HHS Public Access

Author manuscript

Ann Epidemiol. Author manuscript; available in PMC 2023 June 01.

Published in final edited form as:

Ann Epidemiol. 2022 June ; 70: 53–60. doi:10.1016/j.annepidem.2022.04.007.

Variability in Eating Disorder Risk and Diagnosis in Transgender and Gender Diverse College Students

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Abstract

Purpose: To examine differences in elevated eating disorder risk and self-reported eating disorder diagnosis across subgroups of transgender and gender diverse (TGD) college students.

Methods.—Data from 5057 TGD college students participating in the national Healthy Minds Study between 2014-2019 were analyzed. Chi-square tests and logistic regression analyses examined heterogeneity in prevalence and odds of elevated eating disorder risk, as measured by the SCOFF, and self-reported eating disorder diagnosis by gender, as well as by intersecting gender and sexual orientation identities.

Results.—Genderqueer/non-conforming college students reported the highest prevalence of elevated eating disorder risk (38.8%) relative to gender expansive students. Genderqueer/non-conforming (11.1%), gender expansive (12.3%), and trans men/transmasculine students (10.5%) reported higher prevalence of a self-reported eating disorder diagnosis relative to trans women/transfeminine students (6.3%). Heterosexual or straight trans men had lower odds of eating disorder risk and self-reported diagnosis relative to trans men with a minoritized sexual orientation.

Conclusions.—Genderqueer/non-conforming college students may be at heightened eating disorder risk. Moreover, a heterosexual/straight sexual orientation was associated with lower odds of elevated eating disorder risk and self-reported eating disorder diagnoses among trans men and genderqueer/non-conforming college students, but this finding did not hold for other groups. College campuses should aim to reduce eating disorder risk among TGD students.

Keywords

transgender; eating disorders; disparities; sexual orientation

Introduction

Eating disorders (EDs; e.g., anorexia nervosa, bulimia nervosa, binge-eating disorder) are severe and persistent condititions[1] that have profound health consequences for those affected,[2,3] including one of the highest mortality rates across psychiatric conditions.[4] A growing body of literature has revealed disparities in ED prevalence among transgender (i.e., individuals whose gender identity is not aligned with their sex assigned at birth) and gender diverse (i.e., individuals whose gender identity and/or expression exists outside of the cisnormative gender binary) young people, such that transgender and gender diverse (TGD) college students report higher ED prevalence relative to their cisgender peers.[5–7] Prior research suggests that gender dysphoria likely predates the emergence of ED symptomology among TGD young people.[8–11] For instance, gender-affirming care may reduce ED symptoms for some TGD young people,[11] suggesting that ED symptoms may emerge in response to gender dysphoria. Moreover, recent qualitative findings suggest that TGD young people may engage in ED behaviors to move towards gender congruence, to manage distress related to gender dysphoria, or as a means of gender expression.[8,9] The transition to college may provide students the autonomy to explore their gender identity for the first time[12] and has been regarded as an important period for gender exploration.[13] While identity exploration is crucial for the well-being of TGD students, this process may contribute to an increased body awareness and focus on the extent to which one's body shape aligns with socially-sanctioned ideals. Indeed, sociocultural theories suggest that the internalization of socially-sanctioned and idealized body shapes may increase ED risk among TGD college students.[14,15] Virginia Brooks' multilevel model of minority stress is another theoretical framework that may help explain the processes through which ED disparities among TGD young people may emerge.[16] Specifically, Brooks' minority stress theory posits that structural, economic, and social inequities experienced by individuals with one or more minoritized social identities result in increased stress, which in turn increase the risk for pathology underlying documented health disparities.[16,17] Thus, the high frequency of discrimination experienced by TGD college students[12,18,19] may also explain ED disparities.

A potential barrier to reducing ED disparities in TGD college students is the conceptualization in the research literature of transgender (trans) young people as a single homogeneous group,[5,6] rather than heterogeneous subgroups of distinct gender identities, sexual orientations, and experiences. Minority stress experiences differ across subgroups of TGD college students as a result of divergent forms of oppression and marginalization related to distinct gender identities.[7,20,21] Accordingly, case studies have demonstrated that the functions of ED behaviors differ across subgroups of trans young people. For example, ED symptoms among trans men and non-binary young people may emerge to suppress secondary characteristics associated with sex assigned at birth,[8,22] whereas ED symptoms among trans women may develop in patterns similar to cisgender women striving to attain a thin ideal.[10,22,23] While little is known about the processes contributing to heightened rates of EDs among nonbinary and genderqueer college students ED symptoms may emerge as an effort to attain the androgynous ideal.[24,25]

