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POPULATIONS: EXPLORING THE UNIQUE ROLES OF BODY  
DISSATISFACTION, GENDER DYSPHORIA, AND MISGENDERING**

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DISORDERED EATING BEHAVIORS IN NONBINARY POPULATIONS: EXPLORING  
THE UNIQUE ROLES OF BODY DISATISFACTION, GENDER DYSPHORIA, AND  
MISGENDERING

by

Raven Callahan Cohen

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Counseling Psychology

The University of Memphis

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## **Preface**

This dissertation is original, unpublished, independent work by the author, R.C. Cohen.

## Abstract

Nonbinary individuals have long been underrepresented in eating disorder research despite gender minority risk factors that place them at higher risk for gender-based discrimination, which impacts mental health outcomes including eating disorder pathology. Nonbinary individuals often present themselves in such a way that rejects body image ideals that may also lead to body dissatisfaction and gender dysphoria in relation to gendered expectations, which is a known risk factor of disordered eating. The current study investigated how body dissatisfaction, gender dysphoria, and misgendering predicted disordered eating behaviors in a sample of 130 nonbinary participants. Unexpectedly, body dissatisfaction was significantly and inversely predictive of disordered eating behaviors. Further, body satisfaction, gender dysphoria, and misgendering combined predicted disordered eating behaviors. Gender dysphoria and misgendering were significantly and positively predictive of disordered eating behaviors. While gender dysphoria and misgendering did not uniquely predict disordered eating behaviors in this sample of nonbinary participants, they are key factors to be considered in assessment and treatment of ED pathology. Additional implications of this study, limitations, and ideas for future research are also discussed.

*Keywords:* nonbinary, transgender, eating disorders, disordered eating behaviors, body dissatisfaction, gender dysphoria, misgendering

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## **Disordered Eating Behaviors in Nonbinary Populations: Exploring the Unique Roles of Body Dissatisfaction, Gender Dysphoria, and Misgendering**

Eating disorders (EDs) encompass a wide range of diagnoses and represent a psychiatric health condition associated with high mortality and morbidity (Duffy et al., 2021; Nagata et al., 2020). EDs were previously believed to only affect Caucasian, affluent, cisgender women, but research has increasingly highlighted the experience of EDs in other diverse groups including cisgender men, racial and ethnic minorities, and sexual and gender minorities (Mensing et al., 2020; Nagata et al., 2020; Protos, 2020). Although EDs have been found to affect less than 5% of the general population, subthreshold disordered eating behaviors, or unhealthy eating patterns, are increasingly common, can manifest at various times within the lifespan, and pose significant medical and psychiatric risks (Berg et al., 2012). Additionally, most individuals seeking treatment for an ED do not meet diagnostic criteria for commonly known EDs such as anorexia nervosa (AN) and bulimia nervosa (BN); rather they often fall into the category of eating disorders – not otherwise specified (EDNOS; Machado et al., 2013). Transgender and gender diverse (TGD) populations specifically are often underrepresented in ED research despite their increased risk of disordered eating behaviors due to unique experiences with body dissatisfaction and sociocultural body image ideals of what it means to be masculine and feminine (Nagata et al., 2020; Testa et al., 2017). Even further, nonbinary individuals, who represent a distinct subset of the TGD population who do not identify as either or exclusively men or women, may present themselves in such a way that rejects body image ideals, (Barbee & Schrock, 2019), which may also lead to body dissatisfaction based on one’s assigned sex at birth in relation to gendered expectations and associated discrimination often experienced. TGD populations are at higher risk for gender-based discrimination, rejection, and physical and sexual violence, which impacts



mental health outcomes including eating disorder pathology (Lefevor et al., 2019; Testa et al., 2015). Nonbinary populations report more experiences of misgendering whereby others do not honor pronoun usage or do not respect their gender identity or expression (Lefevor et al., 2019). Of the studies conducted with TGD populations, few in comparison have examined disordered eating behaviors in nonbinary populations, who may experience body dissatisfaction and discrimination differently from binary transmasculine and transfeminine populations. Thus, the present study seeks to explore the unique roles of body dissatisfaction, gender dysphoria and misgendering in the development of disordered eating behaviors in nonbinary populations.

### **Terminology**

In order to understand the unique experiences of TGD individuals, it is important to have a basic understanding of common definitions associated with gender. *Cisgender* is a term that refers to individuals whose gender identity is congruent with their sex assigned at birth (Hendricks & Testa, 2012), whereas TGD populations refer broadly to individuals “who identify with a gender different from the binary male or female sex assigned at birth” (Duffy et al., 2021, p. 2). TGD populations include persons with both transgender and nonbinary identities (Duffy et al., 2021) and represent an estimated 1.4 million adults in the United States (Reisner & Hughto, 2019). *Transgender*, or *trans*, is an umbrella term referring to individuals whose biological sex, often including genitalia and hormones, do not match their gender identity (Leibowitz & de Vries, 2016). Transgender persons typically identify their gender within a binary system of either male or female (Hendricks & Testa, 2012). For instance, transfeminine individuals may self-identify as a woman if they were assigned male at birth and transmasculine individuals may self-identity as a man if they were assigned female at birth (Hendricks & Testa, 2012).

Someone who identifies as *nonbinary* or *gender nonconforming* may or may not identify as transgender. Nonbinary is another umbrella term used to represent those who identify as a gender that exists beyond the traditional gender binary of maleness and femaleness (Matsuno, 2019). Nonbinary individuals may identify as both masculine and feminine, between masculine or feminine, gender neutral (e.g., agender), or somewhere outside of the gender binary (McGuire et al., 2019). Nonbinary individuals present with a diverse range of masculine and feminine gender expressions; some present with androgynous or fluid gender expressions, whereas others present with predominantly feminine or masculine expressions (Matsuno, 2019).

Despite the existence of nonbinary identities throughout history and across cultures (Schudson & Morgenroth, 2022), research has improved reporting procedures to capture prevalence rates. One study found that in a sample of 6,456 transgender identified participants, 13.3% indicated an identity beyond the options of male, female, or transgender (Grant et al., 2011; Harrison et al. 2012). According to the 2015 U.S. Transgender Survey, 31% of 27,715 participants identified as nonbinary (Liszewski et al., 2019). Research is further demonstrating that nonbinary identities are most common among younger individuals, suggesting that this population is likely to increase over time (Lefevor et al., 2019; Wilson & Meyer, 2021). Additionally, nonbinary identities are becoming increasingly recognized, with several U.S. states and cities currently allowing or in the process of allowing a gender-neutral designation on driver's licenses (Liszewski et al., 2019). Despite increased visibility, people generally lack basic knowledge of nonbinary gender identities and have difficulty understanding identities that deviate from the male-female gender binary or gender social norms, which could contribute to unique gender-related stressors for nonbinary individuals (Reisner & Hughto, 2019). For instance, many nonbinary individuals have experienced discrimination in healthcare, reporting

refusal of treatment based on gender identity or avoidance of treatment due to the fear of discrimination, which was greater for nonbinary individuals who were socioeconomically disadvantaged (e.g., people of color, disabled, low income, and undocumented immigrants; Liszewski et al., 2019). While being nonbinary does not communicate any information regarding a person's sexual identity, nonbinary individuals tend to have a non-heterosexual sexual orientation (e.g., having an emotional, romantic, and/or sexual attraction to those of a different gender identity) compared to binary transgender people, which may further place this population at an additive risk for multiple minority related stigmatization (Harrison et al., 2012). Considering that nonbinary gender identity development tends to follow a nonlinear path as opposed to the path binary transgender individuals follow resulting in a transition to a male or female identity, this population should be seen as a unique population with unique health needs (Fiani, 2018). Given the underrepresentation of nonbinary populations in present literature, it is critical that research draws attention to the lived experiences of nonbinary people separate from lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA+) people.

### **Disordered Eating Behaviors in TGD Populations**

While emerging research suggests that TGD populations represent a minority group at higher risk for lifetime ED diagnoses, it is still difficult to elucidate approximate prevalence rates due to the exclusion of gender identities other than male and female in much of the ED research (Goldhammer et al., 2018; Mensinger et al., 2020). A review of current studies examining eating disorders in LGBTQIA+ populations suggests that these individuals do experience higher rates of lifetime ED diagnoses than heterosexual, cisgender peers (Mensing et al., 2020). Rates increase when examining disordered eating behaviors in transgender populations specifically. Testa et al. (2017) conducted a study examining ED symptoms in transgender populations,

finding that in a sample consisting of 154 transfeminine and 288 transmasculine participants, 23% of transfeminine and 22% of transmasculine individuals endorsed clinically significant ED symptoms. Additionally, in a national survey of approximately 300,000 college students, transgender individuals were four times more likely to be at risk of AN or BN than their cisgender peers (Diemer et al., 2015). While there are many maladaptive methods to alter one's body including excessive exercise, anabolic steroids, purging, and laxative use, research with TGD populations suggests that restricting food intake is the most common weight and shape control behavior (Mitchell et al., 2021). Additionally, several studies found disordered eating behaviors such as binge episodes, laxative misuse, bulimic behaviors and excessive exercise within binary transgender men and women samples (Mirabella et al., 2020; Nowaskie et al., 2021).

