Sorority Rush: An Examination of Body Image And Social Wellbeing Among Dartmouth Students



DARTMOUTH

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Abstract

The extant literature on Greek Life finds that women in sororities have higher rates of disordered eating than their peers who do not participate in Greek Life, but questions remain. Some researchers have suggested that the relationship between Greek Life and disordered eating results from women with pre-existing risk factors selecting into Greek Life, while other researchers believe that Greek Life causes the increased rates of disordered eating documented within sororities. In this study, I use difference-in-differences analyses to explore the relationship between Greek Life and disordered eating among a cohort of Dartmouth female undergraduates (N=161), some of whom participate in sorority rush and others of whom remain unaffiliated. In particular, I examine pre-existing differences between the two groups, as well as possible changes in causal mechanisms linked to the onset of eating pathology, including social comparison, thin-ideal internalization, peer pressure, and body dissatisfaction, to help adjudicate between the competing theories of selection and causation. Results provide support for the selection hypothesis: that women with higher pre-existing risk to developing disordered eating are selecting into Greek Life. I find no evidence that sorority rush is associated with a subsequent increase in eating disorders or causal mechanisms (social comparison, thin-ideal internalization, peer pressure, or body dissatisfaction).

1 Introduction

At a clinical level, eating disorders are among the deadliest mental illnesses for women, leading to five times the mortality rate expected when compared to those without eating disorders (Arcelus et al. 2011; Averett, Terrizzi, and Wang 2017; Harris and Barraclough 1998; Steinhausen 2002). Recent estimates from a meta-analysis on studies using DSM-4 and DSM-5 criteria show that 8.4% of women report having either anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BE), or eating disorder not otherwise specified (EDNOS) at some point in their life time (Galmiche et al. 2019). However, these clinical measures understate the pervasiveness and burden of subclinical disordered eating, classified as people who do not meet the definition of an eating disorder by the updated DSM-5 definition but exhibit some symptoms. Once criteria are relaxed to include women with subclinical symptoms, disordered eating estimates among women increase to 19.4% (Galmiche et al. 2019). Women with subclinical symptoms are not only at a high risk of developing a clinical eating disorder, but they also report experiencing frequent distress and high levels of role impairment that significantly impede their quality of life (Ackard, Fulkerson, and Neumark-Sztainer 2011; Hudson et al. 2007; Stice et al. 2009; Striegel-Moore and Bulik 2007).

The transition to adulthood is a critical stage of life for the development of disordered eating, with the median age of onset for clinical and subclinical eating disorders occurring among young women between the ages of 18-21 (Hudson et al. 2007). Within this age group, college women, who report disordered eating rates between 49 and 61 percent, are an especially vulnerable population (Berg, Frazier, and Sherr 2009; Mintz and Betz 1988). Scholars have argued that the college environment contributes to this spike seen among college women (Striegel-Moore et al. 1989; Vohs, Heatherton, and Herrin 2001).

Within the college environment, Greek life is thought to be particularly consequential for the development of disordered eating behaviors. Namely, researchers have found that sorority members report higher levels of body image disturbance compared to their unaffiliated peers (Alexander 1995; Allison and Park 2004; Crandall 1988; Prouty, Protinsky, and Canady 2002; Schulken et al. 1997). While some have argued that Greek Life influences disordered eating among college women, debate remains as to whether this association is due to selection or causation (Allison and Park 2004; Averett et al. 2017; Basow, Foran, and Bookwala 2007; Crandall 1988; Rolnik, Engeln-Maddox, and Miller 2010): that is, are women who are already at-risk for eating disorders more likely to join sororities, or does sorority membership create poor body image among members? In addition to this unresolved debate, the causal mechanisms underlying this association are unclear: if Greek Life does cause an increased risk of disordered eating, why? Previous research has suggested that social comparison, peer pressure, and idealization of a 'thin ideal' are risk factors for disordered eating (Ackard et al. 2011; Polivy and Herman 2002). But no research has examined whether becoming a sorority member is associated with changes in these theoretical mechanisms.

Given the centrality of Greek Life in social life on many college campuses, the thousands of new members who join Greek life annually (Even and Smith 2018), and the potential severity of disordered eating, it is essential to clarify the effect sorority rush and initial membership may have on female undergraduates. In this study, I conduct a longitudinal examination of undergraduate sophomore women (N = 161) at Dartmouth College before and after sorority rush on validated measures of eating attitudes, body dissatisfaction, thin ideal internalization, social comparison, and peer pressure. I use difference-in-differences models of women in the cohort who choose to rush and their peers who remain unaffiliated to understand whether becoming a

sorority member is associated with changes in disordered eating and the theorized causal mechanisms, or, whether the association is driven by pre-existing differences (self-selection) between those who rush and those who do not. Through this analysis, I make two important contributions to existing literature on Greek life and disordered eating more generally. First, I create a theoretical model that synthesizes psychological mechanisms tied to disordered eating from prior literature and analyze these mechanisms within the sorority rush process. Second, I use a longitudinal design that assesses within-person change before, during, and after rush. Unlike prior methods that relied on cross-sectional or longitudinal data where women were already members of their Greek organizations at the first time point, this pre-post treatment, longitudinal design allows for a more rigorous evaluation of the selection versus causation debate within Greek Life.

2 Literature Review

In the following section, I will first outline the debate surrounding whether Greek Life is a risk factor in developing eating disorders. Second, I synthesize prior literature and outline a general theory of how membership in Greek life may influence disordered eating and body image dissatisfaction among college women.

2.1 Greek Life and Disordered Eating: The Selection Versus Causation Debate

Although disordered eating attitudes have roots in early childhood and adolescence (Kotler et al. 2001; Vohs et al. 2001), prior research pinpoints college as the peak of disordered eating in young women (Heatherton et al. 1997; Tiggemann and Lynch 2001). Women who attend college have disordered eating rates above their female peers who do not attend college, suggesting that, in addition to genetic or biological risk factors, the onset of disordered eating is

shaped by the college environment (Polivy and Herman 2002; Rand and Kuldau 1991). Many aspects of college life, such as high levels of stress, achievement or competitive orientation, and role changes that undergraduate students experience, are correlated with increased disordered eating risk (Striegel-Moore et al. 1989). Above and beyond regular college stressors, some scholars suggest that Greek Life is a particularly toxic environment worthy of targeting for disordered eating interventions (Alexander 1995; Allison and Park 2004; Becker et al. 2010; Crandall 1988; Rolnik et al. 2010; Schulken et al. 1997). However, disentangling the effect of Greek Life on disordered eating behaviors from the effect of the college experience more generally is challenging. This challenge underscores the causation – selection debate: is Greek life playing a causal role in influencing eating disorders or are young women experiencing increases in eating disorders due to other aspects of the college environment and then selecting into Greek Life participation? There is some evidence that supports both theories, but so far, no evidence has overwhelmingly come down in favor on one side of the debate.

Evidence supporting the selection argument attributes all differences in disordered eating attitudes and risk factors observed among unaffiliated and affiliated women to pre-existing differences between the two groups. In other words, the selection hypothesis posits that women who join sororities have a higher risk of eating disorders long before they actually join Greek Life. Averett et al. (2017), using OLS, propensity score matching, and instrumental variable analyses on a longitudinal sample of female college students from the ACHA-NCHA survey, found no evidence that sorority membership had any causal effect on disordered-eating behaviors after accounting for selection bias into sororities. In another study, Basow et al. (2007) found that women who intended to rush had higher body dissatisfaction than women who did not intend to rush. Their study suggests that women intending to rush are predisposed to developing

disordered eating, compared to unaffiliated peers. These results are therefore broadly supportive of the selection argument. However, these studies have methodological weaknesses that prevent them from making strong conclusions. For example, Basow et al. (2007) relies on cross-sectional studies and Averett et al. (2017) exclude women prior to sorority membership. These studies are therefore unable to assess within-person change for women before and after they rush, which means that we can neither rule out nor infer causation from their results regarding the effect of Greek Life on disordered eating.

Other studies show support for a causation argument. Namely, they point to the effect joining a sorority has on increasing disordered eating behaviors and risk factors, net of preexisting differences between affiliated and unaffiliated groups. For example, in a longitudinal investigation of two sororities, Crandall (1988) found that a woman's binge eating came to resemble that of her closest sorority sisters by the end of the academic year. This suggests that conformance to group norms triggers change in disordered eating habits. In a longitudinal study of women during rush and their initial month of membership, Rolnik et al. (2010) found that there were no pre-existing differences in body shame between those who chose to rush and those who did not. Only at the time of the last survey did new sorority members demonstrate increased levels of body dissatisfaction compared to their unaffiliated peers, suggesting that body dissatisfaction increased in the wake of joining a sorority. Finally, Allison and Park (2004) in a prospective study of sorority women and non-sorority women found that women who joined sororities were similar to their unaffiliated peers in their baseline levels of disordered eating attitudes and behaviors, but that over the duration of their sorority membership, sorority members exhibited a higher drive for thinness. The results from Crandall (1988), Rolnik et al. (2010), and Allison and Park (2004) are broadly supportive of a causation argument. However,

they are limited by either their exclusion of mechanisms central to the onset of disordered eating pathology or, for reasons discussed in detail below, their failure to examine women during sorority rush.