The systems of power, oppression, and privilege underlying minority stress theory are not experienced in isolation; rather these systems intersect and shape experiences in distinct ways.[20] This concept, known as the intersectionality framework, is grounded in Black feminist theory and aims to examine the various ways in which intersecting systems of power, privilege, and oppression impact health.[20,26] Body and beauty ideals are social constructed and deeply racialized, thus the intersecting experiences of power and oppression associated with other minoritized identities, such as race/ethnicity[27,28] and sexual orientation,[5,6] may contribute to variability in ED risk among TGD college students. For example, ED risk among bisexual trans men may be influenced by factors associated with gender identity (i.e., to minimize secondary characteristics associated with sex assigned at birth) and sexual orientation (i.e., exposure to multiple idealized appearances; one in heteronormative spaces and another in queer spaces). Indeed, a growing body of literature has revealed evidence that young people with minoritized sexual identities experience greater ED risk relative to heterosexual young people and that such disparities differ in magnitude based on gender[5,6] and racial/ethnic identities.[29,30] Thus, within-group differences in ED risk and diagnosis may exist among subgroups of TGD college students.

No known study has examined the extent to which the intersection of gender identity and sexual orientation are associated with eating pathology in TGD people. The present study examined variability in prevalence of ED risk and self-reported ED diagnosis across subgroups of TGD college students in a national U.S. college student sample. The study aimed to compare prevalence of ED risk and self-reported ED diagnosis by gender identity and examined associations between intersecting gender identity and sexual orientation identities with ED risk and self-reported ED diagnosis in TGD college students. Given the exploratory nature of the study, there were no specific a priori hypotheses, however it was predicted that prevalence of ED risk and self-reported ED diagnosis would vary across TGD subgroups.

Methods

Study Design

The Healthy Minds Study (HMS) is an annual, web-based survey about mental health in undergraduate and graduate student populations.[31] Five waves of data (2014-2019) were included in the study, collected from 199 U.S. colleges/universities. For institutions that participated more than once across these waves (n=25), only data from the most recent wave were used. Institutional enrollment was voluntary.

At larger institutions (> 4,000 students), a random 4,000-student sample was invited to participate; all students were invited at smaller institutions (≤ 4,000 students). Students were recruited via email and informed that regardless of participation, they were eligible to win one of ten $100 or two $500 gift cards. Students had to be ≥18 years old to participate and all respondents provided informed consent. Research was approved by Institutional Review Boards at participating institutions.

Response rates were 23% in 2014-2015, 27% in 2015-2016, 23% in 2016-2017 and 2017-2018 and 16% in 2018-2019. To account for non-response bias, sample probability

weights were constructed based on gender, race/ethnicity, academic level, and grade point average. Weights were larger for participants with underrepresented characteristics, ensuring estimates represented the full college student population in terms of these characteristics. Sample weights were applied in all analyses.

Measures

Gender identity.—In the 2014-2015 survey, participants self-identified with one gender identity in response to the question, "What is your gender?" Response options included: male, female, or transgender. Participants identifying as transgender were then asked to indicate whether they identified as "female to male" or "male to female." In the 2015-2016 survey and all subsequent surveys participants were asked to report (1) assigned sex at birth (male or female) and (2) one gender identity from the following options: male, female, trans male/trans man, trans female/trans woman, genderqueer/gender non-conforming, or other identity. Individuals who selected "other identity" were provided a space to write-in their responses and responses were categorized. Participants who used this space to write nonsensical or discriminatory responses (n=739) were excluded. The resulting categories included: (1) Transgender men; (2) Transgender women; (3) Genderqueer or gender non-conforming (GQ/NC); and (4) Gender expansive. Additional information regarding the categorization of write-in responses is provided in Supplementary Table 1.

Sexual orientation.—Sexual orientation was assessed with the question, "How would you describe your sexual orientation?" In the 2014-2016 surveys, participants were asked to select one identity, wherein options included: (a) heterosexual, (b) gay or lesbian, (c) bisexual, (d) questioning, and (e) another identity. In the 2017-2019, participants were allowed to select more than one sexual orientation and additional response option, queer, was added. Individuals who selected "another identity" were provided a space to write-in their responses and responses were coded. Participants who used this space to write harmful or nonsensical responses (n=111) were excluded. The resulting categorizations included: (1) heterosexual; (2) gay or lesbian; (3) bisexual; (4) queer (2017-2019) and write-in queer (2014-2016); and (5) another identity. Additional information regarding the categorization of write-in responses is provided in Supplementary Table 2.

