

**Exploring Relationships with Food, Body, and Exercise at an Elite University:
Determinants of Patterns of Disordered Eating**

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Abstract

Diet culture, or the pervasive and far-reaching societal norms that emphasize thinness and control over one's diet and exercise, tends to become even more pervasive during transition periods, such as when one leaves home to attend college. In this pursuit of thinness, adolescent women are at great risk of developing subsequent patterns of disordered eating. There are also correlates to disordered eating that are well established by the time one transitions to college. Therefore, I examined the associations between membership at an elite university and eating behaviors, particularly trying to understand the mediating factor(s) between undergraduate students and patterns of disordered eating, and how those early developed eating behaviors persist as the individuals enter college. The findings show that mothers, who have also themselves been the victims of diet culture, can be seen as a mechanism through which disordered eating cognitions and behaviors are perpetuated, and that the impact of this influence is early and enduring and represents a vicious cycle that young women find themselves in. It also seems, however, that the internalization of diet culture and beauty standards, and already present patterns of disordered eating can be worsened and escalated upon arrival to college. Furthermore, the increased academic stress that an elite university like Duke poses can be seen as a factor to patterns of disordered eating as well, as participants explicitly mentioned the stress of Duke, the idealized body and diet standards across campus, and that stress was a common determinant of binge eating and other disordered eating behaviors and cognitions. These disordered cognitions and behaviors can manifest in various ways, but are pervasive and are often exacerbated in times of negative affect and in an attempt to change one's body shape, weight, or to feel a sense of control or reward through restriction.

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Introduction

Food remains at the forefront of our lives not only as a means of sustenance but as a social and cultural practice. Yet, in the United States, disordered eating is a health epidemic rivaling only that of the obesity epidemic, and the two may be more closely intertwined than publicly thought (Hails 2019). Diet-culture is pervasive in the United States which leaves Americans obsessed with body image, dieting, and food. We are constantly bombarded in the media with images and messages of an ideal body type and fad-diets and other quick fixes to achieve one. Quick fixes to one's eating habits, however, are not as simple as mainstream media would lead us to believe, as the causes of one's eating habits are often deep-rooted and psychological in nature. Eating in the absence of hunger during times of high stress or emotional turmoil, i.e., 'impulsive eating' or 'emotional eating', is a coping mechanism widely shown in the media, both of which can be considered obesogenic eating behaviors (Klein 2016). Furthermore, dieting and other weight loss strategies are frequently geared towards high socioeconomic status¹ individuals, as thinness is often associated with social status.

Diet culture, or the pervasive and far-reaching societal norms that emphasize thinness and control over one's diet and exercise, plagues Western individuals, particularly young women (Faw et al. 2020). Diet culture impacts food and eating behaviors in three main ways; the belief that thinness is equated with healthiness, the belief that thinness is equated with higher status, and finally by moralizing food choices and specific foods themselves (Faw et al.; Rozin 1996). These dieting and thinness beliefs are further internalized by young women as they become normal topics of

¹ Socioeconomic status in the context of this paper is defined as one's subjective class and social standing, including income level, occupation, and education of oneself and one's immediate family

conversation and pursuit by their peers and family, in addition to constantly represented in mainstream culture (Hesse-Biber 1996). Diet culture tends to become even more pervasive during transition periods, such as when one leaves home to attend college (Darling et al. 2017). In this pursuit of thinness, adolescent women are at great risk of developing subsequent patterns of disordered eating, or even progressing to clinically diagnosable eating disorders such as bulimia nervosa, binge eating disorder, and anorexia nervosa (Hesse-Biber 1996).

Disordered eating not only puts individuals at greater risk for later development of an eating disorder, but also can cause nutrient deficiency as well as other mental health issues such as anxiety and depression (Bennett et al. 2013). There are several factors that are considered correlates to disordered eating, including but not limited to major transition periods, high stress levels, achievement or perfectionist orientations, and excellence norms, all of which occur during one's transition to college. There are also, however, correlates to disordered eating that are well established by the time one transitions to college, such as the normative culture and socioeconomic status within which young people were raised as well as unique ways in which one's parents discuss and handle diet and exercise. The pervasiveness of diet-culture in the United States and the various factors and nuances in one's relationship with food led me to explore the eating behaviors of students of an elite university to better understand how these relationships coincide and manifest on its campus.

Eating disorders have a peak age at onset for women during adolescence, and are one of the leading causes of death and disability for young women (Ahren-Moonga et al. 2009). While the literature has thoroughly examined separate psychological,

social, and biological risk factors and determinants of the development of these eating disorders, such as family history of eating disorders, abuse, depression, and other psychiatric morbidity, what the literature lacks is a large-scale understanding of the interactions of these factors, as well as *how* and *why* certain environmental factors increase one's risk. In order to better understand the cultural context under which current adolescents grew up, it is important to consider that by nine years of age, media influences relating to appearance and body dissatisfaction are already well established in girls (Clark 2006). This means that current undergraduate students would have been well primed to internalize Kate Moss's now infamous quote that "nothing tastes as good as skinny feels" that came out in 2009 and pushed Western diet-culture to even further extremes. While there is ample literature suggesting that eating behaviors are well established prior to adolescence, there is an equal amount suggesting that patterns of disordered eating manifest themselves during one's transition to college, where certain barriers to healthy eating occur that may exacerbate or be novel to prior barriers.

Therefore, I am interested in discovering whether or not patterns of disordered eating are developed long before one enters college, or exacerbated by the culture and external factors present in one's college environment. Furthermore, if many patterns are developed long before one's transition to college, how does the transition impact and influence those eating behaviors? This paper will examine the associations between membership at an elite university and eating behaviors, particularly trying to understand the mediating factor(s) between undergraduate students and patterns of disordered eating, and how those early developed eating behaviors persist as the individuals enter college. This better understanding would give rise to potential interventions that target

the source of these harmful eating behaviors and their adverse health and other consequences.

Literature Review

The American diet industry and diet culture as a whole has worked tirelessly to demonize foods and to paint a black and white picture of foods as either good or bad, and their smear campaign seems to be working. The cultural norms that exist within our society emphasize thinness as moral superiority and fatness as moral deviance. Forty percent of Americans believe that most foods are either good or bad for your health, and 20 percent believe that if something is harmful in large amounts, that it is always better to remove it entirely from your diet (Rozin et al. 1996). Furthermore, between 22 percent and 31 percent of Americans believe that a diet free of sugar, fat, and salt entirely is healthier than the same diet with minimal amounts of those in it (Rozin et al. 1996). In reality, salt, sugar, and fat all have important nutritional aspects and should be consumed in moderation. These false nutritional conceptions can not only be harmful from a nutritional standpoint, but can help to increase diet culture and the shame and guilt cycle that results from eating foods that are deemed "bad". Unfortunately, both a lack of nutritional education and the media's portrayal of diet foods and diet culture has led many Americans to be confused and dejected about their own diets and eating behaviors. Children even express more negative attitudes towards someone who is obese than towards other handicaps such as missing limbs or facial deformities (Goodman, Richardson, Dornbusch, and Hastorf 1963). The harsh internalization of these norms and the morality assigned to weight control causes many individuals to go

to great lengths to maintain a certain weight, often resulting in patterns of disordered eating.

Adolescence is considered a sensitive period for the development of eating disorders and disordered eating, and BMI is consistently correlated with higher rates of disordered eating in the literature. Adolescent girls who had begun the process of menstruating were found to have higher BMI than their premenstrual BMIs and experienced greater body dissatisfaction and more disordered eating problems (Enten and Golan 2008). Despite hormonal changes causing their body to naturally change in shape and size, their ideals to maintain their premenstrual bodies remained the same, causing greater dissonance and higher patterns of disordered eating in an attempt to maintain their previous bodies (Wertheim et al. 2002). These findings may help to explain why the sensitive period for the development of eating disorders for adolescent women are early to late teens, coinciding with the majority of hormonal and body changes that mark the start of womanhood (Enten and Golan 2008).

There are three main types of eating disorders, anorexia nervosa, bulimia nervosa, and binge eating disorder. The combined lifetime prevalence of the three main types of eating disorders is 1.9 percent, but those numbers are much higher for college aged individuals, with prevalence up to 4.6 percent (Sarra et al. 2020). While eating disorders are concerningly high among college women, there are even more college women who do not quite meet the diagnostic criteria of an eating disorder but who engage in patterns of disordered eating or compensatory behaviors (Schwitzer et al. 1998). Disordered eating, which affects both those with a clinically diagnosed eating disorder as well as individuals who may not qualify for an official eating disorder

diagnosis, describes maladaptive patterns of eating and eating related compulsions and cognitions, or thoughts (Sarra et al. 2020). Compensatory behaviors describe behaviors that one might employ to 'counteract' or reduce one's eating, such as excessive exercise, dietary restriction, or purging (Craven et al. 2019). Disordered eating, even that of sub-clinical levels, is associated with health and nutritional risks such as low energy, macronutrient and micronutrient deficiencies, electrolyte imbalances, menstrual abnormalities, and decreased bone mass density, as well as an increased risk of substance abuse and risky sexual behavior (Lock et al. 2003; Kontele et al. 2021).

Even more concerning is that eating disorders and patterns of disordered eating among *normal-weight* college women are quite prevalent, with 35 percent to 45 percent of adolescent females struggling with weight control, meaning they aspire to lose weight, maintain their weight, or use laxatives or other aversive compensatory behaviors to maintain weight (Schwitzer et al. 1998). Almost one third of normal-weight college women report engaging in binge eating, and are likely to also engage in maladaptive compensatory behavior (Kells et al. 2020). Binge eating (BE) can be described as a feeling of loss of control while eating, typically a large amount of food, and is the defining characteristic of binge eating disorder and bulimia nervosa (Phillips et al. 2016), which are the most frequently characterized subclinical patterns of disordered eating among college students. Binge eating behavior is linked to obesity and later eating disorders, and thus is a behavior that is of interest in discovering why and how it occurs so as to implement treatment interventions early on (Phillips et al. 2016).

Despite displaying many adverse eating and exercise behaviors, many of these women may "slip through the cracks" of traditional eating disorder screenings as many of them maintain normal weight levels and regular menstruation, thus understanding some of the more nuanced disordered patterns of eating and behaviors is imperative in eating disorder prevention and treatment (Schwitzer et al. 1998), further reinforcing the importance of understanding the possible determinants and behaviors of disordered eating among college students, as well as the importance for overall disordered eating screenings among those who may "seem" healthy (Kells et al. 2020).

The role that specific cognitions and emotions play in eating behaviors of those with eating disorders or who are overweight or obese have been linked to better understanding of how and why these relationships begin, and how to treat them. While previous literature has started to attack the tip of the iceberg on these cognitions and emotions in overweight and obese participants, this area of research is largely unexplored in healthy weight participants. Understanding the particular cognitive and emotional thoughts behind eating behaviors in those who are currently at a healthy weight, but who engage in disordered eating or are at risk of advancing into the overweight category is imperative to understanding and helping those achieve and maintain a healthier overall relationship with food and weight control.