Rush is a critical period in Greek Life membership that is of key importance for understanding if and how sorority membership affects disordered eating. Foremost, research already finds that the transition to college is a vulnerable time (Striegel-Moore et al. 1989), but sorority rush is yet another transitional period with changing social roles that for many women is psychologically charged (Atlas and Morier 1994; Chapman and Hirt 2008; Keller and Hart 1982). In particular, at its core, Rush is an assessment process performed by older peers and based solely on one's subjective likeability and, by extension, heavily relies on physical appearance (Rolnik et al. 2010). To add on to that pressure, other peers are vying for the few spots in each house, so this judgment process is not only about whether a woman is "cool," but also whether she is "cooler" than her peers. These factors are likely to elevate stress, which in turn may lead to the onset of disordered eating attitudes (Costarelli and Patsai 2012). Furthermore, research qualitatively suggests, though it has not yet been demonstrated empirically, that Rush, as a gateway to sororities, especially encourages conformance to sorority ideals (Arthur 1997). Despite these important theoretical implications of Rush, so far it remains notably absent from the literature investigating the role of Greek Life in disordered eating. Thus, in this study, I will examine whether the rush process has a causal role in the onset of eating pathology, and thereby address the largely neglected discussion of rush with regard to disordered eating and Greek Life.

2.2 How Does Sorority Rush Affect Disordered Eating? A Theoretical Argument

Another way to investigate the causation-selection debate is to consider whether causal mechanisms that underly the onset of disordered eating change throughout Rush (Hedström, Hedström, and Ylikoski 2010). Previous attempts to examine causal mechanisms in prior literature are plagued by the same methodological and theoretical limitations that inhibit causal inference in the first place: to reiterate, prior studies use cross-sectional or longitudinal design without a pre-rush baseline and exclude central causal mechanisms from their investigation (Allison and Park 2004; Basow et al. 2007; Crandall 1988; Rolnik et al. 2010). Thus, the investigation of causal mechanisms remains a missing but important piece of evidence that can help resolve the causation-selection debate in two main ways. First, it can bolster a causal claim because it ensures that women are not only the same on measures of disordered eating prior to the start of Rush, but that they are also the same with regard to disordered eating risk factors; any difference uncovered after rush on either the main outcome of disordered eating attitudes or these proximal risk factors can therefore be attributed to Rush, rather than some unmeasured risk factor. Second, the causal mechanisms help answer remaining questions of why and how this causal process unfolds.

To strengthen the causal mechanism investigation, I bring together the broader literature on eating disorders and emerging research on how Greek Life contributes to disordered eating (Allison and Park 2004; Basow et al. 2007; Crandall 1988; Rolnik et al. 2010) to present Figure 1, a causal theoretical model for Rush. Namely, if there is a causal process at play, that means that Rush sets of the "upstream processes" (Braveman, Egerter, and Williams 2011) of social comparison, perceived peer pressure, and thin-ideal internalization. Social comparison, which is a central cognitive process that arises amidst an assessment like Rush, is one of the most widely

investigated causal mechanisms in disordered eating literature (Thompson et al. 1999; Keery, van de Berg, Thompson 2004; Shroff and Thompson 2006; Krones et al. 2005; Myers and Crowther 2009), but it is absent from previous investigations of disordered eating in Greek Life. Second, peers, who are both the competition and judges within Rush, create norms and ideals that collectively contribute to perceived peer pressure and likely increase women's dissatisfaction with their own bodies (Keery, van den Berg, and Thompson 2004; Polivy and Herman 2002; Shroff and Thompson 2006). Finally, thin-ideal internalization, which is the extent to which women endorse the ultra-thin body norm presented in the media, is likely to arise from exposure to groups that have already been found to value thinness (Schulken et al. 1997) and is a direct, causal predictor of body dissatisfaction (Thompson and Stice 2001). Increased body dissatisfaction from these upstream processes in turn leads to increased disordered eating attitudes (Stice and Shaw 2002).

Figure 1: Conceptual Model of the Causal Process of Rush on Disordered Eating Attitudes



2.3 Upstream Effects: Social Comparison, Peer Pressure, & Thin-Ideal Internalization

Social comparison, widely recognized within eating disorder literature as central to increased body dissatisfaction (Krones et al. 2005; Myers and Crowther 2009; Tiggemann and Mcgill 2004), has yet to be examined within the context of sorority rush. Social comparison

theory, first formulated by Leon Festinger in social psychology, suggests that in the absence of objective standards, humans seek out comparisons with others to gather information about themselves and their standing (Festinger 1954). Social comparison is a cognitive process that pervades regular daily life (Buunk and Gibbons 2007). However, the conditions of Rush - a black box process where current sorority members rank potential new members against their peers, without presenting clear criteria for their assessment - are likely to elicit further reliance on social comparison with deleterious effects on rush participants for two main reasons.

First, to reiterate, researchers have found that the rush process and sororities more generally place a high emphasis on appearance (DeSantis 2007; Rolnik et al. 2010; Schulken et al. 1997), which likely increases the frequency of appearance-based social comparisons. Appearance-based social comparisons are particularly detrimental because, unlike other social domains where researchers have found that engaging in "downward" comparisons (i.e., comparison with peers who are perceived as performing worse than oneself) can bolster selfesteem, women are more likely to engage in "upward" comparisons (i.e., comparisons with peers perceived as performing better than oneself) with regards to their appearance (Myers et al. 2012; Myers and Crowther 2009). Frequent "upward" appearance-related comparisons consequently drive higher levels of body dissatisfaction (Leahy, Crowther, and Mickelson 200).

Second, whether it be fellow women who are rushing or current sorority members groups, peers are likely the target of appearance-related social comparisons that potential new members make during Rush. Although research has found that both models in the media and thin peers are often targets of appearance-related social comparisons (Jones 2001; Myers and Crowther 2009; Stormer and Thompson 1996), Cash et al. (1983) found in an experimental study that thin peer targets induced the highest increases in body dissatisfaction. Krones et al. (2005)

theorizes the difference in effect when peers are the comparison target may occur because peers make the attainment of the thin ideal appear easier than does a professional model. Together, these findings suggest that the appearance-based nature and the peer targets for social comparison during Rush will pose more harm for rush participants than the typical social comparisons made in daily life.

In addition to being targets for social comparison, peers can also implicitly or explicitly transmit messages that establish group norms regarding body type or eating habits. These messages, which can occur through modeling or reinforcement of behavior, form the basis of perceived peer pressure (Stice 1998). Evidence suggests that modeling, where peers transmit their messages implicitly, is still a powerful predictor of disordered eating behaviors and attitudes. For example, peer attitudes towards thinness, body image, and dieting predict a woman's body image concern, restraint, extreme weight-loss behaviors, even after accounting for psychological and physical factors (Hutchinson and Rapee 2007; Keel et al. 2013; Paxton et al. 1999; Zalta and Keel 2006). There are already preliminary findings that suggest peer influence reinforces body type and eating norms within Greek Life for full-fledged sorority members (Alexander 1995; Basow et al. 2007; Crandall 1988). However, it remains unclear whether susceptibility to peer pressure is increasing or changing as a result of Rush.

Therefore, perceived peer pressure must be reexamined within the rush context, whereby women's perceptions of peer influence can be measured before and after they become members. Similar to social comparison, perceived peer pressure can occur from two sources in this study: other women rushing and sorority sisters. For example, women may perceive pressure from other friends rushing when their friends explicitly express that only a particular body type gains entrance to a desired sorority, or implicitly when they see their friends adopt a diet. Second,

Rush is the first exposure women rushing have to sororities as a potential peer group, beyond just individual relationships with upperclassmen, so the perceived pressure to conform in order to fit in is likely acute during this period. Increased perception of peer pressure during the first month of membership can therefore be expected.

Finally, women rushing are also exposed to full-fledged sorority women who have been found to have higher rates of thin-ideal internalization (DeSantis 2007; Schulken et al. 1997; Thompson and Stice 2001). This intense, concentrated exposure to a group of women who endorse thinness norms, with the addition that women rushing want to gain their acceptance, in turn may cause women who rush to similarly privilege a thin body type. Allison and Park (2004) provide preliminary evidence for increased importance of thinness, demonstrating in a study that by the third year of college sorority women exhibit higher drivers for thinness. However, it is unclear whether this drive for thinness results from the construct of thin-ideal internalization or some other causal mechanism, as well as whether this process is set off by rush or an acculturation to sorority norms that occurs over time. As such, thin-ideal internalization is important to investigate during Rush, too.

In summary, while previous scholars have theorized a causal process linking sorority membership and the development of disordered eating, prior research has limitations that constrain current understanding of the causal process and contributes to the stalemate between the causation-selection debate. Research already demonstrates that sorority rush is a stressful change in the social environment of college women (Atlas and Morier 1994; Chapman and Hirt 2008; Keller and Hart 1982), and research surrounding eating disorders highlights that disordered eating risk is susceptible to stress surrounding role changes and transitions (Striegel-Moore et al. 1989). Therefore, investigating central causal mechanisms, such as social

comparison, perceived peer pressure, and thin-ideal internalization, during the rush process is a promising avenue for addressing previous limitations of studies within Greek Life, understanding the causal process, and resolving the causation-selection debate.

2.4 The Current Study: Rush at Dartmouth College

In this study, I administer a longitudinal, observational survey among women participating in sorority rush and women who are not before, during, and one month after rush at Dartmouth College to test competing theories in the extant literature. First, I assess pre-existing differences between the two groups to test the Selection Hypothesis (Hypothesis One), which to reiterate posits that women who participate in Greek Life have a higher risk of disordered eating than those who do not long before they actually join sororities. Second, through a pre-post treatment, longitudinal design that strengthens causal inference, I can assess the alternative Causation Hypothesis (Hypothesis 2). The Causation Hypothesis states that joining a sorority increases disordered eating behaviors and risk factors, net of pre-existing differences between women rushing and women who are not. Finally, I add a third hypothesis to extant literature: the Causal Mechanism Hypothesis (Hypothesis 3a-3d). This hypothesis recognizes that because processes underlying the onset of disordered eating may take time to unfold, Rush may not immediately cause changes to disordered eating attitudes. However, if there is evidence that Rush affects any underlying precursors of disordered eating a) peer pressure, b) thin-ideal internalization, c) social comparison, d) body dissatisfaction during T2 or T3, then this can still implicate Rush in a causal process.