Eating disorder risk.—Clinically-relevant levels of ED symptoms, hereafter referred to as ED risk, was assessed with the five-item SCOFF, which results in scores ranging from 0 to 5.[32] The cut-off for a positive screen (i.e., having clinically significant ED symptoms) was ≥2 affirmative responses, which has been determined to yield the optimal trade-off between sensitivity and specificity.[33] The SCOFF has been shown to be effective at identifying eating disorder risk in transgender and gender diverse populations.[34]

Self-reported eating disorder diagnosis.—Participants self-reported lifetime ED diagnosis by selecting *eating disorder (e.g., anorexia nervosa, bulimia nervosa)* in response to, "Have you ever been diagnosed with any of the following conditions by a health professional?".

Covariates.—Participants self-reported their age (in years) and racial/ethnic identity. Racial/ethnic identity included response options: (1) African American/Black; (2) American Indian or Alaskan Native; (3) Asian American/Asian; (4) Hispanic/Latino/a; (5) Native Hawaiian or Pacific Islander; (6) Middle Eastern, Arab, or Arab American; (7) white; and (8) Self-identify (please specify). Participants were instructed to select all options that applied. Due to small cell sizes resulting in insufficient statistical power to obtain stable estimates when included as separate covariates in statistical analyses, race/ethnicity was included as a dichotomous variable in which participants were categorized as: (1) Black, Indigenous, or other person of color (BIPOC) or (2) white. The BIPOC group combined students who self-identified as African American/Black; American Indian or Alaskan Native; Asian American or Asian; Hispanic/Latino/a; Native Hawaiian or Pacific Islander; Middle Eastern, Arab or Arab American; or with another racial/ethnic identity.

Participants

The analytic sample included 5057 TGD students, 82% of whom identified with a minoritized sexual orientation (gay/lesbian, bisexual, queer, other identity). GQ/NC students were the largest group in the sample (53.7%) and trans women were the smallest (10.0%). Sample characteristics by gender identity are reported in Table 1.

Missing Data Analysis

The study included moderate levels of missing data with regard to ED risk (14.0%) and self-reported ED diagnosis (19.7%). Missingness on both outcomes was evaluated for associations with known factors (missingness at random [MAR]) and associations with values on the outcomes themselves (missingness not at random [MNAR]). When data are MAR, missing values may be addressed through analytic techniques that incorporate incomplete data (e.g., full information maximum likelihood [FIML] or multiple imputation [MI]). When data are MNAR, potential bias may be introduced due to unknown factors that may systematically contribute to values of the outcome variables[35] and such bias may be exacerbated with FIML or MI techniques.[35,36] Missing data analyses indicated significant non-random missingness for missing values on ED risk (Exp(B)=0.958, $p<.001$) and/or self-reported ED diagnosis (Exp(B)=0.964, $p < .001$). As such, it was determined that missing data techniques, such as FIML or MI, were not appropriate for the current study and therefore pairwise deletion methods were used.

Statistical Analysis

Chi-square tests examined differences in ED risk and self-reported ED diagnosis by gender identity. Logistic regression analyses tested associations between gender, ED risk, and self-reported ED diagnosis, while controlling for age and race/ethnicity (white or BIPOC). Another set of chi-square tests compared ED risk and self-reported ED diagnosis by sexual orientation within gender identity. Finally, associations between sexual orientation and ED outcomes by gender identity were examined with stratified logistic regression analyses, controlling for age and race/ethnicity (white or BIPOC). The group with the lowest prevalence of each ED outcome served as the reference group of the logistic regression analyses.

Results

Prevalence of clinically relevant ED risk was highest among GQ/NC students (38.8%), followed by trans women (37.1%), gender expansive students (34.0%), and trans men (34.1%). Just over 10% of participants reported an ED diagnosis, among which gender expansive (12.3%), GQ/NC (11.1%) students and trans men (10.5%) reported higher rates relative to trans women (6.3%). The results from the chi-square tests comparing prevalence of clinically relevant ED risk and ED diagnoses by gender identity are presented in Table 1.

Comparisons of ED Risk and Self-Reported ED Diagnosis by Gender Identity

Adjusted logistic regressions comparing ED risk and self-reported ED diagnosis by gender identity are presented in Table 2. GQ/NC students had 1.2 times greater odds of ED risk (adjusted Odds Ratio (aOR)=1.20, 95% Confidence Interval (CI): 1.03,1.40) compared to trans men. Pairwise comparisons revealed higher prevalence of ED risk prevalence among GQ/NC relative to gender expansive college students. No significant differences in the odds of ED risk between trans women with GQ/NC students or gender expansive students emerged.

