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Measurement and Construct Validity of the Eating Disorder Examination Questionnaire Short Form in a Transgender and Gender Diverse Community Sample

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Abstract

This study evaluated the measurement and construct validity of the Eating Disorder Examination Questionnaire Short Form (EDE-QS) in a transgender and gender diverse sample. Participants who self-identified as transgender and gender diverse ($N = 71$) completed self-report measures of demographics, gender-related experiences, and disordered eating/body image. Analyses comprised evaluation of EDE-QS internal consistency, convergent validity, and specificity for disordered eating. The EDE-QS demonstrated strong internal consistency in the full sample, in participants with and without suspected eating disorders, and in each gender identity group; and correlated significantly with indices of disordered eating and body image. The full scale and each item significantly differentiated between participants with and without suspected eating disorders. This study provides initial evidence for good measurement and construct validity of the EDE-QS as applied to transgender and gender diverse individuals. Findings offer the EDE-QS as a promising, brief tool for screening and/or population-based research related to disordered eating in this high-risk, yet underserved population.

Keywords

feeding and eating disorders; Eating Disorder Examination-Questionnaire; transgender; gender; assessment

Eating disorders are devastating psychiatric illnesses, with high rates of mortality and morbidity (Klump et al., 2009). Despite this, most individuals with eating disorders do not access treatment (Striegel Weissman & Rosselli, 2017). This problem is exacerbated

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among groups that do not meet the stereotypical image of individuals with eating disorders (i.e., young, thin, white, and cisgender females). Transgender and gender diverse (TGD) people are one such group, reporting marked difficulty accessing culturally competent care for eating concerns (Duffy et al., 2016).

The term TGD refers to individuals who identify with a gender different from the binary male or female sex assigned at birth. The category of TGD is broad, including transgender, nonbinary, genderfluid, agender, and various other gender identifications (Reisner et al., 2016). TGD people are at elevated risk for disordered eating, compared to cisgender females and males (Diemer et al., 2015). This may be, in part, due to gender affirmation needs (Sevelius, 2013) and the pressure to align one's physical features with body ideals consistent with one's gender identity (Murray et al., 2013). For example, a person may engage in eating binges in order to enhance body curves, or they may restrict their dietary intake to attain the "thin ideal." Similarly, one may attempt to decrease body mass to suppress menstruation and secondary female sex characteristics and attain a lean, slender body, or may seek to increase body mass and muscularity, all through disordered eating. Of note, disordered eating may also be a response by TGD individuals to experiences of threat and trauma related to living in a society that stigmatizes and penalizes those who do not meet societal gender expectations (Gordon et al., 2016; Watson et al., 2017).

The complex relationships among eating, body image, and gender identity in this group result in barriers to identification and treatment of eating disorders (Murray, 2017). Importantly, it cannot be assumed that existing measures of body image and disordered eating are valid assessments of these constructs in TGD individuals (Gordon et al., in press; Peterson et al., 2020). This issue is a relatively new frontier of study, and one essential for the reduction of health disparities in recognition and treatment of disordered eating often experienced by TGD people (Austin, 2015).

Two recent studies attended to this problem by validating the Eating Disorder Examination – Questionnaire (EDE-Q; Fairburn & Beglin, 1994), a widely used measure of eating disorder symptoms, in gender-diverse community (Nagata et al., 2020) and treatment-seeking (Peterson et al., 2020) samples. These are important steps in evidencing validity of eating disorder assessment among transgender individuals. However, validation of brief screening measures is also needed, as the 28-item EDE-Q may be too long for use under some circumstances. Short questionnaires maximize utility in screening for various health problems, and are widely used in medical, psychiatric, and various other settings, as well as in population-based and epidemiological studies, where longer measures may be excessively burdensome. Regarding disordered eating, the 12-item Eating Disorder Examination Questionnaire Short Form (EDE-QS; Gideon et al., 2016) is an empirically validated adaptation of the EDE-Q meant to assess similar eating problems more efficiently than its full-length counterpart. Currently, the applicability of the EDE-QS to TGD individuals is unknown.