Research findings are currently mixed when investigating the experiences of disordered eating behaviors between binary trans men and women. Some studies suggest that trans men and women do not appear to significantly differ on eating disorder symptomatology (Peterson et al., 2020). For instance, in a study measuring disordered eating behaviors utilizing the Eating Disorder Examination Questionnaire (EDE-Q) in a sample of trans youth seeking hormone replacement therapy for gender affirmation, no mean differences were found in the total EDE-Q scores between trans men and women (Peterson et al., 2020). Conversely, in a study examining EDE-Q scores in sample of transgender patients in a primary care outpatient gender health program, researchers found significantly higher ED symptomatology among trans women as compared to trans men (Nowaskie et al., 2021). These mixed findings highlight the potential differences in experiences with disordered eating within a population once studied as a homogeneous group and further suggests differences within group differences based on sex

assigned at birth. Moreover, many studies have focused largely on binary transgender populations, omitting the experiences of nonbinary individuals and leaving questions regarding their experience of EDs. For instance, in a national sample of college students, when distinguishing nonbinary respondents from binary transgender respondents, more severe eating concerns were reported by nonbinary respondents (Lefevor et al., 2019). Additionally, in a study investigating EDs in transgender adults across different identity subgroups, findings suggested that nonbinary individuals assigned female at birth were at a heightened lifetime risk for EDs relative to that of transgender women (Diemer et al., 2018). These findings highlight the need for studies to treat nonbinary populations as separate from binary transgender populations to further investigate the heterogeneity of experiences with disordered eating behaviors within this population.

### **Body Dissatisfaction and Gender Dysphoria**

TGD populations often experience higher rates of mental health problems, with the roots of this distress being high levels of body dissatisfaction and gender dysphoria, especially within the context of sociocultural body image ideals (Jones et al., 2016). Although not all TGD individuals are dissatisfied with their bodies, research findings suggest that TGD individuals are at higher risk for body dissatisfaction than cisgender individuals (Cusack & Galupo, 2020). Despite this concern, of the two national surveys regarding the lived experiences of TGD individuals, neither included questions related to body image or EDs (Protos, 2020). Body dissatisfaction, which refers to the negative evaluation of one's appearance (Bandini et al., 2013) includes the degree of satisfaction with specific body parts and the discomfort with body size (McGuire et al., 2016). (Jones et al., 2019). While the majority of individuals experience some degree of body dissatisfaction, according to Stice & Shaw (2002), body dissatisfaction is a

central contributor in the development and maintenance of eating disorder pathology. Numerous studies have demonstrated a relationship between body dissatisfaction and ED symptoms in TGD populations with qualitative reports emphasizing the importance of preventing undesirable or achieving desirable gendered body ideals that are more congruent with gender identity (Romano & Lipson; 2022).

Gender dysphoria, which is also referred to as gender incongruence, broadly refers to a feeling of: (1) disconnect between one's physical body and their gendered sense of self; (2) discomfort that others perceive one as a gender or sex other than what one knows themselves to be (Johnson, 2015; Zucker, 2015). With cisgender heteronormative sociocultural standards of attractiveness, it is not surprising that transgender individuals often feel dysphoria about their bodies, especially related to secondary sex characteristics such as breasts, penis, hair, etc. (Jones et al., 2016). Individuals who experience gender dysphoria, compared to those without, have been found to evaluate their bodies more negatively because of the conflict between their current body and their gender identity (Becker et al., 2015). TGD individuals are more likely to perceive their bodies more negatively in response to gender-based prejudice suggesting that gender dysphoria is likely rooted in society's perceptions of transgender individuals' gender and body (Cusack & Galupo, 2020).

Although two distinct constructs, body dissatisfaction is thought to be closely related to gender dysphoria (Jones et al., 2016). Zamantakis & Lackey (2021) conducted a qualitative study investigating the experiences of 16 transgender participants with a history of EDs, finding that many of their participants discussed their bodies in relation to gender and gender in relation to weight which suggested an interdependent relationship between gender congruence and body satisfaction. Additionally, EDs were used by participants as an attempt to alleviate their gender

dysphoria and to perform gender in validating ways (Zamantakis & Lackey, 2021). This was particularly prevalent for participants who identified as transgender men and nonbinary assigned female at birth who attempted to suppress characteristics associated with a woman's body including breasts, hips, and menstruation (Zamantakis & Lackey, 2021). Research findings further demonstrate increased rates of body dissatisfaction for individuals meeting criteria for gender dysphoria, particularly adolescents entering puberty when secondary sex characteristics begin to develop (McGuire et al., 2016).

Socially constructed gender role norms play an important role in relation to disordered eating via physical appearance and internalization of beauty standards (Magallares, 2013). Gender role norms influence the behavior and traits deemed appropriate for men and women in a specific culture (Pleck et al., 1993). In Western cultures specifically, the female sociocultural beauty ideal is ultra-thin, while the male beauty ideal is related to a muscular body (Thompson et al., 1999). According to existing literature, females tend to have a drive for thinness, while males tend to have a drive for muscularity as a result of the pressure to attain these differing and often unrealistic body ideals (Gray & Ginsberg, 2007). Research is also clear in finding associations between a drive for thinness and drive for muscularity with disordered eating (Garner, 2002; Stice, 2002). When examining the prevalence of eating disorders along binary gender lines, the most common eating disorders among women are AN, BN, and EDNOS (Hudson et al., 2007), whereas muscle dysphoria is generally found in men (Pope et al., 1997).

Although all individuals regardless of gender can suffer from body dissatisfaction, these concerns tend to differ consistent with male and female standards for bodily attractiveness (Pleck et al., 1993). Regarding TGD populations, body dissatisfaction can motivate TGD individuals to use various disordered eating behaviors to modify their body shape towards their desired gender

form. For instance, TGD individuals may use dietary restriction in order to reduce breast size and hips, lose muscle mass, and suppress menstruation (Duffy et al., 2021; Kamody et al., 2020). Conversely, and perhaps more common among transmasculine individuals, compulsive exercise and intentional overeating may be used to attain muscular ideals and to increase the size of the abdomen, hiding curves from breasts and hips (Kamody et al., 2020). To further highlight the contextual nature of working towards body image ideals in the TGD community, according to an anecdotal clinician account, some trans individuals may work towards a larger body size to increase “visibility” in society as an expression of their gender identity (Vogt & Young, 2016). McGuire et al. (2016) surveyed 90 transgender youth and young adults finding that 75.9% experienced body dissatisfaction relating to cultural norms regarding size and curvature of the body.

While recent studies have examined the roles of gender dysphoria and body dissatisfaction in transgender populations, limited research exists regarding the impact that these psychological constructs have on nonbinary populations. More appears to be understood about gender differences in body image ideals for those adhering to a gender binary, but not for those who do not conform to traditional binary gender standards (Cusack & Galupo, 2020). Cusack and Galupo (2020) highlight two previous studies with conflicting results, with only one study finding significantly higher rates of body dissatisfaction as compared to binary transgender individuals. Their study, obtained from a community sample of 194 nonbinary participants with androgynous appearance ideals, found that body satisfaction moderated the effect of body checking behaviors on increased eating pathology, while gender congruence did not contribute to this association, suggesting that gender expression was a contributing factor to disordered eating pathology (Cusack & Galupo, 2020). Though gender congruence was not a significant predictor



of eating disorder pathology in their study, nonbinary individuals may still experience gender dysphoria, especially in response to experiences of gender minority stress factors.

### **Misgendering**

Applying a minority stress theory to the development of disordered eating behaviors in TGD populations provides a framework for understanding the unique and detrimental roles of experiences of gender-based discrimination and harassment on negative mental health outcomes. Meyer (1995, 2003) first proposed a minority stress theory positing that the development of chronic diseases and poorer health outcomes in marginalized populations are due to chronic stress accumulated through experiences of stigmatization and discrimination (Mensinger et al., 2020). According to minority stress theory, proximal stressors are internal negative experiences about one's minority status that are often the byproduct of distal, or external, stressors of discrimination and harassment (Meyer, 2003). For TGD individuals, proximal stressors may include anticipated rejection or identity concealment, and distal stressors may include discrimination or physical and sexual violence (Lefevor et al., 2020).

Testa et al. (2015) extended the minority stress theory by identifying nonaffirmation of gender identity, referred to as *misgendering* throughout this current study, as a critical distal stressor for TGD individuals. For a nonbinary individual, misgendering may occur when their chosen pronouns are not honored or when they are referred to by their *deadname*, their birth name when they have changed their name as part of their gender transition, for instance.

Development of EDs may occur from several pathways of experiences of distal stressors. TGD populations often experience harassment, discrimination and victimization in gender-specific public restrooms (Matsuno & Israel, 2018). To avoid these experiences, TGD individuals may skip eating and drinking altogether while at school, work, or other public settings, which could

lead to the development of disordered eating (Goldhammer et al., 2018). Mensinger et al. (2020) conducted a study that examined experiences of bullying and abuse in LGBTQIA+ populations. Results suggested that a history of sexual abuse and bullying produced significant differences in eating disorder symptoms in that sexual and LGBTQIA+ individuals experienced higher ED symptoms at treatment admission (Mensingher et al., 2020). Despite these findings, this study only examined binary transgender individuals, excluding nonbinary individuals, and examined gender identity combined with sexual orientation. Notwithstanding, these studies highlight the importance of considering factors beyond the physical body in understanding ED pathology.

