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Weight stigma and binge eating related to poorer perceptions of healthcare provider interaction quality in a community-based sample

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Abstract

Background Weight stigma refers to the social rejection, discrimination, and ideological devaluation of individuals because of body size and is a direct result of weight bias and anti-fat attitudes. Individuals with higher weight may be less likely to seek healthcare due to weight stigma, and if or when they do present for care, medical providers with weight bias may fail to provide high quality care. *Little, however, is known about the intersectionality of weight stigma and perceptions of healthcare interactions as experienced by individuals who also binge eat.*

Methods Community-based adults completed online self-report questionnaires regarding generalized weight stigma (Attitudes Towards Obese Persons[1]), healthcare interaction quality (Patient Perceptions of Healthcare Provider Interaction Quality; PPH), and disordered eating (Eating Disorder Examination-Questionnaire) via Amazon's Mechanical Turk platform. For this cross-sectional study, participants were categorized by the presence and absence of regular binge episodes. Pearson's correlations, T-tests, ANOVA/ANCOVA, and a multivariate regression were used to examine relationships among demographic variables, weight stigma, disordered eating, and the PPH.

Results Participants ($N=648$) primarily identified as female (65.4%) and White, non-Hispanic (72.7%). Participants' average age and body mass index (BMI) were 37.5 ($SD=12.3$) years old and 27.3 ($SD=6.9$) kg/m2, respectively. Higher healthcare provider interaction quality ratings (PPH) were significantly related to lower BMI ($r(648)=-0.098, p=0.012$), less weight stigma ($r(648)=0.149, p<0.001$), and identifying as a woman ($t(514)=2.09$, $p=0.037$, Cohen's $d=0.165$) or White, non-Hispanic ($t(646)=-2.73$, $p=0.007$, Cohen's $d=-0.240$). Participants reporting regular binge eating endorsed significantly worse perceptions of healthcare provider quality than those who did not, even after accounting for BMI, $F(1, 645)=8.42$, $p=0.004$, $\eta 2=0.013$. A multivariate linear regression examining the PPH as dependent, and weight stigma and binge eating as independent, variable/s, was significant even after accounting for covariates (sex, race, BMI), $F(95, 640)=7.13, p<0.001$, $R^2=0.053$ (small effect).

The authors would like to recognize that the title of this measure does not reflect current recommendation for person-first language.

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Conclusions More negative experiences with healthcare providers was associated with worse weight stigma, higher BMI, regular binge eating and overall disordered eating, and for participants identifying as male or a Person of Color. These data have implications for non-clinical community populations and are particularly important as experiencing poorer quality of interactions with healthcare providers may decrease individuals' likelihood of seeking needed care for both disordered eating and health-related concerns.

Trial Registration N/A.

Plain English summary

Weight stigma refers to the discrimination towards individuals because of body size. Individuals who identify as a Person of Color and who experience binge eating may experience additional discrimination, resulting in barriers to receiving healthcare. To examine these relationships, a community-based sample ($N=648$) completed health- and eating-related questionnaires online. Participants who had higher weight rated their perceptions of their interactions with healthcare providers as lower quality. People of Color and men reported lower quality of perceptions of their healthcare provider interactions compared to White, non-Hispanic and female participants, respectively. Participants reporting less weight stigma also reported more positive interactions with their healthcare providers. Participants who reported regular binge eating episodes reported worse quality of interactions with their healthcare providers compared to those who did not report regular binge eating, regardless of their weight. Participants endorsing more stigmatizing views of individuals with higher weight and those reporting regular binge eating were more likely to report poorer perceived quality of interactions with healthcare providers, regardless of their weight, race/ethnicity, or sex. These findings are of particular importance as experiencing poor quality interactions with healthcare providers may be a barrier to receiving needed healthcare.

Keywords Weight, Stigma, Healthcare, Perceptions, Eating, Binge eating

Introduction

Although obesity continues to be a predominant public health concern with prevalence rates in the U.S. at an all-time high, a pervasive and harmful weight stigma culture persists [1] Weight stigma broadly refers to the social rejection, discrimination, and ideological devaluation of individuals because of body size and weight [2]. Current conceptualization of the construct distinguishes between internalized and generalized weight stigma, devaluing the self versus others because of body weight, respectively. [3] Research, however, indicates positive correlations [4] and conceptual overlap between these two forms of weight stigma [5]. Weight stigma negatively impacts the healthcare system, and considerable evidence suggests that many healthcare providers hold strong negative attitudes and stereotypes about people with overweight and obesity [6].

