proliferated by a lack of social support, as the burden of being the sole caregiver may limit the social contact parents have with their friends. The lack of social support may contribute to feelings of distress among single parents (Cairney et al., 2003; Zhou & Taylor, 2022). In a systematic literature review conducted by Rousou et al. (2013), findings indicated that single mothers self-reported having poorer health than other groups of women. In terms of emotional and social support, results showed that single mothers were less likely than partnered mothers to receive support from siblings. They

were also less likely to participate and engage in social activities with others compared to partnered mothers (Rousou et al., 2013). The lack of social support related to being the sole caregiver may create an environment suitable for heightened perceived stress. Therefore, single parents may cope with stress by engaging in maladaptive eating behaviors as a regulatory strategy, such as what is described by the Affect Regulation Model (Hawkins & Clement, 1984 as cited in Haedt-Matt & Keel, 2011). Stress could also act as a trigger for negative emotions, which could stimulate maladaptive eating according to the Interpersonal Model of Disordered Eating (Wilfley et al., 2000).

There is extensive research and literature on the significant associations between heightened stress and increased maladaptive eating behaviors. As parents in general face numerous responsibilities and stressors related to parenting, the literature demonstrates that single parents are confronted with various stress-promoting circumstances partnered parents may not encounter. In addition, stressors that impact both partnered and single parents may rest solely on a single parent's shoulders rather than being shared amongst partners. Thus, the relationship between parent perceived stress and maladaptive eating, as captured by the domains of uncontrolled and emotional eating and cognitive restraint, may differ based on household structure. Overall, literature in this area is minimal, particularly in comparison between single- and two-parent households concerning stress and food; therefore, it is essential to examine if the positive association between perceived stress and maladaptive eating differs based on household structure (i.e., single parent vs. two-parent households).

Socioeconomic Status

Another factor that may affect the relationship between parental stress and maladaptive eating is a family's SES. SES may play a role in how parents interact in their home food environment under conditions of stress and may dictate whether they engage in maladaptive eating behaviors. Parental stress can become exacerbated by financial strain (Bauer et al., 2012) and those feeling more significant levels of economic strain are more likely to engage in maladaptive behaviors, such as eating, drinking alcohol, and smoking (APA, 2015). According to Wharton (2006, as cited in Devine et al., 2006), increases in how many hours low-income families worked were associated with increases in atypical working hours, low-wage jobs, and need to compensate low income by working overtime or having multiple jobs. Therefore, role strain or negative spillover may contribute to maladaptive coping behaviors related to restrictive eating, such as eating fewer meals or skipping meals entirely (Doumas et al, 2003).

Moreover, low levels of SES may contribute to feelings of heightened stress among adults and parents, leading to increases in levels of maladaptive eating. Previous research has specifically examined the relationship between SES, perceived stress, and one domain of maladaptive eating: emotional eating. Researchers introduced a laboratoryinduced stressor in Langer et al.'s (2018) study on the relationship between perceived stress, SES, and the eating behaviors of middle-aged women. They found that women from lower SES backgrounds were more likely to experience affective (i.e., negative affect) and behavioral (i.e., eating) responses to a laboratory induced stressor than women higher in SES. The women low in SES consumed more food overall as a reaction to the stress induction paradigm (Langer et al., 2018). These findings indicated that an association was seen between SES and emotional eating due to heightened perceived stress levels. The present study aims to address gaps in the literature to achieve a better understanding of how SES may exacerbate the positive relationship between parent perceived stress and maladaptive eating.

Similarly, Berge and colleagues (2020) found that when parents reported high levels of stress, they altered how they approached food or adjusted their eating habits to correspond with their current situations. According to Devine and colleagues (2006), coping with maladaptive eating behaviors, such as treating oneself to comfort foods or consuming less healthy, quick meals, was a popular coping strategy when dealing with negative role spillover. Thus, low-income households may struggle to gain control over their eating environments and may be vulnerable to fluctuations in eating behaviors because of stress. Living in a low SES community may also create limitations for families concerning healthy eating behaviors, like being able to access quality grocery stores (Langer et al., 2018). Additionally, in families where putting food on the table is a stressor (i.e., food insecurity), parents may ration food or serve more prepared or packaged meals to save money (Berge et al., 2020; Wolfson et al., 2015). Given that food insecurity is more prevalent among lower-income families with children, the relationship between parent perceived stress and maladaptive eating behaviors may become exacerbated by living within a low-income household (Nord et al., 2007). This overabundance of stress could correlate to greater levels of maladaptive eating,

specifically disinhibited eating (i.e., uncontrolled and emotional eating) and cognitive restraint.

Current Study

While there are well-known associations between stress and eating broadly, little is known about how household structure (i.e., single parent versus two-parent households) or SES affects the association between stress and maladaptive and disinhibited eating behaviors. Specifically, very little research has examined the differences in eating behaviors within single- and two-parent households, or what factors are at play (e.g., stress). In addition, there has been little previous research conducted that examines SES as a moderator of general stress and eating. Thus, it is crucial to understand what associations may exist that impact the eating behaviors of parents. The goal of the current study aims to address and fill gaps in the literature regarding parent perceived stress and parents' maladaptive eating behaviors by first replicating the finding that perceived stress is related to greater maladaptive and restrictive eating and by examining household structure and SES as moderators of this association.

Aims and Hypotheses

Aim 1: Examine the association between parent perceived stress and parent maladaptive eating behaviors.

Hypothesis 1: Higher levels of parent stress (Perceived Stress Scale) will be positively associated with higher levels of parents' maladaptive eating behaviors, as measured by

the domains of Uncontrolled Eating, Emotional Eating, and Cognitive Restraint (Three Factor Eating Questionnaire).

Aim 2: Examine whether household structure (single-parent households versus twoparent households) moderates the association between parent perceived stress and parents' maladaptive eating behaviors.

Hypothesis 2: The positive association between parent perceived stress (Perceived Stress Scale) and parents' maladaptive eating behaviors (as measured by the Uncontrolled Eating, Emotional Eating, and Cognitive Restraint scales of the Three Factor Eating Questionnaire) will be stronger in single-parent households than in two-parent households.

Aim 3: Examine whether the ratio of income-to-poverty (a proxy measure of SES) moderates the association between parent perceived stress and maladaptive eating behaviors.

Hypothesis 3: Lower levels of income-to-poverty (parent demographics) will strengthen the positive association between parent perceived stress (Perceived Stress Scale) and maladaptive eating behaviors (as measured by the Uncontrolled Eating, Emotional Eating, and Cognitive Restraint scales of the Three Factor Eating Questionnaire).

CHAPTER TWO: METHODS

Participants

Participants were 92 parents/primary caregivers (referred to hereafter as "parents") of adolescents who indicated interest in a larger study designed to develop and test a mindfulness-based weight management intervention for adolescents ages 13-18 with overweight or obesity. The larger study was supported by funding from the National Institutes of Health (NIH) [NIH/NICHD R21HD095099 to PI Sato]. The term "parent" referred to caregivers who lived with the adolescent at least 50% of the time. In addition, custodial caregivers were allowed to participate and provide consent if they were 18 years old or older, lived with the adolescent at least 50% of the time, and were responsible for most of the care of the teen. The current study pulled data from the open trial phase and randomized controlled (RCT) phase of the larger study. Inclusion criteria for parents included: 1) English-speaking and 2) lived at home with the adolescent participant > 50% of the time.

Participants were recruited throughout Ohio with targeted efforts to recruit those living within low-income communities by distributing study materials to agencies and school districts serving low-income communities. While recruitment was geared toward these communities, we received participants from a range of socioeconomic backgrounds. Recruitment materials included 1) phone calls and letters mailed to families of individuals who had previously participated in studies and gave their consent to be recontacted, 2) newspaper advertisements, 3) letters distributed by community centers and organizations, 4) flyers distributed by other organizations and establishments (e.g., pediatrician's office, library, etc.), 5) internet-based recruitment through advertisements on Facebook, Craig's List, and a project website, 6) announcements at schools or sending letters home to students, 7) and partnering with medical facilities and pediatricians' offices to identify potentially eligible youth and contacting families through letters, phone calls and emails.

Procedure

Data were collected from parent participants as part of the baseline assessment procedures for the open trial and RCT phases of the larger study. This included: basic demographic information, objectively measured height and weight to compute body mass index (BMI), information related to levels of perceived stress, and self-reported data regarding eating behaviors. Prior to the baseline assessment, a brief pre-screening was conducted via telephone by a trained research assistant to provide additional information about the study and determine eligibility. For participants who had two children participate in the larger study and entered the same data for measures, the responses for the ID number that had been input first in the database were used.