Dartmouth is an ideal study location for an investigation of sororities, given that Greek Life continues to predominate the social scene as it has for much of the college's history. The influence of Greek Life can be seen through the sheer number of organizations and students who

choose to join Greek Life: there are 25 total Greek organizations on campus, including 8 sororities within the Inter-Sorority Council. Additionally, the percentage of students who choose to join Greek Life at Dartmouth is 6 times higher than the national average (Hussey 2020). Furthermore, unlike other colleges, first-year women are not allowed to affiliate with sororities, which could help inherently control for effects associated with transitioning to a new college environment and ensure we are only observing the stress associated with the role transition of joining a sorority (Striegel-Moore et al. 1989).

The COVID-19 pandemic adds another layer to this proposed investigation by transferring Rush, which typically occurs in person, to a remote context. Remote rush may dampen the effect that would be expected during a typical year by restricting the ability to assess peers along some appearance-related dimensions, such as body type, during rush parties. However, it is possible that, despite having limited information to make comparisons along some appearance-related dimensions, Rush still causes increased disordered eating attitudes for a couple reasons. First, the factors that make Rush stressful – from being judged by older peers to vying for only a few spots in each house – are still true to virtual Rush. Second, participants can still utilize the appearance information that they do have to make social comparisons. For example, in an experiment performed by Jones and Buckingham (2005), female participants presented with headshots of attractive models still reported raised body dissatisfaction levels and comparisons. Furthermore, general social comparisons, that is those made on the basis of abilities or opinions rather than appearance, are possible during virtual conversations and are still linked to increased body dissatisfaction (Morrison 2003). While I am unable to know how this Rush compares to a normal year, I will contribute to a growing body of literature by

investigating whether cognitive processes related to eating disorders are still pertinent during online interactions.

3 Data and Methods

3.1 Procedure

This study was approved by the Institutional Review Board at Dartmouth College. Participants were recruited using the public Dartmouth directory and direct email solicitations that included an informational sheet on the study.¹ All participants were given a set of questionnaires to complete at three different time points: before rush began (T1), at the end of rush but before women received their final bids (T2), and one month after women received their bids (T3). At each time point, all measures described in further detail below were included, except for demographic questions which were only administered at the first time point. To control for order effects, the measures were randomized across individuals at each time point. Participants completed the questionnaires remotely at the location of their choosing through Qualtrics software, Version 2021. After completion of the questionnaire at each timepoint, participants were provided with a list of counseling resources available at Dartmouth. Participants received compensation for their completion of each questionnaire in an increasing compensation scheme to incentive continued participation.

The response rate for the baseline survey (T1) was 35%, with 200 of the 567 women initially contacted completing and submitting the first survey.² 10 women who completed the

¹ This method was still comprehensive in generating a list. There are only 583 women enrolled in the Class of 2023 during the 2020-2021 school year, according to the Office of Institutional Research at Dartmouth and I was able to contact 567 for the solicitation email.

 $^{^{2}}$ We shouldn't be concerned with this response rate, since it is the average for organizational research (Baruch and Holtom 2008).

study were dropped from all analyses due to their membership in a sorority prior to the distribution of the first survey in the study or their intention to rush Gender inclusive houses, which do not use the same rush process as the Inter-Sorority Council. Because the purpose of this study was to assess change, only students who completed all three surveys are included in the analyses and missingness in the data is handled using listwise deletion. Of the remaining eligible women, 10% of the sample attritted between T1 and T3 (N = 19) and 5.8% (N=10) of the sample was dropped via listwise deletion, resulting in the final sample of 161 women. A Welch's t-test on the sample of women who attritted (N=19) compared to those who completed the survey (N=161) demonstrated that there is no statistically significant difference between the percentage of women rushing in either group, nor any difference in terms of pre-existing disordered eating attitudes, peer pressure, thin-ideal internalization, and body dissatisfaction (see Table A1 in the Appendix). Additionally, participants who rushed, regardless of whether or not they received a bid, are included within the rush group throughout all analyses because they showed the intent for treatment. The intent-to-treat principle, utilized within clinical trials, helps to reduce Type I error that can arise from post-hoc subsetting of the treatment group (Lachin 2000).

3.2 Participants

Of the 161 women who completed all three surveys, 65% (N=106) participants underwent sorority rush and 35% (N=55) participants remained unaffiliated.³ The 106

³ The difference in the size of the two groups -65% choosing to rush and 35% choosing to remain unaffiliated - is reflective of the study site. 65% of students eligible to participate in Greek Life at Dartmouth in 2019-2020 academic school year chose to do so (Hussey 2020). The current number of Dartmouth female undergraduates who rushed was 387, which is 66 percent of the Dartmouth sophomore class, according to the Office of Greek Life.

participants in the survey constitute 27.3% of the total women who participated in sorority rush.⁴ Women within the final sample ranged in age from 18 to 22, with a mean age of 19.31 years (*SD* = .027). BMI among participants ranged from 16.3 to 39.0, with a mean BMI of 22.3 (*SD*=3.38). The majority of women within the sample identified as White (60.00%), 16.88% identified as Asian, 10.62% identified as biracial, and 7.50% identified as Black, while the remaining racial groups constituted 5% of the sample. 6.21% of the sample identified as Hispanic. These racial breakdowns are consistent with the racial breakdown of females within the sophomore class.⁵

3.3 Measures

Rush. Rush status is the main independent variable of interest and is a dummy variable that indicates whether participants receive the "treatment" of rush or not (1=yes; 0=no). Questionnaires for T2 and T3 include additional questions on the rush experience, such as whether participants have dropped out of Rush before receiving a bid to a house and their satisfaction with the rush process.

Eating Attitudes. Eating attitudes is the ultimate dependent variable for testing the causation hypothesis. The 16-item, short form of the Eating Attitudes Test (EAT-16; Ocker et al. 2007) will be used to assess risk for eating disorders. The EAT-26 is used to screen eating disturbances as part of a diagnostic screen and is less discriminatory with regard to specific eating pathologies (Garfinkel and Newman 2001). The final shortened survey derived from the EAT-26 contains four factors: self-perception of body shape, dieting, awareness of food contents, and food preoccupation. Participants respond to questions on a six-point scale, ranging

⁴ A post-hoc power analysis of each construct ranges from 60-80%. This suggests that the estimates for this study are conservative with an increased likelihood of a Type II error. However, power is largely unrelated to how big my effect size and the effect sizes are already small.

⁵ I received the racial breakdowns from Office of Institutional Research at Dartmouth and compared to them to my sample.

from *never* (1) to *always* (6), with higher scores indicating greater risk for the development of an eating disorder. An example item is "I am preoccupied with the thought of having fat on my body" (see Appendix B1 for full version of this survey). The short form was found to have good construct validity, configural invariance, and metric invariance (Ocker et al. 2007). The entire scale and its four subscales demonstrated satisfactory internal consistency, with Cronbach's alpha of the entire scale remaining above 0.94 for each survey wave.⁶

Body Dissatisfaction. Body dissatisfaction is a dependent variable for the causal mechanism hypothesis. I used the 8-item short-form version of the Body Shape Questionnaire (BSQ-8C) to measure body dissatisfaction, due to its high sensitivity to change compared to the other short form versions of the BSQ (Pook et al. 2008). The prompt for the questionnaire was modified slightly for this study, so that the questionnaire asks participants to reflect on their feelings over the past week, rather than over the past four weeks. Participants rate each question on a 6-point scale, ranging from *never* (1) to *always* (6). A sample item is "have you felt excessively large and rounded?" (See Appendix B2 for the full questionnaire). The BSQ-8C showed high test-retest reliability (r=.95), internal consistency (α =.92 at Time 1 and α =.93 at Time 2), and convergent validity (Welch, Lagerstrom, and Ghaderi 2012). In this sample, Cronbach's alpha remained above 0.93 for each survey wave.⁷

Thin Ideal Internalization. Thin-ideal internalization is a dependent variable for the causal mechanism hypothesis. I used the 5-item, thin-ideal internalization subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al. 2015). to measure thin ideal internalization. The subscale uses a 5-point scale, ranging from *definitely*

⁶ Cronbach's alpha for the entire scale of disordered eating attitudes (EAT-16) was 0.95 (T1), 0.94 (T2), and 0.95 (T3).

⁷ Cronbach's alpha for body dissatisfaction (BSQ-8C) was 0.93 (T1), 0.94 (T2), and 0.94 (T3).

disagree (1) to *definitely agree* (5), with higher scores indicating a greater emphasis on the importance of thinness. An example item from the scale is "I think a lot about looking thin" (see Appendix B3 for full scale measures). The Cronbach alpha of the thin internalization subscale remained above 0.77.⁸

Peer Pressure. Peer pressure is a dependent variable for the causal mechanism hypothesis. I used the 4-item peer pressure subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al. 2015) to measure peer pressure. The subscale uses a 5-point scale, ranging from *definitely disagree* (1) to *definitely agree* (5), with higher scores indicating a greater emphasis on the importance of thinness and pressure from peers to maintain a thin body. An example item is, "I feel pressure from my peers to improve my appearance" (see Appendix B4 for full survey items). The Cronbach alpha of the peer pressure subscale remained above of 0.86.⁹

Social Comparison. Social comparison is a dependent variable for the causal mechanism hypothesis. In recognition that due to COVID-19, women are only seeing headshots of other women rushing on Zoom, I measure two different kinds of social comparison linked to increased body dissatisfaction (Morrison et al. 2003; Myers and Crowther 2009): general comparison orientation and appearance-based social comparison. I used the Iowa-Netherlands Comparison Orientation Measures to measure general social comparison tendencies along dimensions of opinions and abilities (INCOM: Gibbons and Buunk 1999). Participants were asked to think about their comparisons with regards to their feelings, opinions, abilities, and situation with those of other people along a 5-point scale, ranging from (1) *disagree strongly* to (5) *agree strongly*. The responses are summed to create a total INCOM score, with higher scores indicating the

⁸ Cronbach's alpha for thin-ideal internalization (SATAQ-4) was 0.77 (T1), 0.81 (T2), and 0.83 (T3).