In contrast, odds of reporting an ED diagnosis were greater among trans men (aOR=1.61, 95% CIs: 1.03,2.51), GQ/NC (aOR=1.75, 95% CIs: 1.15,2.66) and other-gender students (aOR=1.97, 95% CIs: 1.22,3.17) relative to trans women after adjusting for covariates.

Within-Gender Comparisons by Sexual Orientation

Chi-square results revealed sexual orientation-based differences in ED risk among trans men ($\chi^2(4)=25.40$, $p<.001$), trans women ($\chi^2(4)=15.22$, $p=.003$), and GQ/NC students ($\chi^2(4)=15.45$, $p=.003$), but not gender expansive college students ($\chi^2(4)=6.82$, $p=.146$; see Table 3). Prevalence of ED risk was higher among trans men who identified as gay (36.7%), bisexual (40.4%), queer (34.6%), or another sexual orientation (44.6%) relative to heterosexual trans men (23.6%). Similarly, prevalence of ED risk was higher among GQ/NC college students who identified as gay/lesbian (38.1%), bisexual (39.2%), queer (40.5%), or another sexual orientation (38.5%) than heterosexual GQ/NC college students (16.9%). Prevalence of ED risk was higher among trans women who identified as bisexual (49.4%) or queer (43.9%) relative to heterosexual (32.0%) and lesbian (22.2%) trans women.

Chi-square results revealed sexual orientation-based differences in self-report ED diagnosis within gender identity for trans men ($\chi^2(4)=32.03$, $p<.001$) and GQ/NC students ($\chi^2(4)=30.30$, $p<.001$), but not trans women ($\chi^2(4)=7.48$, $p=.113$) or gender expansive college students ($\chi^2(4)=6.47$, $p=.167$). Self-reported ED prevalence was highest among queer (20.1%) trans men, followed by trans men who identified with another sexual orientation (11.5%), bisexual (11.5%), or gay/lesbian (9.6%) relative to heterosexual trans men (4.0%). Relatedly, self-reported ED prevalence was highest among queer GQ/NC students (15.3%) relative to GQ/NC students with other sexual orientations (1.4-9.7%).

Logistic regression results revealed associations between sexual orientation and ED outcomes among TGD people (see Table 4). Trans men with another sexual orientation reported over 2 times the odds of ED risk relative to heterosexual trans men (aOR=2.23,

95% CIs: 1.43,3.49, p<.001). The odds of reporting ED risk were over 1.5 higher among gay/lesbian (aOR=1.78, 95% CIs: 1.15,2.77, p=.010) and bisexual (aOR=1.83, 95% CIs: 1.23,2.72, p=.003) trans men relative to heterosexual trans men. Trans men who identified as bisexual (aOR=2.49, 95% CI: 1.22,5.11, p=.013) or queer (aOR=4.49, 95% CIs: 2.30,8.78, p<.001) reported between 2.5 to 4.5 times the odds of a self-reported ED diagnosis relative to heterosexual trans men.

Bisexual trans women had over two times the odds of ED risk relative to heterosexual trans women (aOR=2.07, 95% CI: 1.13,3.79, p=.019). The results did not yield statistically significant sexual orientation differences in self-reported ED diagnoses among trans women.

GQ/NC students who identified as gay/lesbian (aOR=2.96, 95% CI: 1.52,5.76, p=.001), bisexual (aOR=2.96, 95% CIs: 1.54,5.69 p=.001), queer (aOR=3.10, 95% CIs: 1.63,5.88, p<.001), and those with another sexual orientation (aOR=2.84, 95% CI: 1.48,5.44, p=.002) reported approximately three times the odds of ED risk relative to heterosexual GQ/NC students. Queer GQ/NC students had over five times the odds of a self-reported ED relative to heterosexual GQ/NC students (aOR=5.72, 95% CIs: 1.38,23.66, p=.014).

Logistic regressions revealed no significant sexual orientation-based differences in ED risk or self-reported ED diagnosis among gender expansive college students. However, gender expansive BIPOC students reported nearly two times the odds of ED risk relative to white gender expansive students (aOR=1.84, 95% CIs: 1.24,2.74, p=.003). In contrast, BIPOC trans men had lower odds of a self-reported ED diagnosis relative to white trans men (aOR=0.39, 95% CIs: 0.22,0.70).