Prior to the onset of the COVID-19 pandemic, baseline assessments were conducted as in-person visits within a campus laboratory setting, at a community location, or in participant homes. Informed consent and assent were obtained by research assistants and then participants were asked to fill out paper questionnaires with pen or pencil. These included parental demographic information, the Perceived Stress Scale (PSS-10) and the Three Factor Eating Questionnaire (TFEQ-18).

Following the onset of the COVID-19 pandemic, informed consent and assent were obtained using secure videoconferencing software by research assistants working in the lab. Afterwards, parents completed online questionnaires through Qualtrics links, including parent demographics and psychosocial self-report measures, which included the Perceived Stress Scale (PSS-10) and the Three Factor Eating Questionnaire (TFEQ-18). The first participant for the open trial was in July of 2019. The COVID-19 pandemic began midway through the open trial. Recruitment and baseline visits were temporarily paused in March of 2020 due to the COVID-19 pandemic until October of 2020 and transitioned to online collection. All RCT baseline visits were conducted after the onset of the COVID-19 pandemic. Since the second half of the open trial and all the RCT was delivered via videoconferencing, a change was made following the start of the COVID-19 pandemic to exclude participants if they were unable to access a computer or device with reliable internet.

Measures

Parent Demographics Questionnaire

Parental demographic information and sociocultural characteristics, including parent age, gender, race, ethnicity, income, household size, and household structure (i.e., single- versus two-parent households), were measured via a parent questionnaire of 51 items at baseline. Investigators created the measure to assess a range of demographic characteristics.

Ratio of Income-to-Poverty

The ratio of income-to-poverty was calculated to measure SES in the current study. This method of assessing SES may capture a better picture of total level of need compared to solely examining income level alone given that it accounts for the number of individuals within the household (Dearing et al., 2001). Parents selected pre-specified income brackets for annual household income (e.g., [\$20,000-\$24,999]). The midpoint of the income bracket was used to calculate the ratio of income-to-poverty. Federal poverty guidelines based on the year and parent-reported household size were used to identify each family's specific federal poverty level. The income midpoint for each family was then divided by the family's specific federal level of poverty. For instance, if a visit date for a participant took place in 2019 and the participant self-reported a household of 4 total people, the poverty guidelines were referenced for the year 2019 with a household size of 4 (i.e., \$25,750). If the self-reported income bracket had a midpoint of \$17,500, the ratio of income-to-poverty for the participant would have been .68 or 68% ($$17,500 \div$ \$25,750 = .68) A ratio of 1.0 or 100% would mean that a participant is at the line of poverty. The current study used a ratio of 2.0 or 200% of the poverty line to denote "lowincome" for descriptive purposes, which coincides with prior research examining SES (Ackerman et al., 2004; Dowsett et al., 2008).

Perceived Stress Scale

14

The Perceived Stress Scale (PSS; Cohen et al., 1983) is a 10-item measure developed to assess an individual's perception of stress and the degree to which they appraise situations in their life as stressful during the past month. Items on the PSS-10 measure current levels of experienced stress, as well as how uncontrolled or unpredictable individuals find their lives to be. Example items include: "In the last month, how often have you. . . been upset because something happened unexpectedly?" and ". . . felt that you were unable to control the important things in your life?" (Cohen et al., 1983). This measure uses a 0–4-point scale (0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often) in which scores are added to obtain a sum (0-40; Cohen et al., 1983). Higher scores represent higher levels of current and perceived levels of stress. The PSS-10 is internally reliable and has good test-retest reliability (Cohen et al., 1983). Additionally, it has been found to be a good predictor of health and health-related outcomes (Cohen et al., 1983).

Three Factor Eating Questionnaire

The Three Factor Eating Questionnaire (TFEQ-18; Stunkard & Messick, 1985; Karlsson et al., 2000) is comprised of 18 items, which are aggregated to three separate scales: Uncontrolled Eating (9 items), Cognitive Restraint (3 items), and Emotional Eating (6 items). The current study utilized response data from each of these scales. This measure uses a 4-point Likert response scale (3 = Definitely True, 2 = Mostly True, 1 = Mostly False, 0 = Definitely False; Stunkard & Messick, 1985). The last two questions use separate 4-point Likert response scales (e.g., Item 17 has a scale of 1 = Never, 2 = Rarely, 3 = Sometimes, and 4 = At least once a week; Item 18 uses a scale of 1 = Only at mealtimes, 2 = Sometimes between meals, 3 = Often between meals, and 4 = Almost always). An example item measuring levels of maladaptive eating on the Uncontrolled Eating scale includes "Sometimes when I start eating, I just can't seem to stop". An item measuring Cognitive Restraint includes "I deliberately take small helpings to control my weight". For the Emotional Eating scale, an example item includes "When I feel sad, I often eat too much" (Stunkard & Messick, 1985; Karlsson et al., 2000). There is no total score for the TFEQ-18, but the raw score is computed by calculating the mean of all items included in the scale multiplied by the number of items in the scale. The transformed score represents the percentage of the total possible raw score on a 0-100 scale. Higher scores represent more of a particular eating behavior on each domain. The TFEQ-18 has been validated among individuals with a variety of body weights and has been found to be psychometrically sound (Anglé et al., 2009).

Data Analytic Plan

All analyses were performed using the Statistical Package for Social Sciences (SPSS) Version 28.0 (IBM SPSS Statistics for Windows, 2023). Data were first inspected for missing items. As a rule, participant data were excluded from analyses if responses were missing for more than 50% of the items on the PSS-10, TFEQ-18, or any of the items used for the current study from the parental demographics form (i.e., income or household structure). Pearson correlations were used to examine and analyze associations between perceived stress, the domains of Uncontrolled Eating, Cognitive Restraint, and

Emotional Eating, and demographic variables. Descriptive statistics for all measures were calculated to determine mean and standard deviation.

Initially, three linear regressions were conducted to examine stress (PSS-10) and eating outcomes (e.g., the Uncontrolled Eating, Cognitive Restraint, and Emotional Eating scales of the TFEQ-18) while controlling for BMI. Multiple regressions using the Andrew Hayes PROCESS Macro (Hayes, 2022) were processed. Six moderation models were run in total, three examining household structure as the moderator, and three examining the ratio of income-to-poverty as the moderator. The independent variable was perceived stress, and the dependent variable was each domain of maladaptive eating (i.e., Uncontrolled Eating, Cognitive Restraint, and Emotional Eating). Specific factors known to be associated with outcome variables (e.g., BMI, sex, race/ethnicity) were analyzed by conducting Pearson correlations. BMI was the only significant association, so it was retained as a covariate in all analyses. Simple slopes analyses were run to determine interactions at the mean of the moderators and one standard deviation above and below for both household structure (i.e., single- versus two-parent households) and the ratio of income-to-poverty.

For missing income data, a bracket was determined for families who did not selfreport a level of income but reported an exact income (e.g., for a participant who selfreported an income of \$6,300 [\$5,000-\$9,999], a midpoint of \$7,500 was used). Families who indicated the highest category of income were designated the highest number (e.g., participants who self-reported an income level of [100,000+] were given a "midpoint" of \$100,000). This helped reduce the effects of outliers on the data. In addition, if the date of the visit was not entered, 2019 was used for the year as an imputation.

There were 34 total responses excluded from analyses: 3 for missing more than 50% of responses on the TFEQ-18, 10 for missing more than 50% of responses on the PSS-10. Additionally, 14 responses were excluded because parent data were already included in analyses as a result of having two children participate in the larger study. The rest were excluded for not providing their BMI information, which was used as a control variable, total number of individuals in the household, income and income category, and for not providing information regarding household structure (i.e., single- versus two-parent household). All regression and moderation models were tested for covariates, specifically BMI. To inspect normality, the skewness and kurtosis of the variables were analyzed by examining descriptive statistics and visually inspecting the data. Perceived stress, Uncontrolled Eating, Cognitive Restraint, Emotional Eating, and the ratio of income-to-poverty were approximately symmetric and had relatively normal distributions. Outliers were filtered for within the database by examining high and low scores.

CHAPTER THREE: RESULTS

Sample Characteristics

Biological parents in the present study (N = 87) made up 94.6% of the sample, and step-parents (N = 1), foster parents (N = 1), and other legal guardians (N = 3) made up the rest. The mean age for parents was 44 years old (SD = 6.55). In addition, the sample was 67.4% White (N = 62), 23.9% Black (N = 22), 2.2% Asian (N = 2), and 1.1% American Indian/Alaskan Native (N = 1). With regards to ethnicity, 7.6% (N = 7) of participants self-reported being Hispanic or Latinx, with 91.3% (N = 84) reporting that they were not Hispanic or Latinx. The sample was also composed primarily of female caregivers (91.3%, N = 84), with 8.7% of the sample composed of male caregivers (N =8). Single-parent households consisted of 40.2% (N = 37) of the sample and two-parent households consisted of 59.8% (N = 55) of the sample. The current study used 200% of the poverty threshold to denote low SES. The sample consisted of around 34.8% low SES participants, with 65.2% at or above 200% of the poverty line. Furthermore, 14.1% of parents were in the healthy BMI range, 17.4% were in the overweight range, and 68.5% were in the obese range for BMI. Sample characteristics and demographics can be found in Table 1.