Healthcare providers' weight stigma endorsement can undermine patients' health and psychological well-being [7, 8]. For example, a vignette study found that providers who discussed obesity with patients as a treatable medical condition, as opposed to the traditional and more stigmatizing 'move more and eat less' approach, resulted in participant reported improvements in the patient-provider relationship and reductions in patient reported internalized weight bias [9]Less is known, however, about general weight stigma and how it may interact with other salient identity factors and impact patients' perceptions of the healthcare they receive. While one study did not find significant differences in patients' perceptions of healthcare based on patient weight [10]other studies suggest that weight stigma does contribute to poorer quality of care and/or patient perception of care [11, 12]. A bidirectional relationship exacerbates this complex dynamic: individuals with overweight or obesity may be less likely to seek regular healthcare, and if or when they do present for care, providers with weight bias may fail to provide high quality patient-centered care [7, 12]. While this bidirectional relationship between medical avoidance and lower quality care has been documented, additional patient characteristics likely further complicate barriers to healthcare.

Intersectionality is an important feature of stigma describing the compounding effect of stigma relative to the number of devalued attributes [13]. Akin to obesity, eating disorders, binge eating disorder (BED) included, are recognized as highly stigmatized [14, 15]. A narrative review evaluating health care provider perceptions of BED described shaming and stigmatizing beliefs about the disorder [15]. BED presents in individuals across the weight spectrum, gender identities, and races or ethnicities [16]. Despite these commonalities, research conducted with both clinical and community samples suggests that men and individuals identifying as a Person of Color are less likely to seek treatment for binge eating compared to women and White, non-Hispanic individuals [17, 18]. A population level study did not find significant impairment level differences and only minimal demographic profile differences across people who reported objective versus subjective binge episodes. Both

barriers to seeking care and impairment experienced by those who binge eat but do not meet criteria for BED highlight the importance of assessing symptom profile rather than BED diagnosis [19].

When considering the relative stigmatization of obesity and disordered eating, research suggests that stigma against eating disorders may exceed that towards obesity alone [20, 21]. Research conducted with primary care patients examined general weight stigma as measured by the Attitudes Towards Obese Persons Scale (ATOP), and found weight stigma endorsement was associated with binge eating status and race; patients with BED, compared to those without BED, and those identifying as White, non-Hispanic, compared to Black, endorsed significantly higher levels of negative stigma about obesity [22]. The patient-provider relationship may also be influenced by the unique combination of identity factors and biases, including sex, weight status, and race/ethnicity. For example, Black and Hispanic patients have reported disparities in provider communication quality [23]. Highlighting the extensive effect of stigma, a systematic review identified that from the patient perspective, among the most prominent perceived barriers to seeking treatment for disordered eating were perceived stigma and shame [24]. How this weight stigma may be related to experiences with healthcare providers, however, is unknown, particularly when considering the intersectionality of binge eating, gender, and race or ethnicity.

Taken together, weight stigma is a risk factor for both obesity and disordered eating and can negatively influence healthcare experience. Individuals who are stigmatized related to weight and/or binge eating represent a vulnerable patient group at heightened risk of experiencing stigmatizing interactions with their healthcare providers, disparities in healthcare, and healthcare avoidance. There is a relative dearth of research, however, examining weight stigma, perceptions of healthcare provider interactions, and binge eating together. Thus, we sought to address the gaps in the literature within a community sample without a BED diagnosis requirement to reach more individuals who may not present for care or who may not receive care due to subthreshold, but still significantly impairing [19], binge eating symptoms. Based on existing literature, we hypothesized the following: (1) participants identifying as male and as a Person of Color would endorse worse perceptions of experiences with healthcare providers; (2) worse weight stigma would be associated with poorer perceptions of experiences with healthcare providers; (3) higher disordered eating would be associated with poorer perceptions of experiences with healthcare providers; (4) participants who endorsed regular binge eating episodes would report poorer perceptions of experiences with healthcare providers, regardless of body mass index; and (5) weight stigma and binge eating episodes would be associated with perceptions of healthcare providers even after accounting for related covariates.

Method

Participants and procedures

Participants were 648 adult community-based individuals who completed self-report questionnaires via an online platform, Amazon's Mechanical Turk (MTurk). To be eligible, individuals needed to be able to read English and be at least 18 years old. There were no other inclusion or exclusion criteria. Participants could discontinue the survey at any time but were unable to skip questions. Several studies have indicated that MTurk produces reliable data [25–27], however, some studies also suggest the potential for threats to data quality [28–30]. Among participants completing at least one item beyond consenting, a number of steps were taken to ensure data quality. First, participants were required to respond correctly to all five different types of quality control questions (e.g., true/false, multiple choice, fill-in-the-blank). Data also were inspected for illogical or impossible response patterns (e.g., required to provide height/weight twice, eliminated outliers beyond three times the standard deviation of the mean). Participants received $0.50 cents for the survey. This study received approval from the Human Investigation Committee, and all participants provided electronic informed consent.