Discussion

The transition to college represents an important developmental period wherein ED risk may be heightened among TGD college students. Results revealed within-group differences in ED risk and self-reported ED diagnoses across subgroups of TGD college students. For instance, findings suggest that TGD college students whose gender identity and/or sexual orientation fall outside of the cisnormative gender binary may be particularly at risk for developing ED symptomology. Key findings are discussed at length below.

The present findings suggest that GQ/NC college students may be particularly at risk of experiencing ED symptomology relative to TGD college students with binary (transmasculine, transfeminine) or expansive gender identities. It is possible that GQ/NC college students have distinct challenges, sociocultural pressures, and/or experiences with discrimination during the transition to college that may contribute to ED risk in this group. Moreover, GQ/NC people who idealize an androgynous body shape and gender expression[24,25] may experience gender dysphoria associated with aspects of their body that may be incongruent with the features attributed to an androgynous ideal.[28] Thus, ED risk and self-reported ED diagnosis may be higher in this group because GQ/NC people may engage in ED behaviors in an effort to minimize secondary sex characteristics or accentuate other body parts[8] in response to gender dysphoria or as a means towards gender expression.

Another notable finding from the present study was that trans men and GQ/NC students who identified as heterosexual reported lower ED risk relative to their peers with minoritized sexual orientations (e.g., gay/lesbian, queer). Indeed, trans men with minoritized sexual orientations had between 78-123% higher odds of ED risk relative to heterosexual trans men. Moreover, GQ/NC students with minoritized sexual orientations had between 184-210% higher odds of ED risk relative to heterosexual GQ/NC college students. Yet a heterosexual identity was less of a buffer for other subgroups of TGD college students. For instance, the prevalence of ED risk did not differ by sexual orientation among gender expansive college students suggesting that other experiences may more strongly influence ED risk in this group. Indeed, the current findings revealed a significant association between race/ethnicity and ED risk among gender expansive college students, such that BIPOC gender expansive students had 84% higher odds of ED risk relative to white gender expansive students. It is possible that social position and intersecting structural and social inequities associated with distinct minoritized identities differ across subgroups of TGD college students, such that racialized experiences may more strongly influence eating and weight concerns among gender expansive students. Unfortunately, small sample sizes prevented further examination into potential three-way interactions between race/ethnicity, gender, and sexual orientation. However, present findings suggest that further research is needed to examine the extent to which intersecting ethnic/racial identities more strongly influence ED risk among gender expansive college students than do intersecting sexual orientations.

Consistent with prior findings among sexual minority cisgender young people,[5,37] results revealed heightened odds of a self-reported ED diagnosis among TGD college students with non-monosexual identities (e.g., bisexual, queer). For instance, bisexual trans women had 149% times higher odds of ED risk relative to heterosexual trans women. Moreover, bisexual and queer trans men had between 149-349% higher odds of a self-reported ED diagnosis relative to heterosexual trans men, and queer GQ/NC students had 472% times higher odds of a self-reported ED diagnosis relative to heterosexual GQ/NC students. This finding may be explained by the unique experiences of discrimination and stigma experienced by non-monosexual (e.g., bisexual, queer) young people. Evidence suggests that bisexual cisgender young people experience biphobic discrimination from both LGBTQ+ and heterosexual communities, which in turn may contribute to heightened disparities in this group relative to gay/lesbian college students.[38] This concept likely translates to the experiences of queer, pansexual and other non-monosexual college students. While biphobia and other forms of in-group discrimination have not been explicitly examined in trans college students, non-monosexual people with other marginalized facets of identity (e.g., gender identity, ethnicity/race) have been shown to experience intersecting forms of discrimination.[39] Thus, the heightened odds of ED risk or self-reported ED diagnoses among bisexual and queer TGD college students revealed in the present study may be explained by intersecting (e.g., in-group and out-group) experiences of discrimination.