⁹ Cronbach's alpha for peer pressure (SATAQ-4) was 0.86 (T1), 0.91 (T2), and 0.92 (T3).

tendency to make more general social comparisons. An example item is, "I often compare how I am doing socially (e.g. social skills, popularity) with other people" (see Appendix B5 for full survey items). The scale has demonstrated internal consistency (α = 0.83) and temporal stability of .71 for 3-4 weeks (Gibbons and Buunk 1999). In this sample, Cronbach's alpha remained above 0.74 for all survey waves.¹⁰

To measure appearance-related social comparisons, I used the Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, and Tantletuff-Dunn 1991). Participants were asked to consider their tendency to make appearance-related comparisons over the last week on a 5-point scale, ranging from *Never* (1) to *Always* (5). The questions were slightly modified from their original form to reflect the online nature of rush. An example of a modified item is "At social events on Zoom, I compare my physical appearance to the physical appearance of others" (see the Appendix B6 for the full scale of edited items). The PACS demonstrated adequate construct validity and internal consistency among college women in its original validation (Thompson, Heinberg, and Tantletuff-Dunn 1991). For the present sample, Cronbach's alpha was 0.68 for T1, but otherwise remained above the acceptable 0.70 level. ¹¹

Demographics. I measure a range of time-stable demographic characteristics that may be correlated with Rush or disordered eating risk. I collected demographic data for age, height, weight, ethnicity, financial aid status as a proxy for socioeconomic status, whether they have a prior eating disorder diagnosis, athletic status, living situation (e.g. on campus, off campus with friends, or with family) in a set of questions designed for this study. I calculated participants' body mass index (BMI: kg/m²) with self-reported height and weight. College students have been shown to be accurate in reporting their weight (Shapiro and Anderson 2003). While some studies

¹⁰ Cronbach's alpha for general social comparison (INCOM) was 0.74 (T1), 0.79 (T2), and 0.80 (T3).

¹¹ Cronbach's alpha for appearance-based social comparison (PACS) was 0.68 (T1), 0.75 (T2), and 0.70 (T3).

have found accuracy varies depending on whether the student is high in dietary restraint or considered overweight, other research has found that discrepancies between self-reported weight and actual weight for these students and their peers are not statistically significant; in other words, there is no systematic bias linked to misreporting (Delinsky and Wilson 2008). Demographic questions were placed in between measures to help control for possible spillover effects. Because the demographic information collected is time-stable, they are not included as controls in the analyses, but they are assessed using Welch's t-test (see appendix Table A2) to determine whether there are significant differences in the two groups prior to rush.

3.4 Analytic Strategy

To test the selection hypothesis that women who choose to rush have a higher risk of eating disorders than those who do not, I use a Welch's t-test to analyze differences in the sample means on all measures at T1, prior to rush. In particular, I assess pre-existing differences on the sample means of (1) eating attitudes test (EAT-16), (2) body dissatisfaction (BSQ-8C), (3) thinideal idealization (SATAQ-4 subscale), (4) peer pressure (SATAQ-4 subscale), (5) and social comparison (INCOM and PACS). In this study, Welch's t-test is more favorable than a student's two-sample t-test because there are unequal sample sizes in the two groups and, as women are nonrandomly assigned to the treatment condition, unequal variance between the two groups can be expected (Delacre, Lakens, and Leys 2017).

I test the causation and causal mechanism hypothesis that Rush increases disordered eating attitudes and proximal risk factors by using differences-in-differences (DID) models. In particular, I estimate DID models to assess change in outcomes of (1) eating attitudes test (EAT-16), (2) body dissatisfaction (BSQ-8C), (3) thin-ideal idealization (SATAQ-4 subscale), (4) peer pressure (SATAQ-4 subscale), (5) social comparison (INCOM and PACS), for women who rush and women who did not from baseline (T1) to T2 and T3. DID is a common method of analysis for quasi-experiments, when random assignment is not possible or ethical (Gangl 2010; Lechner 2010). It isolates the effect of treatment by using the pretest – which in this case is survey one before Rush starts - as a baseline for the treated group and measuring any change in specified outcomes in the posttest, after treatment has been given. The untreated group, who should not see a comparable rate of change in the specified outcomes in the absence of treatment, serves as a control for the treated group (Lechner 2010). The difference between pre-test and post-test for the untreated group is subtracted from the difference between the pre-test and post-test for the treated group, resulting in the average treatment effect (ATE) (Gangl 2010; Lechner 2010). With only one pre-test baseline, I cannot empirically assess the underlying parallel trends assumption, whereby the trends in outcomes for the treated and untreated group before rush occurs regardless of baseline pre-existing differences; however, given that the sophomore women only had one ten-week term with access to fraternity parties before the COVID-19 pandemic, I assume that parallel trends do exist. The first DID model is presented below:

$$Y_{it} = \beta_0 + \beta_1 Time_{t=2} + \beta_2 Time_{t=3} + \beta_3 Rushed_i + \beta_4 Rushed_i * Time_{t=2} + \beta_5 Rushed_i *$$

Time_{t=3} + β_6 Covar_{it} + ε_{it} (1)

Where Yit is outcome Y (either body dissatisfaction, eating attitudes test, social comparison, or peer pressure) for individual *i* at time *t*. Time is a series of dummy variables that indicate survey wave. Time_{t=1} is the pre-treatment time period before Rush begins for any participants. Time_{t=2} indicates the first time period after receiving treatment, and Time_{t=3} indicates occurs after one month of sorority membership and likely includes the effect of new membership. β_0 reflects the baseline differences between the treatment and control group before the treatment, identical to the Welch's t-test described above. β_1 , and β_2 capture the time trend common to both the treatment and control group, in the absence of the intervention. β_3 indicates rush status, with i=1 meaning that a woman rushed, 0=not. β_4 and β_5 represent the focal associations of interest in this study that allow us to consider the role of time in the causation and causal mechanism hypothesis. β_4 indicates the difference in Y between T1 and T2 for those who rushed and those who do not, whereby if rush has a causal role, we will be most likely to witness changes to upstream causal mechanisms. β_5 also represents the difference between the two groups but between T1 and T3, where if Rush has a causal role in disordered eating, we are most likely to see changes to eating attitudes. ε_{it} is the random, unobserved error term that contains all determinants of the y_{it} that the model does not include.

To control for the presence of possible time-stable confounders, I re-estimate the DID model with the addition of individual-level fixed effects. Equation 2 is presented below:

 $Y_{it} = a_i + \beta_0(Post_{t=2}) + \beta_1Post_{t=3} + \beta_2Rushed_i*Post_{t=2} + \beta_3Rushed_i*Post_{t=3} + \epsilon_{it} (2)$

Individual-level fixed effects, a_i , capture the vector of unobserved time-invariant confounders and results in a fixed but unknown intercept for unit *i* (Imai 2019; Torres-Reyna 2007). In this way, fixed effects remove the effect of within-subject time stable characteristics and uses the individual at baseline as their own comparison (Lechner 2010), thereby mitigating omitted variable bias related to time stable characteristics. The addition of fixed effects is an important control given that treatment was not randomly assigned and there are a wide range of time-stable, comorbid psychological conditions associated with disordered eating that were not incorporated into the survey (Polivy and Herman 2002).

4 Results

4.1 Hypothesis 1: Testing for Pre-existing Differences

Hypothesis one predicted that there would be preexisting differences between women who chose to rush and women remaining unaffiliated, such that women choosing to rush would be higher on preexisting measures of disordered eating attitudes, body dissatisfaction, thin-ideal internalization, peer pressure, and both measures of social comparison. To answer hypothesis one, the mean scores for eating attitudes (disordered eating attitudes) and proximal mechanisms (social comparison, peer pressure, thin-ideal internalization, body dissatisfaction) are calculated for women who rushed and women who did not. The differences between the two groups are assessed using a Welch's t-test.

Table 1 presents the mean scores on all measures for the full sample and the two subgroups, with the last column reporting the results of the Welch's t-test.¹² Overall, I find support for the selection hypothesis. Women who rush reported significantly higher pre-existing (T1) disordered eating attitudes (EAT-16; p<.05), thin-ideal internalization (SATAQ-4; p<.05), general social comparison orientation (INCOM; p<.05) and appearance-related social comparison (PACS; p<.05). I find no significance in baseline differences in perceived peer pressure or body dissatisfaction; however, these differences are substantively meaningful and in the expected direction, even though they do not achieve statistical significance.

I calculate the effect size, estimated by Cohen's *d* with unequal variances for all measures to further substantively understand the separation between the two group means (Faraone 2008). A larger effect size indicates that rush status is related to higher scores on the respective

¹² The same statistical significance is found when the measures are assessed using a non-parametric Wilcoxon rank sum test. These results can be produced upon request.

measures and therefore higher disordered eating risk, compared to people in the control group. For all measures reaching statistical significant in the Welch's t-test, the effect sizes are small but not negligible, according to Cohen's (1988) rule of thumb criteria: .36 for eating attitudes (EAT-16), thin-ideal internalization (SATAQ-4), .42, and .39 for appearance-related comparisons (PACS). The effect size for general social comparison (INCOM), .47, approaches a medium

K	cinaming Chairman	cu Delore Rush D	cgms.	
	(1)	(2)	(3)	(4)
Scales	Full Sample	Rushed	Did not Rush	Welch's T-Test
Eating Attitudes	42.44	44.41	38.65	*
(EAT-16)	(16.01)	(16.33)	(14.78)	
Body Dissatisfaction	22.06	22.76	20.71	
(BSQ-8C)	(8.87)	(8.22)	(9.95)	
Thin-Ideal	17.50	18.08	16.36	*
Internalization	(4.14)	(3.70)	(4.71)	
(SATAQ-4)				
Perceived Peer Pressure	7.615	7.943	6.982	
(SATAQ-4)	(3.62)	(3.67)	(3.46)	
General Social	42.22	43.13	40.47	***
Comparison (INCOM)	(5.79)	(5.55)	(5.90)	
Appearance-Related	14 75	15.17	13.05	*
Comparison (PACS)	(3.16)	(2.89)	(3.52)	
Observations	161	106	55	161

Table 1. Means and Standard Deviations on All Measures for Women Rushing and Women Remaining Unaffiliated Before Rush Begins.