Research findings propose that nonbinary populations experience gender minority stressors differently than transgender populations. Considering that many nonbinary individuals identify outside of the confines of binary gender identities, which often is reflected in chosen pronouns such as they/them, zi/hir, or other neopronouns, they may “come out” more frequently in order to continually remind others of their gender identity and pronouns (Lefevor et al., 2019). Nonbinary individuals may be more likely to be evaluated negatively by others for not conforming to traditional gender roles (Broussard & Warner, 2019). Studies regarding attitudes toward nonbinary individuals have found that their gender identities are more likely to be questioned, or labeled as “fake” and “invented” (Schudson & Morgenroth, 2022). Nonbinary individuals have reported more instances of hostility regarding their identity and pronouns and a decreased likelihood to disclose their identity to family members, depriving them access to an important support system (Lefevor et al., 2019). Applying a minority stress framework, nonbinary populations may experience body dissatisfaction in unique ways as failing to appear cisgender might lead to transphobic harassment or other acts of discrimination (Brewster et al. 2019).

To date, there have been limited studies examining the roles of body dissatisfaction and misgendering on eating disorder development in TGD populations. Watson et al. (2017) studied the relationship between transphobic discrimination and body dissatisfaction, reporting that transgender individuals who experienced overt transphobic discrimination reported greater body dissatisfaction. Additionally, Mitchell et al. (2021) conducted a study investigating experiences of misgendering on gender dysphoria, body dissatisfaction, and dietary restraint behaviors in a sample of 130 TGD participants, including 47 nonbinary participants, that has several important implications on the current study. The authors proposed a Misgendering-Congruence Process that posited experiences of being misgendered could lead transgender individuals to feel greater incongruence between their bodies and internal gender identities, which in turn could lead to body dissatisfaction and promote dietary restraint to align their bodies with their gender identity. Mitchell et al. (2021) employed a serial multiple mediation model that found significant direct effects between misgendering frequency and transgender congruence, between transgender congruence and body dissatisfaction, and between body dissatisfaction and dietary restraint. Significant indirect effects were also found between misgendering frequency and body dissatisfaction through transgender congruence, and between misgendering frequency and dietary restraint through both transgender congruence and body dissatisfaction. However, no direct effects were detected between misgendering frequency and dietary restraint through either mediator alone, suggesting that both body dissatisfaction and gender dysphoria must be considered when examining disordered eating behaviors. The Misgendering-Congruence Process did not significantly account for dietary restraint in the sample of nonbinary participants, which could have been attributed to a smaller sample size or emphasis on dietary restraint as the only disordered eating behavior.

## **Gender Confirming Medical Interventions**

There is a growing body of research highlighting the benefits of gender-affirming medical care for TGD populations that assist in the development of masculine or feminine traits aligning their physical characteristics with their gender identity (Clark et al., 2020; Tomita et al., 2018). Notably, gender dysphoria has been shown to be reduced with the use of hormones and surgical treatments for those seeking to align their bodies with, and affirm, their gender identity (Jones et al., 2019). One study found that cross-sex hormone treatment alleviated body distress and made improvements in psychological well-being in a sample of transgender adolescents experiencing pubertal changes (Costa et al., 2016). It is important to know that not all TGD individuals desire to access these gender-confirming medical interventions (GCMI) and even despite interest, many face barriers to access (Tomita et al., 2018). Additionally, while some studies have documented benefits to GCMI, the research still appears mixed regarding the impact GCMI have on gender dysphoria, body dissatisfaction, and disordered eating behaviors (Algars et al., 2012; Turan et al., 2018).

Emerging research, also reporting mixed findings, examining nonbinary populations separate from binary transgender populations is beginning to explore treatment seeking behaviors in this population. Findings from studies with nonbinary individuals have suggested that these individuals often do not desire to seek hormone treatment or surgery and are less interested in adapting their bodies through GCMI to a binary gender presentation (Lefevor et al., 2019). However, another study found that one third of nonbinary participants endorsed receiving hormone therapy to feminize or masculinize their body (Puckett et al., 2017). James et al. (2016) conducted a study to explore differences in gender affirming treatment seeking behaviors in nonbinary individuals finding that while 70% of nonbinary individuals endorsed benefitting from

gender-related treatment, only 31% had access to treatment in comparison to 73% of binary trans people. Taken together, nonbinary populations may be more interested in accessing GCMIIs but experience unique barriers to care including lack of provider knowledge of gender identity and health issues, and experiences of misgendering (Scandurra et al., 2019). Further research investigating eating disorder pathology in nonbinary populations should consider demographic variables including interest in GCMIIs to further guide clinical treatment.

### **Current Study**

Developmental pathways to disordered eating behaviors by way of body dissatisfaction, gender dysphoria and misgendering might differ for nonbinary populations, compared to binary transgender persons. Previous studies with nonbinary populations have documented greater gender minority stressors, including misgendering, than binary transgender persons, which can contribute to increased disordered eating behaviors (Donaldson et al., 2018).

The purpose of the current study was to examine disordered eating behaviors in a sample of gender nonbinary adults. While some research studies feature samples of transgender, nonbinary, and cisgender participants and compare differences between groups, the current study sought to focus exclusively on nonbinary populations as well as the heterogeneity within this population of gender diverse individuals. The present study sought to contribute to the literature in several ways. First, the current study added to emergent studies that explore disordered eating behaviors in a sample consisting only of nonbinary individuals. Given that the literature posits that body dissatisfaction, gender dysphoria, and misgendering, individually, contribute to disordered eating behaviors in transgender populations, this study examined their collective impact on disordered eating behaviors in nonbinary populations. Furthermore, this study focused on understanding the relationship between these constructs to inform specific screening and

treatment approaches to be used with nonbinary individuals. This study also extended the literature by assessing whether gender dysphoria and misgendering uniquely predict disordered eating behaviors in nonbinary participants.

### **Research Questions/Hypotheses**

**Research question 1.** What is the association between body dissatisfaction and disordered eating behaviors in nonbinary participants?

*Hypothesis 1.* Body dissatisfaction will be positively associated with disordered eating behaviors in nonbinary participants such that higher rates of body dissatisfaction will be associated with higher rates of disordered eating.

**Research question 2.** Does the combination of body dissatisfaction, gender dysphoria, and misgendering predict disordered eating behaviors in nonbinary participants?

*Hypothesis 2.* The combination of body dissatisfaction, gender dysphoria, and misgendering will predict disordered eating behaviors in nonbinary participants.

**Research question 3.** Which factors uniquely predict disordered eating behaviors in nonbinary participants?

*Hypothesis 3.* Misgendering and gender dysphoria will uniquely predict disordered eating behaviors in nonbinary populations.

## **Method**

### **Procedure**

University Institutional Review Board (IRB) approval was obtained before participant recruitment began. Study participants were recruited using Amazon Mechanical Turk (MTurk), an online crowdsourcing survey platform. Recruitment information included within the unique Human Intelligence Task (HIT) stated that the study was meant to explore body satisfaction and

eating behaviors in nonbinary individuals, with hopes of informing treatment. The HIT also included a link to the Qualtrics survey containing the informed consent, demographics questionnaire, study instruments, and debriefing form.

Participant involvement was voluntary and anonymous, and participants were informed that they could discontinue their involvement at any time. Once participants consented to participate in this study by clicking “yes”, they were directed to complete the remainder of the study. Participants who selected “under 18 years of age” or responded “no” to the question, “do you identify as nonbinary?”, were immediately directed to the end of survey; these responses were not recorded. No other inclusion or exclusion criteria was used for the purposes of this study. The order in which participants were presented the study instruments was randomized using one of two orders to avoid influencing participant responses. Pop-up reminders were enabled on Qualtrics to help ensure that participants are responding to all questions before moving on to the next page of survey questions. Once completed, participants received a statement thanking them for their participation, provided with the contact information for the lead investigator and research chair, and were directed to a debriefing form which included information on how to access mental health and disordered eating related resources, with particular emphasis on resources dedicated to transgender and nonbinary communities. Participants were also provided with a code to record within the MTurk HIT to receive their compensation of \$1.00 for study participation. The ‘prevent the ballot box stuffing’ option was enabled within the Qualtrics platform to prevent participants from retaking the survey.

## **Participants**

A non-probability sample of 130 nonbinary participants between the ages of 18 and 64 were recruited for this study via MTurk. To be eligible for participation, participants had to self-

identify as nonbinary, be currently living in the United States, be fluent in English, and be at least 18 years of age. An a priori power analysis was calculated in G\*Power 3.1 to determine the projected sample size using an alpha set at .05 and a medium effect size of 0.15, indicating that 119 participants were required to achieve a power of .95 (Faul et al., 2007). Sample characteristics are presented in Table 1.