We sought to address this issue by conducting an initial validation of the EDE-QS in a community-based, American TGD sample. In doing so, we aimed to provide preliminary

knowledge of the measurement and construct validity of the EDE-QS as applied to this high-risk, yet often overlooked, population.

Methods

Participants and Procedures

As part of a larger, mixed methods study running from August to October 2019, TGD young adults were invited to complete a brief online questionnaire. The parent study aimed to identify needs and opportunities for eating disorders prevention for TGD young adults, a critically underserved population. Participants ($n = 71$) were recruited by social media, community organizations, and chain-referral sampling in collaboration with the study's community partner organization, Trans Folx Fighting Eating Disorders (T-FFED). Individuals were eligible to participate if they were 18–30 years old, lived in the U.S., were conversant in English, identified as transgender, nonbinary, or another gender different than their sex assigned at birth, and had access to an internet connection. Participants were screened by phone and eligible participants provided electronic informed consent before accessing the online survey. All study procedures were approved by the Boston Children's Hospital IRB; the current project was determined to be exempt from review by the Florida State University IRB.

A plurality of the sample identified as White (53.5%), followed by Multiracial (21.1%), Latinx/Hispanic (11.3%), Asian/Asian American (8.5%), Black/African American (2.8%), or another race/ethnicity (2.8%). The sample mean age was 23.9 years (range 18–30). Participants resided in 25 U.S. states. See “Gender identity” below for gender distribution.

Measures

Eating Disorder Examination Questionnaire Short Form (EDE-QS; Gideon et al., 2016).—The EDE-QS is a 12-item measure of disordered eating attitudes and behaviors in the past week. Items are drawn from the EDE-Q (Fairburn & Beglin, 1994). Items are rated from zero (*0 days/Not at all*) to three (*6–7 days/Markedly*), and a total score is derived by summing and averaging the items, with higher total scores representing more severe eating disorder symptoms. This measure has good psychometric properties and loads onto a single factor among cisgender individuals (Gideon et al., 2016).

Body Esteem – Weight Subscale (BE-Weight; Mendelson et al., 2001).—The BE-Weight is a seven-item subscale of the Body Esteem Scale, indexing weight dissatisfaction. Items are rated 1 (*Never*) to 5 (*Always*) and responses are averaged to produce a subscale score. The BE-Weight has demonstrated good psychometric properties previously (Mendelson et al., 2001), and its internal consistency was strong in the current study sample ($\alpha = 0.88$).

Suspected eating disorder.—Participants were asked “Has anyone ever told you that they thought you had an eating disorder, such as anorexia nervosa or bulimia nervosa?” In response, participants checked any of the following: friend; parent; spouse/partner; doctor, nurse, or other health care provider; or someone else (specify). This item has been

used previously in work on disordered eating in youth (e.g., Iron-Seveg et al., 2013). Responses were dichotomized such that one or more “yes” responses were coded as presence, and a response of “no” was coded as absence, of suspected eating disorder. Per this coding, 20 participants (39.4%) endorsed a suspected eating disorder. When responses were dichotomized to reflect encounters with health care providers, 14 participants (19.7%) indicated a health care provider had expressed concern.

Gender identity.—Participants were asked to select a term that “best describes your gender identity” from a list of 16 terms or to write-in another gender identity (James et al., 2016). For this analysis we created four gender identity groups: trans women ($n = 19$, 26.8%), trans men ($n = 22$, 31.0%), non-binary people ($n = 27$, 38.0%), and people with another gender identity (e.g., agender; $n = 3$, 4.2%).

