Spring 2022

Sexual Victimization and Disordered Eating among Sorority and Fraternity Members

Jennifer L. McGinness

SEXUAL VICTIMIZATION AND DISORDERED EATING AMONG SORORITY AND FRATERNITY MEMBERS

by

JENNIFER MCGINNESS

(Under the Direction of Ryan Couillou)

ABSTRACT

A clear relationship exists between a history of sexual victimization and disordered eating behaviors characteristic of anorexia nervosa, bulimia nervosa, and binge-eating disorder. Additionally, college students and more specifically, members of Greek organizations are at an increased risk of experiencing sexual victimization and developing disordered eating behaviors. However, there is a lack of research on the effect of Greek membership on the development of different types of disordered eating behaviors following sexual assault. Additionally, research has neglected to address novel disordered eating patterns, such as those characteristic of orthorexia nervosa, and the presence of these patterns following sexual assault. To examine these concerns, 496 fulltime undergraduate students at a large, rural southeastern university were asked to complete a demographic form reporting Greek membership and rurality status, as well as several self-report measures examining experiences of sexual victimization and disordered eating behaviors. Results indicate sexual victimization was positively related to symptoms of orthorexia nervosa and symptoms of disordered eating overall (i.e., symptoms of anorexia, bulimia, and binge-eating disorder). Symptoms of orthorexia nervosa and symptoms of disordered eating were also positively related. Contrary to expectations, Greek membership was not associated with overall disordered eating behaviors and symptoms of orthorexia. Greek membership was also unrelated to sexual victimization. Furthermore, Greek membership did not moderate the

relationship between sexual assault victim status and disordered eating behaviors. Finally, hometown rurality status did not moderate the relationship between sexual assault victim status and disordered eating behaviors.

INDEX WORDS: Sexual victimization, Sorority, Fraternity, Disordered eating, Anorexia nervosa, Bulimia nervosa, Binge-eating disorder, Orthorexia nervosa, Rural

SEXUAL VICTIMIZATION AND DISORDERED EATING AMONG SORORITY AND FRATERNITY MEMBERS

by

JENNIFER MCGINNESS

B.S., University of Florida, 2018

M.S., Georgia Southern University, 2020

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PSYCHOLOGY

SEXUAL VICTIMIZATION AND DISORDERED EATING AMONG SORORITY AND FRATERNITY MEMBERS

by

JENNIFER MCGINNESS

Major Professor: Ryan Couillou
Committee: Jeff Klibert
Brandon J. Weiss

Electronic Version Approved:
May 2022

ACKNOWLEDGMENTS

First, I would like to express my immense appreciation to my dissertation chair, Ryan Couillou for his thoughtful feedback and unwavering support for the duration of this project. I would also like to thank Brandon Weiss whose enthusiasm and commitment to the development and progress of this project were indispensable. I would also like to extend my gratitude to Jeff Klibert, whose knowledge and expertise contributed greatly to my development as a researcher and a clinician.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Purpose of the Study

This study seeks to investigate whether sorority or fraternity membership is linked to the occurrence of disordered eating (e.g., characteristics of anorexia nervosa, bulimia nervosa, binge-eating disorder) following sexual assault. Additionally, this study will address the potential relationship between sexual assault and a new pattern of disordered eating, orthorexia nervosa. Finally, this research will examine possible implications of being raised in a rural environment on the relationship between sexual victimization, disordered eating, and Greek organization membership.

How This Study is Original

While it is evident sorority and fraternity membership is related to the presence of disordered eating behaviors and the experience of sexual victimization, little research has been conducted to examine whether Greek affiliation may affect the relationship between sexual victimization and disordered eating behaviors. Disordered eating behaviors associated with Anorexia nervosa and Bulimia nervosa have been thoroughly researched among Greek populations, while other types of eating behaviors (e.g., binge eating and Orthorexia nervosa) have received little attention in research on Greek organizations. Furthermore, disordered eating behaviors characteristic of anorexia nervosa, bulimia nervosa, and binge-eating disorder have been well researched among victims of sexual assault. Nevertheless, little is known about alternative types of disordered eating (i.e., orthorexia nervosa) among sexual assault victims. Additionally, no research currently exists on the effect of being raised in a rural environment on

the relationship between Greek membership, sexual assault victim status, and disordered eating behaviors.

Literature Review

Sexual Victimization as a Risk Factor for Eating Disorders

Sexual victimization or sexual assault, defined as unwanted sexual contact (e.g., touching of the genitals, touching of the breasts or buttocks, and oral, anal, and vaginal penetration) is a significant public health concern in the United States (Rape, Abuse and Incest National Network, 2021). On average, 433,648 Americans (approximately 17.6% of women and 3% of men) over age 12 experience sexual victimization annually (Rape, Abuse and Incest National Network, 2021). Sexual victimization is a risk factor for disordered eating behaviors among both women and men (Strother et al., 2012).

Recent studies have indicated that sexual trauma may be a better indicator of disordered eating behaviors than other types of trauma (Breland et al., 2018; Gomez et al., 2021). A study of majority Caucasian (60%) women veterans, ages 18 to 70 years (M = 49, SD = 13) indicated that sexual violence was a significant predictor of disordered eating symptoms (i.e., symptoms of anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified) while combat exposure was not (Breland et al., 2018). The authors noted that implementing self-report measures in this study likely contributed to the significant results compared to previous studies that utilized face-to-face interviews. They hypothesized that women were likely more comfortable disclosing their sexual assault history and engagement in disordered eating behaviors via survey than to a live interviewer, which therefore produced more accurate results (Breland et al., 2018).

Furthermore, a study aimed at replicating the findings of Breland et al. (2018) across a population of majority women participants (76.5%) identifying as Hispanic/Latinx (65%) and living with food insecurity yielded similar results. In this study, sexual trauma was a better indicator of eating disorder symptoms than other types of trauma (e.g., combat trauma, vehicle accident, life-threatening illness or injury, serious body accident). These replication findings were particularly notable because sexual trauma was consistently a better indicator of disordered eating behaviors than other types of trauma across two diverse populations. Further research is essential in order to examine this link between sexual victimization and disordered eating.

Anorexia Nervosa

Anorexia nervosa is an eating disorder characterized by significant restriction of food intake, intense fear of gaining weight or becoming overweight, and disturbed perception of one's own body weight and appearance (American Psychiatric Association, 2013). Sexual victimization has been identified as a possible precursor to disordered eating behaviors associated with anorexia nervosa (e.g., concern about shape and weight, dietary restriction) (Carter et al., 2006). More specifically, existing literature demonstrates childhood sexual abuse is associated with disordered eating later in life (Carter et al., 2006). In a study of 77 women who met that Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria for anorexia nervosa, a strong relationship was revealed between child sexual assault and anorexia nervosa (Carter et al., 2006). Participants were administered an assessment of eating disorder psychopathology derived from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). In this study, child sexual abuse was defined as "any unwanted sexual experience involving physical contact including sexual touching and sexual intercourse that occurred before age 18 *and* prior to the onset of the eating disorder" (Carter et al., 2006, p. 260). The results

indicated the prevalence of child sexual abuse among inpatients with a DSM IV diagnosis of Anorexia nervosa was 48%.

Sexual assault in adulthood has also been identified as a risk factor for anorexia nervosa. Case studies have been valuable tools in illustrating the development of symptoms of anorexia nervosa following sexual trauma (McFarlane et al., 1988; Waller et al., 1993). Common findings emerged from two in-depth case studies in which two women reported the onset of symptoms of severe anorexia nervosa following sexual assault. Both women described experiencing feelings of guilt, inadequacy, loss of control, and distortion of body image following the trauma (Waller et al., 1993). Researchers examined these cases in the context of previous research describing the relationship between sexual trauma and disordered eating. They hypothesized that the experience of distorted body image following sexual assault was likely related to intimate body intrusion, physical threat, and severe humiliation associated with sexual violence. More specifically, the researchers suggested sexual avoidance and discomfort with issues of sexual attractiveness following a sexual trauma may result in distorted body image (Waller et al., 1993). Finally, they indicated restrictive eating and weight regulation may serve as strategies of regaining control and independence and reducing feelings of guilt following an incident of sexual violence. Sexual victimization experienced at any point during the lifespan appears to place victims at increased risk of developing disordered eating behaviors consistent with anorexia nervosa.

Bulimia Nervosa

Bulimia nervosa, an eating disorder consisting of recurrent episodes of binge eating and inappropriate compensatory purging (i.e., self-induced vomiting, misuse of laxative, excessive exercising) has also been associated with sexual victimization (American Psychiatric Association, 2013; Beckman & Burns, 1990). To investigate the relationship between sexual

assault and bulimia nervosa, participants from the third wave of the National Women's Study in 1992 were screened via telephone survey for bingeing and purging behaviors associated with bulimia nervosa (Beckman & Burns, 1990). Telephone interviewers asked participants scripted questions about their eating habits, the presence of compensatory strategies to offset caloric intake, incidents of sexual assault, and other violent forms of victimization. Women who reported experiencing bingeing or purging behaviors or any form of victimization were asked to provide details of the incidents. The study concluded that women who endorsed symptoms of bulimia nervosa were much more likely to have experienced sexual or aggravated assault than women who did not report experiencing both bingeing and purging behaviors (Beckman & Burns, 1990). More specifically, women who reported using two or more compensatory strategies following a period of binge eating were twice as likely to have reported experiencing sexual assault (Beckman & Burns, 1990).