Descriptive Findings

Main Study Hypothesis

Within the present study, the mean score for parent perceived stress was 15.80 (SD = 6.70). In addition, the mean scores for the maladaptive eating outcomes under the TFEQ-18 scales were (M = 36.59, SD = 19.40) for Uncontrolled Eating, for Cognitive Restraint (M = 39.12, SD = 25.81), and for Emotional Eating (M = 37.14, SD = 24.58). The mean ratio of income-to-poverty was 2.52, which correlated to 252% above the poverty line (SD = 1.23). Pearson correlations examining perceived stress and maladaptive eating outcomes can be found in Table 2.

Aim 1: Perceived Stress and Maladaptive Eating

The first aim of the study examined the association between parent perceived stress and parental maladaptive eating behaviors. Results indicated that there was not a significant association between parent perceived stress and maladaptive eating outcomes on any domain. It was hypothesized that greater levels of parent perceived stress would be more strongly associated with an increase in maladaptive eating behaviors, which was not supported. Thus, results from the current study suggested that greater levels of parent perceived stress were not positively associated with greater levels of maladaptive eating behaviors. Three linear regressions were run to examine the association between parent perceived stress and maladaptive eating outcomes (i.e., Uncontrolled Eating, Cognitive Restraint, and Emotional Eating) while controlling for BMI. The overall models were not significant (p > .05).

Aim 2: Household Structure as a Moderator

The second aim of the study was to examine whether household structure (i.e., single- versus two-parent households) moderated the association between parent perceived stress and parental maladaptive eating behaviors. Results indicated that household structure did not significantly moderate the association. The first moderation model examined the association between parent perceived stress and Uncontrolled Eating with household structure (e.g., single- versus two-parent households) as the moderator. The overall moderation model was not statistically significant (F(4, 87) = 1.61, p > .05, $R^2 = .07$). In addition, the interaction between stress and household structure was non-significant (p > .05). Therefore, results showed there was not a significant exacerbating effect of household structure (e.g., single- versus two-parent households) on the positive association between parent perceived stress and Uncontrolled Eating, as measured by the TFEQ-18. The association between parental stress and Uncontrolled Eating did not differ based on household structure.

The second moderation model examined if household structure moderated the association between parent perceived stress and Cognitive Restraint, as measured by the TFEQ-18. The overall moderation model was not statistically significant ($F(4, 87) = 2.15, p > .05, R^2 = .09$). The interaction between stress and household structure was also non-significant. (p > .05). Thus, there was not a significant strengthening effect of household structure (e.g., single- versus two-parent households) on the positive association between parent perceived stress and Cognitive Restraint, as measured by the TFEQ-18.

The third moderation model examined if household structure significantly moderated the association between parent perceived stress and Emotional Eating, as measured by the TFEQ-18. The overall model was statistically significant (F(4, 87) = $3.93, p < .05, R^2 = .15$). However, the interaction between stress and household structure was not statistically significant (p > .05). Thus, there was not a significant exacerbating effect of household structure (e.g., single- versus two-parent households) on the positive association between parent perceived stress and Emotional Eating, as measured by the TFEQ-18.

Aim 3: SES as a Moderator

The first moderation model examined if the ratio of income-to-poverty strengthened the positive association between parent perceived stress and Uncontrolled Eating, as measured by the TFEQ-18. The overall moderation model was significant $(F(4, 87) = 4.26, p < .05, R^2 = .16)$. Further, the interaction between stress and SES was significant (b = .54, t(87) = 2.44, p = .02). The interaction was probed by computing simple slopes, which measures the association between the IV (i.e., parental perceived stress) and the DV (i.e., Uncontrolled Eating) at the mean of the moderator and one standard deviation above and below the mean. For this model, the interaction was significant one standard deviation above the mean but was non-significant at the mean and one standard deviation below the mean (see Table 3). Therefore, higher levels of income-to-poverty exacerbated the positive association between parent perceived stress and Uncontrolled Eating, as measured by the TFEQ-18. Figure 1 depicts SES as exacerbating the association between parent perceived stress and Uncontrolled Eating.

The second moderation model examined if the ratio of income-to-poverty strengthened the positive association between parent perceived stress and Cognitive Restraint, as measured by the TFEQ-18. The overall moderation model was not statistically significant ($F(4, 87) = 1.42, p > .05, R^2 = .06$). In addition, the interaction between parent perceived stress and SES was not significant. Results showed there was not a significant exacerbating effect of the ratio of income-to-poverty on the association between parent perceived stress and Cognitive Restraint.

The final moderation model examined if the ratio of income-to-poverty strengthened the positive association between parent perceived stress and Emotional Eating, as measured by the TFEQ-18. The overall moderation model was statistically significant ($F(4, 87) = 7.00, p < .001, R^2 = .24$). Moreover, the interaction between parent perceived stress and the ratio of income-to-poverty was significant, as well (b = .69, t(87) = 2.58, p = .01). The interaction was probed by computing simple slopes. For this model, the interaction was trending toward significant at the mean of the moderator and was significant at one standard deviation above the mean (see Table 4). Thus, higher levels of income-to-poverty exacerbated the positive association between parent perceived stress and Emotional Eating, as measured by the TFEQ-18. Figure 2 depicts SES as an exacerbating effect on the association between parent perceived stress and Emotional Eating.

CHAPTER FOUR: DISCUSSION

Stress is prevalent in the U.S. (APA, 2020), and may lead increasing levels of disinhibited and restrictive eating behaviors. Thus, it is crucial to examine parent perceived stress in relation to parent maladaptive eating behaviors. In addition, little research has previously examined the association between parent perceived stress and maladaptive eating in the context of differing household structures or SES. The aims of the current study sought to further examine the association between parent perceived stress and maladaptive eating, as well as examine what factors (i.e., household structure and SES) may impact this association.

Hypothesis 1

Results did not support the study's first hypothesis in which it was hypothesized that higher levels of parental perceived stress on the PSS-10 would be positively associated with higher levels of parental maladaptive eating behaviors, as measured by TFEQ-18. The current study ran a regression controlling for BMI to examine the association between parent perceived stress and the eating domains of the TFEQ-18. There was not a significant association between parent perceived stress and parental maladaptive eating behaviors for the Uncontrolled Eating, Cognitive Restraint, or Emotional Eating scales of the TFEQ-18. This finding may be partially explained by the current study's relatively low mean score of parental perceived stress (M = 15.80).

In Cohen's validation study for the Perceived Stress Scale (1983), the study's sample of adults scored around 10 points higher than the current study's sample utilizing

the same scale. There is the potential that because the present sample was not highly stressed, an association may not have been seen between parent perceived stress and maladaptive eating behaviors. The literature has expansive data linking levels of high stress and changes in eating. This study's sample was not highly stressed, and an outcome may be that stress did not impact participants' eating behaviors. However, scores for the PSS-10 had a wide range (34), which makes it necessary to examine the relationship between stress and maladaptive eating under different conditions of SES and household structure.

One study examining perceived stress levels (PSS-10) to domains of the TFEQ-18 among college students found similar mean scores as the current study. The mean score in the previous study for the PSS-10 was 20.54, around 5 points higher than the present study. However, means for the TFEQ-18 scales were comparable, with scores of around 40. After adjusting for BMI, results from the previous study indicated significant associations between perceived stress and each of the eating outcome scales of the TFEQ-18 (Carr, 2022). Previous research has indicated that there is an association between high levels of stress and greater maladaptive behaviors, specifically using the same measures. This makes it essential to further understand what factors, such as household structure and SES, may impact this association, as well as why there was not an association seen between perceived stress and maladaptive eating in the current study.

Hypothesis 2
The present study also sought to examine whether household structure (e.g., single-parent households versus two-parent households) strengthened the positive association between parent perceived stress and parental maladaptive eating behaviors. It was hypothesized that the positive association between parent perceived stress, measured by the PSS-10, and parents' maladaptive eating behaviors, as measured by the TFEQ-18, would be stronger in single-parent households than two-parent households. Findings did not support this hypothesis. Specifically, results did not reveal significant moderating effects of household structure (e.g., single- versus two-parent households) on parent perceived stress and maladaptive eating behaviors (Uncontrolled Eating, Cognitive Restraint, and Emotional Eating) as measured by the TFEQ-18.