Data Analytic Strategy

Descriptive statistics, distributions, inter-item correlations, and item prevalence estimates for the EDE-QS were assessed. Means for each gender identity group and differences in scores among gender identity groups were assessed with a one-way ANOVA with Tukey-corrected critical values. Internal consistency (Cronbach’s α) of the EDE-QS was examined to evaluate whether the measure comprised a cohesive assessment. We also evaluated item-scale correlations and impact of item removal on internal consistency. This allowed assessment for any individual items that were problematic in our study sample and potentially merited removal in order to increase measure cohesion. Convergent validity was tested by analyzing correlations between the EDE-QS and weight dissatisfaction (Pearson’s r) and suspected eating disorder (Spearman’s ρ). An independent groups t-test was utilized to evaluate whether those with versus without suspected eating disorders differed significantly in their EDE-QS scores. This analysis was repeated, contrasting those for whom a health care provider had expressed concern versus those who had not. Finally, we evaluated internal consistency of the EDE-QS in suspected and no suspected eating disorder groups, and across gender identity groups. Analyses were conducted in SPSS 22.0. There were no missing data for study variables.

Results

The EDE-QS was normally distributed in this study sample (skewness < two; kurtosis < four). The sample mean score was 0.97, with a standard deviation of 0.60, and a range of 0 to 2.25. See Table 1 for inter-item correlations. Descriptive statistics for EDE-QS total scores in gender identity groups were: trans woman ($M = 1.14$, $SD = 0.65$, range 0 to 2.25), trans man ($M = 0.86$, $SD = 0.58$, range 0.17 to 2.00), non-binary ($M = 0.91$, $SD = 0.11$, range 0 to 2.00), and another gender identity ($M = 1.28$, $SD = 0.88$, range 0.42 to 2.17). Mean values for gender identity groups did not significantly differ from one another ($F[3,70] = 1.09$, $p = .361$). The EDE-QS demonstrated strong internal consistency in the full sample ($\alpha = 0.86$). It also had excellent internal consistency in the suspected eating disorder group ($\alpha = 0.90$), the no suspected eating disorder group ($\alpha = 0.87$), and each gender identity group (α s = 0.84 to 0.96). All items were significantly correlated with the full scale, and removal of any single item did not improve internal consistency (see Table 2).

Percentage of participants providing a non-zero response to each item are also presented in Table 2. EDE-QS score was significantly correlated with weight dissatisfaction ($r = .683$, $p < .001$) and suspected eating disorder ($r_o = .326$, $p = .006$). Further, those with and without suspected eating disorders differed significantly in their EDE-QS scores ($t[69] = 2.89$, $p = .005$), with a mean difference of 0.40 (95% CI = .12 to .68). This pattern was the same when those with and without a suspected eating disorder, per health care provider, were compared ($t[69] = 2.13$, $p = .037$), with a mean difference of 0.38 (95% CI = .02 to .73).

Discussion

This study comprised an initial validation of the EDE-QS (Gideon et al., 2016), a brief screening measure of eating pathology, in a TGD community sample. Results suggested the EDE-QS demonstrated strong internal consistency, convergent validity with indices of eating and body image disturbance, and significantly differentiated participants with and without suspected eating disorders. Further, internal consistency remained strong when examined within each gender identity subgroup. These findings provide initial evidence that the EDE-QS may be a valid instrument with regard to measurement and construct validity in TGD samples, a group at elevated risk for disordered eating (Diemer et al., 2015) but often overlooked in standard assessment and treatment approaches (Duffy et al., 2016; Peterson et al., 2020).

Of note, while this project evidenced good measurement and construct validity, it is unclear whether the EDE-QS is the *best* measurement for use with TGD individuals with disordered eating. Several items were commonly endorsed within this sample and may reflect gender dysphoria or body image concerns common in the TGD population. Weight and shape concerns are not necessarily linked to disordered eating and may be explained by gender dysphoria and cultural standards (though they may also contribute to risk for eating pathology). Thus, future work in larger samples may wish to assess relative weight of each item in distinguishing pathological from non-pathological eating-related symptoms; confirmatory factor analyses would also be useful in evaluating measure unidimensionality. Further, it may be helpful to integrate an additional question relating to gender dysphoria or body-related oppression to refine assessment of TGD individuals. Establishment of cut points for clinically significant disordered eating, and refinement to increase specificity in identifying eating pathology separately from gender dysphoria are also useful future directions. These future directions reveal limitations of the study, such as small sample size and lack of formal eating disorder diagnostic data. Strengths include study novelty, high utility for clinical and research settings, and use of a sample representing multiple TGD identities and varying levels of disordered eating.