A more recent study confirmed the findings of Beckman and Burns (1990). In a survey study of college women between the ages of 18 and 25, researchers found a staggering relationship between self-reported sexual violence and self-reported purging behaviors. Measures of sexual violence and purging behaviors were adapted from the National College Health Assessment, created by the American College Health Association in 1998 (Groff Stephens & Wilke, 2015). Those who reported mild sexual violence (e.g., verbal threats and/or unwanted sexual touching) were 90% more likely to report engaging in purging behaviors characteristic of bulimia nervosa (e.g., vomiting or using laxatives to lose weight in the last 30 days) than those who did not report experiencing any form of sexual violence (Groff Stephens & Wilke, 2015). Additionally, those reporting moderate sexual violence (attempted penetration) were 3.2 times more likely to report engaging in purging behaviors than those who did not experience sexual

violence. Finally, participants who indicated experiencing severe sexual violence (i.e., unwanted penetration) were 4.5 times more to report purging to lose weight than participants who reported no experiences of sexual violence (Groff Stephens & Wilke, 2015). In conclusion, those experiencing sexual assault are at an increased risk of developing behaviors characteristic of bulimia nervosa.

Binge-Eating Disorder

Binge-eating disorder was first recognized as a type of feeding and eating disorder in the DSM V, published in 2013 (American Psychiatric Association). Like bulimia nervosa, binge-eating disorder includes recurrent episodes of binge eating, during which, an individual experiences lack of control over eating and consumes more food than normal over a period of 2 hours or less (American Psychiatric Association, 2013). In contrast to bulimia nervosa, an individual experiencing binge-eating disorder does not implement compensatory strategies to offset caloric intake following binge eating. Oftentimes, episodes of binge eating are accompanied by feelings of disgust, embarrassment, distress, and uncomfortable fullness (American Psychiatric Association, 2013). Like both anorexia nervosa and bulimia nervosa, binge-eating disorder has been associated with sexual victimization (Gabert et al., 2013). In a study of 500 individuals enrolled in a bariatric program to treat obesity, 40.4% of participants who reported a history of sexual abuse also reported experiencing binge-eating disorder (Gabert et al., 2013). In contrast, only 26.6% of non-abused patients reported a diagnosis of binge-eating disorder (Gabert et al., 2013).

Similarly, in a review of 52 studies of obesity among adolescent girls, including 17 studies of binge-eating disorder, researchers found that binge-eating disorder was up to four times more prevalent among adolescent girls who experienced child sexual abuse than those who

did not (Van Tu et al., 2020). Additionally, the authors noted that those experiencing binge-eating disorder were more likely to suffer from obesity than those who did not endorse a diagnosis of binge-eating disorder. After examining these 17 studies, the authors also concluded that binge-eating disorder and obesity following child sexual abuse may help the individual to feel sheltered from sexual activity. More specifically, obesity may create a "body barrier" between the individual and perpetrators of sexual assault (Van Tu et al., 2020). They also highlighted that consuming hypercaloric comfort foods may serve as a mechanism for decreasing stress following a traumatic experience, such as sexual abuse. In sum, behaviors characteristic of binge-eating disorder may serve as an emotion regulation tool following sexual assault, placing those who have experienced sexual victimization at greater risk for developing binge-eating disorder.

Overall, existing literature demonstrates a significant association between sexual victimization and disordered eating (Carter et al., 2006; Gabert et al., 2013). It also appears that increased severity of sexual victimization is related to increased disordered eating behaviors (Groff Stephens & Wilke, 2015). Furthermore, behaviors such as experiencing distorted body image and altering one's food intake to regulate negative emotions are also associated with sexual assault (Van Tu et al., 2020; Waller et al., 1993). Finally, altering food intake to change body shape may be a way for those who have been sexually assaulted to attempt to regain control prevent subsequent victimization (Van Tu et al., 2020; Waller et al., 1993).

Gender Differences

While the majority of the literature has focused on the relationship between sexual assault and eating disorders among women, men have also been observed to suffer from eating disorders following sexual victimization (Ganson et al., 2020). Data collected from the Healthy Minds

Study, a yearly, national measure of mental health, substance use, interpersonal concerns, and help-seeking behaviors among undergraduate college students was examined to investigate sexual victimization and eating disorders among men participants (Ganson et al., 2020). A sample of 14,964 undergraduate men were administered The SCOFF Questionnaire to Screen for Eating Disorders (Morgan et al., 1999). The SCOFF tool measures self-induced vomiting, loss of control overeating, weight loss, bodyweight perception, and preoccupation with food (Morgan et al., 1999). The study concluded that over 16% of college-enrolled men screened positive for an eating disorder and 4% of college-enrolled men endorsed experiencing sexual assault over the past 12 months (Ganson et al., 2020). However, the authors conjectured that sexual assault was likely underreported by men due to association with shame and weakness. Finally, the authors reported that men who endorsed sexual victimization in the past 12 months were significantly more likely to screen positive for an eating disorder (Ganson et al., 2020).

A review of relevant literature conducted in 2012 highlighted similar findings, including the underreporting of sexual abuse among men and an increased likelihood of developing an eating disorder following sexual victimization (Strother et al., 2012). Based on their examination of the literature, authors posited that the underreporting of sexual victimization among men was likely due stigmatization and humiliation. Additionally, they noted that eating disorder symptoms are also likely underreported by men as eating disorders are often perceived as feminine diseases. More specifically, the literature review also concluded that body-image disturbance and concerns over body weight and shape were more likely among gay and bisexual men than men identifying as straight. In short, both men and women are at an increased risk of developing an eating disorder following sexual assault compared to those who have not experienced sexual trauma.

Orthorexia Nervosa

Recent research recognizes a new pattern of controlled eating behavior, orthorexia nervosa, characterized by a significant preoccupation with eating foods deemed healthy, nutritious, and wholesome (Bundros et al., 2016). This pattern of "clean" eating also includes rigid exclusion of foods identified as unhealthy due to qualities such as genetic modification, potential presence of pesticides or allergens, organic status, as well as sugar, salt, and fat content (Bratman, 2017). Although orthorexia nervosa is not recognized in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), the condition shares similar features to clinically identified eating disorders, including obsession with food and rigid food rules (Bundros et al., 2016).

Due to the novelty of this condition, few studies have examined the onset, maintenance, and exacerbation of symptoms of orthorexia nervosa(Cheshire et al., 2020). However, one study examining the development of orthorexia nervosa indicated that health professionals working with those experiencing orthorexia nervosa observed a potential link to sexual trauma (Cheshire et al., 2020). Researchers recruited health professionals and individuals with tendencies of orthorexia nervosa to participate in semi-structured interviews about their experiences. Professionals reported individuals who endorsed experiencing sexual assault also endorsed traits associated with orthorexia nervosa(e.g., the need for control, the need to feel clean). Therefore, it is possible that symptoms of orthorexia nervosa are associated sexual victimization.

Influence of Greek Affiliation on Eating Disorders

University undergraduate students are increasingly at risk of developing eating disorders, as eating disorder prevalence rates have escalated among college populations in recent years (White et al., 2011). In a 13- year longitudinal study examining eating disorder prevalence

among undergraduate students, researchers found that rates of practicing behaviors consistent with eating disorders increased from 23.4% to 32.6% in women and from 7.9% to 25% among men over the course of the study (White et al., 2011). Researchers collected this data via 3 random sample surveys of undergraduate students at a mid-sized university in southern California in 1995, 2002, and 2008. Participants were asked to complete the Weight Management Questionnaire, which includes questions on eating behavior, exercise behavior, and binge eating (Mintz et al., 1997). Participants' eating disorder behaviors were classified into DSM-IV and Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR) categories based on their responses. The prevalence of eating disorders increased significantly among both undergraduate men and women enrolled at the host institution between 1995 and 2008. Additionally, the use of unhealthy weight control methods (e.g., vomiting, using laxatives, fasting, taking diet pills) increased significantly from 1995 to 2002. Overall, the percentage of students engaging in eating disorder behaviors rose from 18.5% in 1995 to 30.5% in 2008, indicating a significant increase in eating disorders among this university population.

More specifically, sorority and fraternity membership has been associated with increased disordered eating behaviors among undergraduate men and women (Basow et al., 2007; Piquero et al., 2010). A research study aiming to investigate strain theory (i.e., causes of strain on society) and its relationship to negative emotion and mental illness among college men concluded that fraternity membership was associated with disordered eating behaviors and attitudes (Piquero, et al., 2010). Such behaviors and attitudes include purging behaviors, desire to lose weight, general body dissatisfaction, and desire to be thin and physically fit. Participants in this study included 382 young adults enrolled at a university in the Pacific Northwestern United States. They were administered 3 Subscales of the Eating Disorder Inventory, including (1)

Drive for Thinness (anorexia), (2) Bulimia, and (3) Disordered Eating (Garner et al. 1983). The study concluded that Greek affiliation was positively related to disordered eating among men. Authors speculated this outcome may have been attributed to fraternity members' desire to match the level of fitness of their sorority colleagues, though they acknowledged lack of significant evidence to support this claim (Piquero et al., 2010). Furthermore, low response rates remain a barrier to obtaining data on eating disorders among men and unfortunately, research replicating these findings was unavailable (Strother et al., 2012; White et al., 2011).