Taken together, a number of the present findings may be partially explained by experiences of discrimination and minoritization within LGBTQ+ spaces. Intraminority stress refers to the unique stress associated with systems of power, privilege, and social status within LGBTQ+ spaces based on an individual's constellation of social identities that diminish

access to LGBTQ+ community connectedness and, in turn, negatively impact psychological health.[32,33] The current findings revealed greater ED vulnerability among TGD college students with identities that fall outside of the normative gender binary structure. For instance, GQ/NC college students had higher odds of ED risk and ED diagnosis relative to other TGD students. To this end, it is possible that GQ/NC college students are particularly vulnerable to ED outcomes because of their exposure to unique forms of stigmatization and discrimination in LGBTQ+ community spaces (i.e., intraminority stress) and in the heteronormative, cisgender society (i.e., traditional minority stress) because their gender identity and/or expression exist outside of binary gender norms. Relatedly, experiences of discrimination and stigma experienced by non-monosexual young people (i.e., biphobic discrimination) may also serve as a factor contributing to intraminority stress among TGD college students and may help explain the heightened odds of ED risk and self-reported ED diagnosis among non-monosexual TGD college students. The potential relevance of intraminority stress is important to consider as targeted preventive ED interventions that are integrated into LGBTQ+ community spaces may inadvertently fail to reach those at greatest risk. Future research should seek to examine the extent to which intraminority stress serves as a mechanism through which ED disparities among TGD college students emerge.

While the present study offers novel findings, several limitations must be acknowledged. First, the measurement of gender identity was limited in that: (1) measurement of gender identity differed in the first cohort (2014-2015) relative to subsequent waves; and (2) available data did not allow for a full conceptualization of gender identity. For instance, while sex assigned at birth and gender were assessed in separate questions, trans and cisgender men and women were still distinguished in the gender identity response options. Additionally, the question included a response option that combined two distinct identities (genderqueer and non-conforming) and did not include relatively common gender identities (e.g., non-binary). Moreover, the sample was predominantly white and thus, a more comprehensive understanding of disparities in ED risk and self-reported diagnosis across intersecting racial/ethnic identities could not be examined. This limitation is important to note as past evidence indicates that TGD people of color experience magnified health inequities relative to white TGD people, resulting from racialized and gendered experiences of discrimination and structural inequities.[40,41] Relatedly, the sample was comprised entirely of college students and universities were not randomly selected; thus, results from the present study may not necessarily generalize to the national population of college students or to TGD young people not enrolled in college. Non-response bias may also be a concern, such that respondents may differ from non-respondents. Sampling weights were applied to help mitigate this concern; however, efforts to generalize the study findings should be made with caution. Moreover, the present study is cross-sectional in nature and thus the temporality cannot be determined. Another limitation is the brief and global self-report assessment of ED diagnoses rather than a more accurate conceptualization of EDs as several, related, eating disorders. While the large sample is considered a strength of the present study, some of the cell sizes in the analyses were relatively small, and therefore some confidence intervals are relatively large. As such, future research should replicate the current findings in larger TGD samples.

In sum, the present findings revealed differences in ED risk and self-reported ED diagnosis across intersecting gender identities and sexual orientations among TGD college students. Notably, GQ/NC college students may be at heightened risk of or developing an ED or ED behaviors. Findings suggest that TGD students who fall outside of the gender binary (e.g., GC/NC) or hold a non-monosexual orientation may had heightened risk of developing ED behaviors. College campuses should seek to cultivate queer and trans community spaces that celebrate TGD students with such historically excluded identities. Future research in this area could explore possible mechanisms that may contribute to disproportionately higher prevalence of ED symptoms among college students who identify with socially minoritized gender identities and sexual orientations. The current findings also have important implications for college campus eating disorder prevention programs. Specifically, national eating disorder prevention programs on college campuses across the United States have been widely disseminated, however such programs were developed for and targeted to white, cisgender women[42–45] and have failed to consider or address the high prevalence of ED risk and self-reported ED diagnosis among TGD college students. This historical emphasis on white, heterosexual, cisgender women has also shaped the perceptions of and assessments for ED risk, which may be detrimental to TGD college students who struggle with eating and weight concerns during their time in higher education settings. Thus, college prevention programs that center the unique concerns of TGD people experiencing eating, weight, and/or shape concerns are critically needed.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements:

Melissa Simone's time and research are supported by K99MD015770 (PI: Simone) from the National Institute of Minority Health and Health Disparities. Vivienne Hazzard's time is supported by T32MH082761 (PI: Scott Crow) and Sarah Lipson's time is supported by K01MH121515 (PI: Lipson), both from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Minority Health and Health Disparities, the National Institute of Mental Health, or the National Institutes of Health.