Though some results should be interpreted with caution given small sample size, this work is much needed. The nature of body image disturbance and disordered eating differ for TGD individuals in comparison to cisgender individuals (Murray, 2017). Recent work states that measure validity as applied to the TGD community is an open question that needs resolution for effective assessment and reduction of disparities (Nagata et al., 2020; Peterson et al., 2020). In a step towards this goal, this study sought to examine the measurement

and construct validity of the EDE-QS among a sample of TGD individuals, finding initial evidence of good performance.

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References

- Austin SB (2015). With transgender health inequities so large and the need so great, the burden is on all of us to find solutions. *Journal of Adolescent Health, 57*(2), 133–134. 10.1016/j.jadohealth.2015.05.009
- Diemer EW, Grant JD, Munn-Chernoff MA, Patterson DA, & Duncan AE (2015). Gender identity, sexual orientation, and eating-related pathology in a national sample of college students. *Journal of Adolescent Health, 57*(2), 144–149. 10.1016/j.jadohealth.2015.03.003
- Duffy ME, Henkel KE, & Earnshaw VA (2016). Transgender clients' experiences of eating disorder treatment. *Journal of LGBT Issues in Counseling, 10*(3), 136–149. 10.1080/15538605.2016.1177806
- Fairburn CG, & Beglin SJ (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16*(4), 363–370. 10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-#
- Gideon N, Hawkes N, Mond J, Saunders R, Tchanturia K, & Serpell L (2016). Development and psychometric validation of the EDE-QS, a 12 item short form of the Eating Disorder Examination Questionnaire (EDE-Q). *PLOS ONE, 11*(5), e0152744. 10.1371/journal.pone.0152744 [PubMed: 27138364]
- Gordon AR, Austin SB, Krieger N, White Hughto JM, & Reisner SL (2016). “I have to constantly prove to myself, to people, that I fit the bill”: Perspectives on weight and shape control behaviors among low-income, ethnically diverse young transgender women.” *Social Science and Medicine, 165* (1): 141–149. 10.1016/j.socscimed.2016.07.038 [PubMed: 27518756]
- Gordon AR, Moore LB, Guss CE (in press) Eating Disorders among Transgender and Gender Non-Binary People. In: *Clinical Advances in Male Eating Disorders* (Editors: Brown Nagata, Lavender Murray), Springer, New York, NY.
- Iron-Segev S, Peterson KE, Gillman MW, Williams CM, Austin SB, & Field AE (2013). Associations of breastfeeding with bulimic behaviors and eating disorders among adolescents. *International Journal of Eating Disorders, 46*(8): 834–840. 10.1002/eat.22165
- James SE, Jody L Herman JL, Rankin S, Keisling M, Mottet LA, & Anafi M (2016). The Report of the 2015 U.S. Transgender Survey. Washington, D.C.: National Center for Transgender Equality. <http://www.ustranssurvey.org/>.
- Klump KL, Bulik CM, Kaye WH, Treasure J, & Tyson E (2009). Academy for eating disorders position paper: Eating disorders are serious mental illnesses. *International Journal of Eating Disorders, 42*(2), 97–103. 10.1002/eat.20589
- Mendelson BK, Mendelson MJ, & White DR (2001). Body-Esteem Scale for adolescents and adults. *Journal of Personality Assessment, 76*(1), 90–106. 10.1207/S15327752JPA7601_6 [PubMed: 11206302]
- Murray SB (2017). Gender identity and eating disorders: The need to delineate novel pathways for eating disorder symptomatology. *Journal of Adolescent Health, 60*(1), 1–2. 10.1016/j.jadohealth.2016.10.004