Note: Mean coefficients; sd in parentheses. Variables are continuous, with higher values reflecting higher levels of the construct. Possible ranges for the study variables are as follows: EAT-16 (16-96), BSQ-8C (8-48), Thin-Ideal Internalization (5-25), Peer Pressure (4-20), INCOM (5-25). + p<.10, * p<.05, ** p<.01, *** p<.001

effect size, which is designated as an effect of 0.50. There are smaller but still not negligible effect sizes observed for peer pressure (SATAQ-4), .26, and body dissatisfaction (BSQ-8C), .23. Overall, women selecting into Rush are therefore exhibiting small pre-existing differences with regard to their eating attitudes, thin-ideal internalization, general social comparison, and appearance-related comparisons prior to the beginning of Rush. This provides support for all measures of my first hypothesis, except for on measures of body dissatisfaction and peer pressure.

4.2 Hypothesis 2 & 3a-3d: Investigating a Causal Effect of Rush on Disordered EatingOutcomes and Proximal Mechanisms

The Causation Hypothesis (Hypothesis Two) predicts that Rush will have a causal effect on increasing disordered eating risk. The Causal Mechanism Hypothesis (Hypothesis 3a-3d) recognizes that it may take time for differences on disordered eating attitudes to emerge, but it predicts that rush will have a causal effect on upstream causal mechanisms. Namely, if Rush affects disordered eating via its effects on the more proximal mechanisms and this process takes time to unfold, we might expect that the association between Rush and the upstream mechanisms would emerge at T2; and (2) the association between Rush and disordered eating may be stronger in T3 than in T2.

		Rushed			Did Not Rush	
Scales	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Eating Attitudes	44.41	43.55	43.83	38.655	38.32	38.47
(EAT-16)	(16.33)	(15.95)	(15.28)	(14.78)	(14.74)	(16.08)
Body Dissatisfaction	22.76	22.21	22.55	20.71	20.2	20.16
(BSQ-8C)	(8.22)	(8.59)	(9.19)	(9.95)	(8.86)	(9.27)
Thin-Ideal Internalization	18 08	18.20	17.64	16.36	15.96	15 87
(SATAQ-4)	(3.70)	(3.89)	(3.84)	(4.71)	(4.05)	(4.30)
Peer Pressure $(S \Delta T \Delta O_4)$	7 99	8 77	8 24	7 14	7 655	7 421
Teer messure (BATAQ-4)	(3.64)	(4.27)	(3.98)	(3.50)	(4.00)	(4.04)
General Social	43.13	43.12	42.29	40.472	40.436	40.04
Comparison (INCOM)	(5.55)	(5.57)	(5.99)	(5.90)	(6.75)	(6.23)
Appearance-Related	15.17	15.63	14.49	13.95	13.523	13.11
Comparison (PACS)	(2.887)	(3.01)	(3.36)	(3.52)	(3.18)	(3.12)
Observations	106	106	106	55	55	55

Table 2. Means and Standard Deviations on All Measures for Women Rushing and Women Remaining Unaffiliated Before Rush (T1), During Rush (T2), and After Rush (T3)

Note: Mean coefficients; sd in parentheses. Variables are continuous, with higher values reflecting higher levels of the construct. Possible ranges for the study variables are as follows: EAT-16 total (16-96), BSQ-8C (8-48), Thin-Ideal Internalization (5-25), Peer Pressure (4-20), INCOM (5-25).

Table 2 shows descriptive mean differences across all survey waves, stratified by rush status. These preliminary results provide little support for either the Causation Hypothesis or the Causal Mechanism hypothesis. First, across all outcomes, estimates are largely stable over time, suggesting that differences between women who rush and those who remain unaffiliated do not change over time. For example, when we look at disordered eating attitudes across T1, T2, and T3, the score for women who rush and women who do not never drops below 43 or 38, respectively. However, with the addition of fixed effects, the DID analyses will provide a less biased estimate by absorbing time invariant characteristics of the individual to confirm these preliminary conclusions.

Tables 3-8 and Figures 2-7 show results from DID models to estimate the association between rush and the outcomes of interest. Broadly, the results show very little support for the causation hypotheses. Across nearly all outcomes, the DID analyses corroborate the initial descriptive trends: eating attitudes (Figure 2 and Table 3), body dissatisfaction (Figure 3 and Table 4), thin ideal internalization (Figure 4 and Table 5), peer pressure (Figure 5 and Table 6), and general comparison orientation (Figure 6 and Table 7) are stable among both rush participants and women who did not rush throughout the duration of the study. There are no statistically significant differences or meaningful change in effect size between T1, T2, and T3 among either group. Because women choosing to rush had higher scores on these measures, prior to the beginning of Rush, they remained higher on these measures at T2 and T3. These results do not support the predictions made in hypothesis two or 3a-3d; these results are not consistent with the theory that Rush has a causal role in increasing disordered eating risk among those who participated. For example, with regard to Eating Attitudes (in Figure 2 and Table 3), both the survey two- and survey three-by-rush interaction coefficient are negative, suggesting that the

differences decrease rather than increase over time as predicted by the causation hypothesis.

However, there is one exception to this pattern of findings that is worth noting: that is

appearance-related social comparison.



Dif	ference-in-Difference	ces.
	(1) M1	(2) M2
Rush (Yes $= 1$)	5.751*	
Survey Two	-0.327	-0.327
	(0.876)	(0.875)
Survey Three	-0.182	-0.182
	(1.217)	(1.216)
Rush * Survey Two	-0.522	-0.522
	(1.099)	(1.098)
Rush * Survey Three	-0.394	-0.394
	(1.492)	(1.491)
Constant	38.655***	42.441***
	(1.992)	(0.377)
N (person-survey)	483	483
Person fixed effects	Ν	Y
r2	0.005	0.005

Table 3. Eating Attitudes Test (EAT-16)

+ p<.10, * p<.05, ** p<.01, *** p<.001



Dif	ference-in-Difference	ces.
	(1)	(2)
	M1	M2
Rush (Yes $= 1$)	2.055	
	(1.562)	
Survey Two	-0.509	-0.509
	(0.680)	(0.679)
Survey Three	-0.545	-0.545
	(0.730)	(0.729)
Rush * Survey Two	-0.048	-0.048
	(0.829)	(0.828)
Rush * Survey Three	0.328	0.328
	(0.931)	(0.930)
Constant	20.709***	22.062***
	(1.341)	(0.251)
N (person-survey)	483	483
Person fixed effects	Ν	Y
r2	0.006	0.006

Table 4. Body Dissatisfaction Score (BSO-8C)



Difference	ce-in-Differenc	es.
	(1)	(2)
	M1	M2
Rush (Yes $= 1$)	1.721*	
	(0.730)	
Survey Two	-0.400	-0.400
	(0.336)	(0.335)
Survey Three	-0.491	-0.491
	(0.388)	(0.388)
Rush * Survey Two	0.513	0.513
	(0.435)	(0.435)
Rush * Survey Three	0.048	0.048
	(0.500)	(0.499)
Constant	16.364***	17.497***
	(0.635)	(0.139)
N (person-survey)	483	483
Person fixed effects	N	Y
r2	0.020	0.020
	***	0.020

Table 5. Thin-Ideal Internalization (SATAQ-4)

+ p<.10, * p<.05, ** p<.01, *** p<.001



Table 0. Feel Flessure (SATAQ-4) Difference-in-Difference	Table 6.	Peer	Pressure	(SATAQ-4)) Difference-in-Difference
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	(1)	(2)
	M1	M2
Rush (Yes $= 1$)	0.962	
	(0.588)	
Survey Two	0.564	0.564
	(0.474)	(0.473)
Survey Three	0.327	0.327
	(0.476)	(0.476)
Rush * Survey Two	0.191	0.191
	(0.596)	(0.595)
Rush * Survey Three	0.031	0.031
	(0.558)	(0.558)
Constant	6.982***	7.615***
	(0.466)	(0.162)
N (person-survey)	483	483
Person fixed effects	Ν	Y
r2	0.022	0.022
+n < 10 * n < 05 * * n < 01 *	** n< 001	



Dif	ference-in-Difference	ces.
	(1)	(2)
	M1	M2
Rush (Yes $= 1$)	2.659**	
	(0.962)	
Survey Two	-0.036	-0.036
	(0.637)	(0.637)
Survey Three	-0.436	-0.436
2	(0.732)	(0.731)
Rush * Survey Two	0.027	0.027
	(0.802)	(0.802)
Rush * Survey Three	-0.403	-0.403
2000 - 24 - 0000 - 2000	(0.846)	(0.845)
Constant	40.473***	42.224***
	(0.795)	(0.228)
N (person-survey)	483	483
Person fixed effects	Ν	Y
r2	0.016	0.016

Table 7. General Social Comparison (INCOM)