Some of the common cognitions and emotions surrounding eating behaviors and one's relationship with food are mitigated by several internal and external factors to these relationships. Many people report using eating behaviors and food restriction to feel in control, categorizing food as either "good" or "bad", using food as comfort and a coping mechanism, whereas others view food as fuel (Wehling and Lusher 2019).

Moreover, others view eating as a social activity and find themselves eating larger portions in the presence of others (Wehling and Lusher 2019). Better understanding of these unique patterns of cognitions and resulting eating behaviors will help illuminate a best-practice for prevention and treatment of these patterns of disordered eating.

In exploring the literature on the main factors and determinants to patterns of disordered eating among college students, five main reasons emerged. First, between 40 and 49 percent of college women displayed patterns of disordered eating at least once per week, and those numbers are much higher than women of the same age that do not attend college (Berg et al. 2009), suggesting that something about the transition to college and the college environment itself gives rise to more maladaptive eating behaviors. Related to the college environment itself, a second proposed mechanism is that the college environment perpetuates a stressful environment for the individual who then finds themselves caught in a vicious cycle of using food to cope with negative emotions. The literature also suggests that individuals from higher socioeconomic status may be more at risk of disordered eating that stems from a thin ideal, and that specific familial characteristics influence this relationship. Finally, the literature suggests that those who display a level of perfectionism are more at risk for disordered eating, and that elite colleges can emphasize a culture of excellence that increases the manifestation of that perfectionism.

The Shared Transition to and Individual Experience at College

Transitional periods and periods of major change have been identified as correlates in an increase in patterns of disordered eating, making the transition to college an extra sensitive time period for the development and exacerbation of these

behaviors (Vohs et al. 1999). In addition to the overall change of moving to college, certain characteristics of the transition have also been found to be linked with disordered eating (Vohs et al. 1999). One aspect of the transition found to be a determinant of disordered eating is having one's perception (or locus) of control be placed on external factors rather than internal factors. An external locus of control makes periods of major change such as the transition to college particularly risky for the development or exacerbation of disordered eating (Sarraf et al. 2020). If an individual places their locus of control on external factors and experiences a dramatic life change during their first year in college, they may turn to food as a coping mechanism through bingeing, which is often described as losing control while eating. These individuals often engage in compensatory behaviors in an attempt to regain this sense of control, thus starting and restoring a cycle of strict restriction and subsequent bingeing. This helps explain why many individuals begin these patterns of restriction during stressful periods as an attempt to regain control in an area of their life (Sarraf et al. 2020).

In addition to a sense of loss of control during this transition, many may struggle with their newfound independence and may find managing this independence overwhelming. As one transitions to college, their independence increases and they are all at once in charge of their own academic, social, exercise, and eating schedules. Many of the challenges they face when juggling that newfound independence of eating include challenges within their social network, physical environment, and individual factors. A student transitioning to college may struggle to balance their taste preferences with self-discipline, time and convenience of food options, the lack of

parental influence, and the influence of their new friends and peers (Deliens et al. 2014).

The influence of new college friends and peers on the development and maintenance of disordered eating is also significant. There is evidence to suggest that cognitions of dieting and thinness are considered normative among college women, such that they are frequently discussed and encouraged among friends and other social groups (Vohs et al. 1999). Many young women in college describe a culture that glorified disordered eating across campus as reasons for their own personal struggles with eating and food either beginning or increasing during their transition to college. Comments and discussions on dieting, overexercising, and negatively commenting on one's bodies are frequent topics of conversation among college women and the constancy of interaction with your peers and friends only works to increase this (Fitzsimmons-Craft 2017). Instances such as women-only halls within the dorms and the fear of the infamous "freshman fifteen" are given as reasons why their own disordered eating cognitions and behaviors increased (Goldschen et al. 2019). Not only do these universal experiences of the transition to college affect the eating behaviors of college students, but college-specific characteristics also influence these behaviors. The specific aspects of individual campuses are often referenced as barriers to healthy eating among students (Deliens et al. 2014).

Many college students cite time constraints and on-campus availability as barriers to healthy eating. One study found many students only having time for quick and "grab and go" options, which typically consisted of the faster food varieties rather than being able to cook a healthy meal for themselves or finding healthy meals on

campus (Hilger-Kolb and Diehl 2019). Students often referenced being too exhausted or tired to cook for themselves or seek out healthy foods, and rather grabbed the quickest and easiest available option to quickly satiate themselves, which most of the time did not consist of healthy options. Finally, many students struggled with constraints of their new schedules, either citing differing class schedules as an obstacle to establishing a good routine, as well as having classes during normal mealtimes or having breaks during campus wide meal time "rush hours" again causing students to gravitate towards the quick and easy meals (Hilger-Kolb and Diehl 2019).

Despite the vast literature that suggests the transition to college is largely responsible for the high prevalence of disordered eating among college aged women, Vohs et al. (1999) found otherwise. They surveyed prospective female Dartmouth undergraduate students who were primarily white about their eating behaviors, health habits, and general wellbeing. Nearly eighty percent of participants reported a desire to lose weight in high-school, and 81.2 percent reported that same desire while in college. They found that while participants reported significant changes in body dissatisfaction and perceptions upon transition to college, that the overall patterns of disordered eating did not change, suggesting that patterns of disordered eating are well established prior to entering college (Vohs et al. 1999). These findings suggest that perhaps the environmental, personal, and contextual factors of a prospective Dartmouth student that may lead to disordered eating are present prior to attending the elite college and are instead well ingrained in high school, or before. Despite many other studies suggesting that the transition to college increases the severity of patterns of disordered eating, Vohs et al. (1999) found that these patterns were already well established. Perhaps the

external pressures that most women face for the first time upon arrival to college are already well established in those who are selected into elite universities, as the high academic achievement and associated stressors are present for them in high-school and even before.

Increased Stress Leads to Emotional Eating Cycle

College is marked with an increase in difficulty, and those who attend elite universities often find academic performance, specifically below their personal standard, to be distressing (Krafchek et al. 2019). The average college student gains approximately 12 pounds over the course of their undergraduate degree, and the presence of stress-induced emotional eating may help explain this relationship (Bennett et al. 2013).

Many individuals engage in emotional eating as a means to cope with negative moods, such as stress, anxiety, or sadness. The transition to college can be marked with those negative emotions, from the stress of managing your own schedule and making new friends, to anxiety over university midterms and finals, to sadness from leaving home (Bennett et al. 2013). Emotional eating is not always, but frequently characterized by engaging in a binge. Those who engage in binge eating are at higher risk of becoming overweight or obese, and this behavior affects 16 percent of college women at a subclinical level. There are two main reported reasons for engaging in a binge, either as a coping mechanism to a negative mood, termed affect regulation, or after a period of unrealistically restricting your diet to where the restriction builds up until you binge, deemed dietary restraint. Binge eating can easily become an insidious cycle through a pattern of negative reinforcement, such that after a binge someone may feel

guilt and shame for the amount or type of food consumed and then engage in compensatory behavior such as excessive exercise or restriction, and eventually bingeing from dietary restraint will happen again and the cycle repeats (Bennett et al. 2013). For the affect regulation scenario, one may feel guilt and shame for not losing weight, or some other negative affect for something else occurring in their life, and may engage in bingeing, but often feel much worse after the completion of a binge (Craven et al. 2019).

Emotional eating, a typical determinant of binge eating, is termed an obesogenic eating behavior because it is consistently associated with an increased risk of being overweight or obese. Despite these associations, however, there are many people who maintain a normal weight while still engaging in this emotional eating, typically through the use of compensatory behaviors (Frayn et al. 2018). Physical activity, or the increase of one's physical activity either preceding or following the act of emotional eating is referenced by many of the individuals who engage in emotional eating while maintaining a normal weight. Shortly followed by an increase in physical activity as a compensatory behavior, many individuals referenced a strict restriction of food intake to "counteract" the food they consumed during emotional eating (Frayn et al. 2018)..

Many of the common feelings post emotional or binge eating were that of guilt, rather than relief or alleviation of the initial negative feelings. One caveat to that, however, is that eating in the presence of friends decreased this feeling of guilt suggesting that one only feels guilty if they deem the behavior unacceptable or against the societal norm (Bennett et al. 2013). A proposed protective factor to binge eating is intuitive eating, or listening to your physical hunger cues and not restricting or

overindulging any one food or food group (Craven et al. 2019). For those who engage in dietary restraint, binge eating often feels as if once they have eaten "restricted" food, that their diet is ruined for that day and they may as well let themselves indulge, thus beginning a binge and often experiencing a loss of control or out of body experience. Those who engage in intuitive eating, inversely, do not have this moralization of foods and food groups, which removes this aspect of shame and guilt related to eating. Moreover, with affect regulation binge eating, those who are intuitive eaters would likely turn to other coping mechanisms and rely on food primarily for satiating their physical hunger cues. This moralization of food choices and emphasis on remaining thin can be well-established prior to one's time at college, even as early as nine years of age (Clark 2006).

Family Characteristics

There are certain familial characteristics that are correlated with an increased risk of developing an eating disorder, particularly the socioeconomic status of your family, the education level of your parents, and how your family handles and discusses food and mealtimes. Those who come from higher socioeconomic statuses may find food and dieting more salient issues in their lives (Fielding-Singh and Wang 2017).

High socioeconomic status mothers engage in discourse about healthy eating daily and during commonplace daily activities such as family mealtimes, shopping, and eating out. Higher socioeconomic status mothers talk about "healthy foods" and a "healthy diet" more often than mothers of a lower socioeconomic status, but oftentimes the language used stems from food moralization and diet culture, rather than from a true nutritional standpoint of consuming a balanced diet. They frequently refer to "healthy eating" as

the low-fat versions of something, or as eating fruits and vegetables before being able to eat sweets or processed carbohydrates. When mothers do this, they risk passing on their internalization of diet culture to their children, and by moralizing food choices they risk impacting their children's natural hunger cues and intuitive eating and put them at higher risk for later development of eating disorders (Fielding-Singh and Wang 2017).

Similar to one's socioeconomic status, one's maternal education level is also correlated with disordered eating. An individual whose grandmother received at least an undergraduate degree has a sixfold increase of developing an eating disorder, and if their mother received at least an undergraduate degree they had a twofold risk of developing an eating disorder (Ahren-Moonga et al. 2009). These findings were significant even when controlling for paternal education levels, suggesting that maternal figures, particularly those from high social classes, can be seen as a major link between the development of eating disorders and patterns of disordered eating (Ahren-Moonga et al. 2009). Another way that parents influence their children's risk of developing patterns of disordered eating is through how they discuss and modify mealtimes and diets at home.