A possible explanation could rest with the perceived levels of parental stress that participants within the present study reported. Single parents in this study may not have experienced heightened stress levels that come from being the sole caregiver. It is also possible that due to the COVID-19 pandemic, stressors related to being a single parent were less salient. However, other explanations are possible. Research has shown that dispositional optimism has helped individuals with coping flexibility and adjustment to negative outcomes (Nes & Segerstrom, 2006), as well as act as a resource for single mothers to better adjust to adversity (Taylor et al., 2010). Participants in the present study high in dispositional optimism may have resources available to combat perceptions of heightened stress. Consequently, a lack of heightened perceived stress levels would not correlate with greater maladaptive eating behaviors in the current study.

Hypothesis 3

The present study also examined whether the income-to-poverty ratio moderated the association between parental perceived stress and maladaptive eating behaviors. It was hypothesized that lower levels of income-to-poverty would strengthen the positive association between parent perceived stress and parent maladaptive eating behaviors (i.e., Emotional Eating, Uncontrolled Eating, and Cognitive Restraint). This hypothesis was partially supported by results from the current study. Specifically, the ratio-of-income to poverty had a significant exacerbating effect on the positive association between parent perceived stress and two out of the three domains of maladaptive eating behaviors. However, contrary to hypotheses, higher rather than lower levels of income-to-poverty strengthened the positive association between parental perceived stress and Emotional Eating and Uncontrolled Eating, but not Cognitive Restraint.

One explanation for this finding is related to disparate reporting and awareness of maladaptive eating behaviors within individuals from low SES backgrounds. While uncontrolled eating behaviors, such as binge eating, and emotional eating behaviors are prevalent among individuals from a variety of SES backgrounds (Mulders-Jones et al., 2017), service utilization and diagnoses of disordered eating behaviors are lower within groups from lower SES backgrounds compared to their more affluent counterparts (Sonneville & Lipson, 2018). Sonneville and Lipson (2018) found that adults from high SES backgrounds were more likely to perceive that they had a need for treatment for their disordered eating and were more likely to seek and receive treatment. Individuals from

low SES backgrounds may not have access to services and care related to maladaptive and disordered eating behaviors, so their behaviors may be undetected by professionals (Mulders-Jones et al., 2017). In addition, the lack of education and knowledge surrounding maladaptive eating behaviors within individuals from low SES backgrounds may cause these behaviors to be less salient if individuals do not have the resources to identify them. Moreover, the current study's sample consisted primarily of parents who were classified into the overweight and obese ranges for BMI. As seen in Sonneville & Lipson's (2018) study, those in the underweight BMI range were more likely to perceive a need for treatment and eventually seek treatment for their symptoms. Therefore, individuals higher in BMI may not consider their behaviors to be maladaptive in nature or may be less affected by disruptions or fluctuations in their eating behaviors.

Other explanations for the exacerbating effect of SES on the positive association between parent perceived stress and uncontrolled and emotional eating may rest with environmental factors and the coping abilities of individuals from lower SES backgrounds. For instance, Chen and Miller (2012) describe a "shift and persist" model to explain why individuals from low SES backgrounds may face persistent chronic stress but are still able to maintain good overall health. The model proposes that if individuals low in SES are taught as children to accept and adapt to certain stressors in combination with persisting with a positive mindset, they can stall stress reactions in the body that lead to poorer health outcomes (Chen & Miller, 2012). The "shift" part of the model works through an idea of adaptation to stress in which individuals reappraise stress and emotionally regulate their reaction to stress. The persist portion of the model relies on individuals then enduring stressful situations with optimism and positivity (Chen & Miller, 2012). For the present study, it is possible that parents from low SES backgrounds have developed strategies from a young age, such as the "shift and persist" model, to combat high levels of stress and maintain good overall physical health. This may help account for not seeing a significant exacerbating effect of low income-to-poverty on the positive association between parent perceived stress and parental maladaptive eating behaviors.

Similarly, one study found that coping flexibility moderated the association between perceived stress and health-related quality of life. Atal and Cheng (2016) examined how coping flexibility may buffer unfavorable effects associated with low SES. Findings indicated that depending on how much perceived control individuals felt they had, those low in SES tended to have more coping flexibility and use different coping strategies based on the situation (Atal & Cheng, 2016). Atal and Cheng (2016) suggested that their findings could be explained by the social class theory of agency, in which individuals from low SES backgrounds may not have the same resources as individuals from high SES backgrounds individuals to combat stress, so they rely on accepting and adapting to stressors. Therefore, they may have more flexibility in which coping strategies they utilize. It is possible that participants in the present study who were lower in income-to-poverty have developed effective coping strategies when confronted with stress. As a result, levels of perceived stress may not be as prominent or impactful on eating behavior, leading to an insignificant exacerbating effect of low SES on the positive association between parent perceived stress and parental maladaptive eating behaviors, specifically Uncontrolled and Emotional Eating.

Additionally, the public health model of the social determinants of health examines socioeconomic determinants, psychosocial risk factors, and community and societal characteristics that may impact health outcomes. These include, but are not limited to: unemployment rates, income, poor social networks, chronic stress, coping, and crime rates. The basis of the model relies on the well-known associations between SES and health, particularly that higher SES leads to better health outcomes (Ansari et al., 2003). Thus, individuals low in SES may experience additional determinants that negatively impact their health outcomes. It is possible that because individuals from low SES backgrounds face various chronic stressors in their environments, eating disturbances or changes in eating behavior may not be as salient.

An explanation for high SES not exacerbating the association between parent perceived stress and Cognitive Restraint, as measured by the TFEQ-18, includes the possibility that dietary restraint functions differently from uncontrolled and emotional eating. For instance, cognitive restraint has been shown to be closely correlated to body image issues (Wendell et al., 2012). However, the current study examined maladaptive eating behaviors in relation to stress. The Affect Regulation Model, for example, would lend the idea that stress and negative affect might trigger uncontrolled and emotional eating behaviors, rather than behaviors related to restraint. As a result, the current study may not have seen an association between parent perceived stress and Cognitive Restraint (TFEQ-18) due to differing triggers and risks of that particular eating behavior.

Furthermore, researchers have hypothesized that by restricting food intake, individuals may turn to uncontrolled or emotional eating due to exhausting their cognitive abilities to handle stress or because of perceived lack of control over the food environment (Yau & Potenza, 2013). This concept demonstrates that dietary restriction could influence other domains of maladaptive eating, which may cause cognitive restraint to be underreported or less salient than uncontrolled or emotional eating.

Strengths

Within the current study, there were several strengths, including a broadened scope of study to allow parents and legal guardians, but also custodial caregivers to participate. Custodial caregivers were defined in this study as adults at least 18 years old who lived with the adolescent at least 50% of the time and were responsible for most of their care. Custodial caregivers are common in lower SES households (Strozier & Krisman, 2007), and inclusion in the present study allowed for the decrease in barriers to participation in research. Additionally, literature has primarily focused on biological parents and legal guardians. The present study's inclusion criterion has allowed for the expansion on research involving parent participants. Moreover, another strength within the present study was the almost 50/50 split of single versus partnered-parent participants. This allowed for the close examination of whether household structure modified the association between parent perceived stress and maladaptive eating behaviors. Furthermore, BMI was controlled for throughout running analyses to prevent

outside third variable influence on maladaptive eating behaviors, given the close association between BMI and eating outcomes. It is also important to note that SES was determined by calculating the ratio of income-to-poverty, which provides a different representation from solely examining income alone. Using this method for determining SES may provide a more realistic picture of the degree of financial need since there are a variety of factors that contribute to SES (Dearing et al., 2001).

Limitations

While the current study expanded on the literature regarding parental stress and eating behaviors, it was not without its limitations. One limitation within the current study included the somewhat small sample size (N = 92), as results are less generalizable to the larger population. In addition, the sample consisted mainly of biological mothers and female legal caregivers (91.3%), which is also a significant limitation of previous research. This sample characteristic constrains the generalizability of results and lacks the perspective of fathers and male custodial caregivers. These missing responses could be crucial to further understanding the relationship between parent perceived stress and maladaptive eating behaviors, as parents do not solely consist of female guardians. Future research would benefit from sampling a more even group of female and male legal guardians.

A second limitation was that the sample was not selected at random, but was selected from a larger, ongoing study which focuses on weight management among youth. It is possible that parents who have children with overweight or obesity may experience dysregulated relationships with food themselves or experience overweight or obesity. This could have impacted parental eating outcomes within the present study. This again limited the generalizability of results. In the future, it would be useful for research to examine parent perceived stress in relation to maladaptive eating behaviors from a randomly selected group of parents.