Far more research has been devoted to investigating the relationship between sorority membership and eating disorders, as it has recently become a topic of increasing concern (Averett et al., 2016; Basow et al., 2007). To address this issue, a sample of 265 women from a small liberal arts college on the East Coast were asked to respond to surveys measuring disordered eating behavior, body objectification, and social pressure (Basow et al., 2007). Eating disorder symptoms were measured via 3 subscales of the Eating Disorder Inventory-2, including Drive for Thinness, Bulimia, and Body Dissatisfaction (Garner et al., 1983). The Objectified Body Consciousness Scale (McKinley & Hyde, 1996) was implemented to measure thoughts about body appearance, body shame, and degree of control over appearance. Finally, participants were asked to indicate the extent to which they experienced social pressure from women peers. Results of this study indicated sorority women demonstrated increased risk factors for developing an eating disorder (e.g., objectified body consciousness, disordered eating attitudes, and perceived social pressure) compared to peers who were not members of sororities. The researchers also found that women who endorsed higher levels of these risk factors were more likely to be attracted to sorority recruitment and membership.

Due to the attention this topic has received, further research has been conducted to challenge the relationship between eating disorders and sorority membership. A large-scale study examined data from the fall 2008, spring 2009, and fall 2009 American College Health Association-National College Health Assessment to investigate causal effects of sorority membership on eating disorders (Averett et al., 2016). The findings of this study demonstrated that sorority membership contributed to disordered eating behaviors including dieting, trying to lose weight, and using pills to lose weight. Additionally, sorority membership was associated with lower body mass index and lower rates of obesity. However, there was no statistically significant evidence that sorority membership contributed to diagnoses of anorexia nervosa or bulimia nervosa, or symptoms associated with these diseases (e.g., being underweight, using laxatives or vomiting to lose weight). Based on the conclusions of this study, it is evident that sorority membership is associated with an increased focus on weight loss (Averett et al., 2016). However, sorority membership was not observed to be a causal factor for eating disorder diagnoses.

To date, the available literature has not examined comparisons of binge eating behavior in absence of compensatory behavior among Greek members and other population. However, a 1988 study of undergraduate women revealed that sorority women were more likely to imitate binge-eating behaviors of their peers (Crandall, 1988). Women from three sororities were asked to complete measures of disordered eating behaviors and to compile a list of their ten closest friends. Data analysis revealed disordered eating behaviors consistent with binge eating were of a similar nature within self-identified peer groups (Crandall, 1988). The author suggested these findings were consistent with a social contagion model. Similarly, literature on the prevalence of orthorexia nervosa specifically among sorority and fraternity members is currently lacking.

Although the literature does not provide investigation of orthorexia nervosa among Greek members specifically, orthorexia nervosa tendencies are found to be prominent among college populations and correlate strongly with disordered eating behaviors (Bundros et al., 2016).

Influence of Greek Affiliation on Sexual Victimization

The majority of sexual assault victims are under 30 years of age and 54% are between the ages of 18 and 34 (Rape, Abuse and Incest National Network, 2021). Both men and women report increased rates of sexual victimization during their college years compared to other periods of life (Fisher et al., 2000; Forsman, 2017). Men ages 18-24 enrolled in colleges or universities are approximately 5 times more likely to experience sexual assault than age-matched peers who are not students (Rape, Abuse and Incest National Network, 2021). Women college students, ages 18-24 are 3 times more likely to be victims of sexual assault than women in the general population (Rape, Abuse and Incest National Network, 2021). Furthermore, sorority women and fraternity men are more likely to be victims of sexual assault than those who are not affiliated with a Greek organization (Franklin, 2015; Luetke et al., 2020). Dangerous behaviors, such as high-risk alcohol use among sorority and fraternity members are potential precursors to increased rates of sexual aggression among this population (Franklin, 2015; Kingree & Thompson, 2013; Minow & Einolf, 2009).

Historically, survey research on the sexual experiences of fraternity men has received low response rates and has frequently focused on fraternity members as perpetrators of sexual assault (Mellins et al., 2017). While limited research has been conducted examining the sexual victimization experiences of fraternity men, recent studies indicate prevalence rates are likely higher among undergraduate fraternity members than nonmembers (Luetke et al., 2020; Mellins et al., 2017). Researchers examined data from Columbia University's and Barnard College's

Sexual Health Initiative to Foster Transformation Study to identify types of sexual assault experienced by college undergraduate students (Mellins et al., 2017). Participants were asked to complete a modified version of the Sexual Experiences Survey (Koss, 2007), indicating whether they had experienced specific types of sexual assault, including sexual touching, attempted penetrative sex, or penetrative sex. The study revealed that both men and women who indicated fraternity or sorority membership reported increased experiences of sexual victimization compared to nonmembers (Mellins et al., 2017). More specifically, both sorority and fraternity members reported significantly increased rates of unwanted sexual touching compared to nonmembers. Overall, these researchers reported that 3.8% of college men included in the survey reported experiencing attempted penetrative sexual assault and 5.2% indicated experiencing completed penetrative sexual victimization (Mellins et al., 2017).

A similar study in which 102 undergraduate fraternity men enrolled at a large Midwestern university were surveyed about sexual victimization and perpetration experiences revealed even higher prevalence rates of victimization. Notably, 13.7% of fraternity member participants reported penetrative sexual victimization since entering college and 17.5% reported attempted penetrative sexual victimization since starting college (Luetke et al., 2020). Authors attributed increased response rates to the inclusive language of the survey and the elimination of words such as “victim” and “assault” when measuring sexual aggression (Luetke et al., 2020).

Similarly, sorority women have been at an increased risk of sexual victimization compared to their nonmember counterparts for several decades (Copenhaver & Grauerholz, 1991; Franklin, 2015; Minow & Einolf, 2009). Minnow and Einolf (2009) surveyed 779 university undergraduate women regarding their experiences with sexual victimization perpetrated by men. The researchers implemented a questionnaire adapted from the Sexual

Experiences Survey (Koss, 2007) and National Victimization of College Women Study (Fisher, 1997). Results demonstrated 29% of sorority members and 7% of nonmembers endorsed sexual victimization, indicating sorority members experienced sexual assault at a rate over 4 times the rate of nonmembers. Furthermore, 33% of sorority women reported experiencing completed rape, compared to 8% of nonmembers. The authors noted that even when the variable of alcohol use was controlled for, sorority women still reported higher rates of sexual victimization than nonmembers. To examine factors influencing these staggering rates of sexual assault among sorority members, Franklin (2015) surveyed 282 women enrolled at a large Northwestern university. The study concluded that sorority affiliation was predictive of factors including increased alcohol consumption, increased risk-taking behaviors, delays in assessing threat, decreased responses to risk, and increased contact with fraternity men compared to sorority nonmembers.

In conclusion, university students are at significantly increased risk of sexual victimization, with sorority and fraternity members at even higher risk than the general population of college students (Fisher et al., 2000; Forsman, 2017). The current literature suggests sorority and fraternity members engage in more behaviors related to sexual victimization, such as high-risk alcohol use compared to non-Greek counterparts (Franklin, 2015). Finally, the current estimations of sexual victimization among Greek members may be an underrepresentation due to significant underreporting of fraternity members (Luetke et al., 2020; Mellins et al., 2017).

Rurality Considerations

A rural area is a place with low population density, defined by the U.S census bureau as non-urban (Unites States Census Bureau, 2010). A non-urban area is one that is neither an

urbanized area (population of 50,000 or more) nor an urban cluster (population of at least 2,500 and less than 50,000). Furthermore, a rural environment may serve to increase risk factors for sexual victimization and eating disorders. While little research has examined differences between rates of eating disorders among rural populations in the Unites States, it is evident that access to mental health care, including eating disorder treatment is lacking in rural areas (Smalley et al., 2012). More specifically, barriers to mental health resources (e.g., limited access to affordable care, stigmatization of psychiatric treatment, lack of culturally competent mental health care, concerns over confidentiality, inadequate knowledge about mental health care, limited dissemination of available services) remain prevalent among rural communities (Smalley et al., 2012). Therefore, those in rural communities experiencing disordered eating may not be aware of the health concerns associated with eating disorders. Additionally, those in rural communities may be unaware of the necessity of mental health resources and may have limited access to eating disorder treatment.

Rural settings have also been observed to lack resources to aid sexual assault victims and may perpetuate inaccurate perceptions surrounding sexual victimization (Carter-Snell et al., 2019; Vanderwoerd, 2009). More specifically, health services in rural settings may be unable to provide comprehensive care following a sexual assault due to lack of funding, staff shortages, and widespread service centers (Carter-Snell et al., 2019). Additionally, those living in rural areas may experience barriers to care such as negative attitudes towards sexual assault disclosure, lack of transportation, disbelief, victim blaming, and lack of social support following an assault. Furthermore, individuals enrolled in rural colleges and universities are at comparable risk for experiencing sexual assault compared to urban counterparts but are unlikely to have access to the resources an urban setting provides (Vanderwoerd, 2009). Therefore, research

addressing the repercussions of these unique barriers to care following sexual assault on rural college campuses is imperative.

Hypotheses

In the current study, the following hypotheses were evaluated:

1. Sexual assault victim status will be positively related to disordered eating behaviors characteristic of anorexia nervosa, bulimia nervosa, binge-eating disorder, and orthorexia nervosa.

2. Greek membership will be positively related to sexual assault victim status and disordered eating behaviors characteristic of anorexia nervosa, bulimia nervosa, binge-eating disorder, and orthorexia nervosa.

3. Greek membership will moderate the relationship between sexual assault victim status and disordered eating behaviors.

- A stronger relationship will exist between sexual assault victim status and disordered eating behaviors characteristic of anorexia nervosa, bulimia nervosa, binge-eating disorder, and orthorexia nervosa among members of Greek organizations than among nonmembers.