+ p<.10, * p<.05, ** p<.01, *** p<.001



Table 8. Physical Appearance Comparison Score (PACS)
Difference-in-Differences

Difference in Differences				
	(1)	(2)		
	M1	M2		
Rush (Yes $= 1$)	1.224*			
	(0.551)			
Survey Two	-0.418	-0.418		
andonia (n. 1977).	(0.395)	(0.394)		
Survey Three	-0.836+	-0.836+		
000000 G G -	(0.438)	(0.437)		
Rush * Survey Two	0.880+	0.880+		
-	(0.471)	(0.470)		
Rush * Survey Three	0.157	0.157		
	(0.522)	(0.522)		
Constant	13.945***	14.752***		
	(0.474)	(0.131)		
N (person-survey)	483	483		
Person fixed effects	Ν	Y		
r2	0.062	0.062		

+ p < .10, * p < .05, ** p < .01, *** p < .001

Unlike the other measures assessed for hypothesis two and three, physical appearance comparison (Figure 7 and Table 8 above) suggests that Rush may have caused a temporary increase in physical appearance comparison. The interaction term between Rush and survey two increased physical appearance comparison by 0.88 of a point (p<.10) among those who rushed, compared to those who did not. The effect size calculated using Cohen's *d* for appearance-related comparisons (PACS) between the two groups is .69. This spike in physical appearance comparison is short-lived. It promptly returns to levels below the initial survey wave for those who rushed, with the main time effect of survey three leading to a 0.836-point decrease (p<.10) in physical appearance comparison levels. Despite the spike in appearance-related comparisons among those who rushed, this evidence still suggests there is no long-lasting causal effect of Rush on disordered eating outcomes, as was initially theorized in my causation and causal mechanism hypotheses. Therefore, Rush may be an event stressor, rather than chronic stressor for physical appearance comparison.

4.3 Supplementary Analyses

I conducted several additional analyses to explore additional questions. First, I conducted an analysis to determine whether my results would change if I did not observe the intent-to-treat principle, and rather only compared women who ultimately joined sororities (N=77) with women who did not rush at all (N=55) (Appendix Tables A3-A8). In these analyses, women who rushed and ultimately joined sororities are referred to as sorority members. Across all measures, the direction and size of the effects remained largely unchanged. These results are not indicative of any large differences between women who rushed and joined sororities, compared to women who did not rush.

I also analyzed a triple-interaction between rush status, BMI, and survey wave to explore heterogeneity among women who rush on eating attitudes and body dissatisfaction, since Rolnik et al. (2010) found evidence that high BMI predicted dissatisfaction with the rush process and other researchers have found that high BMI predicts higher levels of body dissatisfaction (Lipson and Sonneville 2017). Table A9 reports the triple interaction between Rush, time, and BMI as a continuous variable with eating attitudes as the dependent variable (EAT-16). Table A10 reports the triple interaction between Rush, time, and BMI as a continuous variable with body dissatisfaction (BSQ-8C) as the dependent variable. While I lack statistical power to detect significant differences with regard to the BMI status, the direction and magnitude of the triple interaction term for either outcome suggests that I do not find support for higher BMI predicting worse disordered eating or body dissatisfaction among those who rush, compared to those who do not. With regard to eating attitudes (Table A9), the triple interaction term for BMI, rush, and time is positive for survey two but is negative for survey three, and each time the coefficient is less than a full point in either direction, which suggests BMI has little effect on predicting eating attitudes. With regard to body dissatisfaction, the triple interaction term is small and negative for survey two and three, the opposite direction we would expect if high BMI were to predict higher disordered eating or body dissatisfaction.

5 Discussion

The current study utilizes longitudinal data from sorority rush to assess whether women who exhibit higher disordered eating risk factors are selecting into Greek Life or alternatively whether Greek Life is causing increases in disordered eating risk factors. The results from the study do not support the Causation Hypothesis (Hypothesis 2) or the Causal Mechanism

Hypothesis (Hypothesis 3a-3d) from this study, whereby I predicted that Rush would cause increased levels of social comparison, peer pressure, thin-ideal internalization, and body dissatisfaction; however, the results from this study support the Selection Hypothesis (hypothesis one). In other words, women who chose to rush scored higher on measures directly relating to eating attitudes (EAT-16), general social comparison (INCOM), appearance-related social comparison (PACS), and thin-ideal internalization (SATAQ-4), prior to the start of Rush. Additionally, Rush did not exacerbate these differences overall, despite a small and brief spike in physical appearance comparisons that suggests rush might be a temporary event stressor and not chronic stressor. Scores on the measures were remarkably consistent throughout the duration of the study. Overall, the results supports the self-selection hypothesis from previous literature (Averett et al. 2017; Basow et al. 2007), rather than the causation or causal mechanism hypothesis.

Even if Greek Life is not to blame for the onset of disordered eating, as the results from this study suggest it is not, there are important implications that result from the Selection Hypothesis. First, from a disordered eating intervention and prevention perspective, the data from this study suggest that sororities may still be helpful for identifying people who display more risk. In particular, even if Greek membership does not cause disordered eating, the higher risk of disordered eating within sororities make this a reasonable population to administer targeted disordered eating prevention or intervention programs, as has been done in the past (Becker et al. 2010). Second, it is important for future researchers to interrogate the underlying theory for why we observe selection whereby Greek spaces attract women with underlying risk factors. Possible explanations from qualitative research preliminarily suggest that it could be women with higher risk of disordered eating also tend to endorse typical gender roles present in

Greek Life or there is some other overlap between thinness, Greek Life, and measure of popularity (DeSantis 2007). To my knowledge, no one has yet to empirically test a theory for selection.

In this case, the results align well with the selection hypothesis, but it could also be that the current debate between the causation versus the selection hypothesis continues because there is a missing third voice: an exacerbation hypothesis. In this alternative "exacerbation hypothesis," it could be that women who are selecting into rush exhibit predispositions for disordered eating compared to their unaffiliated peers, but that differences in disordered eating between women who join sororities and women who do not rush only emerges over longer periods of time, as women acculturate to the norms of their respective sorority houses (Allison and Park 2004; Basow et al. 2007; Crandall 1988). Literature on the effect of Greek Life for other risky behaviors, such as alcohol use, find support for an exacerbation phenomenon (McCabe et al. 2005), which makes it feasible that a similar effect is occurring with regard to disordered eating. A future study with a longer post-rush examination, which allows for these processes to unfold over time, can test the exacerbation hypothesis.

4.3 Limitations and Suggestions for Future Research

There are several other limitations within the current study that limit the generalizability of the results and offer a starting point for future research. First, the study occurred during the COVID-19 pandemic. The pandemic necessitated that I alter my original study question from one that would assess the heterogeneity of body image norms and diet culture among current sorority members to one that investigates women joining sororities. However, even with this new study question, the pandemic still presented challenges for my current study. For example, while I adjusted my investigation to include two measures of social comparison as well as adjusted the

appearance-related social comparison measure itself to reflect the nature of Zoom, the results are likely not comparable to typical, in-person rush where women have access to more physical information about their peers. Therefore, it remains to be seen whether remote rush dampened the effects of possible appearance-related comparisons. Future work can utilize this study as a point of comparison and investigate the same causal mechanisms during in-person Rush, in order to understand the effects of the COVID-19 pandemic. Furthermore, my original study question remains unanswered: future researchers should consider the extent to which the rush process, or body image norms among current sorority members, is heterogeneous among different sororities with different reputations on the college campus.

Additionally, while the presence of a pre-rush baseline improves upon the design of prior studies, it may not be a true pre-rush baseline as this study presumes. First, it could be that with the high percentage of Dartmouth students that are also athletes (more than 20%), there is considerable overlap between sorority houses and sports teams.¹³ This overlap likely means there is contamination present within the sample, whereby women rushing already know and interact with current sorority members within a group setting prior to Rush.¹⁴ Second, the reports could also include anticipatory effects of women who had already decided they were going to partake in the rush process, since the first pre-rush baseline occurred during a time when most people already knew whether or not they were going to partake in the process and may have already been adjusting their behavior or attitudes accordingly. Therefore, future work should utilize a similar analytical method but collect the first pre-rush test early or before a student's college career begins to minimize possible anticipatory effects or contamination of the sample.

¹³ I found that more than 20% of Dartmouth students are athletes on <u>https://home.dartmouth.edu/dartmouth-glance</u> May 29, 2021.

¹⁴ However, the descriptive trends on eating attitudes and causal mechanisms for athletes across T1, T2, and T3 is not predictive of higher disordered eating risk, unlike Rush status which is. This table can be produced upon request.

Additionally, multiple, early baseline tests can empirically test the parallel trends assumption inherent to the difference-in-differences analytic strategy.

Due to its high Greek Life participation in the student body, Dartmouth has a unique culture that has unknown implications for the results. The "norm" of rushing, whereby people report being unlikely to rush had they attended a different school and women in particular express stigma associated with remaining "unaffiliated" (Hussey 2020), has been well documented among the Dartmouth population and has interesting implications to consider with regard to the selection hypothesis. On the one hand, it could increase the difference between those who choose to rush and those who do not, because those who do not are already demonstrating resistance to peer pressure by virtue of not rushing; however, it could also be that the rush process captures a broader group of people that, despite some pre-existing differences, are more characteristic of the general population than are sorority women on other college campuses. Future work should consider conducting a similar study simultaneously among different college campuses to consider the role of the broader college culture in finding support for these hypotheses.

Finally, the literature on eating disorders documents that there is selection and social desirability bias that arises when asking questions about sensitive issues, such as body image (Anderson et al. 2007; Krumpal 2013). Namely, the sensitive nature of the topic impacts the sample that selects into the study in the first place because women who struggle with body image or disordered eating the most are least likely to report their experiences. Additionally, people who do decide to participate may be less likely to be forthcoming with their experiences. To the degree that it is possible, this study minimized social desirability bias by using previously validated measures and allowing participants to anonymously take the study from their location

of choosing. Furthermore, it is likely that the presence of social desirability bias provides a conservative estimate of disordered eating issues within Greek Life. However, it remains important for the field to continue to understand the effects of social desirability bias on self-report measures and improve its ability to survey people who are most at risk for disordered eating.