Moreover, a third limitation of the present study was that it was cross-sectional in nature, which means that the sample was only measured at one point in time. When interpreting results from measures like the perceived stress scale, it is important to note that depending on the time, day, or week, perceived level of stress may change. This means that the current study's perceived level of stress may have been impacted by the time of data collection. In addition, causality cannot be established through correlational designs. To clarify, this means that results cannot be interpreted in such a way that one variable caused a change in other, rather, a change in one variable was correlated with a change in another.

A fourth limitation to the current study was the use of self-reported questionnaire data for each measure used. The use of self-reported responses may have led to recall bias among participants, as details about events could have potentially been left out or not accurately reported. This may mean that responses from parents regarding their perceived level of stress, income, and eating behaviors were not as accurate as they could have been if participants were interviewed in person, for instance.

Future Directions

33

Future research examining parent stress and experiences related to eating outcomes is crucial. Specifically, associations between parent stress and eating should be examined in the context of differing SES statuses and household structures. Further examination is critical to understanding the variables that impact parent eating behaviors, which could impact parent-child relationships in the context of eating. Additionally, research should direct attention to including the perspectives of fathers and male caretakers, as these perspectives could be essential to forming the bigger picture of parent stress and eating. Moreover, future research would benefit from greater ethnically diverse samples, which could provide better insight into differences in parenting stress and behaviors.

Furthermore, many of the current study's hypotheses were unsupported and it is unclear why certain results were found. Particularly, future research should devote additional resources to examining why higher levels of income-to-poverty would exacerbate the positive association between parent perceived stress and maladaptive eating outcomes, and lower levels of income-to-poverty would not. Additionally, it would be beneficial to examine why Cognitive Restraint functioned differently in the current study as compared to the other scales of the TFEQ-18. Previous research has also indicated associations with stress and maladaptive eating behaviors, however, the present study found conflicting results. Thus, additional research is necessary to replicate the study's methods to ascertain why specific results were seen in the present study. In addition, increasing levels of parental stress may be attributed to the COVID-19 pandemic that started in early 2020, which led to unexpected and sudden changes in family routines (Gonzalez et al., 2022). The APA reported in 2020 that the COVID-19 pandemic led to increased stress-promoting circumstances, such as food insecurity, job instability, and difficulties accessing basic needs. Greater levels of parental stress were associated with the increased risk of parents using food to cope with negative emotions and to help with emotional regulation (Gonzalez et al., 2022). The present study did not specifically examine COVID-19 related effects; however, it is crucial to further examine how the pandemic may have impacted the association between parent perceived stress and eating.

Conclusions

There are well established relationships between stress and maladaptive eating behaviors in the literature. Stress is also prevalent among parents. However, results within the current study did not indicate an association was present between parent perceived stress and maladaptive eating behaviors, specifically the Uncontrolled Eating, Cognitive Restraint, and Emotional Eating scales of the TFEQ-18. Single parents may be at a higher risk of experiencing heightened perceived stress as a result of being the sole caregiver. Yet, within the present study, results indicated that household structure (i.e., single- versus two-parent households) did not strengthen the positive association between parent perceived stress and parent maladaptive eating behaviors. Finally, low SES has been linked with greater stress promoting circumstances, which may impact eating outcomes. Contrastingly, the present study found that high SES strengthened the positive association between parent perceived stress and two domains of maladaptive eating, Uncontrolled and Emotional Eating. Future research is critical to understanding these findings.

REFERENCES

Ackerman, B. P., Brown, E. D., & Izard, C. E. (2004). The relations between contextual risk, earned income, and the school adjustment of children from economically disadvantaged families. *Developmental Psychology*, 40(2), 204.

American Psychological Association. (2015) *Paying with our health*. https://www.apa.org/news/press/releases/stress/2014/financial-stress

- American Psychological Association. (2020). *Stress in America 2020: A National Mental Health Crisis*. <u>https://www.apa.org/news/press/releases/stress/2020/report-october</u>
- Anglé, S., Engblom, J., Eriksson, T., Kautiainen, S., Saha, M.-T., Lindfors, P., Lehtinen, M., & Rimpelä, A. (2009). Three factor eating questionnaire-R18 as a measure of cognitive restraint, uncontrolled eating and emotional eating in a sample of young Finnish females. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 41. <u>https://doi.org/10.1186/1479-5868-6-41</u>
- Ansari, Z., Carson, N. J., Ackland, M. J., Vaughan, L., & Serraglio, A. (2003). A public health model of the Social Determinants of Health. *Social and Preventive Medicine*, 48(4), 242–251. <u>https://doi.org/10.1007/s00038-003-2052-4</u>
- Atal, S., & Cheng, C. (2016). Socioeconomic health disparities revisited: coping flexibility enhances health-related quality of life for individuals low in socioeconomic status. *Health and quality of life outcomes*, 14, 7.
 https://doi.org/10.1186/s12955-016-0410-1

- Bauer, K. W., Hearst, M. O., Escoto, K., Berge, J. M., Neumark-Sztainer, D. (2012). Parental employment and work-family stress: Associations with family food environments, *Social Science & Medicine*, 75(3), 496-504, ISSN 0277-9536, <u>https://doi.org/10.1016/j.socscimed.2012.03.026</u>
- Blake, C. E., Wethington, E., Farrell, T. J., Bisogni, C. A., & Devine, C. M. (2011).
 Behavioral contexts, food-choice coping strategies, and dietary quality of a multiethnic sample of employed parents. *Journal of the American Dietetic Association*, *111*(3), 401–407. <u>https://doi.org/10.1016/j.jada.2010.11.012</u>
- Berge, J. M., Fertig, A. R., Trofholz, A., Neumark-Sztainer, D., Rogers, E., Loth, K. (2020). Associations between parental stress, parent feeding practices, and child eating behaviors within the context of food insecurity. *Preventive Medicine Reports*, 19, 101146, ISSN 2211-3355.

https://doi.org/10.1016/j.pmedr.2020.101146.

- Berge, J. M., Hoppmann, C., Hanson, C., & Neumark-Sztainer, D. (2013). Perspectives about family meals from single-headed and dual-headed households: a qualitative analysis. *Journal of the Academy of Nutrition and Dietetics*, *113*(12), 1632–1639. <u>https://doi.org/10.1016/j.jand.2013.08.023</u>.
- Cairney, J., Boyle, M., Offord, D.R., & Racine, Y. (2003). Stress, social support and depression in single and married mothers. *Social Psychiatry and Psychiatric Epidemiology 38*, 442–449. <u>https://doi.org/10.1007/s00127-003-0661-0</u>.

- Carr, Jessica. (2022). The relationships of eating and physical activity behaviors with perceived stress among college students. <u>https://doi.org/doi:10.7282/t3-p7km-</u>7a98
- Chen, E., & Miller, G. E. (2012). "shift-and-persist" strategies. Perspectives on Psychological Science, 7(2), 135–158. <u>https://doi.org/10.1177/1745691612436694</u>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24(4), 385. <u>https://doi.org/10.2307/2136404</u>
- Damaske, S., Zawadzki, M. J., & Smyth, J. M. (2016). Stress at work: Differential experiences of high versus low SES workers. *Social Science & Medicine*, 156, 125–133. <u>https://doi.org/10.1016/j.socscimed.2016.03.010</u>
- de Lauzon-Guillain, B., Romon, M., Musher-Eizenman, D., Heude, B., Basdevant, A., Charles, M. A., & Fleurbaix-Laventie Ville Santé Study Group (2009). Cognitive restraint, uncontrolled eating and emotional eating: correlations between parent and adolescent. *Maternal & child nutrition*, 5(2), 171–178. https://doi.org/10.1111/j.1740-8709.2008.00164.x
- Dearing, E., McCartney, K., Taylor, B. (2001). Change in Family Income-to-Needs
 Matters More for Children with Less. *Child Development*, 72(6), 1779 1793.
 10.1111/1467-8624.00378