Exploratory Aim: Exploratory analyses will evaluate whether rurality status affects the relationships between Greek membership, sexual assault victim status, and disordered eating behaviors.

CHAPTER 2

METHODS

Participants

In order to address the main objective of this study, a target sample of at least 390 participants was identified. One hundred participants were assigned to each predictor variable (Greek membership, sexual assault status, and rurality status) with an addition of ninety participants (30%) to allow for expected attrition and the additional objectives of examining possible moderating factors. In total, 556 participants were recruited for the study.

Participants in this study were undergraduate students at a large southeastern university. They were 18 years or older, enrolled in undergraduate classes, and were recruited using the university's Experiment Management System, Sona Systems Software (SONA). To maximize data quality, 60 respondents were removed from analyses because they did not answer survey validity check questions correctly or did not complete 90% of the survey items. A total of 496 participants were retained in the final sample. Out of 496, 54 participants indicated they were over 18 but did not report their exact age. A total of 442 participants identified their ages within a range of 18 to 54 years (M = 20.02, SD = 3.97). Out of 495 respondents who identified their gender identity, 369 participants identified as women (74.4%), 108 as men (21.8 %), 9 as genderqueer (1.8%), 6 as *a better description not specified above* (1.2%), and 2 as Male-to-Female (MTF)/ Transgender Female (.4%). One participant selected *prefer not to say* and did not report their gender identity. Out of a total of 496 participants who identified their sexual orientation, 353 identified as heterosexual (71.2%), 68 identified as bisexual (13.7%), 21 identified as asexual (4.2%), 16 identified as mostly heterosexual (3.2%), 15 chose *a better description not specified above* (3.0%), 11 identified as gay/lesbian (2.2%), 7 identified as

questioning (1.4%), and 5 identified as mostly gay/lesbian (1.0%). A total of 493 participants reported their racial identity, with 309 participants identifying as White (62.7%), 146 as Black/African American (29.4%), 23 as Multiracial (4.7%), 11 as Asian/Asian American (2.2%), and 4 as American Indian/Native American (0.8%). A total of 494 participants answered the question about Hispanic or Latinx identity, with 34 participants identifying as Hispanic or Latinx (6.9%). Out of a total of 492 participants who answered the question about financial resources, 316 identified as having some financial resources (63.7%), 138 as having substantial financial resources (27.8%), 31 as poor/impoverished (6.3%), and 7 as Affluent/Rich (1.4%). Out of 495 respondents who answered the question about hometown population, 111 participants described their hometown as having <9,999 people (22.4%) and 384 described their hometown as having >9,999 people (77.4%). Of the 496 participants, 55 endorsed being a member of a social sorority (11.1%) and 6 identified as being a member of a social fraternity (1.2%). Of the 490 participants who reported their height and weight, participant BMIs ranged between 16.3 (underweight) and 57.8 (extremely obese) with an average BMI of 25.54 (*SD* = 6.05).

Measures

All materials were either public domain or were acquired with permission from the original authors. Participation in the study included an informed consent document, a demographic questionnaire, and self-report questionnaires measuring disordered eating behaviors and experiences of sexual assault. The following measures were used in the study: Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0), Teruel Orthorexia Scale**,** and the Victim of Sexual Coercion Scale. Hometown rurality status and Greek organization membership were measured via demographic survey and participant responses were assigned to dichotomous categories. Those who selected either *Social Sorority Member* or *Social Fraternity Member* were

considered Greek, while those who did not choose those options were categorized as Non-Greek. Participants who indicated having a hometown population of *<9,999* were considered Rural while those who did not select this option were categorized as Non-Rural.

Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0; Fairburn & Beglin, 2008).

The Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0) is a 28- item self-report questionnaire measuring symptoms of disordered eating. The questionnaire includes four subscales assessing the cognitive features of eating disorders: Restraint, Eating Concern, Shape Concern, and Weight Concern. The questionnaire also contains items assessing behavioral symptoms, including binge eating, vomiting, laxative misuse, and excessive exercise. In terms of psychometric properties, internal consistency was found to be acceptable (Berg et al., 2011). A review of fifteen studies of the psychometric properties of the measure yielded the following Cronbach's alpha coefficients on each subscale: Restraint (.70–.85), Eating Concern (.73–.86), Shape Concern (.83–.93), and Weight Concern (.72–.89) (Berg et al., 2011). Furthermore, the EDE-Q 6.0 was recently found to accurately identify symptoms of eating disorders among both women and men in a nonclinical sample of Lithuanian undergraduate students (Baceviciene et al., 2020). In the same study, test-retest reliability was good to excellent for all subscales (Baceviciene et al., 2020). Similarly, the EDE-Q 6.0 has been found to be a valid and reliable measure of eating disorder symptoms among men and women Malaysian university students (Mohd Taib et al., 2021). The total score of the EDE-Q 6.0 numeric items (excluding free-response items) was used to measure symptoms of overall disordered eating among participants. In the current study, the internal consistency coefficient for EDE-Q 6.0 was excellent ($\alpha = .96$).

Teruel Orthorexia Scale (TOS; Barrada and Roncero, 2018)

Participants completed the 17-item Teruel Orthorexia Scale (TOS) to assess excessive preoccupation with maintaining a nutritious diet and eating certain foods perceived as healthy (Barrada and Roncero, 2018). The self-report questionnaire items are rated on a 4-point Likert scale ranging from 0 = completely disagree to 3 = completely agree (Barrada & Roncero, 2018). The scale classifies preoccupation with healthy eating behaviors into the categories of Healthy Orthorexia and Orthorexia Nervosa. Healthy Orthorexia is considered unproblematic attention to healthy eating and orthorexia nervosa is defined as substantial preoccupation or obsession with healthy eating. Internal consistency reliability of the TOS for measuring Healthy Orthorexia reached a Cronbach's alpha of .85 (.80 in the retest sample) and a Cronbach's alpha .81 (.90 in the retest sample) for measuring orthorexia nervosa (Barrada & Roncero, 2018). After 18 months, the Test-Retest Reliability correlations among both scores of Healthy Orthorexia were .73 and were .82 among both scores of orthorexia nervosa (Barrada & Roncero, 2018). The total score of the TOS was used to examine symptoms specific to orthorexia nervosa among participants. In the current study, the internal consistency coefficient for the TOS was good (α = .87).

Victim of Sexual Coercion Scale (VSCS; Mathes and McCoy, 2011)

All participants were administered the Victim of Sexual Coercion Scale (VSCS), measuring experiences of sexual assault. The VSCS contains 13 items evaluated on a 4-point scale: 1: No, definitely; 2: No; 3: Yes; and 4: Yes, definitely (Mathes & McCoy, 2011). Internal consistency reliability was alpha = .89 (Mathes, 2011). The authors referenced Koss's Sexual Experiences Survey (SES) when constructing the items of the VSCS (Koss, 2007). The VSCS was normed on a diverse sample of college students, is gender neutral, and includes items identifying forms of sexual victimization beyond those that legally constitute rape (Mathes &

McCoy, 2011). The total VSCS score was used in the current study. In the current study, the internal consistency coefficient for VSCS was excellent (α = .95).

Procedure

Undergraduate students registered for the study via Georgia Southern University's Experiment Management System (SONA) and data was collected through Qualtrics. Participants were compensated for their time with extra credit in psychology courses. The self-report questionnaires were randomly ordered using a counterbalanced design via Qualtrics.com to control for order effects. Demographic characteristics including gender, age, sexual orientation, hometown rurality, and self-reported weight and height were also collected and all participants completed the demographic questionnaire were used to calculate each participant's estimated body mass index (BMI). Participants completed the Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0), the Teruel Orthorexia Scale (TOS), and the Victim of Sexual Coercion Scale (VSCS) in random order. After completing the self-report questionnaires, participants were guided to a debriefing page with a description of the objectives of the research, information about free mental health resources, instructions for receiving compensation, and the primary investigator's contact information.

Analytic Plan

To address hypothesis 1 and hypothesis 2, the primary investigator ran bivariate correlations. To address hypothesis 3 and the exploratory aim, the primary investigator used moderated moderation models.

Bivariate correlations were used to determine if sexual assault victim status was positively related to disordered eating behaviors (Hypothesis 1). More specifically, bivariate correlations were implemented to examine the relationship between sexual assault victim status

and overall disordered eating (e.g., presence of symptoms of anorexia nervosa, bulimia nervosa, and/or binge-eating disorder) as well as the relationship between sexual assault victim status and symptoms of orthorexia nervosa. Bivariate correlations were also used to determine if Greek membership was positively related to sexual assault victim status and if Greek membership was positively related to disordered eating behaviors (Hypothesis 2). More specifically, bivariate correlations were implemented to examine the relationship between Greek membership and overall disordered eating (e.g., presence of symptoms of anorexia nervosa, bulimia nervosa, and/or binge-eating disorder) as well as the relationship between Greek membership and symptoms of orthorexia nervosa. A moderated moderation model was used to determine if rurality status will affect how Greek membership moderates the relationship between sexual assault victim status and disordered eating behaviors (i.e. disordered eating overall and symptoms of orthorexia nervosa specifically) (Hypothesis 3 and Exploratory Aim 1).

CHAPTER 3

RESULTS

Bivariate Correlations

The current study examined bivariate correlations among the study's main variables, including Greek life participation, hometown rurality status, symptoms of disordered eating, symptoms of orthorexia nervosa, and sexual victimization. The correlation matrix is presented in Table 1. Symptoms of orthorexia nervosa were positively associated with symptoms of disordered eating ($r = .46$, $p < .01$). The correlation effect size was moderate (Cohen, 2013). Sexual victimization was positively related to overall symptoms of disordered eating ($r = .29$, $p < .01$), with a moderate effect size (Hypothesis 1). Symptoms of orthorexia nervosa were positively correlated with sexual victimization ($r = .23$, $p < .01$), with a moderate effect size (Hypothesis 1).