**Table 1**

*Sociodemographic Characteristics of Nonbinary Participant Sample (N = 130)*

Variable	<i>n</i>	%
<b>Birth Sex</b>		
Male	61	46.9
Female	69	53.1
<b>Intersex</b>		
No	46	35.4
Yes	84	64.6
<b>Transgender</b>		
Yes	40	30.8
No	90	69.2
<b>Age Range</b>		
18 – 24	19	14.6
25 – 34	89	68.5
35 – 44	8	6.2
45 – 54	9	6.9
55 – 64	5	3.8
<b>Race/Ethnicity</b>		
American Indian or Alaskan Native	1	0.8
Asian or Asian American	14	10.8
Bi-racial or Multi-racial	2	1.5
Black or African American	1	0.8
Hispanic or Latino(a)(x)(e)	2	1.5
Native Hawaiian or Pacific Islander	1	0.8
White or European American	107	82.3
<b>Education</b>		
High School diploma or equivalent	2	1.5
Associate degree	2	1.5
Bachelor’s degree	110	84.6
Master’s degree	16	12.3
<b>Employment</b>		
Employed for wages	90	69.2
Self-employed	36	27.7
Unemployed less than 1 year	1	0.8
Homemaker	2	1.5
Student	1	0.8
<b>Sexual Orientation</b>		
Aromantic	7	5.4
Asexual	7	5.4
Bisexual	60	46.2



Variable	<i>n</i>	%
Gay	6	4.6
Lesbian	9	6.9
Pansexual	1	0.8
Queer	4	3.1
Questioning or unsure	1	0.8
Same-gender loving	2	1.5
Straight or Heterosexual	27	20.8
<b>Self-Specified Gender Identity</b>		
Agender	5	3.8
Bigender	11	8.5
Crossdresser	4	4.1
Demi boy	2	1.5
Demi girl	3	2.3
Gender nonconforming	1	0.8
Man	21	16.2
Nonbinary	42	32.3
Trans man	2	1.5
Trans woman	7	5.4
Trigender	1	0.8
Woman	31	23.8
<b>Social Nonbinary Identity</b>		
None of the time	10	7.7
A little of the time	34	26.2
Some of the time	57	43.9
Most of the time	26	20
All of the time	3	2.3
<b>Gender Expression</b>		
Feminine	49	37.7
Masculine	36	27.7
Neither feminine nor masculine	25	19.2
Both at the same time	18	13.8
I don't have a preference	2	1.5
<b>Outness</b>		
I rarely or never tell I'm nonbinary	14	10.8
I sometimes tell I'm nonbinary	79	60.8
I often tell I'm nonbinary	29	22.3
I always tell I'm nonbinary	8	6.2
<b>Gender Confirming Medical Interventions</b>		
Hormone Therapy	46	35.4
Hair Removal	43	33.1
Mastectomy	37	28.5
Breast Augmentation	46	35.4
Hysterectomy	36	27.7
Oophorectomy	32	24.6
Metoidioplasty	35	26.9
Phalloplasty	26	20
Orchiectomy	17	13.1
Vaginoplasty	17	13.1
Other procedure	2	1.5
No, and unsure about the future	10	7.7
No, and would not in the future	8	6.2
No, but would like in the future	8	6.2
<b>Barriers</b>		
Finances and insurance issues	65	50
Incidents of bias/discrimination	46	35.4

Variable	<i>n</i>	%
Lack of service availability	65	50
Other medical issues	36	27.7
Lack of info to acquire care	34	26.2
Other	3	2.3

## Measures

### *Demographics Questionnaire*

All participants who indicated eligibility for participation by self-identifying as nonbinary and 18 years of age or above were asked to self-specify their unique gender identity, and to answer questions regarding sex assigned at birth, intersex status, age range, race/ethnicity, education status, employment, sexual orientation, time spent in their social nonbinary identity, gender expression, outness, and utilization of gender-confirming medical interventions and potential barriers to access. Responses were recorded in multiple-choice format with the option for write in answers for inclusivity.

### *Body Dissatisfaction*

The Body Parts Satisfaction Scale Revised (BPSS-R; adapted from Petrie et al., 2002) consists of a list of 15 body parts such as, “shoulders”, “hair”, and “overall complexion”, and measures the participants’ satisfaction with 15 body features on a 6-point satisfaction scale from (1 = *extremely dissatisfied* to 6 = *extremely satisfied*). Consistent with the study conducted by Mitchell et al. (2021), “breasts” were revised to “chest” to apply to all bodies. Mitchell et al. (2021) reported a moderate Cronbach’s alpha ( $\alpha = .84$ ). All responses were averaged such that higher scores indicated greater body satisfaction (see Appendix D). In the present study, the total body satisfaction subscale score demonstrated excellent internal consistency ( $\alpha = .92$ ).

### *Gender Dysphoria*

The Gender Congruence and Life Satisfaction Scale (GCLS; Jones et al., 2019a) is a 38-item scale that measures improvements in gender congruence, body satisfaction, related

psychological well-being, and life satisfaction during a gender transition. Gender dysphoria was measured using 17 items from the Gender Congruence cluster comprised of four factors (genitalia, chest, other secondary sex characteristics, and social role recognition) of the GCLS. The GCLS was specifically developed to be inclusive of nonbinary and binary transgender people (Jones et al., 2018). All items within the GCLS feature gender neutral language (Jones et al., 2019). Responses are rated on a 5-point scale from (1 = *always* to 5 = *never*) with higher scores indicating more gender congruence, or more harmony with one's gender (Cusack & Galupo, 2020). A sample item from the social role recognition factor is, "I have found it distressing that others do not address me according to my gender identity." Another sample item from the chest factor is, "I have felt like my chest does not match my gender identity" (reverse scored). Jones et al. (2019a) found that the GCLS gender congruence cluster, in addition to the gender-related mental well-being and gender life satisfaction cluster and global scale, demonstrated good reliability and validity in their validation study of a sample of 1,127 participants (451 transgender, 133 nonbinary, and 338 cisgender). All seven subscales were found to have good internal consistency ( $\alpha = >.7$ ). The gender congruence cluster demonstrated convergent validity with a moderate to strong significant association with the Transgender Congruence Scale appearance congruence subscale (TCS, Kozee et al., 2012). Jones et al. (2019b) reported moderate Cronbach's alphas for both clusters ( $\alpha = .77 - .95$ ) in their study of a sample of 526 participants (97 nonbinary, 91 binary transgender, and 338 cisgender participants; see Appendix C). Mean scores were calculated for each subscale and for the overall gender congruence cluster where higher scores indicated a greater gender dysphoria. In the present study, the total gender congruence subscale score demonstrated excellent internal consistency ( $\alpha = .90$ ).

## ***Misgendering***

The Gender Minority Stress and Resilience measure (GMSR; Testa, Habarth, Peta, Balsam, and Bockting, 2015) is a theory-driven measure based on Meyer's minority stress model developed for TGD individuals aged 18 years and over. The GMSR is a 58-item measure comprised of nine subscales that correspond to minority stress and resilience constructs. For the current study, the Nonaffirmation of Gender Identity subscale was utilized to assess for experiences of misgendering. Nonaffirmation of Gender Identity is a 6-item subscale measured on a 5-point Likert scale from (1 = *strongly disagree* to 5 = *strongly agree*). Sample items include, "I have to be *hypermasculine* or *hyperfeminine* in order for people to accept my gender", and "people don't respect my gender identity because of my appearance or body." A total score for the misgendering construct was calculated by summing all items within this construct, with higher scores indicating greater minority stress, or higher experiences of misgendering. Reliability and validity results were obtained based on a sample of 844 transgender and gender nonconforming participants (Testa et al., 2015). Cronbach's  $\alpha$  indicated adequate internal consistency for scores on all scales among a sample of 844 transgender and gender diverse participants (Testa et al., 2015). All scale scores demonstrated criterion validity and correlated with markers of mental health outcomes among this sample, with effect sizes ranging from .10 to .50 (Testa et al., 2015). All scales but the Gender-Related Victimization scale correlated with perceived general life stress, demonstrating adequate convergent validity (see Appendix B). In the present study, the total Nonaffirmation of Gender Identity subscale score demonstrated acceptable internal consistency ( $\alpha = .70$ ).

### ***Disordered Eating Behaviors***

The outcome measure regarding disordered eating thoughts and behaviors was measured by the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). The EDE-Q is a 28 item self-reported measure that assesses disordered eating attitudes and behaviors in the past 28 days. The EDE-Q is comprised of 22 scaled items categorized into four subscales: Restraint (5 items), Eating Concern (5 items), Shape Concern (8 items), and Weight Concern (5 items). Items are rated from (0 = *no days* to 6 = *every day*), with higher scores indicating higher symptom levels. Subscale scores were calculated as average scores per item, ranging from “0” to “6”, whereas the global score was obtained by taking the mean of each of the subscales’ mean scores (Fairburn & Beglin, 1994). Sample items include, “have you had a strong desire to lose weight?”, and “have you gone for long periods of time (8 waking hours) without anything at all in order to influence your shape or weight?” The EDE-Q also contains 6 items, not included in the subscale scores, designed to elicit open responses regarding the frequency measured in number of times or days of specific eating behaviors including objective binge eating (OBE), self-induced vomiting (SIV), laxative use (LAX), and excessive exercise (EX), over the last 28 days. A cutoff of 2.8 on the EDE-Q, based on numerous general population samples, has been recommended to screen for EDs (Velkoff et al., 2023). Gideon et al. (2016) reported a Cronbach’s alpha for the global score ( $\alpha = .90$ ), weight concern ( $\alpha = .70$ ) and shape concern ( $\alpha = .80$ ) in their sample of 489 patients receiving inpatient and outpatient treatment across three eating disorder treatment centers in the UK. Additionally, Avila et al. (2019) conducted a study with a sample of 106 transgender and nonbinary patients aged 13 to 22 years and found good internal consistency ( $\alpha = >.70$ ) for each EDE-Q subscale (see Appendix E). In the present study, the total gender congruence subscale score demonstrated excellent internal consistency ( $\alpha = .94$ ).