- Devine, C. M., Jastran, M., Jabs, J., Wethington, E., Farell, T. J., & Bisogni, C. A. (2006). "A lot of sacrifices:" work-family spillover and the food choice coping strategies of low-wage employed parents. *Social science & medicine*, 63(10), 2591–2603. https://doi.org/10.1016/j.socscimed.2006.06.029
- Doumas, D. M., Margolin, G., & John, R. S. (2003). The relationship between daily marital interaction, work, and health-promoting behaviors in dual-earner couples: An extension of the work-family spillover model. *Journal of Family Issues*, 24(1), 3–20. <u>https://doi.org/10.1177/0192513X02238518</u>
- Dowsett, C. J., Huston, A. C., Imes, A. E., & Gennetian, L. (2008). Structural and process features in three types of child care for children from high and low income families. *Early Childhood Research Quarterly*, *23*(1), 69-93.
- González, L. M., Lammert, A., Phelan, S., Ventura, A. K. (2022). Associations between parenting stress, parent feeding practices, and perceptions of child eating behaviors during the COVID-19 pandemic, *Appetite*, *177*, 106148, ISSN 0195-6663, <u>https://doi.org/10.1016/j.appet.2022.106148</u>.
- Groesz, L. M., McCoy, S., Carl, J., Saslow, L., Stewart, J., Adler, N., Laraia, B., & Epel,
 E. (2012). What is eating you? Stress and the drive to eat. *Appetite*, 58(2), 717–721. <u>https://doi.org/10.1016/j.appet.2011.11.028</u>

- Hawkins R. C., Clement P. F. (1984). Binge eating: Measurement problems and a conceptual model. *The binge purge syndrome: Diagnosis, treatment, and research.* New York: Springer; pp. 229–251.
- Karam, A. M., Eichen, D. M., Fitzsimmons-Craft, E. E., Wilfley, D. E. (2020). An examination of the interpersonal model of binge eating over the course of treatment. *European Eating Disorders Review*, 28(1), 66–78. https://doi.org/10.1002/erv.2700.
- Karlsson, J., Persson, LO., Sjöström, L., & Sullivan, M. (2000). Psychometric properties and factor structure of the Three-Factor Eating Questionnaire (TFEQ) in obese men and women. Results from the Swedish Obese Subjects (SOS) study. *International Journal of Obesity*, 24, 1715–1725. <u>https://doi.org/10.1038/sj.ijo.0801442</u>
- Haedt-Matt, A. A., & Keel, P. K. (2011). Revisiting the affect regulation model of binge eating: a meta-analysis of studies using ecological momentary assessment. *Psychological bulletin*, 137(4), 660–681. <u>https://doi.org/10.1037/a0023660</u>
- Hayes, A. F. (2022). Introduction to mediation, moderation, and conditional process analysis, third edition: A regression-based approach. Guilford Press.
- Langer, S. L., Soltero, E. G., Beresford, S. A., McGregor, B. A., Albano, D. L., Patrick,D. L., & Bowen, D. J. (2018). Socioeconomic status differences in food

consumption following a laboratory-induced stressor. *Health Psychology Open*. https://doi.org/10.1177/2055102918804664.

- Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. *Science*, 341(6149), 976–980. <u>https://doi.org/10.1126/science.1238041</u>
- Mulders-Jones, B., Mitchison, D., Girosi, F., & Hay, P. (2017). Socioeconomic
 Correlates of Eating Disorder Symptoms in an Australian Population-Based
 Sample. *PloS one*, *12*(1), e0170603. <u>https://doi.org/10.1371/journal.pone.0170603</u>
- Nes, L. S., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A metaanalytic review. *Personality and Social Psychology Review*, 10, 235–251.
- Nord, M., Andrews, M., & Carlson, S. (2007). Measuring food security in the United States: household food security in the United States, 2001. *Economic Research Report* (29).
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The Stress Process. *Journal of Health and Social Behavior*, 22(4), 337–356. <u>https://doi.org/10.2307/2136676</u>
- Rousou, E., Kouta, C., Middleton, N., & Karanikola, M. (2013). Single mothers' selfassessment of health: A systematic exploration of the literature. *International Nursing Review*, 60(4), 425–434. <u>https://doi.org/10.1111/inr.12044</u>

- Samuels-Dennis J. (2007). Employment status, depressive symptoms, and the mediating/moderating effects of single mothers' coping repertoire. *Public health nursing*, 24(6), 491–502. <u>https://doi.org/10.1111/j.1525-1446.2007.00661.x</u>
- Schieman, S., & Koltai, J. (2017). Discovering pockets of complexity: Socioeconomic status, stress exposure, and the nuances of the health gradient. *Social Science Research*, 63, 1–18. <u>https://doi.org/10.1016/j.ssresearch.2016.09.023</u>
- Sominsky, L., Spencer, S. J. (2014). Eating behavior and stress: a pathway to obesity, *Frontiers in Psychology*, *5*, ISSN 1664-1078. <u>https://doi.org/10.3389/fpsyg.2014.00434</u>.
- Sonneville, K. R., Lipson, S. K. (2018). Disparities in eating disorder diagnosis and treatment according to weight status, race/ethnicity, socioeconomic background, and sex among college students. *International Journal of Eating Disorders*, 51, 518–526. <u>https://doi.org/10.1002/eat.22846</u>
- Strozier, A.L., & Krisman, K. (2007). Capturing caregiver data: An examination of kinship care custodial arrangements. *Children and Youth Services Review*, 29, 226-246.
- Stunkard, A. J., & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research*, 29(1), 71–83. <u>https://doi.org/10.1016/0022-3999(85)90010-8</u>

- Taylor, S. E. (2011). Social Support: A Review. *Oxford Handbooks Online*. https://doi.org/10.1093/oxfordhb/9780195342819.013.0009
- Taylor, Z. E., Conger, R. D. (2014). Risk and Resilience Processes in Single-Mother
 Families: An Interactionist Perspective. In: Sloboda, Z., Petras, H. (eds). Defining
 Prevention Science. Advances in Prevention Science. Springer, Boston, MA.
 https://doi.org/10.1007/978-1-4899-7424-2_9
- Taylor, Z. E., Larsen-Rife, D., Conger, R. D., Widaman, K. F., & Cutrona, C. E. (2010).
 Life stress, maternal optimism, and adolescent competence in single mother,
 African American families. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association*(*Division 43*), 24(4), 468–477. https://doi.org/10.1037/a0019870
- Ulrich-Lai, Y. M., Fulton, S., Wilson, M., Petrovich, G., & Rinaman, L. (2015). Stress exposure, food intake and emotional state. *Stress (Amsterdam, Netherlands)*, *18*(4), 381–399. <u>https://doi.org/10.3109/10253890.2015.106298</u>.
- U.S. Department of Health and Human Services. (2021). Definition & Facts for Binge Eating Disorder. National Institute of Diabetes and Digestive and Kidney Diseases. <u>https://www.niddk.nih.gov/health-information/weight-</u> <u>management/binge-eating-disorder/definition-facts#problems</u>
- Wendell, J. W., Masuda, A., & Le, J. K. (2012). The role of body image flexibility in the relationship between disordered eating cognitions and disordered eating

symptoms among non-clinical college students. *Eating Behaviors*, *13*(3), 240–245. <u>https://doi.org/10.1016/j.eatbeh.2012.03.006</u>

Wilfley, D. E. (2000). Interpersonal psychotherapy for Group. Basic Books.

Wolfson, J. A., & Bleich, S. N. (2015). Is cooking at home associated with better diet quality or weight-loss intention?. *Public health nutrition*, 18(8), 1397–1406. <u>https://doi.org/10.1017/S1368980014001943</u>

Wonderlich, J. A., Crosby, R. D., Engel, S. G., Crow, S. J., Peterson, C. B., Le Grange,
D., Wonderlich, S. A., & Fischer, S. (2022). Negative affect and binge eating:
Assessing the unique trajectories of negative affect before and after binge-eating
episodes across eating disorder diagnostic classifications. *International Journal of Eating Disorders*, 55(2), 223–230. <u>https://doi.org.proxy.library.kent.edu/10.1002/eat.23</u>

<u>648</u>

Yau, Y. H., & Potenza, M. N. (2013). Stress and eating behaviors. *Minerva* endocrinologica, 38(3), 255–267.