Parents who provide a welcoming social environment during mealtimes are more likely to raise children who have later positive dietary intake and quality. (Golan and Crow 2004) Furthermore, research suggests that family style meals as well as involving children in the decision making of what and how much food they can take is associated with healthier relationships with food later on, as it instills self-control in portion control and variety of foods. An early development of portion control and personal responsibility for food variety would teach young adolescents to rely on their physical hunger cues as

well as not moralize food choices, both of which are shown to be positively correlated with healthy relationships with food and weight control. (Golan and Crow 2004).

Another proposed mechanism through which parents may impact their child's later relationships with food are through specific feeding styles. Feeding style refers to the power dynamic and control through which parents exert on their children in the context of what, where, how, and how much food they eat. Parents who engage in a feeding style characterized by higher control and restriction surrounding what and how much food their child can eat predicts a higher BMI in that child two years later, suggesting that the exertion of control causes later issues in maintaining a healthy relationship with food and weight management (Enten and Golan 2008). In addition to the universal aspects of one's transition to college and the potential pre-college familial factors associated with disordered eating, there are unique factors of elite universities that may impact the development and maintenance of disordered eating in its students.

Perfectionism and Excellence Norms at Elite Universities

An interesting finding among the literature is that eating disorders and patterns of disordered eating are more prevalent at elite universities and among high academic-achieving individuals (Paulson and Rutledge 2014; Krafchek et al. 2019) and this association was significant even for individual grade point averages (Ahren-Moonga et al. 2009). One of the possible ways through which this occurs is through a personal emphasis on perfectionism and hyper competitiveness. When examining the role that competitive attitudes played in nonclinical disordered eating, it was found that hyper competitiveness but not personal development competitiveness was correlated with disordered eating. Hyper competitiveness can be thought of as the need to achieve and

succeed even at the detriment of oneself or others, whereas personal development competitiveness is focused on competition against oneself only with the goal of improving (Burckle et al. 1999). Very similar to this notion of competitiveness is perfectionism.

There are two types of perfectionism, adaptive or maladaptive, with only the latter being correlated with disordered eating (Paulson and Rutledge 2014). Those who hold themselves to high standards of perfectionism and take great personal fault and become distressed when these standards are not met display maladaptive perfectionism (Paulson and Rutledge 2014). Those who engage in maladaptive perfectionism are more likely to engage in disordered eating behaviors (Paulson and Rutledge 2014).

There can be two main ways to think of how perfectionism and competitiveness may impact the development and severity of patterns of disordered eating, specifically at elite universities. Firstly, the emphasis that modern day diet culture and Western society places on women to be seen as beautiful only increases this competitiveness among women to conform to that ideal of being thin, which would explain why women are at high risk of developing eating disorders in an attempt to achieve that ideal, particularly if they already possess elements of competitiveness and goals of high achievement (Burckle et al. 1999). On a campus of highly educated individuals, many of whom come from families who are of higher socioeconomic status and are not first-generation college students, diet culture is sure to permeate and be internalized by much of the student body either prior to arrival or shortly thereafter. Comparisons among women on college campuses are common, particularly regarding body weight

and shape, eating behaviors such as how much to eat and the healthiness of food, and around the type and frequency of exercise. Furthermore, the majority of these comparisons were upward, meaning that the subject made positive cognitions about the other person's body, eating, or exercise, at the expense of feeling worse about their own habits in the same categories. By comparing oneself with those around you, you are further increasing dissonance between your current behaviors and feelings towards those three things and what you believe you should or want to do, which can increase body unhappiness and disordered eating (Fitzsimmons-Craft 2017). Furthermore, body comparisons were primarily made with strangers, suggesting that being exposed to a multitude of different body types on campus and in a greater number than in high school may contribute to negative feelings about oneself. Moreover, this comparison-resulted personal dissatisfaction occurred only when the comparisons aligned with a thin ideal, suggesting that the dieting culture and thinness culture present in our society and on college campuses in general causes this dissonance between personal attributions and comparisons to others (Fitzsimmons-Craft 2017).

Secondly, the upward shift in academic difficulty and competitiveness at an elite university may increase one's maladaptive perfectionism as they are no longer able to meet the same standard of academic achievement, causing dissonance and stress. If a student is used to being a, if not the, top performing student at their high school and matriculates to an elite university where all top students are competing against one another, this increased stress and potential decrease in relative academic performance may cause a perfectionist discrepancy, making at-risk students engage in disordered eating in the form of emotional eating, restriction, or both (Krafchek et al. 2019). It was

found that disordered eating, higher levels of cardiovascular exercise, and maladaptive perfectionism had a three-way interaction and were all correlated with one another. This suggests that exercise, particularly over exercising in the form of cardio, is an important dimension of disordered eating and should also be considered in potential screenings and interventions for disordered eating (Paulson and Rutledge 2014).

To illustrate, at Duke University, specifically, the average high school GPA of matriculated students was 3.94 out of a 4.0 for the Class of 2022 (CollegeSimply n.d.). The top 25 percent of that same graduating class of 2022 had a 4th year GPA above 3.908 out of a 4.0 (Duke University Office of the University Registrar). This means that the high school seniors who were admitted to Duke's class of 2022, and had only an average GPA for the admit class had a GPA equivalent to the top 25 percent of Duke's undergraduate seniors in the Fall of 2021. Ultimately, one can assume that coming to Duke represents an adjustment not only in the level of difficulty but also in the level of performance. Those who have high perfectionism, particularly those with high standards and high discrepancy levels, may find this adjustment distressing which may help to explain the increased levels of disordered eating at elite universities.

Colleges can also contribute to their individual students' perfectionism by their perpetuation of excellence norms. Top and elite universities often strive for and promote "excellence" across their campus. These messages can often communicate excellence norms, which prescribe the standard of achievement and excellence that all students and members of that university should meet. While this sounds motivating, and it can be, it can also create a stressful sense of pressure to perform, not only academically but in other areas of what they see as campus norms. The academic excellency norms, that

universities try to instill in their students, can actually be a source of major stress and can in turn cause negative affect among students, who then may try to cope with these feelings through regaining a sense of control through restricting their diet and exercise, or by engaging in emotional eating. Furthermore, these excellence norms may cause students to buy into other social and greater societal norms displayed on campus, such as dieting norms and the standard of beauty they believe is evident across campus.

Duke University states in its mission (Duke Office of the President “Values and Culture”):

Our shared values...excellence— are more than aspirations. They are the beliefs and behaviors that we expect of ourselves and our colleagues. These are the ideals that we must uphold in order to earn and maintain our reputation for quality and integrity... As leaders, we represent Duke and acknowledge that we are held to the highest standard.

Excellence norms can also emphasize competitiveness and perfectionism as students strive to achieve this ideal, which may help to explain why disordered eating is prevalent among elite universities, as many students who already display a high level of perfectionism may self-select into a university that emphasizes excellence.

Even more interesting a finding is that it appears the level of satisfaction gained from performing well academically is very similar to the satisfaction gained from sticking to one’s strict diet or losing weight (Krafchek et al. 2019). In an attempt to better understand the link between academic high-achieving young women who also developed eating disorders, the emotions felt during both academic achievement and while engaging in disordered eating were studied. Academic emotions can be described as any emotion relating to being in the classroom, learning, achieving, studying, and test taking, and can include pride, stress, joy, and anxiety, among other emotions.

Young adolescent women who are high achievers and who also suffer from eating disorders often cite intense pride for high academic marks, and intense shame and upset by anything they deemed as failure or imperfection. These women may turn to high academic achievement for feelings of pride, praise and control, and similarly turn to intense restriction and disordered eating to regain a sense of control while also experiencing pride and praise for conforming to our culture's thin standard of beauty and sticking with their restrictive dieting and exercise regime. Many of the participants cited that the strong positive emotions associated with losing weight were similar to the strong positive emotions experienced when performing well academically, and that positive feedback about weight loss was similar to positive feedback received from one's parents and teachers about academic performance (Krafchek et al. 2019).

Causality of this relationship was assessed and found that while high school achievement was correlated with an increased risk of anorexia nervosa and bulimia nervosa, that the associations are non-causal and are explained by familial influences such as parental education (Sundquist et al. 2016). The influence may be that the young high-achieving adolescent women who attend elite universities strive to achieve the cultural ideal of "thinness" much like they strive to achieve high academic marks and accolades (Bould et al. 2016). Perhaps perfectionism is a trait that can be instilled and sometimes forced upon children whose parents are of higher social class and highly educated, and can help explain both the outcomes of high academic achievement and disordered eating that can stem from wanting to present the "ideal" societal standard of thinness (Sundquist et al. 2016). Furthermore, perhaps individuals predisposed and

already presenting with risk factors of disordered eating self-select into elite colleges for similar reasons of high societal achievement.

While the literature is vast on the various factors and determinants of disordered eating, there is some inconsistency in the findings and the literature largely lacks a big-picture understanding on the nuances among these factors and the mechanisms through which they influence an individual's overall eating behaviors and relationship with their body, exercise, and food. As one's relationship with these issues does not exist in a vacuum, it is important to study the interplay of the different factors as they relate to one's overall eating behaviors prior to college, and at college. Furthermore, while the research suggests that elite universities may increase the risk of disordered eating, the narrow lens through which prior studies were conducted on this topic do not give rise to a greater understanding of how these relationships are fostered prior to college, and maintained or developed while at college. Furthermore, it is not widely understood how these elite colleges impact the development and maintenance of disordered eating. Understanding the cultural context within which high achieving undergraduates exist today, one with heavy diet culture permeating their adolescence and the push to attend elite universities, like Duke University, which fosters a community of excellence and perfectionism, exploring specific relationships and eating behaviors will help us better understand how these various factors interact, and how to prevent, catch, and help those struggling with patterns of disordered eating.

My research seeks to add to the literature and provide a bigger picture understanding of the different factors, how they interact, and the mechanisms through which they influence one's overall eating behaviors. To do so, my research seeks to

answer the following question and sub question: What are the factors of eating behaviors in college women? Does attending an elite university such as Duke University impact the development and maintenance of these behaviors?

Interview Methods

In order to answer the questions proposed above, I used semi-structured in-depth, virtual interviews via Zoom conducted with Duke University undergraduate students. The data collected aims to increase our understanding of how various environmental and personal factors affect one's relationship with food, exercise, and their body, and potential psychologically based behaviors that persist past adolescence. The interview items address how eating behaviors develop in adolescence based on various personal and contextual factors, and give a broader description of how these behaviors are maintained or increased during their time as Duke undergraduate students. These interviews ask participants to reflect on their childhood experiences with food, exercise, and body, and their current experiences with the three

Respondents were recruited by posting flyers throughout Duke's campus, utilizing my personal networks, as well as reaching out to various student groups on campus to distribute fliers to their members. In order to protect the confidentiality and rights of the participants, before the interviews begin, I gave each participant an informed consent statement to sign that lists the general topics covered in the interviews, the reason for this research, the approximate time needed to interview the participant, the benefits and risks of participating in this research, the right to stop the interview at any time, as well as assurance that their responses will be completely confidential. To maintain confidentiality, participants were sent a Zoom link upon signing

up for an interview time and were instructed to leave their cameras off and use the interview date and time as their pseudonym.