## Results

### Preliminary Analyses

Analyses for this study were conducted using Statistical Package for Social Sciences (SPSS) v.27 (IBM Corp, 2020). Participants who completed all surveys under 150 seconds were eliminated from this study in effort to prevent low quality data stemming from a lack of attention on the part of study respondents. The average time in seconds in the current sample equaled to 1733 seconds. However, three outliers were identified, bringing the actual average to 861 seconds, or approximately 14 minutes.

There was no missing data as participants were required to answer all questions before survey submission. Univariate and multivariate outliers were removed according to Mahalanobis distance and Cook's distance detecting 6 outliers that were deleted, resulting in an overall sample of 130 nonbinary individuals. The assumptions of normality of all continuous variables were assessed by using histograms and q-q plots to visually detect improbable scores across variables (Heppner & Heppner, 2004; Field, 2013). The assumptions of homoscedasticity and linearity were assessed visually (i.e., scatter plot) indicating linear relationships between the predictor and criterion variables. No concerns with multicollinearity were found. After selecting for the variables included in the study, the data were checked for accuracy, missing values, outliers, and skewness and kurtosis. A preliminary data analysis was performed to obtain full descriptive statistics, including means and standard deviations of demographic characteristics and study measures found in Table 2. Correlations for demographics and study measures found in Table 3.

**Table 2***Descriptive Statistics for Study Variables (n = 130)*

Variables	<i>M</i>	<i>SD</i>
Age	6.17	.90
Trans	.31	.46
Birth Sex	1.53	.50
Intersex	.65	.48
Gender Identity	10.99	4.64
Social Identity	2.83	.916
Gender Expression	2.14	1.12
Outness	2.24	.72
Sexual Orientation	5.19	3.41
Ethnicity	7.15	2.06
Education	6.19	.79
Employment	1.40	.79
EDEQ Restraint	3.66	1.09
EDEQ Shape	3.87	.90
EDEQ Concerns	3.66	1.13
EDEQ Weight	4.04	.87
Global EDEQ	3.81	.94
Misgendering (NA)	23.13	3.15
Body Satisfaction (BPSS)	4.63	.65
Gender Dysphoria (GC)	3.26	.28

**Table 3***Correlations for Study Variables (n = 130)*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. BPSS	—															
2. GC	.51**	—														
3. NA	.61**	.51**	—													
4. EDEQ	-.60**	.48**	.34**	—												
5. Age	.01	-.08	-.09	-.07	—											
6. Trans	-.053	.01	-.00	.06	.02	—										
7. BS	.17*	-.10	-.23**	-.05	-.05	-.14	—									
8. IS	-.03	.10	-.02	.05	-.24**	.19*	-.02	—								
9. GI	.10	-.10	-.15	-.26**	-.15	-.08	.32**	.03	—							
10. SNI	.15	-.05	-.21*	-.09	-.01	.15	.10	.33**	.01	—						
11. GE	.07	-.02	-.10	.04	-.33**	.10	-.11	.24**	-.17	.13	—					
12. Out	.15	-.06	-.09	-.14	-.06	.13	.05	.07	.09	.46**	.02	—				
13. SO	.09	-.15	-.16	-.24**	-.03	.08	-.04	-.12	.18*	.14	.04	.29**	—			

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14. Race	.23**	-.21*	-.12	-.13	.05	-.00	.32**	.07	.10	.10	-.01	.03	.19*	—		
15. Edu	.14	.05	-.10	.01	.03	.06	.07	.01	.10	.07	.05	-.08	.10	-.02	—	
16. Emp	-.14	.08	.10	.02	-.19*	.06	-.11	.09	.10	-.08	.17	-.01	.04	-.21*	-.11	—

Note.  $N = 130$ . BS = Birth Sex; IS = Intersex; GI = Gender Identity; SNI = Social Nonbinary Identity; GE = Gender Expression; Out = Outness; SO = Sexual Orientation; Edu = Education; Emp; Employment. \*  $p < .05$ , \*\*  $p < .01$

## Hypothesis Testing

**Hypothesis 1** stated that body dissatisfaction would be positively associated with disordered eating behaviors in nonbinary participants such that higher rates of body dissatisfaction would be associated with higher rates of disordered eating. Results indicated that body dissatisfaction ( $M = 2.37$ ,  $SD = .65$ ) was significantly and negatively associated with disordered eating ( $M = 3.81$ ,  $SD = .93$ )  $r = -.600$ ,  $p < .001$ . Linear regression analysis indicated that body dissatisfaction ( $\beta = -.866$ ) inversely predicts disordered eating  $F(1,128) = 72.15$ ,  $p < .001$ ,  $\text{adj } R^2 = .36$  further indicating that increased body dissatisfaction accounted for 36% of the variance in the outcome variable, which is a low effect size.

**Hypothesis 2** stated that the combination of body dissatisfaction, gender dysphoria, and misgendering would predict disordered eating behaviors in nonbinary participants. Results indicated that body dissatisfaction was significantly and negatively associated with disordered eating and that gender dysphoria and misgendering were significantly and positively associated with disordered eating (see Table 3). Multiple regression analysis indicated that body dissatisfaction ( $M = 2.37$ ,  $SD = .65$ ) and gender dysphoria ( $M = 3.26$ ,  $SD = .28$ ) and misgendering ( $M = 23.13$ ,  $SD = 3.15$ ) significantly predicted disordered eating  $F(3,126) = 28.99$ ,  $p < .001$ ,  $\text{adj } R^2 = .39$ , with the predictor variables accounting for 39% of the variance in disordered eating (see Table 4).



**Table 4***Multiple Regression Results for Disordered Eating Behaviors as measured by EDE-Q (n = 130)*

Variables in the Model	<i>t</i>	$\beta$	<i>F</i>	<i>df</i>	<i>p</i>	<i>Adj.R</i> <sup>2</sup>
Overall Model			28.99	3,126	<.001	.39
Body Dissatisfaction (BPSS)	-5.94	-.775			<.001	
Gender Dysphoria (GC)	3.17	.891			.002	
Misgendering (NA)	-1.32	-.035			.190	

**Hypothesis 3** stated that misgendering and gender dysphoria combined would uniquely predict disordered eating behaviors in nonbinary populations. Multiple regression analysis indicated that gender dysphoria ( $\beta = 1.39$ ) and misgendering ( $\beta = .039$ ) significantly predicted disordered eating  $F(2,127) = 20.34, p < .001, \text{adj } R^2 = .24$ . With the predictor variables accounting for 24% of the variance in disordered eating, gender dysphoria and misgendering combined was not uniquely predictive of disordered eating (see Table 5).

**Table 5**

*Multiple Regression Results for Disordered Eating Behaviors as measured by EDE-Q via pathway of Gender Dysphoria and Misgendering (n = 130)*

Variables in the Model	<i>t</i>	$\beta$	<i>F</i>	<i>df</i>	<i>p</i>	<i>Adj.R</i> <sup>2</sup>
Overall Model			20.34	2,127	<.001	.24
Gender Dysphoria (GC)	4.57	1.39			.002	
Misgendering (NA)	1.47	.039			.190	

### Exploratory Analyses

Regression analysis indicated that sex assigned at birth significantly predicted misgendering  $F(1,128) = 6.89, p = .01, \text{adj } R^2 = .04$ , with the predictor variables accounting for 4% of the variance in misgendering. Independent samples t-test indicated a significant difference between individuals assigned male at birth ( $M = 23.89, SD = 3.34$ ), and individuals assigned female at birth ( $M = 22.46, SD = 2.83$ )  $t(1,128) = 2.63, p = .01$  with individuals assigned male at birth experiencing misgendering at higher rates than individuals assigned female at birth.

## Discussion

The present study sought to identify predictors of disordered eating behaviors in individuals who identify within the nonbinary spectrum of gender identity. Informed by literature examining eating disorders, societal gender norms, and gender minority stressors within the transgender and gender nonconforming community, the present study attempted to address research gaps in the development of eating disorders in nonbinary individuals to better inform specific screening and treatment approaches with a population at risk of negative mental health outcomes. To date, there is little research that has explored health outcomes such as disordered eating in this specific subset of the broader transgender population (Romano & Lipson, 2021). Notably, 81.5% of participants in this study met clinical cutoff scores for ED pathology ( $n = 106$ ). While the purpose of this current study was to investigate reports of disordered eating behaviors as opposed to evaluating clinically significant diagnoses of EDs, consistent with more recent studies (Lefevor et al., 2019; Romano & Lipson, 2021), nonbinary participants in this sample are at higher risk for ED pathology.