Zhou, X., Taylor, Z. E. (2022). Differentiating the impact of family and friend social support for single mothers on parenting and internalizing symptoms, *Journal of Affective Disorders Reports*, 8, 100319, ISSN 2666-9153, <u>https://doi.org/10.1016/j.jadr.2022.100319</u>

Tables

Table 1

Sample Characteristics and Demographics (N = 92)

Characteristic	Ν	%			
Biological Sex					
Female	84	91.3			
Race					
American Indian/Alaskan Native	1	1.1			
Asian	2	2.2			
Black/African American	22	24.2			
White/Caucasian	62	68.1			
Other	4	4.4			
Ethnicity					
Hispanic or Latinx	7	7.9			
Not Hispanic or Latinx	82	92.1			
BMI					
Healthy Range	13	14.1			
Overweight Range	16	17.4			
Obese Range	63	68.5			
Relationship to Adolescent					
Biological Parent	87	94.6			
Step-parent	1	1.1			
Foster Parent/Legal Guardian	1	1.1			
Other	3	3.3			
Socioeconomic Status					

Low-Income (< 200% threshold)	32	34.8
At or Above 200% Threshold	60	65.2

Table 2

Pearson Correlations Examining Associations Between Stress and Maladaptive Eating

Variables	М	SD	1	2	3	4	5	6	7
1. Perceived Stress	15.79	6.70							
2. Uncontrolled Eating	36.59	19.40	.13						
3. Cognitive Restraint	39.13	25.81	.17						
4. Emotional Eating	37.14	24.58	.19						
5. Ratio of Income-to-	2.52	1.23	20	.15	.03	.13			
Poverty									
6. Household Structure			16	02	.15	01			
7. Body Mass Index	35.32	8.87	.22*	.22*	13	.34**			

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

Table 3

Effect of Parent Perceived Stress on Uncontrolled Eating at Three Levels of Income-to-Poverty

			95% Confidence Interval		
	Corresponding Level of SES	В	Lower	Upper	р
1 SD below mean	1.29	25	-1.01	.51	.52
Mean	2.52	.41	17	1.00	.17
1 SD above mean	3.75	1.08	.24	1.91	.01

Table 4

Effect of Parent Perceived Stress on Emotional Eating at Three Levels of Income-to-Poverty

			95% Confidence Interval		
	Corresponding Level of SES	В	Lower	Upper	р
1 SD below mean	1.29	16	-1.08	.76	.73
Mean	2.52	.69	02	1.39	.06
1 SD above mean	3.75	1.53	.53	2.54	.003

Figures

Figure 1







Appendices

Appendix 1

Parent Demographics Questionnaire

Please fill out the following questions about yourself and your family.

Today's Date:
Adolescent's Name:
Adolescent's Age:
Adolescent's Date of Birth:
Adolescent's Sex (please circle): Male or Female
Your Relation to Adolescent (circle one):
Biological Parent or Step-Parent or Foster Parent/Legal Guardian or
Primary Caregiver (e.g. Grandparent) or Other:
Your Name:
Your Address:

Alternative
Address:
Your Cell #: House Phone #:
Work Phone #: Alternative Phone #:
Your Email Address:
Teen's Email Address:
Alternate family contact Name :
Relation to Adolescent:
Address:
Cell or House Phone #:
Email Address:
***Please complete this section only if you are a <u>caregiver</u> participating in this study
participation.***
Parent Name:
Relation to Adolescent:
Address:
Cell and/or House Phone #:

Do you grant the Pediatric Health and Stress Lab permission to send cell phone text messages with study session reminders and updates?

Your Cell Phone (Please circle): YES or NO

Teen's Cell Phone (Please circle): YES or NO

Your Information

1.	Are you male or female? (Please circle one):	1 = Male $2 = Female$
2.	What is your age in years?	years
3.	When were you born?	(mm)(dd)(yyy)
4.	What is your marital	1 = Single
	status?	2 = Married
	(Please circle one):	3 = Divorced
		4 = Widowed
		5 = Other:
5	Which of the following	1 – American Indian/Alaskan Nativa
5.	do you consider to be	1 – American mutan/Araskan Nauve
	your racial group?	2 = Asian

		3 = Native Hawaiian or Other Pacific Islander
(F	(Please circle all that	4 = Black or African American
	apply)	5 = White or Caucasian
		6 = More than one race
		(Please describe):
		7 = Other (Please Describe):
		8 = Do not know
6.	Which of the following	1 = Hispanic or Latino
do you consider to be your ethnic group?		2 = Not Hispanic or Latino
7.	Which of the following	1 = American Indian/Alaskan Native
	racial group of this	2 = Asian
child's other parent (if yo biological parent/guard: answer this of respect to the	child's other biological parent (if you are not a	3 = Native Hawaiian or Other Pacific Islander
	biological parent/guardian, please	4 = Black or African American
	answer this question with respect to the child's	5 = White or Caucasian
	biological mother)?	6 = More than one race
		(Please describe):
		7 = Other (Please
		describe):
		8 = Do not know
8.	Which of the following	1 = Hispanic or Latino
	ethnic group of this child's other biological parent (if you are not a biological	2 = Not Hispanic or Latino

parent/guardian, please answer this question with respect to the child's biological mother)?	
biological mother)?	

Your Medical History

9. In general, how is your physical health?(Please circle one)	1 = Poor 2 = Fair 3 = Good 4 = Excellent
10. Do you have a health problem or condition that requires medical treatment or hospitalization on a regular basis?	1 = No $2 = Yes$
11. Have you ever been diagnosed with any mental health condition, including clinical depression, anxiety disorder, or bipolar disorder?	1 = No $2 = Yes$
12. Do you have health insurance?	1 = No $2 = Yes$
13. Are you currently trying to lose weight or participating in a weight loss program?	1 = No $2 = Yes$
14. Have you lost 5 pounds or more in the past month?	1 = No $2 = Yes$

Your Employment/Education History

15. Circle the answer that <i>best</i> describes your family structure:	 1 = Single Parent (never married, divorced, widowed, or separated) 2 = Partnered (married or living with partner)
16. Are you currently employed?	 1 = Homemaker <u>Skip to Question 18</u> 2 = No <u>Skip to Question 18</u> 3 = Yes (<u>answer 16a – 16c</u>)
16a. If yes, what is your usual occupation?	
16b. What is your current occupation?	
16c. Circle whether you work	1= Part Time (less than 30 hours)2= Full Time (more than 30 hours)
17. On average, how many hours per week do you work?	
18. Is your spouse, partner, or significant other employed?	 1 = Homemaker <u>Skip to Question 19</u> 2 = No <u>Skip to Question 19</u> 3 = Yes (<u>answer 18a - 18c)</u>
18a. If yes, what is his/her usual occupation?	

18b. If yes, what is his/her current occupation?		
18c. Circle whether he/she works	1=Part Time (less than 30 hours)2= Full Time (more than 30 hours)	
19. Are you enrolled in school now?	$1 = No \underline{Skip \ to \ Question \ 22}$ $2 = Yes$	
20. If yes, are you enrolled as a full- time or part-time student?	1 = Part-time 2 = Full-time	
21. What school are you enrolled in?	Name: 	
22. What is the highest grade you have completed? (Circle highest grade completed)	Grade: 1 2 3 4 5 6 7 8 9 10 11 12 Or Completed College Year:	

	Freshman Sophomore Junior Senior
22a. If you completed college, please circle your completed degree:	 1= Technical/Trade 2= Bachelors 3= Masters or higher 4 = Other degree:
23. Is your partner enrolled in school now?	$1 = No \underline{Skip \ to \ Question \ 26}$ $2 = Yes$
24. If yes, is he/she enrolled as a full- time or part-time student?	1 = Part-time 2 = Full-time
25. What school is he/she enrolled in?	Name:
26. What is the highest grade your spouse/significant other/partner has completed?(Circle highest grade completed)	<u>Grade:</u> 1 2 3 4 5 6 7 8 9 10 11 12

	Or <u>Completed College Year:</u> Freshman Sophomore Junior Senior
26a. If your spouse/partner/significant other has completed college, please circle their completed degree:	 1= Technical/Trade 2= Bachelors 3= Masters or higher 4 = Other degree:

Family Financial History

27. How many people are currently living in your household?	1 2 3 4 5 6 7 8 9 10 11 12
	Other:
28. Besides yourself, who contributes financially to your household?(Please list):	1
	2
	3
	4

29. What is the total income in your household for the year, before taxes, including ALL sources? Please write-in the amount below:

\$_____

Please circle the category that matches the amount you wrote in above (Circle one)

0=<\$5000	5 = \$25,000-	10 = \$50,000-	15 =\$75,000-
	29,999	54,999	79,999
	·	·	
1 = \$5,000-9,999	6 = \$30,000-	11 =\$55,000-	16 = \$80,000-
	34,999	59,999	84,999
2 = \$10,000-	7 = \$35,000-	12 = \$60,000-	17 = \$85,000-
14,999	39,999	64,999	89,999
3 = \$15,000-	8 = \$40,000-	13 = \$ 65,000-	18 = \$90,000-
19,999	44,999	69,999	94,999
4 = \$20,000-	9 = \$45,000-	14 = \$70,000-	19 = \$95,000-
24,999	49,999	74,999	99,999
20 = >\$100,000			

30. Does the income stay the same month to month? 1 = No 2 = Yes

If no, please describe:

31. Have you used the following food assistance programs? (Circle the appropriate response for each program at each time point).