The interviews themselves lasted approximately 25 to 30 minutes in length. The interviews took a conversational approach, with the questions serving as guidelines to best understand the respondents' stories and experiences. Participants were recruited in two separate “pushes” through the aforementioned recruiting channels; the first push of recruitment materials produced five participants who went through with the interview and the second push of recruitment resulted in one additional participant who signed up for and completed an interview. Despite recruiting aimed at gathering diverse participation on the basis of socioeconomic status, gender, and race, the participants consisted of 6 white female students who were either 21 or 22 years of age and of self-reported middle class or above status. Two additional participants signed up for interview slots after the first recruitment push but did not show up for the interview time slot and did not choose to reschedule. Although there are defined racial and ethnic correlates with socioeconomic status, generational education levels, and general prevalence of patterns of disordered eating, ensuring diverse representation was not possible given the constraints of recruitment. Rather, this study will seek to better understand the various personal mechanisms through which enrollment at an elite university influence eating behaviors, with the above constraints noted.

The methods employed help us better understand how certain patterns of disordered eating are developed, maintained, and manifested, early in life and throughout college. This research has broad applications as disordered eating and eating disorders are the number one cause of early death for young women (Ahren-

Moonga et al. 2009). Thus, the imperative knowledge gained from this research will guide policy makers as we try to address the public health issue of disordered eating by gaining a better understanding of the various ways disordered eating may present itself as well as some of its possible determinants.

Reflexivity

As is the nature of qualitative interviews, I serve as interpreter of the information and quotes I gathered through the interviews I conducted. Thus, it is imperative I reflexively outline my background and experiences so as to hopefully reduce the biases of this research and to help understand my personal experiences that may help shape how I examine and interpret the findings of my study. It is important to note, however, that I aim to present an unbiased representation of the data and let the words of the participants themselves speak through the research findings of this study.

I, like the participants of this study, am a white female undergraduate student at Duke University. I, too, have never worried about affording food and have struggled with patterns of disordered eating in the past and occasionally still struggle. As utilizing my social networks was one of the three ways I recruited participants, it is possible that some or all of the participants are individuals that I am in the same social circle with, and may be representative of a smaller subset of Duke University women. Due to the confidential nature of my interview and recruitment process, I do not know who any of the participants of my study are, and therefore cannot comment with certainty whether or not this is the case.

Having struggled with patterns of disordered eating in the past, I may be more likely to conflate my own experiences with the experiences outlined by participants. I

also may subconsciously reflect upon my own upbringing and experience at Duke University to draw connections between my personal experiences and the experiences of the participants. However, the semi-structured interview guide that I submitted to the Institutional Review Board for approval contained questions that are aimed at discovering the true experiences of the participants. Again, the study was conducted, the data analyzed, and conclusions drawn with the goal of minimizing any biases of which I am aware. Still such reflexivity is an important aspect of qualitative research, as outlined by Creswell and Creswell (2016).

Analytical Procedure

After all of the interviews were conducted, I then personally re-listened to the audio recordings two times over and ensured the automatic Zoom transcription was accurate, as well as removed filler words such as “um” and “like”. After double checking each transcription for accuracy and to ensure any personally identifying information was omitted, the data were coded and analyzed using a grounded theory approach in which the themes and keywords derived from the data helped describe the experiences of the participants in the context of their socioeconomic status and eating behaviors, and how the former may influence the latter. I then re-read over each of the transcriptions to gain a general understanding of the themes and subthemes that were mentioned by participants. Guided by the proposed mechanisms and factors of disordered eating as outlined by the literature, I identified three recurring themes mentioned in the interviews: (1) family and early life influences, (2) college specific influences, and (3) disordered cognitions and behaviors. I then coded each individual transcript by hand as specific quotes related to these themes. Within each of the three themes, subthemes emerged

as the transcriptions were coded and quotes were placed under each of the three themes. The resulting themes and subthemes are:

Personal and Early Influences

- Influence of at home feeding style
- Memorable messages
- Metabolism and hormonal changes
- Eating as a social activity

College Specific Influences

- Food choices due to convenience and comfortability
- Burden of managing own schedule, diet, and exercise
- Stress-related changes
- Comparisons to others

Disordered Cognitions and Behaviors

- Guilt, shame, and compensatory or reward behaviors
- “All or nothing” dieting mentality
- Mindless or “out of body eating”
- Pervasiveness of disordered cognitions

I relied on both emerging keywords from the quotations themselves and the word choices found in the literature to create the titles of the three themes and subthemes.

“Family and Early Influence” refers to influences and factors of specific eating behaviors and cognitions that resulted from or emerged during their time prior to coming to Duke University. “College Specific Influences” refers to experiences or cognitions that emerged during their time on Duke’s campus, and may be relating to a universal college

experience or to something Duke specific. “Disordered Cognitions and Behaviors” refers to the specific experiences, cognitions, and behaviors that precede, constitute, or follow specific patterns of disordered eating. Then, the determination of these themes and subthemes, comparisons and parallels were drawn to the extant research found on these topics.

Results

Personal and Early Influences

Before the first interview was completed, it became abundantly clear that, for some, struggles with patterns of disordered eating are established well before the arrival to college. Out of the six participants interviewed, all but one (Participant Four) said that they struggle(d) with having a healthy relationship with food, exercise, and their body. Many participants mentioned memorable messages or experiences related to dieting before coming to Duke University, some happening as early as in elementary school. Many participants were quick to share in-depth recounts of the way their families, particularly moms, discussed food and the rituals and rules surrounding mealtimes that they still hold themselves to while at Duke.

Influence of at home feeding style

The type and structure of feeding styles that parents impose upon their children has long-lasting effects on their relationship with food and dieting. Parents who impose strict eating and food rules, either in what types, how much, or when, children have to eat are more likely to have children who struggle with patterns of disordered eating later on in life (Enten and Golan 2008). Many participants remember being forced to finish all of their food before they could resume other activities, and many others also remember

the early moralization of food by their parents, such that some foods were superior and deemed “healthy” while others were villainized and deemed “unhealthy”.

Participant One recalled many instances in which her mom imposed specific eating and dieting rules while at home.

When I was younger they had a rule, you had to have a sandwich, either with turkey or peanut butter and jelly, then you had to have a vegetable and fruit. I remember I would have the same bag of carrots that I wouldn't eat in my bag coming home from school in my lunch box every day for weeks.

By imposing specific lunch rules, particularly ones that weren't foods that Participant One enjoyed eating, her mom was unintentionally creating a hierarchy of “good” and “bad” foods and allowing early experiences with a food like carrots to be negative ones, and ones that insinuated that you should eat these “healthy” foods even if you dislike eating them. Another way that feeding styles can impact one's later relationship with food and dieting is through how the food is served itself and the messages that are shared during mealtimes. Participant One also recalls the insistence of finishing one's plate of food.

I also have the tendency to always finish my food, that was what I was taught when I was growing up, but it's like getting through finishing the meal as opposed to enjoying every single bite.

Participant Six had similar experiences growing up with the emphasis on finishing her plate of food, even if she wasn't hungry.

Growing up my family was very much of the mindset of you have to finish your plate. I remember we had a nanny who would make us dinner around 4:30pm, and we weren't super hungry at that point in the day, but we wouldn't be allowed to leave the table until we finished our food so sometimes we would end up sitting there for like two hours on end because we had to finish our plates before we got up and got to do anything else. The only thing that changed from that when I went to school...I remember I would never finish those [meals] because there was never the pressure from my nanny or parents to finish that food.

It is important to understand that these mealtime rituals and feeding styles can have long-lasting effects, even after the individuals themselves no longer live at home with their parents. Participant Four mentioned that even now, she struggles with feeling like she has to finish all of the food on her plate.

Anytime I have more food on my plate it's really bad but I can't not finish it I'm just like why am I eating this? I'm not hungry.

Intuitive eating, or relying on one's physical hunger cues to dictate how much, when, and what, to eat, is a protective factor against the development of disordered eating. By imposing strict mealtime rules, these participants' hunger cues were stunted and they were taught to eat regardless of hunger cues, which may help to explain their struggles with patterns of disordered eating. In addition to the specific rituals and rules surrounding mealtimes, the way one's mom spoke about food was also frequently mentioned by the participants, and was linked to having an influence in their own struggles with food and their body. Participant Three recalled the influence that diet and exercise played in her mom's life, and how it rubbed off on her own cognitions and experience with the two.

My family was always very health conscious growing up, and it was instilled in me at a very young age that there were really good and bad foods. I just feel like my family is very almost restrictive around foods, like we never got dessert growing up, we still never have dessert at meals or anything. I grew up with a mom who talked about food a lot and how she felt so bad for eating this and bad for eating that and ate too much of this.

Not only is it clear that your parent's, specifically your mom's, relationship with food, diet, and exercise, can become internalized by an individual at a very young age, but the extent and internalization of the messages that they are

subconsciously feeding to you can impact your development of an understanding of healthy and idealized eating behaviors.

Memorable messages

There exists in the literature this discussion of memorable messages, or scenarios in which participants vividly remember their first experience with either feeling dissatisfied with their body image or having someone else impose those dissatisfactions upon them. Many of the participants remember instances in which no one explicitly told them that they should lose weight or that they were overweight, but even the scenarios in which those around them were either trying to be discreet about their intentions or didn't realize that they were affecting them at all, still remain vivid in their memory years later. Participant One recalled two separate instances in which her mom imposed specific exercise and dietary guidelines because she gained weight, despite her mom not specifically telling her that's why these new guidelines were in place.

When I was like eight I went to sleep away camp for the first time, and they had peanut butter and fluff sandwiches or cereal from the cereal bar, and it's all sugary foods and my parents never bought those when I was growing up. I gained a lot of weight that summer, I guess, I do not think I noticed myself because I was eight years old but I came home and my mom put in some rules around the house of "no more than one sweet a day". Then I became pretty intensely aware of it, and I remember being back at summer camp my second year, and behind my Justin Bieber poster I had a dessert tracker of whether I had dessert or not that day. That just shows to me that it must have been ingrained in me at a very early age that it mattered what I ate and what I weighed and those kinds of things.

Not only does this show how destructive and impactful these early memorable messages can be on a child's enduring relationship with food and their body, but this experience is also a good example of how imposing restrictions on your child's diet can actually cause them to be at risk of gaining weight later in life. If sugary or other foods

deemed “bad” are restricted and unavailable at home, when they are exposed to and have access to these “bad foods” that they aren’t privy to at home, they are likely to then eat them in excess, rather than incorporating them into a balanced diet. The same person, Participant One, also recalled the exercise counterpart to that new diet that her mom imposed because of her childhood weight gain.

When I was a kid I didn't do any sports until the third grade or so and I think my mom put me on the swim team because I was chubby.