Body dissatisfaction has been shown to have an impact on the development of disordered eating among cisgender and transgender populations. Despite this research, the first hypothesis stating that a positive relationship between body dissatisfaction and disordered eating behaviors would be found in this sample of nonbinary participants was not supported. This study found an inverse relationship whereby higher degrees of body satisfaction were related to greater disordered eating behaviors. It is not implausible for nonbinary individuals to report higher levels of body satisfaction. Jones et al. (2019) found that nonbinary participants reported greater body satisfaction with their physical bodies than binary transgender participants. Perhaps, both studies may be supported by research contending that nonbinary individuals may have less satisfaction

with aspects of gender expression such as hairstyle, clothing, or mannerisms (Cusack & Galupo, 2020). However, it was unexpected that participants who reported higher satisfaction in this current study were more likely to exhibit higher disordered eating behaviors. It is possible that those who are satisfied with their body and appearance become focused on maintaining these appearance ideals through higher disordered eating behaviors. It is also possible that participants engaged in gender confirming medical treatment to improve body satisfaction. In the current study, 35% of nonbinary participants reported accessing hormone therapy and 76.2% reported accessing at least one surgical intervention (e.g., laser hair removal, chest reconstruction, vaginoplasty, etc.). Although this current study examined negative health outcomes such as body dissatisfaction, research informed by positive psychology posits that the absence of negative health outcomes does not necessarily lead to positive functioning (Roman0 & Lipson, 2021), therefore the absence of body dissatisfaction might not translate to the absence of disordered eating behaviors.

The second hypothesis that the combination of body dissatisfaction, gender dysphoria, and misgendering would predict disordered eating behaviors in nonbinary participants was partially supported. Gender dysphoria, which has been positively linked to body dissatisfaction, was significantly predictive of disordered eating, suggesting that gender dysphoria is an important variable of interest when assessing for disordered eating behaviors for individuals who identify as nonbinary (Cusack & Galupo, 2020). This finding was unexpected given numerous studies concerning ED pathology in binary transgender populations finding an association between body dissatisfaction and gender dysphoria further supporting the similarity between these constructs. Findings from this current study may suggest that the differences between body dissatisfaction and gender dysphoria are less subtle than previously perceived. A plausible

explanation for this finding relates to the differences between perception and reality. Body dissatisfaction relied on participants' perception of their body and appearance, while gender dysphoria asked participants about their levels of distress based on the reality of a mismatch between gender identity and physical characteristics. In addition to gender dysphoria, misgendering, as hypothesized, was significantly and positively associated with disordered eating behaviors. Consistent with the gender minority stress theory, experiences of gender based prejudice such as misgendering can lead to adverse psychological health including disordered eating behaviors, and as evidenced by this study, particularly for individuals assigned male at birth (Testa et al., 2015).

The variance for gender dysphoria and misgendering combined was not uniquely predictive of disordered eating behaviors and thus, failed to support the third hypothesis. Though gender dysphoria and misgendering did not uniquely predict disordered eating behaviors, this finding extends the research conducted by Cusack & Galupo (2020) demonstrating that experiences of misgendering are positively associated with gender dysphoria, which in turn influences disordered eating behaviors.

## **Implications**

The results from this study have multiple implications for informing screening and mental health treatment for nonbinary individuals served in- and outside of ED treatment settings. As suggested by study findings, higher levels of gender dysphoria and misgendering were predictive of disordered eating behaviors, which is a key finding that needs to be taken into consideration when conducting assessment of risk for ED pathology. Training begins at equipping providers and staff members with the tools needed to challenge traditional cisnormative practices and incorporate inclusive practices such as routine use of sharing and

asking chosen names and pronouns, addressing mistakes when misgendering an individual (e.g., referring to a patient as ‘she’ as opposed to ‘they’), and implementing written non-discrimination policies related to gender identity. Clinicians are also urged to utilize formal assessment methods in addition to informal practices and questions to assess for gender dysphoria and misgendering. Assessment tools such as the GCLSS and GMSRS are provider friendly and provide detailed information regarding gender dysphoria and gender-based stress and resiliency which can inform treatment. Training may also include knowledge of gender minority stress theory and its impact on internalized transphobia and other minority stress cognitions, and an understanding and awareness of non-medical and medical options for gender affirmation. ED treatment also calls for clinician competence that extends beyond the gender binary and offers support in fostering patient gender identity discovery with specific goals of reducing internalized transphobia and affirming healthy and rewarding expressions of gender identity (Cusack et al, 2022).

Treatment providers must be mindful that patients presenting for treatment may identify as nonbinary despite their perceived gender expression as exemplified by the demographic sample within this current study. A very small number of participants within the current study reported living within their gender identity all the time or always informing others that they identify as nonbinary which underscores the high likelihood that individuals who identify as nonbinary do not live fully “out” nor correct individuals when misgendered and may only do so when having the option to disclose in a safe environment. With recent anti-transgender legislation, fear of encountering future discrimination and rejection may further contribute to concealment of gender identity and expression. Collectively, these findings suggest that it is crucial that mental health professionals provide opportunities for individuals to disclose their gender identity and pronouns, and that by ignoring gender identity and subsequently

misgendering individuals based upon their sex assigned at birth may exacerbate disordered eating behaviors, even when attempting to treat these symptoms.

Another important implication of this study is the finding that body dissatisfaction was inversely related to disordered eating behaviors. While a common component in traditional eating disorder treatment is body acceptance work (Kinnaird et al., 2019), this finding suggests that increasing body satisfaction may not help reduce disordered eating behaviors in nonbinary individuals. Further, body acceptance work and associated treatment materials tend to be tailored towards women which may influence feelings of alienation or treatment disengagement for nonbinary clients (Kinnaird et al., 2019). Rather, therapy that helps alleviate gender dysphoria, and encourage alternative forms of gender expression may have a more robust impact on remittance of disordered eating, which is also consistent with research suggesting that encouraging body acceptance in TGD populations is unrealistic and invalidating (Levitt, 2019; Scandurra et al., 2019).

Provider training in gender affirming care must be prioritized seeing that evidence suggesting that healthcare providers report having limited understanding of gender identity (Liszewski et al., 2019; Scandurra et al., 2019). Research on provider comfortability and knowledge of gender identity and treatment of gender dysphoria are alarming when considering the importance of gender affirming care in ED treatment. Oftentimes, treatment providers, motivated by provider comfortability, prioritize remittance of eating disorders before adjunctive treatments such as gender affirming hormonal or surgical care; treatments that may alleviate the distress of gender dysphoria and subsequently decrease disordered eating. To this point, providers may be called to conduct pre-surgical evaluations and write letters in support of gender

affirming surgical treatment to facilitate access to interventions that, as this study demonstrates, may contribute to reduced ED pathology.

### **Limitations and Future Directions**

The current study has several limitations warranting attention. First, results of this study should be interpreted with caution given that levels of disordered eating can vary across cultural groups not captured within this study sample. This study sample was largely made up of individuals that are White, educated, and between the ages of 25 and 34 years, and while consistent with research findings regarding the demographics of MTurk workers (Paolacci & Chandler, 2014), limits the generalizability of these results. Although this study contributes to the sparse existing literature focused on nonbinary populations, within-group differences with respect to race and ethnicity would have offered a more nuanced understanding of the relationship between study variables and allowed for a closer application of minority stress theory. Further, despite national research indicating that nonbinary identities are more prominent in individuals of younger generations (Wilson & Meyer, 2021), future research should aim to collect a more diverse sample representative of the general US population so that the relationships between the variables can be reliably interpreted on a population level.

There are also several reported demographics characteristics that merit attention when comparing these demographics to national samples. The high number of participants reporting intersex identity status – those who are born with difference in sex traits – within this current study does not align with national estimates suggesting that roughly 1.7 percent of the population has an intersex trait (Medina & Mahowald, 2021). Since individuals with intersex traits are more likely to identify as TGD, participatory research focused on nonbinary populations should continue to gather data regarding intersex identity status, further contributing to the limited data

regarding a marginalized population. Additionally, a high number of participants reported utilization of gender confirming medical interventions despite research suggesting that nonbinary individuals are less likely to pursue hormonal therapy or surgical interventions than binary transgender individuals (Lefevor et al., 2019).

Similarly, there were various limitations regarding data collection methods. While the researcher attended to reliability and validity in the present study by presenting survey items in two orders, reverse coding several of the study's items, and removing participants with low recorded response times, attention checks were not utilized and present as a possible limitation. Future studies should include screening questions that gauge attention as well as language comprehension to ensure understanding of the task. The current study utilized the MTurk platform in line with research recommendations on the methodological practice of using crowdsourcing sites to reach a larger LGBTQIA+ participant pool with a quicker turnaround (Waggoner, 2022).

Another limitation of the study was the simplicity of the design. Previous research suggests that the relationship between the variables of interest is complex. Since this study was informed by research conducted with cisgender and transgender populations, a simple design was utilized to establish a relationship among the variables of interest applied to nonbinary populations. Now that a relationship has been established, future research should utilize a process model that extends the current research by examining the relationship between misgendering, gender dysphoria, body dissatisfaction, gender expression, gender confirming medical interventions, and disordered eating behaviors in nonbinary populations. Additionally, research utilizing a longitudinal design can expand knowledge on causal relationships between minority stress processes and eating disorder pathology across different life stages.



Future research might also consider using additional measures to explore the relationship between body satisfaction and disordered eating behaviors in nonbinary populations. It would be helpful to understand the degree to which individuals are engaging in compulsive self-monitoring or body maintenance behaviors in efforts to sustain higher degrees of body satisfaction. Perhaps, future research might also consider examining body dissatisfaction more thoroughly to support clinicians in efforts to designing interventions that focus on alleviating disordered eating behaviors.

The current study demonstrated inclusive gender identity measurement practices that allowed participants to communicate their gender identities and expressions with greater accuracy than binary-focused survey measurement practices most commonly featured within scientific research. Researchers are encouraged to adopt these inclusive measurement practices to fully capture the experience of this growing population and to better understand psychological outcomes.