- Murray S, Boon E, & Touyz S (2013). Diverging eating psychopathology in transgendered eating disorder patients: A report of two cases. *Eating Disorders*, 21(1), 70–74. 10.1080/10640266.2013.741989 [PubMed: 23241091]
- Nagata JM, Murray SB, Compte EJ, Pak EH, Schauer R, Flentje A, Capriotti MR, Lubensky M,E, Lunn MR, & Obedin-Maliver J (2020). Community norms for the Eating Disorder Examination Questionnaire (EDE-Q) among transgender men and women. *Eating Behaviors*, 28(1), 101381. 10.1016/j.eatbeh.2020.101381
- Peterson CM, Toland MD, Matthews A, Mathews S, Thompson F, & Conard LAE (2020). Exploring the Eating Disorder Examination Questionnaire in treatment seeking transgender youth. *Psychology of Sexual Orientation and Gender Diversity*. 10.1037/sgd0000386
- Reisner SL, Poteat T, Keatley JA, Cabral M, Mothopeng T, Dunham E, Holland CE, Max R, & Baral SD (2016). Global health burden and needs of transgender populations: A review. *The Lancet*, 388(10042), 412–436. 10.1016/S0140-6736(16)00684-X
- Sevelius JM (2013). Gender affirmation: A framework for conceptualizing risk behavior among transgender women of color. *Sex Roles*, 68(11–12): 675–89. 10.1007/s11199-012-0216-5 [PubMed: 23729971]
- Striegel Weissman R, & Rosselli F (2017). Reducing the burden of suffering from eating disorders: Unmet treatment needs, cost of illness, and the quest for cost-effectiveness. *Behaviour Research and Therapy*. 10.1016/j.brat.2016.09.006
- Watson RJ, Veale JF & Saewyc EM (2017). Disordered eating behaviors among transgender youth: Probability profiles from risk and protective factors. *International Journal of Eating Disorders*, 50(5): 515–522. 10.1002/eat.226

Public Significance Statement

This study found that the Eating Disorder Examination Questionnaire Short Form demonstrated good measurement and construct validity in a transgender and gender diverse sample. These findings provide initial support for use of this measure in a high risk, often overlooked group, with implications for reduction of pernicious health disparities.

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Table 1
Inter-Item Correlations for The Eating Disorder Examination Questionnaire Short Form in the BRIGHT Project (N=71)

Item	1	2	3	4	5	6	7	8	9	10	11	12
1. Limiting Food	1											
2. Fasting	.507	1										
3. Food Preoccupation	.221	.385	1									
4. Weight/Shape Preoccupation	.302	.205	.643	1								
5. Fear of Weight Gain	.380	.133	.436	.634	1							
6. Desire to Lose Weight	.466	.220	.341	.489	.569	1						
7. Vomiting	.331	.396	.243	.193	.172	.028	1					
8. Exercise	.352	.273	.319	.351	.154	.349	.238	1				
9. Loss of Control Eating	.073	.069	.325	.386	.511	.397	.256	.190	1			
10. Binge Episodes	-.045	.021	.324	.455	.370	.292	.421	.224	.725	1		
11. Importance of Weight/Shape	.376	.165	.369	.558	.531	.538	.227	.277	.329	.386	1	
12. Weight/Shape Dissatisfaction	.287	.247	.362	.554	.449	.580	.138	.212	.275	.270	.673	1

Note: Bolded values are significant at the $p < .05$ level.

Table 2

Item-Level Analysis of The Eating Disorder Examination Questionnaire Short Form in the BRIGHT Project
(N = 71)

Item	Item-Scale <i>r</i>	α if Deleted	% Non-Zero Response
1. Limiting Food	.467	.855	54.3%
2. Fasting	.365	.858	29.6%
3. Food Preoccupation	.569	.845	39.4%
4. Weight/Shape Preoccupation	.715	.835	46.5%
5. Fear of Weight Gain	.658	.839	67.6%
6. Desire to Lose Weight	.655	.839	80.3%
7. Vomiting	.357	.859	8.5%
8. Exercise	.417	.855	21.1%
9. Loss of Control Eating	.493	.851	42.3%
10. Binge Episodes	.467	.852	29.6%
11. Importance of Weight/Shape	.660	.839	88.7%
12. Weight/Shape Dissatisfaction	.611	.843	94.4%

Note: *r* = Pearson's *r*; α = Cronbach's Alpha; % Non-Zero Response = Percent of sample endorsing disordered eating attitude or behavior in the past week