Abbreviations

ED	eating disorders
TGD	transgender and gender diverse
GQ/NC	genderqueer or gender non-conforming

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Table 1

Sample demographics by gender identity

Demographic Characteristic	Gender Identity							
	Transgender Men and (write-in) transmasculine N=1205 (23.8%)		Transgender Women and (write-in) transfeminine N=506 (10.0%)		Genderqueer or Gender Non-conforming and write-ins N=2717 (53.7%)		Gender Expansive N=629 (12.4%)	
	n	%	*n*	%	*n*	%	*n*	%
Sexual Orientation								
Heterosexual or (write-in): straight	392	34.3	161	34.3	96	3.7	18	3.1
Gay or lesbian	151	13.2	82	17.4	371	14.6	55	9.4
Bisexual	220	19.2	101	21.5	504	19.8	101	17.2
Queer	228	19.9	78	16.6	975	38.4	130	22.1
Other	152	13.3	48	10.2	597	23.5	284	48.3
Race/Ethnicity								
BIPOC	403	33.9	176	35.2	945	35.0	227	36.3
White	787	66.1	324	64.8	1756	65.0	398	63.7
Age								
18-22	898	74.6	351	69.5	2165	79.7	509	80.9
23-25	117	9.7	69	13.7	288	10.6	62	9.9
26+	189	15.7	85	16.8	263	9.7	58	9.2
Eating pathology								
ED risk	346	34.1^{a}	152	$37.1^{a,b}$	915	38.8^{b}	186	34.0^{a}
Self-reported ED diagnosis	104	10.5^{a}	24	6.3^{b}	241	11.1^{a}	64	12.3^{a}

Note. BIPOC=Black, Indigenous, or other person of color; Participants may select more than one race/ethnicity, thus summed values may exceed total sample size or 100%; Frequencies represent observed counts; percentages are weighted to account for nonresponse; Within rows, each superscript letter represents non-significant differences in prevalence between gender identity groups ($p. \geq 05$); For instance, prevalence of ED risk among transgender women (37.1%^{a,b}) were not significantly different from transgender men (34.1%^{a}), genderqueer or non-conforming students (39.3%^{b}), or gender expansive college students (34.0%^{a}). However, prevalence of ED risk among transgender men was significantly lower than observed among genderqueer or non-conforming students.

Table 2

Adjusted logistic regression results comparing odds of current eating disorder risk and self-reported eating disorder diagnosis by gender identity

Model Variables	Endorsed ED Pathology		OR	95% CI	p-value	Pairwise Comparisons
	n	%				
ED risk						
Gender identity						
1. Trans men	346	34.1	--	--	--	3 > 4 2 = 3, 4
2. Trans women	152	37.1	1.13	0.89, 1.44	.328	
3. GQ/NC	915	38.8	**1.20**	**1.03, 1.40**	**.020**	
4. Gender expansive	186	34.0	0.97	0.78, 1.21	.804	
Race/Ethnicity						
BIPOC	543	37.3	1.04	0.91, 1.19	.534	
White	1052	36.7	--	--	--	
Age						
18-22	1320	38.7	--	--	--	
23-25	145	31.3	0.69	0.56, 0.86	< .001	
26+	133	29.0	0.67	0.54, 0.83	< .001	
Self-reported ED diagnosis						
Gender identity						
1. Trans men	104	10.5	**1.61**	**1.03, 2.51**	**.038**	1 = 3 = 4
2. Trans women	24	6.3	--	--	--	
3. GQ/NC	241	11.1	**1.75**	**1.15, 2.66**	**.009**	
4. Gender expansive	64	12.3	**1.97**	**1.22, 3.17**	**.006**	
Race						
BIPOC	119	9.0	**0.72**	**0.58, 0.91**	**.005**	
White	315	11.6	--	--	--	
Age						
18-22	347	11.1	--	--	--	
23-25	47	10.4	0.93	0.67, 1.30	.684	
26+	40	8.5	0.72	0.50, 1.03	.070	

Note. Frequencies represent observed counts; percentages are weighted to account for nonresponse. OR=Odds Ratio; CI=95% confidence interval; ED=eating disorder; BIPOC=Black, Indigenous, or other person of color

Table 3

re comparisons of current elevated eating disorder symptomology and eating disorder diagnosis by sexual orientation