## **Conclusions**

The present study examined predictors of disordered eating behaviors within a sample of self-identified nonbinary adults. Over three fourths of participants reported elevated ED pathology at the time of survey completion. Additionally, the results of this study highlighted key differences in levels of body dissatisfaction, gender dysphoria, and misgendering uniquely experienced by a subset of the broader transgender community. Namely, lower degrees of body dissatisfaction were associated with higher disordered eating behaviors. The assumption that the combination of body dissatisfaction, gender dysphoria, and misgendering was partially supported in that gender dysphoria, misgendering, and body satisfaction predicted disordered eating behaviors. While gender dysphoria and misgendering did not uniquely predict disordered eating

behaviors in this sample of nonbinary participants, they are key factors to be considered in assessment and treatment of ED pathology. Collectively, these findings support the continued need to improve the understanding of body image concerns and their relationship with gender dysphoria and experiences of gender-based discrimination on ED pathology in nonbinary populations.

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## Appendix A: Demographics Questionnaire

1. What is your age?
  - a. 18 years – 24 years
  - b. 25 years – 35 years
  - c. 36 years – 45 years
  - d. 46 years – 55 years
  - e. 56 years – 65 years
  - f. 66 years – 75 years
  - g. 76 – 85 years
  - h. 85 years and older
2. Do you identify as transgender?
  - a. Yes
  - b. No
3. Do you identify as nonbinary?
  - a. Yes
  - b. No
4. What sex were you assigned at birth, on your original birth certificate?
  - a. Male
  - b. Female
5. Were you born with a variation in your physical sex characteristics? Or have you been diagnosed with an intersex variation or difference of sex development?
  - a. Yes
  - b. No
6. Which best describes your current gender identity?
  - a. Agender
  - b. Androgynous
  - c. Bigender

- d. Cisgender man
  - e. Cisgender woman
  - f. Demi boy
  - g. Demi girl
  - h. Gender fluid
  - i. Gender nonbinary
  - j. Gender nonconforming
  - k. Genderqueer
  - l. Transgender man
  - m. Transgender woman
  - n. Trigender
  - o. Two-spirit
  - p. Please feel free to self-specify: \_\_\_\_\_
7. Currently, how much of the time do you live in the gender that is different from the one assigned to you at birth?
- a. None of the time
  - b. A little of the time
  - c. Some of the time
  - d. Most of the time
  - e. All of the time
8. Most people in society recognize only two gender expressions – masculine and feminine. Given that, which would you prefer people see you as?
- a. Feminine
  - b. Masculine
  - c. Neither Feminine nor Masculine
  - d. Both at the same time
  - e. I don't have a preference

9. If and/or when people in your life assume you are something other than nonbinary (such as a man or a woman), do you tell them you identify as nonbinary (or whichever words best describe your identity)?

- a. I rarely or never tell that I'm nonbinary
- b. I sometimes tell that I'm nonbinary
- c. I often tell that I'm nonbinary
- d. I always tell that I'm nonbinary

10. What sexual orientation do you identify with?

- a. Aromantic
- b. Asexual
- c. Bisexual
- d. Fluid
- e. Gay
- f. Lesbian
- g. Pansexual
- h. Queer
- i. Questioning or unsure
- j. Same-gender loving
- k. Straight or Heterosexual
- l. Stud
- m. Please feel free to self-specify: \_\_\_\_\_

11. What is your race/ethnicity? Black or African American

- a. American Indian or Alaskan Native
- b. Asian American or Asian
- c. Hispanic or Latinx
- d. Native Hawaiian or Pacific Islander
- e. Middle Eastern, Arab, or Arab American
- f. White
- g. Multi-racial



- h. Please feel free to self-specify: \_\_\_\_\_
12. What is your highest level of education?
- a. Less than high school education
  - b. Some high school, no diploma or GED (including currently attending high school)
  - c. High school diploma or equivalent (for example, GED or alternative credential)
  - d. Some college, no degree (including currently attending college)
  - e. Associate degree (for example, AA, AS)
  - f. Bachelor's degree (for example, BA, BS)
  - g. Some graduate work after Bachelor's degree, no graduate degree (including currently attending graduate school)
  - h. Master's degree (for example, MA, MS, MBA, MSW)
  - i. Professional degree beyond a Bachelor's degree (for example, MD, DDS, JD)
  - j. Doctoral degree (for example, PhD, EdD)
13. What is your employment status?
- a. Employed for wages
  - b. Self-employed
  - c. Unemployed 1+ year(s)
  - d. Unemployed less than 1 year
  - e. Homemaker
  - f. Student
  - g. Retired
14. Have you accessed any of the following gender confirming medical interventions to affirm your gender?  
(Check all that apply)
- a. Hormone therapy
  - b. Hair removal (electrolysis or laser)
  - c. Mastectomy or chest reconstruction (an operation to remove breasts or construct a male chest)
  - d. Breast augmentation (an operation to make breasts larger using implants)
  - e. Hysterectomy (an operation to remove the uterus)

- f. Oophorectomy (an operation to remove the ovaries)
  - g. Metoidioplasty (an operation to free the clitoris)
  - h. Phalloplasty (an operation to construct a penis)
  - i. Orchiectomy (an operation to remove the testicles)
  - j. Vaginoplasty (an operation to construct a vagina)
  - k. Please feel free to self-specify: \_\_\_\_\_
  - l. No, and unsure if I would like to in the future
  - m. No, and I would not like to in the future
  - n. No, but I would like to in the future
15. If applicable, what are some of the barriers you've experienced to accessing gender confirming medical interventions?
- a. Finances and insurance issues
  - b. Incidents of bias and/or discrimination in medical and mental health fields
  - c. Lack of service availability
  - d. Other medical issues
  - e. Lack of information about how to acquire care
  - f. Please feel free to self-specify: \_\_\_\_\_

## Appendix B: Gender Minority Stress Scale: Nonaffirmation of Gender Identity Subscale

Statement	Frequency				
Please indicate how much you agree with the following statements.	Strongly Disagree	Somewhat Disagree	Neither Agree/ Disagree	Somewhat Agree	Strongly Agree
I have to repeatedly explain my gender identity to people or correct the pronouns people use.	1	2	3	4	5
I have difficulty being perceived as my gender.	1	2	3	4	5
I have to work hard for people to see my gender accurately.	1	2	3	4	5
I have to be “hypermasculine” or “hyperfeminine” in order for people to accept my gender.	1	2	3	4	5
People don’t respect my gender identity because of my appearance or body.	1	2	3	4	5
People don’t understand me because they don’t see my gender as I do.	1	2	3	4	5

## Appendix C: The Gender Congruence and Life Satisfaction Scale: Gender Congruence

### Subscale

Subscale	Frequency				
	Never	Rarely	Sometimes	Often	Always
<b>Factor 2: Genitalia</b>					
I have felt that genital surgery will address the unhappiness I experience in relation to my gender.	1	2	3	4	5
I have felt unhappy about my genitalia since they do not match my gender identity	1	2	3	4	5
I have felt extremely distressed when looking at my genitals	1	2	3	4	5
I have felt distressed when touching my genitals as they do not match my gender identity	1	2	3	4	5
I have been unable to have a fulfilling life because of the distress relating to my genitalia	1	2	3	4	5
I have felt that my genitals do match with my gender identity*(rs)	1	2	3	4	5
<b>Factor 3: Social Gender Role Recognition</b>					
I have felt comfortable with how other people perceive my gender based on my physical appearance* (rs)	1	2	3	4	5
I have felt comfortable with how others have perceived my gender*(rs)	1	2	3	4	5
I have felt satisfied with the pronouns that others use when talking about me*(rs)	1	2	3	4	5
I have found it distressing that others do not address me according to my gender identity	1	2	3	4	5
<b>Factor 5: Chest 5</b>					
I have felt satisfied with my chest*(rs)	1	2	3	4	5
I have felt like my chest does not match my gender identity	1	2	3	4	5
I have felt extremely distressed when looking at my chest	1	2	3	4	5
I have felt so distressed about my chest that I have not been able to have a fulfilling life	1	2	3	4	5
<b>Factor 6: Other Secondary Sex Characteristics</b>					
I have felt that my body hair conflicts with my gender identity, either because I have it and do not like it or because I would like to have it	1	2	3	4	5
I have felt that my facial hair conflicts with my gender identity, either because I have it and do not like it or because I would like to have it	1	2	3	4	5
I have felt that my voice has affected the way other people have perceived my gender identity which has been distressing for me	1	2	3	4	5

\*rs = reverse scored

### Appendix D: Body Parts Satisfaction Scale-Revised

Body Part	Frequency					
Below is a list of body parts. Please rate how satisfied you are, <u>at this moment</u> , with each body part according to the following scale. Remember, it is <u>very important</u> that you respond to <u>all</u> the items and that you answer them <u>honestly</u> as they apply to you. All of the information you provide will be kept <u>strictly confidential</u> .	Extremely Dissatisfied 1	2	3	4	5	Extremely Satisfied 6
Height	1	2	3	4	5	6
Weight	1	2	3	4	5	6
Hair	1	2	3	4	5	6
Complexion	1	2	3	4	5	6
Overall Face	1	2	3	4	5	6
Shoulders	1	2	3	4	5	6
Arms	1	2	3	4	5	6
Stomach	1	2	3	4	5	6
Chest	1	2	3	4	5	6
Buttocks	1	2	3	4	5	6
Hips	1	2	3	4	5	6
Upper Thighs	1	2	3	4	5	6
Lower Legs (calves)	1	2	3	4	5	6
General Muscle Tone	1	2	3	4	5	6
Overall Satisfaction with Size and Shape of Your Body	1	2	3	4	5	6