Remember, research shows that young girls by the age of nine have already internalized media messages of body dissatisfaction, dieting, and diet culture, and thus are acutely aware of these things in their own bodies and in their loved ones like their moms. Participant Three recalls how pervasive and impactful her mom’s relationship with diet and exercise impacted her own relationship with the two.

My mom was just very...growing up always on a diet, always going to work out classes and stuff like that, so I think I was very aware of it. I do, though, remember, the first time I became aware of my own weight and then thinking I needed to be in shape but I do not necessarily remember someone else telling me I needed to be in shape.

Unfortunately, the internalization of these messages allows young girls to be concerned with their own weight and diet habits just by observing those around them. It is also around this early age that young girls begin to become aware of their own weight, and how it compares to their friends and those around them. Participant Three recalled the instance that shocked her into becoming aware of her weight as a negative thing.

It was seventh grade and we all had to get weighed for PE, and I just remember I was like 10 pounds heavier than this girl that I thought I weighed the same as, and then that's kind of when I started working out with the goal of losing weight and appearing differently, instead of just doing sports and stuff for fun. I do not know, I feel like it just made me much more self-conscious and uncomfortable in my own skin.

Metabolism and hormonal changes

Many participants mentioned this time period, around seventh grade, as to when their disordered relationship with food, their body, and exercise began. Participants One, Two, and Three, respectively, all mentioned seventh and eighth grade as starting points to these struggles.

By eighth grade I was really, really self-conscious about my body and I lost a ton of weight like through exercise and just eating healthfully.

I would say that I started being aware of body image and my relationship with food became more than just “it’s food, enjoy it and move on”, that probably started in seventh grade.

[My struggles with my body and food started around] probably seventh, eighth grade.

Seventh and eighth grade is right around the time that girls go through puberty and are often left wanting to maintain the body that they had prior to it undergoing hormonal changes, which can result in a lot of dissonance and body dissatisfaction. Participants also linked metabolism and hormonal changes to changes in their eating habits and their weight. Participant Two and Participant Three both mentioned being on their period as a time-period in which they find themselves eating more than usual.

When I'm on my period I eat a lot more.

[I eat more] probably when I'm on my period.

These hormonal changes can also impact metabolism levels, especially as a girl leaves childhood and enters adolescence and adulthood. As an increase in weight is also correlated with an increase in body dissatisfaction and patterns of disordered eating, the decrease in metabolism associated with a woman's entrance into adulthood may help explain why disordered eating begins in adolescence and peaks in early adulthood.

Participant Five mentioned this change in metabolism occurring during her sophomore year of college.

Probably during sophomore year [of college] because that's when I noticed that I was like gaining weight and not working out as much which was kind of like a slap in the face, because I never had to worry about that growing up, again because of your [faster] metabolism when you're younger and all those sports that were just regularly in my schedule.

Participant Six mentioned an even earlier foray into this concept, when her pediatrician told her at age 12 that she had to start thinking about eating healthy and staying in shape, which shocked and stressed her out because she felt those were “adult” issues.

I knew that [staying in shape] was very important for adults but I never thought that children had to stay in shape, because we were so active and had such a high metabolism.

This link between a girl's age of puberty and an increase in her awareness of eating, dieting, and exercise, may help to explain the link between why the age of onset of eating disorders begins and peaks at adolescence, and early adulthood, respectively. The decrease in metabolism that many participants mention as a jumpstart to their body dissatisfaction and weight gain also follows the same timeline of adolescence and early adulthood, and can help tie those factors together.

Eating as a social activity

Another interesting personal aspect of eating behaviors that some of the participants mentioned was the social aspect of eating, particularly that eating is increased in the presence of others. Participant Six mentioned that she even eats when she is not hungry in the presence of her friends, just so that she can participate in the social aspect that comes along with eating.

I think that I [eat when I'm not hungry] when I'm in an environment where other people are snacking...literally yesterday I was with a group of people

and we were watching a show together and everybody was eating popcorn and ice cream and I had just had a really big meal for dinner, but it felt like it was kind of a social thing so I started eating popcorn and candy, even though I wasn't hungry at all...I wanted to be included in this social experience of eating popcorn together.

Food and eating are very cultural to many people, and it can even be seen as a social activity. The increase in social activity that comes hand in hand with the transition to middle and high school as you are cultivating friendships outside of the classroom, and then increases sixfold with the transition to college would reasonably increase this social snacking and eating (Ahren-Moonga et al. 2009). In addition to an increase in sociability and social mealtimes that is associated with the transition to college, there exist other college-specific influences to eating behaviors.

College Specific Influences

The prevalence of eating disorders is highest among college aged individuals, and even higher among those of the same age who attend college than those who do not, suggesting that something about the college environment itself increases the risk of disordered eating patterns (Berg et al. 2009). Many participants mentioned similar “college specific” determinants and influences of their eating behaviors, many of which are similar to what is already expressed in the literature. There were five main things that participants mentioned during their interviews that could be thought of as college, and, in this case, Duke-specific influences, the first of which is the convenience and comfortability of food choices.

Food choices due to convenience and comfortability

Many participants referenced the change in coming to college as also representing a shift in their eating, either due to the food choices themselves on

campus, or due to the convenience associated with some of the “fast” food options on campus. Two participants mentioned the convenience, or lack thereof, of getting meals on campus as to whether or not they packed a lunch. Participant Three mentioned the distance from her classes to the dining areas as a barrier to eating food on campus and as a reason for her preference to bring lunch.

On our campus like where we would get lunch was pretty far away...so I never wanted to walk all the way over there to get lunch. Participant Six, on the other hand, prefers to eat a lunch on campus rather than packing one, but for the same reason of convenience.

[Buying a lunch on campus] is just less effort and I definitely was happy to be having lunch at school rather than having to pack one every night.

Participant Six also referenced the varying schedule of her classes and extracurriculars as guiding where and when she eats, and potentially serving as a barrier to how she would prefer to eat.

[Eating] really revolves around our schedules and I think that being in a college environment I've just become very aware of the fact that people do what works best for them in their schedule so I do not think it necessarily says anything about my eating habits are worse or better than yours it's just like this is what works for my schedule.

Perhaps, the various class schedules and locations of classes and other extracurriculars may help to explain why some find it more convenient to pack a lunch or eat at home, whereas others find eating on campus to be the easiest route. Many participants also mentioned that the variety of foods they ate once coming to college significantly declined, for two main reasons. First, due to the availability of options on campus, and then particularly in comparison to what was available at home prior to coming to college. Participant Six spoke in-depth about the lack of options on campus,

particularly how at first the options seemed endless but then considering that the menus never change, that the options narrow at the end of your four years on campus.

[The options on campus are] not ideal for me, I think when you look at the options, initially you're like 'wow there's so much food here, there's so much I could pick' from but then you kind of end up only liking a few things and your options become kind of limited. Now, my food options on campus definitely feel limited.

Another aspect of decreased food variety and availability since coming to Duke University that Participant Six talked about is the comfortability associated with cooking for oneself, and only feeling comfortable cooking certain things, which impacts her diet variety and food choices.

I ate a lot more variety [in high school], I would say, because people were cooking for me and cooking lots of different things, whereas now I think I'm very comfortable with cooking the same thing every day and knowing that I'll like it and in terms of like buying the ingredients for every week I know that's what I have.

(In response to the frequency in which she eats her favorite food) I wouldn't want to prepare it myself, so I would go to a restaurant to have it.

It is clear that the transition to college as well as the campus of the specific college itself can help influence the specific eating behaviors of its students, particularly in the convenience of the offerings and the variety of them. Many participants also referenced the stress that accompanied their newfound independence associated with their diet, exercise, and overall schedule that came with the transition out of their home to college.

Burden of managing own schedule, diet, and exercise

Not only was the transition to college marked with a newfound independence and the burdens that accompany it, but many participants felt overwhelmed and that they had never had to consider these things prior to coming to college. Participant Five

discussed in-depth some of the feelings associated with the new burden of having to worry about exercising, especially since she played organized sports in high school.

[In college] I wasn't going to have those high school sports that would be in my routine and help me stay healthy and fit, so I would need to add that to my schedule and consciously do it. It was kind of scary because I've never had to do it on my own, I was always just kind of like well I'm required to the sport, I might as well just show up and kind of check that [exercise] box on its own, but I had never really gone to work out classes voluntarily or done my own workouts. So, it was kind of daunting that I would have to figure that out, and then I realized that I have to do that for the rest of my life.

The realization that this would need to be a consideration she made for the rest of her life left her feeling stressed out and a little overwhelmed. Participant One also talked about the lack of organized sports during her transition to college and having to figure out what workouts she enjoyed and what workout schedule would work best for her.

When I got to college obviously I didn't really do organized sports and so I had to figure it out. But I think having moved my body so intensely for so long, made me a little burnt out, and so I really did have to figure out what routine would work for me best.

The realization that on top of juggling all of the things that are traditionally associated with the transition to college, you now also have to juggle being in charge of your exercise schedule and find new ways to exercise can be a point of stress and burden for students. This experience also translates to food choices and body image as well. Participant Six recalled a time in which her pediatrician mentioned the emphasis on "staying in shape" and how that was a moment of realization for her that this was now another responsibility to add to her schedule. She also mentioned how this realization was emphasized for food specifically when she came to college, for exercise and weight gain-related reasons.

I think I was just a little bit surprised and almost a little bit stressed out [when my pediatrician talked to me about staying in shape] because I was

like 'oh well, now, I have to be thinking about this' and I never thought that I did before.

Definitely when I got to college, I think I never really worried about food very much when I was in high school because I was playing a sport and I wasn't really gaining weight or anything but I think when I came to college, the 'freshman 15' happened, and then I started thinking about it much more.

For many participants, the transition to college marked the time period in which diet and exercise became the most salient to them, particularly when comparing previous experiences with the two in high school and earlier. The college experience itself can also give rise to many eating-related changes, such as a major increase in one's stress levels that comes with the increased academic difficulty as well as navigating the transition to college.

Stress-related changes

Those who are high academic achievers and who attend elite universities are at greater risk of developing patterns of disordered eating. One of the proposed ways through which this occurs is that the increased stress experienced associated with the more difficult academics at an elite college, compared to high school, can cause stress-induced emotional eating. All but one participant, also the only participant who reported no struggles with her body image and food and exercise (Participant Four), reported that stress influences the way they eat and exercise. Many participants that feel stressed often cause them to eat more, eating to either calm their nerves or to provide a sense of joy during that stress. Participant Three mentioned certain things that may cause her to stress-eat and what that experience is like for her.

When I'm stressed I like to snack...like when I'm stressed about a test or something like that. I also like to eat while I'm studying.

I was really stressed about an upcoming interview, and I felt like I was just eating... where I wasn't really hungry and they weren't really even that tasty, I just needed, I do not know, I just wanted to eat to calm my nerves.