	Transgender Men					Transgender Women					Genderqueer or Non-conforming					Gender Expansive				
xual 2)	Gay/ lesbian (n=115)	Bisexual (n=220)	Queer (n=228)	Other (n=125)	Heterosexual (n=161)	Gay/ lesbian (n=82)	Bisexual (n=101)	Queer (n=78)	Other (n=48)	Heterosexual (n=96)	Gay/ lesbian (n=371)	Bisexual (n=504)	Queer (n=975)	Other (n=597)	Heterosexual (n=18)	Gay/ lesbian (n=55)	Bisexual (n=101)	Queer (n=130)	Other (n=284)
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	36.7[b]	40.4[b]	34.6[b]	44.6[b]	32.0[a,b]	22.2[b]	49.4[c]	43.9[a,c]	34.2[a,b,c]	16.9[a]	38.1[b]	39.2[b]	40.5[b]	38.5[b]	35.3	30.8	45.6	34.3	30.7
	9.6[b]	11.[b]	20.1[c]	11.5[b]	5.4	1.4	8.8	12.5	5.6	1.4[a]	9.7[b]	7.5[a,b]	15.3[c]	8.5[b]	12.5	13.0	14.1	18.2	8.8[a]

ent observed counts; percentages are weighted to account for nonresponse; ED=eating disorder; superscripts represent groups between which there are no significant differences

or instance, prevalence of self-reported ED diagnosis among bisexual GQ/NC college students (7.5%[a,b]) was not significantly different from heterosexual (1.4%[a]), gay/lesbian

(8.5%[b]) students. However, gay/lesbian, queer, and other GQ/NC college students reported a higher prevalence of self-reported ED diagnosis relative to heterosexual GQ/NC

Table 4.

Gender-stratified logistic regression results comparing adjusted odds of a current elevated eating disorder symptomology and eating disorder diagnosis by sexual orientation

Variables	Gender Identity							
	Transgender Men and (write-in) transmasculine N=1205 (23.8%)		Transgender Women and (write-in) transfeminine N=506 (10.0%)		Genderqueer or Gender Non-conforming and write-ins N=2717 (53.7%)		Gender Expansive N=629 (12.4%)	
	aOR	95% CIs	aOR	95% CIs	aOR	95% CIs	aOR	95% CIs
ED risk								
Sexual Orientation								
Heterosexual	---	---	---	---	---	---	---	---
Gay/Lesbian	1.78**	1.15, 2.77	0.70	0.36, 1.38	2.96**	1.52, 5.76	1.05	0.30, 3.75
Bisexual	1.83**	1.23, 2.72	2.07*	1.13, 3.79	2.96**	1.54, 5.69	1.71	0.52, 5.61
Queer	1.44	0.98, 2.15	1.83	0.97, 3.46	3.10***	1.63, 5.88	1.07	0.30, 3.50
Other	2.23***	1.43, 3.49	1.44	0.67, 3.12	2.84**	1.48, 5.44	0.98	0.32, 3.05
Race								
White	--	--	--	--	--	--	--	--
BIPOC	0.89	0.66, 1.20	0.86	0.52, 1.42	1.03	0.85, 1.23	1.84**	1.24, 2.74
Age								
18-22	--	--	--	--	--	--	--	--
23-25	0.49**	0.29, 0.82	1.53	0.83, 2.85	0.59***	0.44, 0.80	1.15	0.61,2.17
26+	0.51**	0.32, 0.81	1.16	0.61, 2.22	0.83	0.61, 1.15	0.08***	0.02, 0.33
Self-Reported ED Diagnosis								
Sexual Orientation								
Heterosexual	--	--	--	--	--	--	--	--
Gay/Lesbian	2.07	0.93, 4.57	0.23	0.03, 1.88	3.45	0.80, 14.84	1.23	0.22, 6.94
Bisexual	2.49*	1.22, 5.11	1.62	0.53, 4.98	2.70	0.63, 11.58	1.34	0.27, 6.79
Queer	4.49***	2.30, 8.78	2.66	0.85, 7.16	5.72*	1.38, 23.66	1.74	0.36, 8.44
Other	2.13	0.95, 4.77	0.98	0.19, 5.06	3.07	0.72, 13.02	0.77	0.16, 3.66
Race								
White	--	--	--	--	--	--	--	--
BIPOC	0.39**	0.22, 0.70	0.76	0.29, 2.02	0.94	0.69, 1.30	0.92	0.52, 1.63
Age								
18-22	--	--	--	--	--	--	--	--
23-25	0.71	0.29, 1.71	1.41	0.44, 4.54	0.76	0.69, 1.65	1.56	0.68, 3.59
26+	0.36*	0.14, 0.92	1.82	0.65, 5.09	0.34	0.46, 1.31	1.05	0.42, 2.62

Note. Confidence intervals are only provided for significant effects; aOR=adjusted aOdds Ratio; CIs=95% confidence intervals; ED=eating disorder; n.e. = not estimated due to insufficient cases (n=0); BIPOC=Black, Indigenous, or other person of color;

*** =p<.001;

** = $p<.01$;

* = $p<.05$