Measures

Patient Perceptions of Healthcare Provider Interaction Quality (PPH) [10] is a four-item assessment that includes an average score of the four items. Participants responded to questions ("My healthcare provider explains things in a way I can understand," "My healthcare provider spends enough time with me," "My healthcare provider treats me with respect and dignity," "I am confident I can tell my healthcare provider concerns I have even when he or she does not ask") on a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree). Scores range from 1 to 4, and higher scores indicate more positive perceptions of interactions with healthcare providers. Cronbach's alpha for the current sample was 0.910.

Attitudes Towards Obese Persons[1] (ATOP) [31] is a 20-item measure assessing individuals' stereotypical views regarding people with obesity. Patients responded to questions such as "Most obese people are more self-conscious than other people" on a Likert scale ranging from −3 (*I strongly disagree*) to +3 (*I strongly agree*). Thirteen questions are reversed scored (multiplied by -1) and all items are then totaled. A value of 60 is then added to this total. Scores range from 0 to 120, with higher scores indicating more positive views of individuals with obesity

[31]. The ATOP has been found to be reliable in similar groups [32, 33]. Cronbach's alpha for the current sample was 0.875.

Eating Disorder Examination Questionnaire - Version 17 (EDE-Q) [34] is a widely used and validated self-report measure of eating-disorder psychopathology during the past 28 days resulting in a Global Score. The EDE-Q has 31 questions total. Of these, 19 items (response format from 0=No Days to 6=Every day in past 28 days) are used to create the Global Score, which can range from 0 to 6, with higher scores indicating greater severity of symptoms. Cronbach's alpha for the current sample was 0.877. Behaviors measured by this scale also include frequency of objective (OBEs) and subjective (SBEs) binge eating episodes. Both OBEs and SBEs are characterized as episodes of loss of control eating during a discrete time frame, and are associated with impairment in people with binge eating [35]. The predominant differentiating characteristic is the amount of food consumed during the eating episode with OBEs referring to an usually large amount of food relative to expected typical consumption under similar circumstances, and SBEs defined as the consumption of a relatively small or moderate amount of food.

Statistical Analyses. Data were screened and outliers beyond three standard deviations of the mean were removed. Participants were asked about their race and ethnicity. Five race categories were offered, participants were able to choose as many categories as best fit their identity, and also were offered a fill-in option in the case that none of the categories were appropriate. Due to a majority of individuals identifying as White, non-Hispanic, for data analyses, race was examined with a dichotomous variable for data analyses of either White, non-Hispanic or Person of Color (Table 1). BMI was calculated using self-reported height and weight (kg/m2), and the average fell within the overweight range. Participants also were categorized (based on the EDE-Q) as reporting regular binge eating episodes (≥1 per week in past 28 days) versus those who did not (<1 per week in past 28 days; see Table 1). Pearson's correlations were used to explore the relationship between perceptions of healthcare providers (PPH) and age, BMI, disordered eating symptoms, and weight stigma (ATOP). T-tests,

Table 1 Participant demographics and descriptive data

Variable	Mean (SD); range	Frequency (%)
Age	37.55 (12.25); 18–80 yrs	--
Body Mass Index	27.3 (6.9); 16.0–61.17 kg/m^2	--
Underweight	--	17 (2.6%)
Healthy weight	--	248 (38.3%)
Overweight	--	198 (30.6%)
Obese	--	185 (28.5%)
Sex		
Female	--	424 (65.6%)
Male	--	222 (34.4%)
Race		
White, non-Hispanic	--	471 (72.7%)
Asian	--	58 (9.0%)
White, Hispanic	--	48 (7.4%)
Black	--	46 (7.1%)
American Indian/Alaskan Native	--	11 (1.7%)
Native Hawaiian/Pacific Islander	--	2 (0.3%)
Biracial or Multiracial	--	7 (1.1%)
Other	--	5 (0.8%)
Race Dichotomization		
White, non-Hispanic	--	471 (72.7%)
Person of Color	--	177 (27.3%)
ATOP Total	63.07 (18.87)	--
PPH Average	3.16 (0.56)	--
EDE-Q Global	1.95 (1.36)	--
SBE Frequency	2.2 (4.82)	--
OBE Frequency	1.87 (4.16)	--
<1x/week in past month	--	546 (84.6%)
≥1x/week in past month	--	102 (15.7%)