Participant Five also mentioned an increase in eating when she is stressed, but stated that food can serve as a distraction to her stress and to the responsibilities that may be causing her stress.

When I'm stressed, I definitely eat more as a way to bring me joy so then I do not have to think as much about other things.

Participant Two also mentioned stress as a determinant of her eating behaviors and mentioned stress and angst as possible preceding feelings to her binge eating, which can be thought of as an extreme form of emotional eating, and are commonly referenced in the literature as well.

When I'm bingeing...my emotions are either angst or stress.

While the majority of participants mentioned stress as a factor that causes them to eat more, Participant One recalled times in which stress has caused her to eat more, and also less, than normal.

When I'm stressed it goes one of two ways: If I'm busy I'll eat less but not on purpose just because I do not have time, but if I'm stressed out because I have an assignment that's due I might mindlessly eat a little bit more, which I obviously would like to keep to a minimum.

While the majority of participants mentioned stress causing changes in their eating behaviors, Participant Six shared about how stress can cause her to exercise more as a way to relieve those feelings.

For me, exercise is a good way of dealing with stress and college was definitely more stressful than high school, so I needed to find other ways to exercise.

Although stress associated with the increased academic difficulty can be thought of as one of the main determinants of eating behaviors, another aspect of the transition to college that can make diet, exercise, and body image more salient is the increased saturation of comparing oneself to others around campus.

Comparisons to others

Engaging in either upward or downward comparisons with others can bring dieting, exercising, and body image to the forefront of one's mind, and this rang true with the Duke University students interviewed. These comparisons can manifest in many different ways, and can be seen as leaving you feeling more positive or negative about yourself following them. The common thread between the comparisons, however, is that more often than not they represent patterns of disordered eating and at the very least work to keep diet, exercise, and body image at the forefront of one's mind. The increase in the number of people you interact with on a daily basis at college, and the different types of people you interact with, can give rise to an increase in these comparisons when juxtaposed to life prior to arriving at college. Participant Five remembered how coming to Duke and comparing herself to the ideal body on campus lead to being more restrictive in her eating.

I started becoming more conscious of food in college, I never even thought about it in high school and before that. I think I only started to compare myself to people when I got to Duke...you could just see people eating way healthier, always eating salads and I would kind of feel that pressure to get on that health train.

The summer after freshman year I had gained a lot of weight and was definitely very conscious about what I was eating... coming to Duke and having body image be thrown in your face left and right it really starts to catch up to you.

These comparisons on campus and the dissonance that one can feel when their body or eating habits are not aligned with the body and eating habits that they compare themselves to can be stress inducing and can cause a sense of guilt and shame.

Participant One recalled two ways in which she compared herself to others on campus, and that this comparison increased upon her arrival on campus.

I think that my freshman year I cared a lot more about what people thought of me I think so just in general I compared myself to others a little bit more.

I saw that their plate was more full than mine...sometimes I feel a little self-conscious, I feel like I'm a little embarrassed.

Not only were the participants quick to recall moments in which they compared themselves to others, but also moments in which they judged others. Participant Five was thinking about how she often judges the food choices that others make, which in turn made her more self-conscious about her own choices in wondering what others may be thinking or saying about her.

I'll admit sometimes I judge people if they've picked a ton of food at a Buffet or something, so I wonder if people are judging me for that too, whether it's wasteful or they think I'm eating too much, who knows.

These comparisons can be pervasive to disordered eating because not only do they serve to make you unhappy when you compare yourself to others, but they can also cause you to project how you compare yourself to others and assume that others are comparing you in a similar way. Many college women also report this “culture of disordered eating” among college campuses, in which it is okay to talk about eating and body image frequently (Goldschen et al. 2019). Participant Three referenced this culture of disordered eating when she realized how *abnormal* it was for her when one of her

college roommates seemed to have a completely healthy relationship with food and her body.

I lived with someone [my sophomore year] who clearly just didn't seem like they had any issues with food. They would just eat when they were hungry and they didn't make a big deal about it or talk about it and that was just so abnormal for me...I grew up with a mom who talked about food a lot and how she felt so bad for eating this and bad for eating that and ate too much of this...and a good amount of my college friends are like that as well so I really noticed when I like lived with someone who, just didn't seem like they had like an unhealthy relationship with food.

It seems that comparing oneself to those around campus is not only a common activity, but also a common topic of conversation with others. A very interesting finding related to comparisons, however, was that sometimes comparisons serve as a way for individuals to realize and come to terms with the fact that they may be engaged in patterns of disordered eating. Participant Two remembered how being quarantined with her family and exposed to their eating habits led her to realize that she may need help with her own habits.

I was noticing people and their eating habits seemed to be very different from mine and there did not seem to be any angst around certain meals and other people seemed to be very stress free and carefree about what they ate.

Unfortunately, these various college-specific influences can increase and impact one's development of patterns of disordered eating. It is important to better understand the ways in which these patterns of disordered eating manifest themselves, and the particular behaviors and cognitions that accompany them.

Disordered Cognitions and Behaviors

After understanding the various factors that can influence eating behaviors, either prior to their arrival on campus or while at Duke University, it was important to better

understand the ways in which these changes can manifest in maladaptive ways. It is also important to better understand the cognitions that accompany patterns of disordered eating, and the situations in which they may occur. In coding the interviews, there were four main themes that emerged relating to disordered cognitions and behaviors; the first of which being guilt, shame, and compensatory or reward behaviors.

Guilt, shame, and compensatory or reward behaviors

One of the main ways in which participants spoke about disordered eating was through feeling guilt and shame for their exercise and dieting choices, as well as either engaging in compensatory behaviors when they felt those negative emotions or rewarding themselves when they felt they had stuck to their rigid diet. This sub theme alone received twenty-two separate quotes among the five participants that reported struggling with a healthy relationship with food and their body. That number of responses was the single most for any sub theme, showcasing how prevalent this line of disordered thinking is among the participants. Many participants express guilt and shame over certain food choices that they or society deem “unhealthy” or “bad”, or for eating more than they had wanted. Participant One mentioned two instances of guilt surrounding diet and exercise, both when she feels she ate too much as well as if she feels like she isn’t being active enough.

I definitely think that there have been times where I’ve eaten more or more or more of something unhealthy than I necessarily would have wanted to, and then I regret it a little bit and I kind of feel a little bit badly about it.

I feel gross because I haven't really moved my body in like three or four days and I think that it's just been ingrained in me that I need to eat healthy and move my body in order to feel comfortable, but I really wish it wasn't that way.

Not only are these cognitions pervasive and can occur over the most miniscule changes in diet and exercise, but she recognizes that this line of thinking is destructive and wishes she didn't carry those cognitions with her. Participant Three also spoke at length about the guilt she feels surrounding pasta, despite it being her favorite food. Many participants spoke about their love of pasta, but that they only rarely consume it because of the guilt surrounding it being "unhealthy".

Pasta is definitely one of those foods that I consider a bad food so there's definitely a lot of guilt surrounding it, so... if I feel like I haven't been eating well lately then I feel kind of guilty about it.

Participant Five also explicitly mentioned the guilt surrounding eating pasta, despite it being her favorite food as well.

[I do not eat my favorite food (pasta) more often] because it's unhealthy. I definitely have this sense of guilt before and after I eat pasta, because it also just doesn't make me feel that good. I feel kind of crappy afterwards even though it tastes so good, so I do have that sense of guilt afterwards.

In addition to feeling guilty after eating specific foods, many participants mentioned an overall sense of guilt surrounding their bodies or their dieting. Participant Five recalled a time in which she decided to go on a very restrictive Keto Diet with the intention of losing weight, and felt an overwhelming sense of guilt if she was not able to stick to the strict diet.

I went on a Keto Diet, where I was only eating like 900 calories a day and it just was this horrible cycle of feeling guilty if I ate more than what I was supposed to be eating or restricting myself to. It was just this bad cycle of being starving all the time, but then also feeling super guilty if I wasn't sticking to this regiment of trying to lose weight.

This guilt experienced by all but one participant can be limited to certain foods and exercise levels, or can extend to their diet as a whole. This guilt can also encompass their overall body image, as with Participant Three.

I definitely still have the underlying thinking that the less food the better, the less calories the better, the more working out the better and the skinnier the better. I just have a hard time not being upset with myself, I guess, for what I eat and how my body looks.

Unfortunately, the guilt experienced by these women can cause them to engage in compensatory behaviors to “counteract” this guilt and to make up for whatever it is they ate or did to make them feel guilty. Oftentimes, these compensatory behaviors can lead individuals to drive themselves to the point of starvation or extreme restriction, which can ultimately lead to binge eating, in which they consume large amounts of food in one sitting. This cycle of restriction and binging can lead to even more guilt. Participant Two and Participant Three both explicitly mentioned the guilt felt after what they described as a binge. Participant Two talked about the stress and anxiety that she would feel while binging, because this behavior was occurring while she was struggling with an eating disorder and would happen after periods of extreme restriction.

In the moment [OF A BINGE] it's not usually horribly bad anxiety wise or emotion wise, but there are definitely sometimes especially in the past, when I would binge and I would just get so anxious as I was doing it, and I would even get sweaty and nervous and stressed, but that would just cause me to eat more which obviously is counterintuitive but kind of vicious cycle.

She mentioned this being a vicious cycle, which disordered eating typically is. Women often feel guilty about their diet or weight and turn to extreme methods to lose weight as endorsed by diet culture, or may struggle with eating disorders, and then ultimately “cheat” on their diet or engage in a binge which sends them into a deeper state of guilt and shame, and thus the cycle repeats. Participant Three talked about her binge and purge cycle, which describes her cycle from starvation, to binging, to purging in the form of over exercising and starvation again.

When I was in high school I like I said had a lot of problems with eating and would binge and purge a lot and I feel like it was partially a consequence of I wouldn't eat all day and then after like a day or two, then I would be insatiably hungry and then as soon as I would stop, then I would immediately just feel a lot of guilt and shame and just like physically unwell.

Participant Three mentioned bingeing as a consequence of not eating, and then referenced the binge and purge cycle because following the binge, she would feel the need to compensate for this food by engaging in more starvation, a form of compensatory behavior. Many participants mentioned feeling the need to “compensate” for guilty eating in various different ways. Participant One mentioned her typical line of thinking when she felt she over ate, and that her most common compensatory behavior was to “exercise the food off”.

In high school as well as my freshman year college, when I felt like I ate too much or ate too much of something unhealthy I would think of what I would do to exercise it off. That was a really, really like mentally difficult frame of thought to kind of be in just because, like, I was constantly punishing myself and just I couldn't actually enjoy eating because I would always end up having something “unhealthy” once in a while, and then I would feel guilty about it.

Even with these compensatory behaviors, participants still reported feeling guilty for their eating. Participant Two also mentioned the thought process surrounding engaging in compensatory behaviors before they even occurred, such that they cloud your thoughts while you are eating that food, or even before.