6 Conclusion

This study relied on a longitudinal survey among a cohort of 161 female undergraduates at Dartmouth College, with 106 women participating in sorority rush and 55 women remaining unaffiliated. Difference-in-differences models were used to analyze the longitudinal data from self-report measures and study within-person change to accomplish two important aims: first, the results helped clarify potential pre-existing differences between these two groups to test the Selection Hypothesis; second, they determined whether participating in sorority rush increases eating disordered attitudes or specific risk factors, including body dissatisfaction, social comparison, peer pressure, and thin-ideal internalization, to test the Causation and Causal Mechanism Hypotheses.

The results found that within this sample, women choosing to rush scored higher on measures of current disordered eating attitudes and disordered eating risk factors compared to their unaffiliated peers prior to the start of Rush. Second, these differences were not exacerbated by the rush process long-term; Rush only led to a brief spike in physical appearance comparison that by the end of the rush process returned to baseline levels. Overall, the results support the Selection Hypothesis present from previous work: women with higher risk for disordered eating are joining Greek Life, and it is not, at least during the rush process, Greek Life that is causing

the difference between the groups. Collectively, answering these two aims during a critical but understudied period - the rush process – helped to fill in remaining gaps surrounding the current body of literature on the relationship between Greek Life and disordered eating. Future work should continue to rely on longitudinal data and consider the possibility that Greek Life could be exacerbating differences among already at-risk women.

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Supplementary Materials

Appendix A: Supplementary Tables

Table A1. Welch's T-Test Comparing Means of Study and Attritted Participants in Survey One

Table A2. Differences Between Rush and Non-Rushed Groups on Demographics

Table A3. Eating Attitudes (EAT-16) Difference-in-Differences Comparing Sorority Members

 and Non-Rush

Table A4. Body Dissatisfaction (BSQ-8C) Difference-in-Differences Comparing Sorority

 Members and Non-Rush

Table A5. Thin-Ideal Internalization (SATAQ-4) Difference-in-Differences Comparing Sorority

 Members and Non-Rush

Table A6. Peer Pressure (SATAQ-4) Difference-in-Differences Comparing Sorority Members and Non-Rush

Table A7. General Social Comparison (INCOM) Difference-in-Differences Comparing Sorority

 Members and Non-Rush

Table A8. Appearance-Related Social Comparison (PACS) Difference-in-Differences

 Comparing Sorority Members and Non-Rush

Table A9. Eating Attitudes (EAT-16) Difference-in-Differences for Continuous BMI.

Table A10. Body Dissatisfaction (BSQ-8C) Differences-in-Differences for Continuous BMI.

Appendix B: Questionnaires

B1. Eating Attitudes (EAT-16)

B2. Body Dissatisfaction (BSQ-8C)

B3. Thin-Ideal Internalization (SATAQ-4) subscale

B4. Peer Pressure (SATAQ-4) subscale

B5. General Social Comparison (INCOM)

B6. Edited Appearance-Related Social Comparison (PACS)

Table AL, WEICH & I-TESt Compari	(1) (2) (3)			
	Attritted	Completed Study	Welch's T-Test	
Living Situation		x ,		
Living Off Campus	0.421	0.217		
	(0.507)	(0.414)		
Living at Home	0.368	0.273		
	(0.496)	(0.447)		
Living On-Campus	0.211	0.497	*	
	(0.419)	(0.502)		
Rush Status (Yes $= 1$)	0.632	0.658		
	(0.496)	(0.476)		
White	0.737	0.596		
	(0.452)	(0.492)		
Financial Aid Status	0.684	0.478	+	
(Yes = 1)	(0.478)	(0.501)		
BMI	22.06	22.36		
25111	(2.655)	(3.437)		
Previous Eating	0	0.0932	***	
Disorder Diagnosis (Yes=1)	(0)	(0.292)		
Eating Attitudes	47.16	42.44		
(EAT-16)	(17.81)	(16.01)		
Body Dissatisfaction	25.37	22.06		
(BSQ-8C)	(10.23)	(8.873)		
Thin-Ideal Internalization	17.32	17 50		
(SATAQ-4)	(3.384)	(4.141)		
Perceived Peer Pressure	8.421	7.615		
(SATAQ-4)	(3.485)	(3.619)		
General Social Comparison	43.16	42.22		
(INCOM)	(5.550)	(5.793)		
Appearance-Related	15.42	14.75		
Social Comparison (PACS)	(2.341)	(3.160)		
Observations	19	161		

Table A1 Welch's T-Test Comparing Means of Study and	Attritted Participants in Survey One
Table A1. Weich § 1-16st Combaring Means of Study and	Aurilleu Fariicidants în Survey One.

Note: Mean coefficients; sd in parentheses. + p<.10, * p<.05, ** p<.01, *** p<.001

	(1)	(2)	(3)
	Rushed	Did Not Rush	Welch's T-Test
Living Situation			24
Living Off-Campus	0.274	0.109	***
	(0.448)	(0.315)	
Living At Home	0.226	0.364	+
	(0.420)	(0.485)	
Living On-Campus	0.481	0.527	
	(0.502)	(0.504)	
Race			
White	0.641	0.545	
	(0.482)	(0.503)	
Black	0.0194	0.182	***
	(0.139)	(0.389)	
A	0.165	0.182	
Asian	0.105	0.182	
	(0.373)	(0.389)	
Other Race	0.198	0.0909	+
	(0.400)	(0.290)	
	0.0755	0.0264	
Hispanic (Yes = 1)	0.0755	0.0364	
	(0.265)	(0.189)	
Varsity Sports (Yes=1)	0.170	0.145	
	(0.377)	(0.356)	
T'	0.224	0.779	***
Financial Aid (Yes=1)	0.324	0.778	***
	(0.470)	(0.420)	
BMI	21.98	23.08	+
	(3.007)	(4.058)	
Previous Eating	0.113	0.0545	
Disorder Diagnosis	(0.318)	(0.229)	
(Yes=1)			
Classes (Yes=1)	0.849	0.796	
	(0.360)	(0.407)	
	(0.000)	(0.107)	
Observations	106	55	161

Table	42	Differences	Retween	Ruched	and Nor	-Rushed	Crouns on	Demographics
I able	A 4.	Differences	Detween	Nusneu	anuitoi	I-IXUSHCU	Groups on	Demographics

mean coefficients; sd in parentheses + p<.10, * p<.05, ** p<.01, *** p<.001

	(1)	(2)
	M1	M2
Sorority Member (Yes=1)	5.294+	
	(2.793)	
Survey Two	-0.327	-0.372
	(0.877)	(0.876)
Survey Three	-0.182	-0.182
	(1.219)	(1.218)
Member * Survey Two	-0.673	-0.673
	(1.091)	(1.090)
Member * Survey Three	-1.013	-1.013
	(1.541)	(1.593)
Constant	38.655***	41.742***
	(1.995)	(0.388)
N (person-survey)	396	396
Person fixed effects	Ν	Y
r2	0.010	0.010
$\pm n < 10 * n < 05 * * n < 01 * * * n < 01$	001	

Table A3. Eating Attitudes Test (EAT-16) Difference-in-Differences **Comparing Sorority Members and Non-Rush.**

+ p<.10, * p<.05, ** p<.01, *** p<.001

Table A4. Body Dissatisfaction (BSQ-8C) Difference-in-Differences **Comparing Sorority Members and Non-Rush.**

	(1)	(2)
	M1	M2
Sorority Member (Yes=1)	1.927	
	(1.639)	
Survey Two	-0.509	-0.509
	(0.681)	(0.680)
Survey Three	-0.545	-0.545
_	(0.731)	(0.730)
Member * Survey Two	-0.673	-0.673
	(0.845)	(0.844)
Member * Survey Three	-0.195	-0.195
	(0.931)	(0.930)
Constant	20.709***	21.833***
	(1.343)	(0.253)
N (person-survey)	396	396
Person fixed effects	Ν	Y
r2	0.021	0.021

	(1)	(2)
	(1)	(2)
	M1	M2
Sorority Member (Yes=1)	1.610*	
	(0.771)	
Survey Two	-0.400	-0.400
	(0.336)	(0.336)
Survey Three	-0.491	-0.491
	(0.389)	(0.388)
Member * Survey Two	0.517	0.517
	(0.450)	(0.450)
Member * Survey Three	0.010	0.010
	(0.520)	(0.519)
Constant	16.364***	17.303***
	(0.636)	(0.144)
N (person-survey)	396	396
Person fixed effects	Ν	Y
r2	0.024	0.024

 Table A5. Thin-Ideal Internalization (SATAQ-4) Difference-in-Differences

 Comparing Sorority Members and Non-Rush.

+ p<.10, * p<.05, ** p<.01, *** p<.001

Table A6. Peer Pressure (SATAQ-4) Difference-in-Differences Comparing Sorority Members and Non-Rush.

comparing sorority		
	(1)	(2)
	M1	M2
Sorority Member (Yes=1)	0.810	
	(0.627)	
Survey Two	0.564	0.564
	(0.475)	(0.474)
Survey Three	0.327	0.327
	(0.477)	(0.476)
Member * Survey Two	0.060	0.060
	(0.606)	(0.605)
Member * Survey Three	-0.314	-0.314
	(0.571)	(0.570)
Constant	6.982***	7.455***
	(0.467)	(0.171)
N (person-survey)	396	396
Person fixed effects	Ν	Y
r2	0.022	0.022

	(1) (2)		
	M1	M2	
Sorority Member (Yes=1)	2.475*		
	(1.026)		
Survey Two	-0.036	-0.036	
	(0.638)	(0.638)	
Survey Three	-0.436	-0.436	
-	(0.733)	(0.732)	
Member * Survey Two	-0.068	-0.068	
	(0.891)	(0.890)	
Member * Survey Three	-0.668	-0.668	
	(0.906)	(0.904)	
Constant	40.473***	41.917***	
	(0.796)	(0.264)	
N (person-survey)	396	396	
Person fixed effects	Ν	Y	
r2	0.020	0.020	

 Table A7. General Social Comparison (INCOM) Difference-in-Differences

 Comparing Sorority Members and Non-Rush.