Note: ATOP=Attitudes Towards Obese Persons Scale; PPH=Patient Perceptions of Healthcare Provider Interaction Quality Scale; EDE-Q=Eating Disorder Examination- Questionnaire; OBE=Objective binge episode; SBE=Subjective binge episode

ANOVA, and analyses of covariance (ANCOVA) were used to test for mean group differences on perceptions of healthcare provider interactions (PPH) between participants based on their sex, race/ethnicity, BMI category, and binge eating status. Multivariate regression modeling assessed the independent variables of binge eating and weight stigma (ATOP) on the outcome variable of perceptions of healthcare provider interactions (PPH). The variables of sex, race, and BMI were included as covariates in the first step of the model as these three variables had significant relationships with the dependent variable (PPH). Sex and race were coded as 0 or 1 and BMI was entered as a continuous variable. Binge eating and weight stigma were added as the second step. Multicollinearity was not problematic in the present regression analyses and Variance Inflation Factors ranged from 1.00 to 1.05.

Results

See Table 1 for demographic and descriptive data. T-tests showed that women (M_{PPH} = 3.20, SD=0.60) scored significantly higher on the PPH than men (M_{PPH} = 3.11, SD=0.50), $t(514)=2.09$, $p=0.037$, Cohen's $d=0.165$, and White, non-Hispanic participants (M_{PPH} = 3.20, SD=0.56) scored significantly higher on the PPH compared to People of Color (M_{PPH} = 3.07, SD=0.55), $t(646)$ = -2.73, $p=0.007$, Cohen's d=-0.240. See Table 2 for Pearson's correlations. The PPH was significantly correlated with BMI ($r(648)$ = -0.098, $p=0.012$), weight stigma/ATOP ($r(648)=0.149$, $p<0.001$), EDE-Q Global ($r(648)$ = -0.156, $p<0.001$), objective binge episode frequency ($r(648)$ = -0.124, $p=0.002$), and subjective binge episodes frequency ($r(648)$ = -0.153, $p<0.001$). There was no significant correlation between the PPH and age ($r(648)=0.071$, $p=0.072$).

When comparing the four BMI categories (underweight, healthy weight, overweight, obese) on their PPH scores, the ANOVA was significant, $F(3, 644)=2.68$, $p=0.046$, $\eta 2=0.017$. Tukey post-hoc analyses revealed participants with obesity reported significantly worse perceptions of healthcare provider interactions (PPH) compared to participants with overweight ($p=0.030$), but there were no other significant group differences among participants in the underweight (M_{PPH} = 3.15, SD=0.68), healthy weight (M_{PPH} = 3.18, SD=0.54), overweight (M_{PPH} = 3.23, SD=0.52), or obese (M_{PPH} = 3.07, SD=0.61) categories.

When comparing participants who reported at least one binge eating episode weekly to those who did not, participants who reported regularly binge eating ($MPPH$=3.00, SD=0.51) reported significantly poorer perceptions of their healthcare provider interactions (PPH) than those who did not ($MPPH$=3.19, SD=0.56), $t(150)$ = -3.35, $p=0.001$. A follow-up ANCOVA with BMI as a covariate remained significant, $F(1, 645)=8.42$, $p=0.004$, $\eta 2=0.013$.

A multivariate linear regression examining weight stigma (ATOP) and objective binge eating episode frequency (based on EDE-Q) with perceptions of healthcare provider interactions (PPH) as the dependent variable was significant even after accounting for the covariates of sex, BMI, and race/ethnicity, $F(95, 640)=7.13$, $p<0.001$, $R^2=0.053$ (see Table 3). Therefore, weight stigma ($p=0.001$) and binge eating episode frequency ($p=0.013$) each have significant and unique relationships with perceptions of healthcare provider interaction quality.