## Appendix E: Eating Disorder Examination Questionnaire

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read questions carefully. Please answer all the questions. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days...	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1 Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2 Have you gone for long periods of time (8 waking hours or more) without anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3 Have you <u>tried</u> to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4 Have you <u>tried</u> to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5 Have you had a definite desire to have an <u>empty</u> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6 Have you had a definite desire to have a <u>totally flat</u> stomach?	0	1	2	3	4	5	6
7 Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8 Has thinking about <u>shape or weight</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9 Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10 Have you had a definite fear that you might <u>gain weight</u> ?	0	1	2	3	4	5	6
11 Have you felt fat?	0	1	2	3	4	5	6
12 Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days).....
13 Over the past 28 days, how many <u>times</u> have you eaten what other people would regard as an <u>unusually large amount of food</u> (given the circumstances)? .....
14 ... On how many of these <u>times</u> did you have a sense of having lost control over your eating (at the time that you were eating)? .....
15 Over the past 28 days, on how many <u>DAYS</u> have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)? .....
16 Over the past 28 days, how many <u>times</u> have you made yourself sick (vomit) as a means of controlling your shape or weight? .....
17 Over the past 28 days, how many <u>times</u> have you taken laxatives as a means of controlling your shape or weight? .....
18 Over the past 28 days, how many times have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories? .....

Questions 19 to 21: Please circle the appropriate number. Please note that for these questions the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

On how many of the past 28 days...	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
19 Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? ...Do not count episodes of binge eating	0	1	2	3	4	5	6
20 On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? ....Do not count episodes of binge eating	0	1	2	3	4	5	6
21 Over the past 28 days, how concerned have you been about other people seeing you eat? ....Do not count episodes of binge eating	0	1	2	3	4	5	6

Questions 22 to 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

On how many of the past 28 days...	Not at all		Slightly		Moderately		Markedly
22 Has your <u>weight</u> influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23 Has your <u>shape</u> influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24 How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25 How dissatisfied have you been with your <u>weight</u> ?	0	1	2	3	4	5	6
26 How dissatisfied have you been with your <u>shape</u> ?	0	1	2	3	4	5	6
27 How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6
28 How uncomfortable have you felt about <u>others seeing</u> your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6



## **Appendix F: Informed Consent**

### **Purpose and Description of Study:**

Thank you for participating in this study. The purpose of this study is to examine experiences of body satisfaction, identity and eating behaviors in the nonbinary community. If you identify as any identity within the nonbinary community, are at least 18 years old, and reside in the United States, you are eligible to participate. If you agree to participate, you will be asked to take a brief survey that includes questions related to demographic information, eating behaviors, body satisfaction, and misgendering. This online survey should take about 10-15 minutes of your time.

### **Possible Benefits:**

Participation in this research study does not guarantee any benefits to you. However, a potential benefit is to help contribute to the body of knowledge in psychology regarding eating behaviors in the nonbinary community.

### **Possible Risks:**

Risks to participants are kept to a minimum. As with any internet study, a breach of confidentiality is a risk, but your name will not be linked with your survey responses. If your participation in this study causes you any concerns, anxiety, or distress, please prioritize your mental health and take a break or discontinue your participation at any time. Please be sure to complete the survey in a secure place. This study contains questions about potentially sensitive topics. Resources will be available upon completion of this survey.

### **Voluntary Nature of the Study/Confidentiality:**

Your participation in this study is entirely voluntary and you may refuse to complete the study at any point. Your name will never be connected to your results or to your responses on the

questionnaires. Information that would make it possible to identify you or any other participant will never be included in any sort of report. Your answers to the survey will be stored in a password protected folder.

**Contacts and Questions:**

This research study is being conducted by Raven Cohen (she/her), a doctoral candidate at The University of Memphis. Her dissertation chair is Dr. Rosie Phillips Davis (she/her), Assistant Professor, Department of Counseling, Educational Psychology and Research, The University of Memphis, Tennessee. If you have any questions or concerns about your participation in this study, you may contact the researcher, Raven Cohen, at [rcohen2@memphis.edu](mailto:rcohen2@memphis.edu), or her dissertation chair, Dr. Rosie Phillips Davis at [rbingham@memphis.edu](mailto:rbingham@memphis.edu). Any questions regarding your rights as a research participant or research-related concerns may be directed to the University of Memphis Research Compliance office at 901-678-2705.

Thank you!

**Statement of Consent:**

By clicking “I Agree” below, you are attesting that you are 18 years old or older and you are indicating that you have freely consented to participate in this research study.

## Appendix G: Debriefing Form

Thank you for participating in this study! You have now completed all the questions. Please click the "Get MTurk Code" to access your unique MTurk survey code.

This study is concerned with understanding the impact of disordered eating behaviors in nonbinary communities, a population largely understudied in eating disorder research. The main purpose of this study was to better understand how nonbinary individuals uniquely experience disordered eating behaviors considering factors of gender dysphoria, body dissatisfaction, and misgendering in hopes to inform important assessment and treatment recommendations.

Please do not disclose the purpose of this research to anyone who might participate in this study as this could affect the results.

If you find that some questions or aspects of the study were distressing, talking with a qualified clinician or counselor may help. If you feel you would like assistance, you can use **Psychology Today's Therapy Directory** at [psychologytoday.com/us/therapists](https://www.psychologytoday.com/us/therapists) to search for mental health professionals in your area. There are a variety of options for sorting your results to find providers who most closely match your needs. You can also visit the following resources for additional support or information:

- **988: The 24/7 Lifeline:** A free nationwide helpline for emotional, mental or substance use crisis staffed with trained, compassionate behavioral health professionals | Call or text 988 | Website: [988lifeline.org](https://www.988lifeline.org)

- **National Eating Disorders Association (NEDA):** A national organization that manages a helpline, information, and resources | Website: [nationaleatingdisorders.org](https://www.nationaleatingdisorders.org)

- **Helpline:** 1-800-931-2237 (call/text) | Contact the NEDA Helpline for support, resources, and treatment options if you believe that you are struggling with disordered eating behaviors

- **Genderqueer.me Blog:** A nonbinary resource page for nonbinary individuals | Website: [genderqueer.me](http://genderqueer.me)
- **Trans Lifeline:** 1-877-565-8860 (call) | Connects trans people to community support and resources | Website: [translifeline.org](http://translifeline.org)
- **Fighting Eating Disorders in Underrepresented Populations (FEDUP) Collective:** A trans, gender diverse and intersex collective with resources, support groups, and information for marginalized folks with disordered eating | Website: [fedupcollective.org/resources](http://fedupcollective.org/resources)
- **Project Heal:** A nonprofit offering financial assistance for eating disorder treatment, including direct funding and help with navigating insurance, especially for marginalized people | Website: [theprojectheal.org](http://theprojectheal.org)

Please feel free to contact me ([rcohen2@memphis.edu](mailto:rcohen2@memphis.edu)) if you have any questions about this study. You may also contact the University of Memphis' Research Compliance Office (901.678.2705) if you have any questions about your rights as a participant. If you would like to receive a summary of the findings when it is completed, please feel free to contact the researcher.

Please click the "Get MTurk Code" to access your unique MTurk survey code.

## **Appendix H: MTurk Human Intelligence Task Study Description**

This study asks about experiences of body satisfaction, identity and eating behaviors in the nonbinary community. If you identify as any identity within the nonbinary community, are at least 18 years old, and reside in the United States, you are eligible to participate. If you agree to participate, you will be asked to take a brief survey that includes questions related to demographic information, eating behaviors, body satisfaction, and misgendering. This online survey should take about 10-15 minutes of your time.

Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code given at the end of survey into the box.

## Appendix I: IRB Approval



Institutional Review Board  
Division of Research and Innovation  
Office of Research Compliance  
University of Memphis  
315 Admin Bldg  
Memphis, TN 38152-3370

February 3, 2023

PI Name: Raven Cohen

Co-Investigators:

Advisor and/or Co-PI: Rosie Davis

Submission Type: Initial

Title: Disordered Eating in Nonbinary Populations: Exploring the Unique Roles of Body Dissatisfaction, Gender Dysphoria, and Misgendering

IRB ID: #PRO-FY2022-296

Exempt Approval: February 1, 2023

The University of Memphis Institutional Review Board, FWA00006815, has reviewed your submission in accordance with all applicable statuses and regulations as well as ethical principles.

Approval of this project is given with the following obligations:

1. When the project is finished a completion submission is required
2. Any changes to the approved protocol requires board approval prior to implementation
3. When necessary submit an incident/adverse events for board review
4. Human subjects training is required every 2 years and is to be kept current at [citiprogram.org](http://citiprogram.org).

For any additional questions or concerns please contact us at [irb@memphis.edu](mailto:irb@memphis.edu) or 901.678.2705

Thank you,  
James P. Whelan, Ph.D.  
Institutional Review Board Chair  
The University of Memphis