Additionally, there were a number of relationships that failed to reach significance. Notably, Greek life participation was not significantly related to rurality status ($r = .07$, $p = .10$), eating disorder symptoms ($r = .01$, $p = .82$), symptoms of orthorexia nervosa ($r = .01$, $p = .89$), and sexual victimization ($r = -.04$, $p = .37$). Moreover, rurality status was not significantly associated with eating disorder symptoms ($r = -.04$, $p = .37$), symptoms of orthorexia nervosa ($r = .05$, $p = .26$), and sexual victimization ($r = .03$, $p = .46$).

Table 1
Bivariate Correlations

Variable	1	2	3	4	5
Greek Life	-				
Rurality	.07	-			
Eating Disorder Symptoms	.01	-.04	-		
Orthorexia Symptoms	.01	.05	.46**	-	
Sexual Victimization	-.04	.03	.29**	.23**	-

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Moderated-Moderation Models

Moderated-moderation models were employed to determine if the relationship between sexual victimization and eating disorder symptoms (e.g., symptoms of anorexia, bulimia, and binge-eating disorder) varies as a function of Greek membership and rural status. Probing procedures were employed with any significant moderated effect.

Moderated-Moderation Model 1

In the first model, I evaluated the main effects for sexual victimization, Greek membership, rural status, and multiple two-way and three-way interaction terms to account for variation in disordered eating symptoms. The model is represented in Figure 1. Regression statistics for Model 1 are presented in Table 2. In total, the main and interactive effects accounted for 9.74% of the variance in eating disorder symptoms, $F(7, 487) = 7.51$, $p < .01$. Within the model, the main effects for sexual victimization ($b = -1.10$, $p = .49$), Greek membership ($b = -34.12$, $p = .30$), and rural status ($b = -7.27$, $p = .55$) did not account for significant variance in disordered eating symptom scores. At a multivariate level (two-way interaction effects), the sexual victimization x Greek membership interaction effect ($b = 1.81$, $p = .20$), sexual victimization x rurality interaction effect ($b = .31$, $p = .54$), and Greek membership x rurality interaction effect ($b = 3.36$, $p = .76$), did not significantly account for variance in disordered eating symptom scores. Finally, the three-way interaction effect ($b = -.19$, $p = .67$) did not significantly account for additional variance in disordered eating scores, $F(1, 487) = .18$, $p = .67$. Considering there were no significant interaction effects, neither rurality status nor Greek participation status served as a moderating variable in the current model. As no significant moderation effects were detected in Model 1, there is no reason to probe the interaction effects further.

Figure 1

Moderated-Moderation Model 1

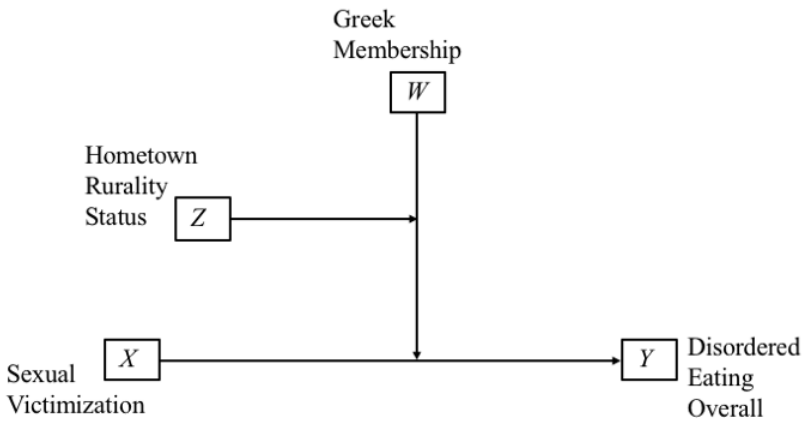

Table 2

Multivariate Associations with Eating Disorder Examination Questionnaire 6.0

Main Effects	*b*	*p*	95% *LCI*	95% *UCI*
Sexual Victimization	-1.10	.48	-4.13	1.93
Greek Life	-34.12	.30	-98.42	30.17
Rurality	-7.27	.55	-30.91	16.37
Interaction Effects				
Sexual Victimization x Greek Life	1.81	.20	-.98	4.60
Sexual Victimization x Rurality	.31	.54	-.67	1.28
Greek Life x Rurality	3.36	.79	-18.06	24.77
Sexual Victimization x Greek Life x Rurality	-.19	.67	-1.08	.70

Note. Model R^2 = .10

Moderated-Moderation Model 2

In the second model, I evaluated whether the relationship between sexual victimization and symptoms of orthorexia nervosa varies as a function of Greek membership participation and rural status. The model is represented in Figure 2. In Model 2, I evaluated the main effects for sexual victimization, Greek membership participation, and rural status, multiple two-way interaction effects, and one three-way interaction effect to account for variation in orthorexia nervosa symptom scores. Regression statistics for Model 2 are presented in Table 3. In total, the main and interactive effects accounted for 7.03% of the variance of orthorexia nervosa symptom scores, $F(7, 487) = 5.26$, $p < .01$. Within the model, the main effects for sexual victimization ($b = .27$, $p = .45$), Greek membership participation ($b = 5.37$, $p = .47$), and rural status ($b = 1.52$, $p = .58$) did not account for a significant amount of variance in orthorexia nervosa scores. At a multivariate level (two-way interactions), the sexual victimization X Greek membership interaction effect ($b = -.23$, $p = .47$), sexual victimization X rurality interaction effect ($b = -.06$, $p = .60$), and Greek membership X rurality interaction effect ($b = -2.59$, $p = .29$), did not significantly account for variance in orthorexia nervosa symptom scores. Similarly, the three-way interaction effect ($b = .11$, $p = .27$) did not significantly account for additional variance in orthorexia nervosa symptom scores, $F(1, 487) = 1.24$, $p = .27$. Considering none of the interaction effects were significant, neither Greek membership participation nor rural status served as significant moderators in the model. As no significant moderation effects were detected, there was no reason to probe the interaction effects further.

Figure 2

Moderated-Moderation Model 2

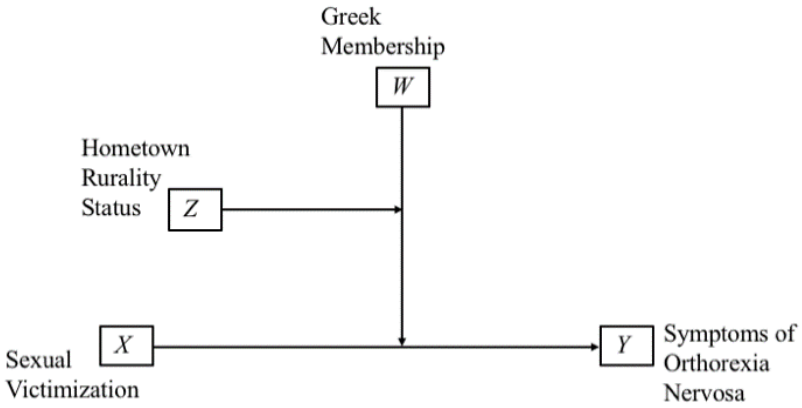

Table 3

Multivariate Associations with Teruel Orthorexia Scale

Main Effects	*b*	*p*	95% *LCI*	95% *UCI*
Sexual Victimization	.27	.45	-.42	.95
Greek Life	5.37	.47	-9.18	19.92
Rurality	1.52	.58	-3.83	6.87
Interaction Effects				
Sexual Victimization x Greek Life	-.23	.47	-.86	.40
Sexual Victimization x Rurality	-.06	.60	-.28	.16
Greek Life x Rurality	-2.59	.29	-7.43	2.25
Sexual Victimization x Greek Life x Rurality	.11	.27	-.09	.32

Note. Model R^2 = .07

CHAPTER 4

DISCUSSION

Interpretations

In the current study, results were consistent with the expectation noted in Hypothesis 1. Sexual victimization was positively related to symptoms of orthorexia nervosa and symptoms of disordered eating overall (i.e., symptoms of anorexia, bulimia, and binge-eating disorder). More specifically, higher scores on the VSCS were related to higher scores on the TOS and on the EDE-Q 6.0. Additionally, increased disordered eating symptoms were positively related to increased symptoms of orthorexia. Specifically, higher scores on the TOS were associated with increased scores on the EDE-Q 6.0.

Contrary to expectations, results were inconsistent with the expectations underlying Hypothesis 2 and Hypothesis 3. Greek membership was not related to overall disordered eating behaviors and symptoms of orthorexia (Hypothesis 2). More specifically, those who endorsed Greek membership did not report higher scores on the TOS and the EDE-Q 6.0. Greek membership was also unrelated to sexual victimization (Hypothesis 2); those who reported being a member of a Greek organization did not demonstrate higher scores on the VSCS compared to nonmembers. Furthermore, Greek membership did not moderate the relationship between sexual assault victim status and disordered eating behaviors (Hypothesis 3). The relationship between scores on the VSCS and the TOS did not change based on Greek membership status. Likewise, the relationship between scores on the VSCS and the EDE-Q 6.0 was not moderated by Greek membership status. In addition, hometown rurality status was not associated with increased sexual victimization, symptoms of disordered eating, and orthorexia. Specifically, those who reported being raised in a place with a population less than 9,999

residents did not report higher scores on the TOS, the EDE-Q 6.0., and the VSCS. Finally, hometown rurality status did not moderate the relationship between sexual assault victim status and disordered eating behaviors (Exploratory Aim).