+ p<.10, * p<.05, ** p<.01, *** p<.001

Table A8. Appearance-Related Social Comparison (PACS) Difference-in-Differences Comparing Sorority Members and Non-Rush.

	(1)	(2)
	M1	M2
Survey Member (Yes=1)	1.184*	
	(0.574)	
Survey Two	-0.418	-0.628
	(0.395)	(0.388)
Survey Three	-0.836+	-0.836+
	(0.438)	(0.438)
Member * Survey Two	0.665	0.665
	(0.493)	(0.493)
Member * Survey Three	-0.034	-0.034
	(0.540)	(0.540)
Constant	13.945***	14.636***
	(0.475)	(0.142)
N (person-survey)	396	396
Person fixed effects	Ν	Y
r2	0.063	0.063

Difference-in-Differences for Continuous BMI.			
	(1)	(2)	
	M1	M2	
Survey Two	-0.408	0.624	
	(3.238)	(4.142)	
Survey Three	3.889	1.593	
	(5.074)	(5.405)	
BMI * Survey Two	-0.011	-0.041	
-	(0.140)	(0.169)	
BMI * Survey Three	-0.195	-0.077	
-	(0.228)	(0.235)	
Rush * Survey Two		-1.350	
-		(6.537)	
Rush * Survey Three		5.171	
		(9.765)	
Rush * BMI * Survey Two		0.036	
		(0.283)	
Rush * BMI * Survey Three		-0.259	
		(0.439)	
Constant	42.563***	42.563***	
	(0.359)	(0.360)	
N (person-survey)	474	474	
Person fixed effects	Y	Y	
r2	0.009	0.013	

Table A9. Eating Attitudes (EAT-16)
Difference-in-Differences for Continuous BMI.

Difference-in-Differences for Continuous Divit.			
	(1)	(2)	
	M1	M2	
Survey Two	4.416+	4.196	
	(2.494)	(3.057)	
Survey Three	1.143	-3.186	
	(3.514)	(4.014)	
BMI * Survey Two	-0.221*	-0.204	
-	(0.111)	(0.131)	
BMI * Survey Three	-0.065	0.114	
	(0.159)	(0.175)	
Rush * Survey Two		0.729	
		(4.964)	
Rush * Survey Three		7.949	
-		(6.347)	
Rush * BMI * Survey Two		-0.044	
-		(0.221)	
Rush * BMI * Survey Three		-0.339	
-		(0.286)	
Constant	22.120***	22.120***	
	(0.254)	(0.254)	
N (person-survey)	474	474	
Person fixed effects	Y	Y	
r2	0.016	0.024	
+ n < 10 * $n < 05$ ** $n < 01$ *** $n < 001$			

Table A10. Body Dissatisfaction (BSQ-8C) Difference-in-Differences for Continuous BML

B1. Eating Attitudes Test (EAT-16)

Please fill out the questions below as accurately, honestly and completely as possible. There are no right or wrong answers.

- 1. I am preoccupied with the desire to be thinner.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 2. I am preoccupied with the thoughts of having fat on my body.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 3. I am terrified about being overweight.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 4. I engage in dieting behavior.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 5. I feel extremely guilty after eating.
 - [] Always
 - [] Usually
 - [] Often

- [] Sometimes
- [] Rarely
- [] Never
- 6. I think about burning up calories when I exercise.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 7. I like my stomach to be empty.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 8. I feel uncomfortable after eating sweets.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 9. I particularly avoid foods with high carbohydrate content.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 10. I avoid foods with sugar in them.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes

- [] Rarely
- [] Never

11. I eat diet foods.

- [] Always
- [] Usually
- [] Often
- [] Sometimes
- [] Rarely
- [] Never

12. I am aware of the calorie content of foods that I eat.

- [] Always
- [] Usually
- [] Often
- [] Sometimes
- [] Rarely
- [] Never
- 13. I find myself preoccupied with food.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never
- 14. I feel that food controls my life.
 - [] Always
 - [] Usually
 - [] Often
 - [] Sometimes
 - [] Rarely
 - [] Never

15. I give too much time and thought to food.

[] Always [] Usually [] Often [] Sometimes [] Rarely [] Never

16. I have gone on eating binges where I feel I am not able to stop.

[] Always
[] Usually
[] Often
[] Sometimes
[] Rarely
[] Never

B2. Body Shape Questionnaire (BSQ-8C)

We would like to know how you have been feeling about your appearance over the **<u>past week</u>**. Please read each question and circle the appropriate number to the right. Please answer all the questions.

- 1. Have you been afraid that you might become fat (or fatter)?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 2. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?
 - [] Always [] Very often [] Often [] Sometimes [] Seldom
 - [] Never
- 3. Have you imagined cutting off fleshy areas of your body?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom

[] Never

- 4. Have you felt ashamed of your body?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 5. Have you felt excessively large and rounded?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 6. Have you thought that you are the shape you are because you lack self-control?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 7. Has seeing your reflection (e.g., in a mirror or shop window) made you feel bad about your shape?
 - [] Always
 - [] Very often
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 8. Have you been particularly self-conscious about your shape when in the company of other people?

[] Always

[] Very often[] Often[] Sometimes[] Seldom[] Never

B3. Thin-Ideal Internalization (SATAQ-4)

Please read each of the following items carefully and select the phrase that best reflects your agreement with the statement.

- 1. I want my body to look very thin.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 2. I want my body to look like it has little fat.
 - [] Definitely agree
 [] Mostly agree
 [] Neither agree nor disagree
 [] Mostly disagree
 [] Definitely disagree
- 3. I think a lot about looking thin.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 4. I want my body to look very lean.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 5. I think a lot about having very little body fat.
 - [] Definitely agree

[] Mostly agree[] Neither agree nor disagree[] Mostly disagree[] Definitely disagree

B4. Peer Pressure (SATAQ-4)

Please read each of the following items carefully and select the phrase that best reflects your agreement with the statement.

- 1. My peers encourage me to get thinner.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 2. I feel pressure from my peers to improve my appearance.
 - [] Definitely agree[] Mostly agree[] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 3. I feel pressure from my peers to look in better shape.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree
- 4. I get pressure from my peers to decrease my level of body fat.
 - [] Definitely agree
 - [] Mostly agree
 - [] Neither agree nor disagree
 - [] Mostly disagree
 - [] Definitely disagree

B5. General Social Comparison (INCOM)

Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly 'good' or 'bad' about this type of comparison, and some people do it more than others. We would like to find out how often you compare with other people. To do that we would like to ask you to indicate how much you agree with *each* statement below.

- 1. I often compare how my loved ones (significant others, family members, etc.) are doing with how others are doing.
 - [] Strongly agree] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 2. I always pay a lot of attention to how I do things compared with how others do things.
 - [] Strongly agree[] Somewhat agree[] Neither agree nor disagree[] Somewhat disagree[] Strongly disagree
- 3. If I want to find out how well I have done something, I compare what I have done with how others have done.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 4. I often compare how I am doing socially (e.g. social skills, popularity) with other people.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 5. I am not the type of person who compares often with others.
 - [] Strongly agree

- [] Somewhat agree
- [] Neither agree nor disagree
- [] Somewhat disagree
- [] Strongly disagree
- 6. I often compare myself with others with respect to what I have accomplished in life.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 7. I often like to talk with others about mutual opinions and experiences.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 8. I often try to find out what others think who face similar problems as I face.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 9. I always like to know what others in a similar situation would do.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree
 - [] Somewhat disagree
 - [] Strongly disagree
- 10. If I want to learn more about something, I try to find out what others think about it.
 - [] Strongly agree
 - [] Somewhat agree
 - [] Neither agree nor disagree

- [] Somewhat disagree
- [] Strongly disagree

11. I never consider my situation in life relative to that of other people.

[] Strongly agree
[] Somewhat agree
[] Neither agree nor disagree
[] Somewhat disagree
[] Strongly disagree

B6. Appearance-Related Social Comparison (PACS) - EDITED

People sometimes compare their physical appearance to the physical appearance of others. This can be a comparison of their weight, body size, body shape, body fat or overall appearance. Thinking about how you have generally compared yourself to others over the **<u>past week</u>**, please use the following scale to rate how often you made these kinds of comparisons.

- 1. At social events (including those on Zoom), I compare my physical appearance to the physical appearance of others.
 - [] Always [] Often
 - [] Sometimes
 - [] Seldom

 - [] Never
- 2. At social events (including those on Zoom), I compare how I am dressed to how other people are dressed.
 - [] Always
 - [] Often
 - [] Sometimes
 - [] Seldom
 - [] Never
- 3. In social situations (including those on Zoom), I sometimes compare my figure to the figures of other people.
 - [] Always [] Often

[] Sometimes [] Seldom [] Never

People sometimes compare their physical appearance to the physical appearance of others. This can be a comparison of their weight, body size, body shape, body fat or overall appearance. Please select the option that comes closest to how you feel when you compare yourself to others.

- 4. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others.
 - [] Always [] Often [] Sometimes
 - [] Seldom
 - [] Never
- 5. Comparing your "looks" to the "looks" of others is a bad way to determine if you are attractive or unattractive.
 - [] Always [] Often [] Sometimes
 - [] Seldom
 - [] Never