I had much more anxiety type feelings before eating [foods I thought were unhealthy], and there were tons of thoughts that went through my head in advance, like ‘how am I gonna burn these calories, I am going to have to not eat as much tomorrow to compensate for this, I'm so stressed for how I'm going to feel afterwards’. And just all the negative connotations of that food.

The experience of feeling guilt and trying to compensate for bingeing or for eating can create an almost never-ending cycle. Participant Three, who mentioned struggling with

a binge and purge (compensatory) cycle, recalls what would happen after she would binge.

There's been a lot of times where I've chosen not to eat, even when I was really hungry and tried to push through my own hunger and not eat because of either guilt for binging or just body things... I think most days in high school I skipped lunch or I just had fruit.

On the other end of the spectrum, many participants recall feeling proud of themselves for maintaining their restriction, or would only allow themselves to eat a food deemed unhealthy if they were rewarding themselves for prior good dieting. Participant Three, who previously mentioned she would feel guilty if she ate pasta despite it being her favorite food, said that she would also reward herself with pasta.

If I feel like I've eaten healthy consistently then I feel excited to eat the pasta, especially if I'm going out and kind of treating myself. I do not like to eat it unless I'm eating out or unless I'm rewarding myself for eating well.

Many other participants also shared similar sentiments, that this guilt could be replaced and rationalized as a “treat” for eating well, or sticking to a diet. Participant Two also mentioned “letting herself” have certain foods after a week or two of restricting them from her diet.

When I go a week or two without those you know more indulgent foods, then when I want them that's when that's when I'll let myself have them.

There is also a scenario in which multiple feelings are occurring at once, punishing yourself by strict restriction and feeling positively about yourself when the restriction is upheld. Participant Two recalled the mix of emotions she would feel during her active eating disorder that happened during her second year at Duke University.

My physical body was craving calories and was craving food and my stomach was saying that it needed something and everything physically about me was saying it felt like it needed food, but the emotions in my brain

were working completely against my body and saying the opposite, so that was driven by angst of gaining weight, or like the addiction to feeling hungry. Craving food is a good thing and feeling hungry was considered something positive, so, then my brain would say okay if you're hungry that's good, because your stomach is empty you're burning fat, so you shouldn't eat anything so you can sustain this feeling. My emotions were a combination of angst because, if I was in a situation when I needed to be focusing or I needed the energy then I obviously couldn't perform to the best of my abilities, but if I could maybe get by without eating and get by without the nutrients that I needed then it was happiness and it was like 'Okay, this is good, eating less is good'.

Participant Five also talked about these similar conflicting feelings, between physical pain from undereating but mental positive reinforcement, and from simultaneously feeling like you are punishing and rewarding yourself.

That summer after freshman year when I did that Keto Diet, I was starving all the time, but in my mind, I was thinking 'Okay, this is good, this is progress towards where I'm trying to be'. In a bad way it felt like a reward that I was hungry, because it felt like I was succeeding at my goal, but at the same time, I was really punishing myself.

These conflicting feelings of guilt and shame and punishment and reward, and the constant cycle that one can find themselves in can be hard to escape. As a few participants mentioned, they feel extreme guilt if they stray from the strict diet they imposed on themselves. This can be seen as having an "all or nothing" dieting mentality.

"All or nothing" dieting mentality

Many individuals who struggle with patterns of disordered eating feel that if they stray from their diet, that it is "ruined" for the day and that they might as well make it an all-out "cheat day". This cheat day can then cause them to dive further into the guilt and shame, to restriction and binge cycle. Participant Two explicitly mentioned this "all or nothing" mentality and how it can lead to binge eating.

I'll have one dessert or one "unhealthy" food and then feel like my whole day is ruined, or routine is ruined so then I'll binge eat a lot of stuff after that, which just causes me to spiral more. My brain will come up with all sorts of excuses so it'll be like 'okay you're full, but you've already eaten this much so why not just keep eating?' or 'it's full but, like I'll just have one more bite'.

In addition to this all or nothing mentality when it comes to dieting and food choices, many participants mentioned mindless eating or having an out of body experience during what would be considered binges or during periods in which they eat more than they intended or were hungry for.

Mindless or out of body eating

Many participants, and those in general who struggle with patterns of disordered eating, sometimes feel out of control of their eating choices, particularly when engaging in a binge or eating more than they intended. This can manifest itself in many ways, including mindless eating in which you do not notice how much you've eaten until after, or a total out of body experience in which you feel helpless to your behaviors. It can also be slightly less insidious than a full out of control feeling, and more so just a feeling of being unsure and not being in tune with your hunger cues after years of restriction and dieting. Participant One recalls how she finds it hard to distinguish from what she is hungry for.

If I bake cookies it's not knowing if I want just one, or if I want like three. I feel that often I end up just having more than I actually am hungry for.

Participant One, like many other participants, also reported a more mindless eating, where if they start to eat something, they deem it "unhealthy" that they have eaten much more than intended before they know it.

If I have an open container of chips, it's almost like the texture of the crunching is what I'm in a pattern of doing and I'll just keep eating something

without even realizing that I'm not actually eating the intended serving size and also I'm not even hungry for it.

Many other participants mentioned feeling a true lack of control, and that the act of bingeing or eating sometimes took the form of an out of body experience. Participant Two mentioned a feeling of blankness that occurs when she physically feels full but still is experiencing negative emotions that cause her to engage in a binge.

When I'm bingeing, it's like I'm eating and I feel full so my body knows that it's had enough, but my emotions and my brain are kind of in a chaotic situation, my emotions are either angst or stress, or distraction, so kind of not being present and kind of all over the place...it's just like blankness and there's nothing in my brain. And then my hand is in the bag of chips, and then it just keeps going in.

Participant Three described a similar experience by calling it an out of body experience and that she would totally turn off all the control she placed on herself surrounding dieting and exercise.

Once I let myself [start eating after restricting], I couldn't stop, and it was almost an out of body experience, where I would turn my brain off and turn all the control that I put over myself off and just binge and I would feel really out of control and out of my body almost.

These feelings of being out of control of your own eating are a sign of disordered eating, and the "cure" to this can be thought of as intuitive eating, or checking in with your physical and mental hunger cues to better understand your eating habits. Participant One described this duality between feeling out of control while eating and then recognizing and checking in with herself after.

Now in terms of like if I eat too much...I'm trying to think of if I like kind of lost control like it's more about a check in with my mental state more so of like okay like did you do that because you were hungry or did you do that because you were losing control of yourself and just did that for no reason.

Throughout the interviews, it became increasingly clear that the mental energy these participants, and others, expended on worrying about diet, exercise, and their body was a lot. Thus, the sub theme dedicated to the pervasiveness of these thoughts quickly emerged.

Pervasiveness of disordered cognitions

It is important to understand how pervasive and debilitating these cognitions and behaviors of disordered eating can be, and how much mental space they occupy. Many participants described how all of their attention was spent focusing on these issues, and that it was all they could think about. This also extends to the length of time they would feel guilty for eating a food they deemed unhealthy, which could last for up to a couple days. Participant Six mentioned how she constantly cycles back and forth from wanting to “enjoy life” and “lose weight”.

I cycle through different phases of like ‘oh, I need to be losing weight, you should be tracking calories and my exercise’ and I’ll stay like that for a few weeks, and then I’ll change my mind and be like ‘oh life is way too short to be like thinking about what I’m eating like I’m just going to eat what makes me happy’.

The fact that she believes the two cannot coexist and that she constantly is feeling tempted by the idea that she should lose weight speaks to how constant this cycle and these patterns of disordered eating and thinking can be throughout life. Participant Three spoke to how long-lasting these patterns of thinking can be, stating that she’s “always” struggled with this.

I think I've always had body dysmorphia and I've never been able to, regardless of my weight, I just never feel like I look the way I want to look and I just never feel totally comfortable in my body.

In addition to the collective time spent thinking and worrying about these issues over a lifetime, the day-to-day mental load of these thoughts can be debilitating. Participant Two described how all of her attention was spent worrying about what she was eating and her body image and how it took over her life.

All my attention, and the only thing I ever thought about was the next meal and what I was eating and food and body image and stuff.

Participant One also described in more detail how her every thought was consumed with dieting, and how when you are in that mindset that it feels so life and death and you play it over and calculate it in your mind constantly.

When I've tried to [diet], I do think I'll be hungry, but I will like have trouble figuring out what to eat because I'll be really in my head about what, as if each choice or each bite makes such a difference and it's such a big choice of my day and like, I'll be walking around my kitchen like thinking of what to have and even though I am hungry I just like put it off because I do not want to like use up my hunger on something that isn't great so that's why I shy away from doing that because it's just like a lot more mentally stressful than it should be.

The mental tax that disobeying and ignoring your hunger cues can cause can be truly exhaustive, and the guilt that you feel if you stray from that diet can also be long-lasting.

Participant Two described what that process of feeling guilty could look like and how long it would last.

Typically when I would when I felt like I ate too much or when I ate a specific food that was 'bad or unhealthy' those would trigger lots of bad emotions and the duration of that emotional unhappiness varied, sometimes it would be like 30 minutes, sometimes it would be a few hours, and sometimes it would be like a day or two, so it really it really depended, but there were many times when my mood was negatively affected from something I ate.

Understanding that someone who struggles with a pattern of disordered eating can be put into a bad mood for days just resulting from eating one food deemed unhealthy can help us better understand why these patterns can be so detrimental and why it is so

important we understand how they may form, and the different manifestations they may have. As previously mentioned, five out of six, or 83.3 percent of participants reported that they struggle with having a healthy relationship between diet, exercise, and their body. If we compare this number to the statistic from the literature that states 30 to 40 percent of all college women engage in patterns of disordered eating at least once a week, we can see that this is a widespread issue among college campuses, and even potentially more so on Duke University's campus.

Discussion and Conclusions

In line with the literature, there were three main themes that emerged during the interviews as they relate to one's relationship with diet, exercise, and their body.

Participants clearly spoke about various personal and early influences, college specific influences, and the specific disordered cognitions and behaviors that accompanied patterns of disordered eating. Some of the earliest ways in which their eating behaviors developed was through their parents, particularly their moms, and their at home eating rituals. Participants drew connections between being forced to finish their food growing up to now not knowing how much they are really hungry for, or still feeling the pressure to eat all of the food on their plate. Many participants also remember in vivid detail the specific eating related "rules" and dietary constraints imposed by their parents, typically their moms. One participant remembered that, after she had gained weight, her mom imposed a 'single sweet a day rule', and from that moment on she was consciously aware of her food intake. Participants also frequently reference their mom's personal relationship with diet and exercise, and that her own struggles with the two rubbed off and were internalized by a young age. In addition to the overall dietary rituals that were

in place growing up, many participants can distinctly recall a vivid memorable message regarding their diet or body, typically given to them by their mom, like drawing the connection that at age eight years old when her mom placed her on the swim team, it was most likely because she thought she was chubby. These results bolster the finding by Clark (2006) that body dissatisfaction and messages about dieting and exercise are internalized in girls by the age of nine. Despite the clear early impact of messages and behaviors modeled to young girls by their families, a commonality between participants was that they felt they really began to struggle by seventh or eighth grade.