In the current study, the significant relationship between sexual assault victimization and disordered eating is notable. This finding complements current research on the connection between sexual assault and symptoms of anorexia, bulimia, and binge-eating disorder (Beckman & Burns, 1990; Breland et al., 2018; Carter et al., 2006; Gabert et al., 2013; Ganson et al., 2020; Gomez et al., 2021; Groff Stephens & Wilke, 2015; McFarlane et al. 1988; Strother et al., 2012; Van Tu et al., 2020; Waller et al., 1993). Although there is significant literature demonstrating the relationship between sexual victimization and disordered eating, there are fewer studies outlining the nature of the relationship. More specifically, future research could focus on the development of disordered eating behaviors following sexual assault. Case studies may be useful methods of exploring eating disorder risk factors following sexual assault. For example, case studies have discussed disordered eating as a means of regaining control of the body after a sexual trauma (McFarlane et al., 1988; Waller et al., 1993). Additionally, it would be useful to expand survey-based research by examining disordered eating as a means of emotion regulation following a sexual assault. For example, researchers may include a self-report questionnaire measuring emotion regulation and exploring relationships between sexual assault, disordered eating behaviors, and emotion regulation. Furthermore, it would be useful to examine the differences in this relationship among those who experienced a sexual assault prior to engaging in disordered eating compared to those who experienced disordered eating prior to sexual victimization. Each of these avenues would contribute additional information about the relationship between sexual assault and disordered eating. Finally, to expand upon the current

study, it may be beneficial to examine differences between specific disordered behaviors in relation to frequency and severity of sexual assault.

Furthermore, the current study demonstrated a positive relationship between overall disordered eating and symptoms of orthorexia specifically. Most notably, the relationship between sexual victimization and orthorexia nervosa is a novel finding. While a previous study examined qualitative findings indicating a relationship between sexual victimization and eating patterns consistent with orthorexia, there is currently no quantitative research demonstrating this relationship (Cheshire et al., 2020). It would be particularly beneficial to replicate these findings among other populations, including adolescents, men, gender and sexual minorities, and people of color. Furthermore, substantial research investigating this relationship would be beneficial. In future studies, it will be important to address risk factors for orthorexia nervosa following sexual victimization. Additionally, there is very little research on the development, maintenance, and exacerbation of symptoms of orthorexia nervosa. To address these gaps in the research, it will be important to establish a diagnostic profile for orthorexia nervosa. More specifically, case studies and survey-based research may address the differences in the presentation of orthorexia nervosa compared to other patterns of disordered eating. Additionally, to further explore the nature of the relationship between orthorexia nervosa and sexual assault, it may be useful to measure how behaviors characteristic of orthorexia nervosa relate to emotion regulation and control over the body. Finally, preventative methods and treatment methods specific to orthorexia nervosa are currently lacking (Cheshire et al., 2020). Future research may focus on tailoring existing eating disorder treatments and prevention efforts to symptoms of orthorexia nervosa. It will also be important for future research to investigate the effectiveness of orthorexia nervosa treatment and prevention.

It is also important to highlight that Greek membership was not associated with increased disordered eating and increased sexual assault. My findings are inconsistent with research noting a significant relationship (Basow et al., 2007; Crandall, 1988; Copenhaver & Grauerholz; 1991; Franklin, 2015; Kingree & Thompson, 2013; Luetke et al., 2020; Mellins et al., 2017; Minow & Einolf, 2009; Piquero et al., 2010), and consistent with a handful of studies noting a non-significant relationship (Averett et al., 2016; Guzman & Chopak, 2003).

Increased education about eating disorders on college campuses could be a potential explanation for the non-significant relationship between Greek membership and disordered eating (Nicopolis, 2008). Results of a study aimed at identifying knowledge of eating disorders among university students revealed that the majority of sorority and fraternity members surveyed reported having an interest in learning about disordered eating due to personal and peer experiences with eating disorders (Nicopolis, 2008). Furthermore, resources such as the *Sorority Body Image Program* have been developed to address disordered eating in this unique setting (Becker, Ciao, & Smith, 2008; Becker & Stice, 2008). Similar programs and resources have been created to reduce sexual victimization among sorority members, such as Safe Sisters, a sexual assault bystander intervention program designed for sorority members (Feldwisch, Whiston, & Arackal, 2020). This increase in resources aimed at reducing disordered eating and sexual victimization among sorority members could account for the current study's lack of association between sorority membership and disordered eating as well as the lack of relationship between sorority membership and sexual victimization. Therefore, it would be beneficial to investigate the effectiveness of prevention efforts on college campuses, specifically those aimed at university subpopulations. Additionally, social desirability concerns may have influenced how sorority and fraternity members responded to survey questions. To prevent these effects among

this particular population, it may be useful to further explain survey anonymity and modify the wording of questions outlining unpleasant experiences and undesirable behaviors. Future studies may also focus on measuring level of involvement in sorority and fraternity life rather than asking about membership status alone. Measuring involvement in Greek membership would provide researchers with more information about the ways Greek membership may relate to sexual victimization and disordered eating.

Additionally, the available literature indicated that male-identifying participants often demonstrate low response rates in studies addressing the topics of disordered eating and sexual victimization (Strother et al., 2012; White et al., 2011). In the current study, 21.8% of participants identified as men and 1.2% reported social fraternity membership. Due to low response rates of fraternity member participants in the current study, no interpretations are made about fraternity member participants. To better evaluate these concerns among men and members of Greek organizations, it may be helpful to investigate stigmatization surrounding these concerns for men and fraternity members. Furthermore, future studies may explore the implementation of de-stigmatizing language to improve response rates (Luetke et al., 2020). Additionally, studies aimed at measuring the effectiveness of prevention efforts would better inform future research on sexual victimization and disordered eating among men and fraternity members.

Rurality Considerations

In the current study, hometown rurality status was unrelated to increased disordered eating behaviors or increased sexual assault. While the literature indicated that those raised in a rural environment may have limited access to eating disorder prevention and treatment, there is some evidence that there may not be a significant discrepancy between occurrences of disordered

eating among rural and nonrural populations (Jonat & Birmingham, 2004). Additionally, very few studies conducted in the U.S. have examined overall differences in disordered eating among those raised in rural and nonrural environments (Batchelder et al., 2021). However, an international study has demonstrated results similar to those of the current study. In a study of disordered eating prevalence rates in rural British Columbia, results revealed that disordered eating attitudes and behaviors of rural teenagers were not significantly different from those of urban teenagers (Jonat & Birmingham, 2004). The non-significant findings of the current study may be due to difficulties defining rurality. In the current study, rurality was measured as a quantitative construct, which did not capture aspects of individuals' lived experiences in rural communities. In future studies, it would be beneficial to ask participants to identify social stereotypes about eating disorders perpetuated in their communities. It would also be useful to gather information about barriers to eating disorder treatment in rural communities. For example, researchers may ask participants to rate their level of comfortability in seeking eating disorder treatment and identify the number of eating disorder resources available in their communities. This would provide participants with more wholistic response choices to inform the potential relationship between rurality status and disordered eating.

The current study did not demonstrate a significant relationship between hometown rurality status and sexual victimization. This was inconsistent with current literature indicating lack of eating disorder prevention and treatment in rural communities (Smalley et al., 2012). This finding could be related to effective sexual assault prevention among rural communities (Cook-Craig, 2010). Furthermore, due to the increased access to web-based technology on college campuses, participants in the current study may have increased exposure to sexual assault prevention strategies compared to others raised in rural environments (Cook-Craig, 2010).

Additionally, in future studies, it would be beneficial for researchers to focus on the lived experiences of those raised in rural communities. Specifically, researchers may explore variables such as sexual assault stigmatization, availability of resources and medical care following sexual assault, accessibility of sexual assault prevention efforts, and perceptions of first responders and medical care providers.

Limitations

The most significant limitations of the study were low response rates from members of Greek organizations and low response rates for participants identifying as men. In the current study, 55 participants (11.1%) identified as members of a social sorority and 6 respondents (1.2%) identified as members of a social fraternity. Recent data outlining the composition of the host university indicated that approximately 14% of undergraduates who identify as women are sorority members and approximately 10% of undergraduates who identify as men are members of a social fraternity (McGrath, 2021). Men and members of Greek organizations demonstrated low response rates in the current study. Low response rates among these groups may negatively affect the generalizability of my findings to unique subpopulations of college students. Moving forward, it will be important to re-analyze these findings with more inclusive samples with increased response rates among Greek members and men.

Another significant limitation of this study was the use of binary measures to evaluate Greek membership and hometown rurality status. Because binary or categorical measures are limited, the study did not capture the extent to which individuals participate in Greek life. Additionally, binary measures do not reflect the lived experiences of individuals raised in rural environments. More specifically, these findings do not indicate how being raised in a rural environment may affect individuals. Moving forward, researchers may consider using continuous

measures of Greek membership and hometown rurality status. Continuous measures of Greek membership may illuminate factors such as group stereotypes, group behaviors, and the extent to which members are influenced by organization principles. Furthermore, continuous measures of hometown rurality status may highlight important variables such as years raised in the rural environment, distance to resources, stigmatization surrounding disordered eating and sexual assault, and access to physical and mental healthcare. These factors would provide information to better contextualize Greek organization membership and hometown rurality status in relation to concerns such as disordered eating and sexual assault.