Food Provider	<u>Last N</u>	<u>Aonth</u>	Last Year mon	<u>(in last 12</u> <u>ths)</u>
SNAP (supplemental nutritional assistance program/ food stamps)	Yes	No	Yes	No
WIC	Yes	No	Yes	No
Reduced Cost School Lunch	Yes	No	Yes	No
Free School Lunch	Yes	No	Yes	No

32. Have you used the following food assistance programs? (Circle the appropriate response)

If Yes, please write how often the programs were used.

Food Provider	<u>Last N</u>	<u>1onth</u>	<u>Last Year (</u> mon	(<u>in last 12</u> t <u>hs)</u>
Community or Church Food Bank	Yes	No	Yes	No
	<i>If yes, #</i> of tim	es	If yes, # of tin	mes
Food Assistance from Family or Friends	Yes	No	Yes	No
	<i>If yes,</i> # of ti	mes	If yes, # of tin	mes
Other	Yes	No	Yes	No

33. Does your family receive SNAP (food assistance) Benefits?	1 = No $2 = Yes$
32a. If yes, what day of the month do you receive your benefits?	 1 = First day of the month 2 = 10th day of the month 3 = Last day of the month 4 = More than once a month 5 = Other:
34. Does your family receive Medicaid?	1 = No $2 = Yes$
35. Does your teen receive free or reduced cost school lunch?	1 = No $2 = Yes$
34a. If yes, please <i>circle</i> whether your teen's lunch is:	Free or Reduced
36. Does your family receive any other source of public assistance?	1 = No $2 = Yes$
35a. If yes, describe:	
37. What mode of transportation	1 = Personal car
---------------------------------	--
upon? (Circle one)	2 = Public Transportation (bus, subway, etc)
	3 = Borrowed Car (car from a friend or relative)
	4 = Car pool
	5 = Walking
	6 = Riding personal bicycle
	7 = Other:

Adolescent's Demographic History

38. Which of the following do	1 = American Indian/Alaskan Native
you consider to be your teen's racial group? (Circle one)	2 = Asian
	3 = Native Hawaiian or Other Pacific Islander
	4 = Black or African American
	5 = White or Caucasian
	6 = More than one race
	(Please describe):
	7 = Other (Please
	describe):
	8 = Do not know

39. Which of the following do you consider to be your teen's ethnic group? (Circle one)	1 = Hispanic or Latino2 = Not Hispanic or Latino					
40. What grade is your teen currently in? (Circle one)	6 th 12 th	7 th	8 th	9 th	10 th	11 th
41. What school is your teen currently attending?						
42. How is your teen	1 = In p	person				
school?	2 = Virtually					
	3 = Coi	mbinatio	on of in j	person a	nd virtual	lly

Adolescent's Medical History

43. Has your teen had any of the following? If so, please put an **X** where appropriate:

Medical/Mental Health Condition	Mark "X" if current (<i>last 30 days</i>)	Mark "X" if this has lasted 3 months or longer
A. Thyroid Problem		
B. Type I Diabetes		
C. Type II Diabetes		
D. Asthma		
E. Drug or Alcohol Problem		
F. Metabolic Problem		

G. Sleep Apnea	
H. Fatty Liver Disease	
I. High Triglycerides	
J. High Blood Pressure (hypertension)	
K. Insulin Resistance	
L. Polycystic Ovarian Syndrome (PCOS)	
M. High cholesterol (hyperlipidemia)	
N. Frequent Headaches/Migraines	
O. Frequent Stomachaches	
P. Back Pain	
Q. Joint Pain (e.g. knee, ankle, shoulder)	
R. Cognitive/Developmental Disability	
S. Depression	
T. Autism	
U. Learning Disorder	
V. Thought Disorder	
W. Bipolar Disorder	
X. Pregnant or breastfeeding	
Y. Eating Disorder (Anorexia, Bulimia)	
Z. Food Allergy (peanut, treenut, milk, soy, wheat, etc.)	

*If yes, to food allergy, please specify:

 44. Has your teen had any other medical problems? 42a. If yes, please describe: 45. What are your teen's current medications? 	1 = No $2 = Yes$
46. What medications has your teen taken in the past?	
47. Has your teen had any hospitalizations?	1 = No $2 = Yes$
45a. If yes, state reason and age:	Reason 1: Age:
48. Is your teen currently trying to lose weight or participating in a weight loss program? (Circle one)	1 = No 2= Yes

49. Has your teen lost 5 pounds or more in the past month? (Circle one)	1= No 2= Yes
50. Has your teen ever been diagnosed with a learning disability? (Circle one)	1 = No $2 = Yes$
If yes, please specify:	48a 48b 48c 48d
51. Does your teen have a history of mental health problems (eating disorder, depression, etc.)?	1 = No $2 = Yes$
If yes, please specify and circle whether it is past, current (last 30 days), or both:	49a. Current or Past 49b. Current or Past 49c. Current or Past 49d. Current or Past

51. Please list any significant stressors that may have affected the teen in the last year (moving homes/schools, deaths, accidents, etc):



Appendix 2

Perceived Stress Scale (PSS-10)

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

0 = Never 1 = Almost No.	ever	2 = Sometimes	3 = Fairly O	often 4	4 = `	Vei	:у (Ofte	en
1. In the last month, how of because of something that h	ten hav append	ve you been upso ed unexpectedly	et ?		. 0	1	2	3	4
2. In the last month, how of to control the important thir	ten hav 1gs in y	ve you felt that y your life?	ou were unable		. 0	1	2	3	4
3. In the last month, how of	ten hav	ve you felt nervo	ous and "stressed	1"?	0	1	2	3	4
4. In the last month, how of to handle your personal pro	ten hav blems?	ve you felt confi	dent about your	ability	. 0	1	2	3	4
5. In the last month, how of were going your way?	ten hav	ve you felt that t	hings		0	1	2	3	4
6. In the last month, how of with all the things that you l	ten hav had to	ve you found tha do?	t you could not	cope	0	1	2	3	4
7. In the last month, how of to control irritations in your	ten hav life?	ve you been able			0	1	2	3	4
8. In the last month, how of	ten hav	ve you felt that y	you were on top	of things	s?. 0	1	2	3	4
9. In the last month, how of because of things that were	ten hav outside	ve you been ang e of your contro	ered ?		0	1	2	3	4
10. In the last month, how of were piling up so high that	often ha you co	ave you felt diffi uld not overcom	culties e them?		. 0	1	2	3	4

Appendix 3

Three Factor Eating Questionnaire (TFEQ-18)

This section contains statements and questions about eating habits and feelings of hunger.

Read each statement carefully and answer by ticking the alternative that best applies to you.

1. I deliberately take small helpings to control my weight	4. When I feel sad, I often eat too much
Definitely true	Definitely true
Mostly true	Mostly true
Mostly false	Mostly false
Definitely false	Definitely false
2. I start to eat when I feel anxious	5. I don't eat some foods because they
Definitely true	make me fat
Mostly true	Definitely true
Mostly false	Mostly true
Definitely felse	Mostly false
	Definitely false
3. Sometimes when I start eating, I	
just can't seem to stop	6. Being with someone who is eating
Definitely true	often makes me want to also eat
Mostly true	Definitely true
Mostly false	Mostly true
Definitely false	Mostly false
	Definitely false

7. V ofte	Vhen I feel tense or "wound up", I en feel I need to eat	10. When I feel lonely, I console myself by eating
	Definitely true	Definitely true
	Mostly true	Mostly true
	Mostly false	Mostly false
	Definitely false	Definitely false
8. I stor	often get so hungry that my nach feels like a bottomless pit	11. I consciously hold back at meals to keep from gaining weight
	Definitely true	Definitely true
	Mostly true	Mostly true
	Mostly false	Mostly false
	Definitely false	Definitely false
9. I for the	'm always so hungry that it's hard me to stop eating before I finish food on my plate	12. When I smell an appetizing food or see a delicious dish, I find it very difficult to keep from eating – even if
	Definitely true	Definitely true
	Mostly true	

Mostly false

Definitely false

- Mostly true
- Mostly false
- Definitely false

13. I'm always hungry enough to eat at any time	16. When I feel depressed, I want to eat
Definitely true	Definitely true
Mostly true	Mostly true
Mostly false	Mostly false
Definitely false	Definitely false
14. If I feel nervous, I try to calm down by eating	17. Do you go on eating binges even though you're not hungry?
Definitely true	Never
Mostly true	Rarely
Mostly false	Sometimes
Definitely false	At least once a week
15. When I see something that looks	18. How often do you feel hungry?
very delicious, I often get so hungry that have to eat right away	Only at mealtimes
Definitely true	Sometimes between meals
Mostly true	Often between meals
Mostly false	Almost always

Definitely false