Discovering that for all participants who reported struggling with their body image and dieting, this time period around seventh and eighth grade seems to be the possible beginning to these feelings is an interesting finding that was not mentioned in the extant literature. Perhaps this time period, that also happens to coincide with puberty, can be thought of as a sensitive period for the development of patterns of disordered eating, but that they can manifest at different time periods, similar to a diathesis-stress model. Another early and personal influence mentioned by participants was the way in which social eating mediates their eating behaviors. Social eating, typically with friends or others, was mentioned as a reason that participants eat when they aren't hungry. Perhaps the increase of this social eating in high school, and then again in college, when there are freshman dining halls, can increase one's eating and cause the guilt to restriction cycle to begin.

There were also several college and Duke-specific factors that influenced the participants' eating behaviors. Many spoke about time and schedule constraints on campus as to reasons for their eating behaviors, and that being in charge of their own

schedule for the first time was overwhelming and they would choose the most convenient option even if it wasn't what they preferred. The layout of the campus as far as convenience of going from different engagements to grab meals was also mentioned as a possible barrier to ideal meals. Participants also mentioned a decrease in diversity of food they eat since arrival to Duke, partly due to their comfortability of what they can eat and cook around campus, and partly because they had parents who would cook a variety of meals for them at home.

The stress and burden of feeling unprepared regarding how to manage one's own diet, exercise, and schedule was frequently referenced as a stressor that accompanied the transition to college. Many participants referenced the arrival to Duke as the shift between having slight disordered cognitions and behaviors to displaying frequent patterns of disordered eating. Food is often used as a comfort or crutch to other negative emotions that accompany life as a Duke student, such as test anxiety and job search stress. However, this increased eating can cause feelings of dissonance when the individuals also have internalized standards of diet culture that are perpetuated across campus, such as the emphasis on healthy eating and thin bodies, to which participants felt helpless against comparing themselves.

The patterns of disordered eating and related cognitions and behaviors experienced by participants varied slightly, but all had commonality. All but one participant reported feeling guilt and shame for certain dietary and exercise decisions, pasta being one that was frequently mentioned, a food that received a lot of demonization as fattening and unhealthy from the height of the 2000s diet culture. Another commonality, in addition to the immense guilt felt for certain foods, was the

feelings that they had to compensate for it, usually by extreme restriction or exercise in the following hours or days. These cycles of bingeing and purging or restriction often occur because of an 'all or nothing' dieting mentality, such that if they stray from their diet at all, their day of dieting is ruined. When they let themselves have those foods they often restrict, they feel a sense of loss of control and an out of body experience, and often do not consciously experience their eating during these times. On the other end of the spectrum, many experience feelings of joy and reward when they are able to stick to their diet and feel hunger, which may be similar to the joy one derives from performing well academically. Regardless of the different cognitions or behaviors related to disordered eating, all participants mentioned the pervasiveness of the thoughts about dieting, body, and exercise, that for some, consumed their day, were all they thought about, and took a great mental toll.

Ultimately, it seems that mothers, who have also themselves been the victims of diet culture, can be seen as a mechanism through which disordered eating cognitions and behaviors are perpetuated, and that the impact of this influence is early and enduring and represents a vicious cycle that young women find themselves in. It also seems, however, that the internalization of diet culture and beauty standards, and already present patterns of disordered eating can be worsened and escalated upon arrival to college. Furthermore, the increased academic stress that an elite university like Duke poses can be seen as a factor to patterns of disordered eating as well, as participants explicitly mentioned the stress of Duke, the idealized body and diet standards across campus, and that stress was a common determinant of binge eating and other disordered eating behaviors and cognitions. These disordered cognitions and

behaviors can manifest in various ways, but are pervasive and are often exacerbated in times of negative affect and in an attempt to change one's body shape, weight, or to feel a sense of control or reward through restriction.

Limitations and Future Directions

Despite reaching out to multiple student groups on campus and posting flyers as well as posting on my social media channels, I only interviewed six participants. I did have two additional participants sign up who did not show up for their scheduled interview and declined to reschedule. Obviously, the lack of diversity in my sample as well as the limited number of participants is a limitation of this research. In the future, I would suggest using a survey instead of in-depth interviews, at least as a preliminary step, in hopes of receiving more responses from a more diverse sample. I understand that these questions can be sensitive to answer and I imagine that many potential participants did not want to speak in-depth about these issues to me via confidential Zoom interviews. The time period around seventh and eighth grade for girls should be further explored as a possible sensitive period to the development of patterns of disordered eating. A future study should conduct a short-term longitudinal study interviewing young girls perhaps from the age of eight years to fifteen years, to better capture how the widespread internalization of these messages by age nine and this common period by eighth grade may influence the development of patterns of disordered eating.

Appendices

Appendix A: Interview Guide

Demographic Data

1. What is your gender?
2. What is your age?
3. What is your race?

Relationship with food and eating habits

4. Tell me what you like to eat throughout the day?
5. Tell me about your all-time favorite food? (If necessary, specify that it could be meal, snack, or dessert)
6. How often do you eat that food, and why not more frequently?
7. Tell me about what goes through your mind before you eat your favorite food?
8. Are there certain times you eat more throughout the day than others? What are those times?
9. Tell me about a time when eating food has changed your mood? Either for better or for worse.
 - a. Could you describe what that was like?
10. Can you think back and remember a time you ate when you weren't hungry?
 - a. Can you describe what that experience was like for you?
11. Can you think back and tell me about any times when you were eating and felt like you couldn't stop, even after you weren't hungry?
 - a. Could you describe what that experience was like?
12. Remember a time you were really hungry but couldn't eat, could you describe what happened and what that experience was like?

Comparison to Others

13. What's a memory you have that shows how important food is to your family?
14. Tell me about what meal times with your family look like?
15. When was the last time you had dinner with one of your friend's families? What was that experience like? How similar was it to eating with your family?
16. Have there been times when you noticed that your eating habits may be different from the eating habits of other people in your life?
 - a. What prompted you to notice?
 - b. How did you feel at that moment?
17. Growing up, did you ever feel different from your neighbors?
 - a. How so?
 - b. Could you describe some examples?

Money and Poverty

18. Have there been times when you or your family have worried about paying for food?
 - a. Could you describe what that was like?
19. Have there been times when you felt that other people around you had more money than you? Or that you felt you had less?
 - a. Could you describe some examples?
 - b. How did that make you feel?

Environmental Factors

20. How would you describe the environment on Duke's campus?
 - a. Was this environment different or similar to what you expected?
21. Was this environment different to ones you experienced prior to coming to Duke?
 - a. If so, how did that change affect you?
22. How would you describe the food availability and options since you arrived at Duke?
23. How were these offerings different or similar from what you had available prior to coming to Duke?
 - a. If different, how so and how did that affect you?
24. What was your favorite way to stay active growing up?
 - a. Can you describe what that looked like on a weekly basis?
25. Since coming to college, has that routine changed?
 - a. If yes, how? What do you think prompted that change?
26. Do you remember the first time someone talked to you about staying in shape?
 - a. What was that like?
 - b. How did that make you feel?
27. What was the last lesson you learned in school about staying in shape?
 - a. What did they teach you?
28. Growing up, did you usually eat a school lunch or pack one?
 - a. Do you remember why you chose to do one or the other?
 - b. Would you have preferred to do the opposite?
29. What did you usually eat for lunch growing up?
 - a. What do you usually eat now?
30. Do you feel that you struggle with having a healthy relationship with food and your body?
 - a. Could you describe to me your relationship with those two things (food and your body)?
 - b. When do you think your feelings around these two things began?
31. Since coming to college, have you noticed anything that impacts your current food and exercise choices that didn't impact them prior to coming to college?
 - a. Like alcohol use or being too busy, food availability etc.

32. Thank you so much for speaking with me! Is there anything else that you want to add about what we've been talking about?
33. Is there anything you think is important for me to know about you that I may have missed?

Appendix B: Coding Themes and Subthemes

<i>Main Theme</i>	Family and Early Influences	College Specific Influences	Disordered Cognitions and Behaviors
<i>Subthemes</i>	<p>Influence of at home feeding style</p> <p>Metabolism and hormonal changes</p> <p>Eating as a social activity</p> <p>Memorable messages</p> <p>Food costs</p>	<p>Food choices due to convenience and comfortability</p> <p>Burden of managing own schedule, diet, and exercise</p> <p>Stress-related</p> <p>Comparisons to others</p>	<p>“All or nothing” dieting mentality</p> <p>Mindless or out of body eating</p> <p>Pervasiveness of disordered cognitions</p> <p>Guilt, shame, and compensatory or reward behaviors</p>
<i>Description</i>	<p>Influences and factors of specific eating behaviors and cognitions that resulted from or emerged during their time prior to coming to Duke University</p>	<p>Experiences or cognitions that emerged during their time on Duke’s campus, and may be relating to a universal college experience or to something Duke specific</p>	<p>Specific experiences, cognitions, and behaviors that precede, constitute, or follow specific patterns of disordered eating</p>

Appendix C: Informed Consent Document

<i>Introduction</i>	Hi. I'm a student at Duke doing research for my Senior Honors Thesis.
<i>Purpose</i>	I am studying the ways in which socioeconomic status impacts an individual's eating behaviors. I am particularly interested in the ways in which childhood poverty impacts the development of obesogenic eating behaviors.
<i>Procedures</i>	If you agree to participate, I will ask you to answer some questions about yourself, including demographic questions, questions about your relationship with food and your socioeconomic status growing up. Your participation will take about 20-25 minutes.
<i>Risks</i>	Participants who may struggle with eating disorders or extreme childhood poverty may find one or more of the questions upsetting or distressing. To mitigate these risks, I will inform you of the nature of the questions prior to the interview. I will remind you that if you do not feel comfortable answering questions of that nature you are free to decline to answer them or to terminate the interview altogether at any time in the process.
<i>Benefits</i>	There is no benefit for people participating in this study, but your participation might help us to learn more about the ways in which socioeconomic status influences the development of certain eating behaviors.

<i>Confidentiality</i>	I will collect your demographic information (including gender, age, and race/ethnicity). However, I will not use any of your individual information in my report. No individuals will be identified and all findings will be reported in aggregate or attributable to a pseudonym.
<i>Voluntariness</i>	It is completely up to you whether to participate. You may skip questions or withdraw at any time for any reason.
<i>Compensation</i>	You will not receive compensation for your participation.
<i>Questions</i>	<p>If you have any questions about this research, please ask me now.</p> <p>If you have questions at a later time, you can contact me. You can also contact my faculty advisor, Maria Febbo, Ph.D. For questions about your rights, contact the Duke University Institutional Review Board at 919-684-3030 or campusirb@duke.edu.</p>

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