Several elements of the current study's design also present limitations. Due to the cross-sectional design of the current study, data reflect only one point in time. Therefore, the findings do not demonstrate changes in symptoms of disordered eating or changes in sexual victimization status over time. Furthermore, conclusions about how the relationship between sexual assault and disordered eating develops and changes cannot be made. Additionally, the correlational design of the current study does not allow for inference of causation. The correlational design is also susceptible to the influence of extraneous variables, making it difficult to determine which variables are most significant. Moreover, responses to self-report surveys may be influenced by social desirability concerns or demand characteristic. For example, those who identified as members of Greek organizations may have been less likely to choose answers deemed "socially undesirable" after acknowledging their membership status. Additionally, the directness of survey questions allows participants to easily make inferences about the purpose of the study. Participants may have altered responses due to the inferred purpose of the study. Finally, including both men and women participants in the study may have served as a limitation. Due to the stereotype that disordered eating is a "feminine" concern, it is possible that the inclusion of

men participants may have altered the relationships between the current study's main variables. In future studies, it may be beneficial to run separate analyses for each gender identity.

Clinical Implications

The significant relationship between orthorexia nervosa and other disordered eating behaviors has important clinical implications. For example, implementing questions capturing symptoms of orthorexia nervosa in eating disorder assessments and intake interviews may provide clinicians with a more wholistic view of disordered eating behaviors and thought patterns (Bundros et al., 2016). Furthermore, some symptoms of orthorexia nervosa (e.g., focus on clean eating, eating foods low in sodium, fat, and sugar) may be overlooked by clinicians who are trained to assess for more traditional eating disorder symptoms. Recognizing behaviors characteristic of orthorexia as problematic could motivate those experiencing symptoms of orthorexia to access care (Bundros et al., 2016). Few studies have examined the onset, maintenance, and exacerbation of symptoms of orthorexia nervosa and consequently, eating disorder treatments have not been tailored to address specific concerns of those experiencing orthorexia (Cheshire et al., 2020). Treatment plans and therapeutic techniques designed to address symptoms of orthorexia would be beneficial in wholistic treatment of disordered eating (Bundros et al., 2016). The current study also demonstrated a significant relationship between sexual assault and symptoms of orthorexia. Therefore, it is important that clinicians consider symptoms of orthorexia when working alongside survivors of sexual victimization who experience disordered eating (Cheshire et al., 2020). Due to the relationship between sexual assault and disordered eating, evaluating and addressing sexual assault history among those with eating disorders would inform a more wholistic treatment plan. Additionally, delivering

psychoeducation education about the relationship between sexual assault and disordered eating may provide individuals with additional insight about these concerns.

Future Directions

Although rurality status was not significantly associated with sexual victimization and disordered eating, there is a need for culturally-sensitive resources and education to address these two prominent concerns (Batchelder et al., 2021). Potential future directions could include examination of culturally-relevant risk factors associated with eating disorders and sexual victimization among rural populations. Additionally, low response-rates of those identifying as men served as a significant limitation of this study. Further exploration of methods of approaching the topics of sexual victimization and disordered eating among male-identifying individuals may address the significant gap in the literature (Strother et al., 2012; White et al., 2011). Finally, as the current study demonstrated a significant association between sexual victimization orthorexia nervosa, additional research on this symptom pattern is required. More specifically, identifying a distinct diagnostic profile for orthorexia nervosa, risk factors for behaviors associated with orthorexia, methods of assessing orthorexia nervosa, and exploration of treatment options would be particularly valuable.

REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Averett, S., Terrizzi, S., & Wang, Y. (2016). The Effect of Sorority Membership on Eating Disorders, Body Weight, and Disordered-Eating Behaviors. *Health Economics*, *26*(7), 875–891. doi: 10.1002/hec.3360

Baceviciene, M., Balciuniene, V., & Jankauskiene, R. (2020). Validation of the Lithuanian version of the Eating Disorder Examination Questionnaire 6.0 in a student sample. *Brain and Behavior*, *10*(3). https://doi.org/10.1002/brb3.1555

Barrada, J. R., & Roncero, M. (2018). Teruel Orthorexia Scale. *PsycTESTS*. http://dx.doi.org/10.1037/t69349-000

Basow, S. A., Foran, K. A., & Bookwala, J. (2007). Body objectification, social pressure, and Disordered eating behavior in college women: The role of Sorority Membership. *Psychology of Women Quarterly, 31*(4), 394-400. doi:10.1111/j.1471-6402.2007.00388.x

Batchelder, H. R., Martz, D. M., Curtin, L., & Jameson, J. P. (2021). Interpersonal violence victimization and eating disorder behaviors in rural adolescents. *Journal of Rural Mental Health*. https://doi.org/10.1037/rmh0000186

Becker, C. B., & Stice, E. (2008). *The Sorority Body Image Program : Group Leader Guide*. Oxford University Press.

Becker, C. B., Ciao, A. C., & Smith, L. M. (2008). Moving from Efficacy to Effectiveness in Eating Disorders Prevention: The Sorority Body Image Program. *Cognitive and Behavioral Practice*, *15*(1), 18–27.

Beckman, K. A., & Burns, G. L. (1990). Relation of sexual abuse and bulimia in college women.

International Journal of Eating Disorders, 9(5), 487-492. doi:10.1002/1098-108x(199009)9:53.0.co;2-e

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2011). Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: A systematic review of the literature. *International Journal of Eating Disorders, 45*(3), 428–438. https://doi.org/10.1002/eat.20931

Bratman, S. (2017). Orthorexia vs. theories of healthy eating. Eating and Weight Disorders – Studies on Anorexia, Bulimia and Obesity, 22(3), 381–385. doi: 10.1007/s40519-017-0417-6

Breland, J. Y., Donalson, R., Li, Y., Hebenstreit, C. L., Goldstein, L. A., & Maguen, S. (2018). Military sexual trauma is associated with eating disorders, while combat exposure is not

Bundros, J., Clifford, D., Silliman, K., & Morris, M. N. (2016). Prevalence of Orthorexia nervosa among college students based on Bratmans test and associated tendencies. Appetite, 101, 86–94. doi: 10.1016/j.appet.2016.02.144

Carter, J. C., Bewell, C., Blackmore, E., & Woodside, D. B. (2006). The impact of childhood sexual abuse in anorexia nervosa. *Child Abuse & Neglect, 30*(3), 257-269. doi:10.1016/j.chiabu.2005.09.004

Carter-Snell, C., Jakubec, S., & Hagen, B. (2019). Collaboration with rural and remote communities to improve sexual assault services. *Journal of Community Health, 45*(2), 377-387. doi:10.1007/s10900-019-00744-4

Cheshire, A., Berry, M., & Fixsen, A. (2020). What are the key features of orthorexia nervosa and influences on its development? A qualitative investigation. *Appetite, 155*, 104798. doi:10.1016/j.appet.2020.104798

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Routledge.

Cook-Craig, P. G., Lane, K. G., & Siebold, W. L. (2010). Building the capacity of states to ensure inclusion of rural communities in state and Local Primary Violence Prevention Planning. *Journal of Family Social Work*, *13*(4), 326–342. https://doi.org/10.1080/10522158.2010.492498

Cooper, T. A. (2020). #SororityToo. *Michigan State Law Review*, *2020*(2), 355–409.

Cooper, Z., & Fairburn, C. (1993). Eating disorder examination. *PsycTESTS Dataset*. doi:10.1037/t03975-000

Copenhaver, S., & Grauerholz, E. (1991). Sexual victimization among sorority women: Exploring the link between sexual violence and institutional practices. *Sex Roles, 24*(1-2), 31-41. doi:10.1007/bf00288701

Crandall, C. S. (1988). Social contagion of binge eating. *Journal of Personality and Social Psychology, 55*(4), 588-598. doi:10.1037/0022-3514.55.4.588

Fairburn C.G., & Beglin S. (2008). Eating Disorder Examination Questionnaire. *Cognitive Behavior Therapy and Eating Disorders*

Feldwisch, R. P., Whiston, S. C., & Arackal, I. J. (2020). Safe Sisters: A Sorority-Based Bystander Intervention Program to Prevent Sexual Assault. *Journal of College Counseling*, *23*(3), 262–275. https://doi.org/10.1002/jocc.12170

Fisher, B. S. (1997). National victimization against college women surveys. *Encyclopedia of Victimology and Crime Prevention*. doi:10.4135/9781412979993.n194

Fisher, B. S., Cullen, F. T., & Turner, M. G. (2000). The Sexual Victimization of College Women. *PsycEXTRA Dataset*. doi: 10.1037/e377652004-001

Forsman, R. L. (2017). Prevalence of Sexual Assault Victimization Among College Men, Aged

18–24: A Review. *Journal of Evidence-Informed Social Work*, *14*(6), 421–432. doi: 10.1080/23761407.2017.1369204

Franklin, C. A. (2015). Sorority Affiliation and Sexual Assault Victimization. *Violence Against Women*, *22*(8), 895–922. doi: 10.1177/1077801215614971

Gabert, D. L., Majumdar, S. R., Sharma, A. M., Rueda-Clausen, C. F., Klarenbach, S. W., Birch, D. W., … Padwal, R. S. (2013). Prevalence and Predictors of Self-Reported Sexual Abuse in Severely Obese Patients in a Population-Based Bariatric Program. *Journal of Obesity*, *2013*, 1–7. doi: 10.1155/2013/374050

Ganson, K. T., Rodgers, R. F., Lipson, S. K., Cadet, T. J., & Putnam, M. (2020). Sexual assault victimization and eating disorders among college-enrolled men. *Journal of Interpersonal Violence*, 088626052095863. doi:10.1177/0886260520958634

Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Eating disorder inventory for anorexia nervosa and bulimia. *PsycTESTS Dataset*. https://doi.org/10.1037/t64315-000

Gomez, F., Kilpela, L. S., Middlemass, K. M., & Becker, C. B. (2021). Sexual trauma uniquely associated with eating disorders: A replication study. *Psychological Trauma: Theory, Research, Practice, and Policy*, *13*(2), 202-205. doi:10.1037/tra0000586

Groff Stephens, S., & Wilke, D. J. (2015). Sexual violence, weight perception, and eating disorder indicators in college females. *Journal of American College Health*, *64*(1), 38–47. doi: 10.1080/07448481.2015.1074237

Guzman, A. L., & Chopak, J. S. (2003). *The prevalence of disordered eating behaviors among sorority versus non-sorority women*. https://doi.org/10.1176/ajp.152.9.1272

Jonat, L. M., & Birmingham, C. L. (2004). Disordered eating attitudes and behaviours in the

high-school students of a rural Canadian community. *Eating and Weight Disorders – Studies on Anorexia, Bulimia and Obesity*, *9*(4), 285–289. https://doi.org/10.1007/bf03325083

Kingree, J. B., & Thompson, M. P. (2013). Fraternity membership and sexual aggression: An examination of mediators of the association. *Journal of American College Health, 61*(4), 213-221. doi:10.1080/07448481.2013.781026

Koss, Mary P. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. *Psychology of Women Quarterly*, 31(4), 357-370. doi: 10.1111/j.1471-6402.2007.00385.x

Luetke, M., Giroux, S., Herbenick, D., Ludema, C., & Rosenberg, M. (2020). High Prevalence of Sexual Assault Victimization Experiences Among University Fraternity Men. *Journal of Interpersonal Violence*, 088626051990028. doi: 10.1177/0886260519900282

Mathes, Eugene W. (2011). Perpetration of Sexual Coercion and Victim of Sexual Coercion Scales: Development and validation. *Psychological Reports*, 108(2), 449-469. doi: 10.2466/08.09.16.PR0.108.2.449-469

Mathes, E., & McCoy, J. (2011). Perpetration of Sexual Coercion and Victim of Sexual Coercion Scales. *PsycTESTS*. https://doi.org/Full text; 999933320_full_001.pdf

McFarlane, A. C., McFarlane, C. M., & Gilchrist, P. N. (1988). Posttraumatic Bulimia and Anorexia nervosa. *International Journal of Eating Disorders*.

McGrath , A. (2020). *US News Best Colleges*. U.S. News & World Report . Retrieved February 28, 2022, from https://www.usnews.com

McKinley, N. M., & Hyde, J. S. (1996). Objectified body consciousness scale. *PsycTESTS Dataset*. doi:10.1037/t00899-000

Mellins, C. A., Walsh, K., Sarvet, A. L., Wall, M., Gilbert, L., Santelli, J. S., . . . Hirsch, J. S. (2017). Sexual assault incidents among college undergraduates: Prevalence and factors associated with risk. *PLOS ONE, 12*(11). doi:10.1371/journal.pone.0186471

Minow, J. C., & Einolf, C. J. (2009). Sorority participation and sexual Assault Risk. *Violence Against Women, 15*(7), 835-851. doi:10.1177/1077801209334472

Mintz, L. B., O'Halloran, M. S., Mulholland, A. M., & Schneider, P. A. (1997). Questionnaire for Eating Disorder Diagnoses: Reliability and validity of operationalizing DSM-IV criteria into a self-report format. Journal of Counseling Psychology, 44(1), 63–79

Mohd Taib, N., Abdul Khaiyom, J. H., & Fauzaman, J. (2021). Psychometric properties of the adapted Malay Eating Disorder Examination-Questionnaire 6.0 (EDE-Q 6.0) among university students in Malaysia. *Eating Behaviors, 42*, 101533. https://doi.org/10.1016/j.eatbeh.2021.101533

Morgan, J. F., Reid, F., & Lacey, J. H. (1999). The SCOFF questionnaire: Assessment of a new screening tool for eating disorders. BMJ, 319, 1467–1468.

Nicopolis, M. L. (2008). Comparing Fraternity/Sorority Professionals' Knowledge of Eating Disorders with Other Student Personnel Administrators. *Oracle: The Research Journal of the Association of Fraternity/Sorority Advisors*, *3*(1), 59–72.

Piquero, N. L., Fox, K., Piquero, A. R., Capowich, G., & Mazerolle, P. (2010). Gender, General Strain Theory, Negative Emotions, and Disordered Eating. *Journal of Youth and Adolescence*, *39*(4), 380–392. doi: 10.1007/s10964-009-9466-0

Rape, Abuse and Incest National Network. (2021). Victims of sexual violence: Statistics. Retrieved April 03, 2021, from https://www.rainn.org

Smalley, K. B., Warren, J. C., & Rainer, J. P. (2012). *Rural mental health: Issues, policies, and*

best practices. New York, NY: Springer Publishing Company.

Strother, E., Lemberg, R., Stanford, S. C., & Turberville, D. (2012). Eating Disorders in Men: Underdiagnosed, Undertreated, and Misunderstood. *Eating Disorders, 20*(5), 346–355. doi: 10.1080/10640266.2012.715512

United States Census Bureau. (2010). How Does the U.S. Census Bureau Define "Rural?" Retrieved April 04, 2021, from https://mtgis-portal.geo.census.gov

Van Tu, P., Ngoc, T. U., Nguyen, P. L., Thuong, N. H., Van Tuan, N., Van Hung, N., . . . Chu, D. (2020). The impact of sexual harassment on obesity in female adolescents: An update and perspective to control. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14*(6), 1931-1939. doi:10.1016/j.dsx.2020.09.036

Vanderwoerd, J. R. (2009). Experiences of sexual coercion, awareness of services, and acceptance of rape myths among students in rural colleges. Rural Social Work & Community Practice, 14(1).

Waller, G., Halek, C., & Crisp, A. (1993). Sexual abuse as a factor in Anorexia nervosa: Evidence from two separate case series. *Journal of Psychosomatic Research, 37*(8), 873-879. doi:10.1016/0022-3999(93)90176-g

White, S., Reynolds-Malear, J. B., & Cordero, E. (2011). Disordered Eating and the Use of Unhealthy Weight Control Methods in College Students: 1995, 2002, and 2008. Eating Disorders, 19(4), 323–334. doi: 10.1080/10640266.2011.584805

APPENDIX: DEMOGRAPHIC SURVEY

How old are you?_____

Are you Hispanic or Latino? (Pick one)
Yes
No

What race do you identify with the most? (Pick one)
White/Caucasian
African American/Black
Asian/Asian American
American Indian/Native American
Multiracial
A better description not mentioned above _____

How would you describe your sexual orientation? (Pick one)
Gay/Lesbian
Mostly gay/lesbian
Bisexual
Mostly heterosexual
Heterosexual
Questioning
Asexual
A better description not mentioned above

What sex were you assigned on your birth certificate? (Pick one)
Male
Female
I'd prefer not to answer

What is your current gender identity? (Pick one)
Male
Female
Female-to-Male (FTM)/Transgender Male/Trans Man
Male-to-Female (MTF)/Transgender Female/Trans Female
Genderqueer, neither exclusively male nor female
A better description not specified above
I'd prefer not to say

What is your current weight?
What is your current height?

What is your relationship status? (Pick one)
Never married
Single

Married/Partnered/Common Law
Separated
Divorced
Widowed

Have you been in a relationship with the same person for more than a year? (Pick one)
I am not in a relationship at this time
I am in a relationship but for less than a year
I am in a relationship for longer than a year

Are you in a sorority or fraternity? (Pick one)
No
Yes, social sorority
Yes, service sorority
Yes, academic sorority
Yes, social fraternity
Yes, service fraternity
Yes, academic fraternity

What is your current living arrangement?
Living alone
Living with friends
Living with partner
Living with family
Other

What is your highest level of formal education?
Less than high school
Some high school
High school diploma or GED
Some college or vocational school
Vocational degree or certificate
College degree
Master's degree
Doctoral degree

What is your current employment status?
Employed full-time (30 or more hours per week)
Employed part-time (Less than 30 hours per week)
Self-employed
Unemployed
Student
Retired

Are you employed with benefits or without benefits?
Employed with benefits

Employed without benefits

If you are unemployed or a student, are you currently seeking employment?
Yes, seeking employment
No, not seeking employment

What is your yearly income?
$10,000 to $19,999
$20,000 to $34,999
$35,000 to $49,999
$50,000 to $74,999
$75,000 to $99,999
$100,000 or more

How would you currently describe your financial resources status?
Poor/impoverished
Some financial resources
Substantial financial resources
Affluent/rich

Do you currently reside in the US (Pick one)
No
Yes

What state was your hometown in? (Select from dropdown list)

How many people reside in your hometown?
<9,999
10,000-49,999
50,000-99,999
100,000-499,999
500,000-999,999
1 million-5 million
>5 million

What is your current ZIP/postal code? _____

What state do you currently live in? (Select from dropdown list)

I consider the town in which I currently live to be more:
Rural
Small town
Small city/micropolitan
Urban/metropolitan

How many people reside in the town in which you currently live ?

<9,999
10,000-49,999
50,000-99,999
100,000-499,999
500,000-999,999
1 million-5 million
>5 million