Discussion

This study sought to examine the relationship between weight stigma, perceptions of interactions with healthcare providers, and disordered eating based on individual characteristics including weight and demographic features in a large community sample. Higher levels of weight stigma were associated with more frequent binge eating episodes, poorer perceptions of healthcare provider interactions, and higher body weight. Even after accounting for BMI and crucial demographic covariates, more weight stigma and binge eating were related to poorer perceptions of interactions with healthcare providers. Similarly, and regardless of BMI, individuals reporting weekly binge eating episodes reported more

Table 2 Correlations between weight stigma, demographic variables, disordered eating symptoms, and perceptions of healthcare providers

	Age	BMI	EDE-Q Global	OBE Frequency	SBE Frequency	ATOP	PPH
Age	1						
BMI	0.160**	1					
EDE-Q Global	−0.138**	0.330**	1				
OBE Frequency	−0.130**	0.135**	0.050	1			
SBE Frequency	−0.029	0.058	0.135**	0.406**	1		
ATOP	0.121**	0.048	−0.151**	−0.117**	−0.007	1	
PPH	0.071	−0.098*	−0.156**	−0.124**	−0.153**	0.149**	1

Note: BMI = Body Mass Index; SBE = Subjective binge episode; OBE = Objective binge episode; EDE-Q = Eating Disorder Examination- Questionnaire; ATOP = Attitudes Towards Obese Persons Scale; PPH = Patient Perceptions of Healthcare Provider Interaction Quality Scale

* $p \leq 0.05$, ** $p \leq 0.001$

Table 3 Regression analyses predicting perceptions of healthcare provider interactions

	B	SE B	β	95% Confidence Interval for B		t-value	*p*-value
				Lower bound	Upper bound		
Model 1: PPH							
Sex	−0.076	0.046	−0.064	−0.154	0.027	-1.637	0.102
Race	0.108	0.049	0.086	0.012	0.204	2.201	0.009
Body Mass Index	−0.007	0.003	−0.088	−0.013	−0.001	-2.248	0.017
Model 2: PPH							
Sex	−0.063	0.046	−0.054	−0.154	0.027	-1.370	0.171
Race	0.108	0.049	0.086	0.012	0.204	2.201	0.028
Body Mass Index	−0.007	0.003	−0.088	−0.013	−0.001	-2.248	0.025
ATOP	0.004	0.001	0.128	0.002	0.006	3.265	0.001
OBE frequency	−0.013	0.005	−0.098	−0.024	−0.003	-2.483	0.013

Note: PPH = Patient Perceptions of Healthcare Provider Interaction Quality Scale; ATOP = Attitudes Towards Obese Persons Scale; OBE = Objective binge episode

negative perceptions of their interactions with their healthcare providers. There were also demographic differences: Women and White, non-Hispanic participants rated their perceptions of healthcare provider interaction quality higher when compared to men and People of Color, respectively. Interestingly, when examining BMI categories, the only significant differences were that individuals with obesity reported worse perceptions of healthcare provider interaction quality compared to those with overweight.

Weight stigma is a complex, multifaceted problem, and advancing our understanding is critical to improving the health and wellbeing of people globally [36, 37]. Previous research suggested relationships between worse weight stigma and BED [22]. The current study expanded on these findings and showed relationships among weight stigma, binge eating, and worse perceptions of healthcare provider quality interaction within a community sample. While the current data do not inform the reasons for these poorer ratings of interactions, it is feasible that they may be due, at least in part, to the experience of stigma related to participants eating or weight. We do know among clinical samples that weight stigma experienced in healthcare settings by those with higher weight and binge eating may be compounded, decreasing individuals' likelihood of receiving needed care for both their eating disorder and other health-related concerns within a group already vulnerable to limited treatment seeking and access to care [17, 38]. Based on the current results, it is possible that community members who regularly binge eat may experience similar barriers to care for their disordered eating and health, likely on a much larger scale than when just accounting for those who meet clinical criteria for BED.

It is also important to note that while subjectively small binge episodes were not related to weight stigma, the more people experienced these episodes, the more likely they were to endorse worse perceptions of interactions with their healthcare providers. The new *International Classification of Diseases-11* (*ICD-11*) no longer includes an objectively large amount of food for diagnosing BED while the current version of the *Diagnostic and Statistical Manual of Mental Disorders-5th edition* does [39, 40]. The *ICD-11* revision instead focuses on loss of control eating regardless of the amount of food [40]. The current data are a preliminary indication that even individuals who may not be endorsing traditional binge episodes may also experience poorer healthcare provider interactions.

Higher body mass index was related to worse perceptions of healthcare provider interactions and participants with obesity endorsed significantly poorer perceptions when compared to individuals with overweight. There were no differences among individuals within the underweight, healthy weight, or overweight BMI ranges. Previous literature using the same perceptions of healthcare interactions measure reported minimal differences in perceptions of healthcare providers based on weight, despite the authors' hypotheses to the contrary [10]. While we cannot draw conclusions from the current data that these participants rated the interactions as poorer quality due to the expressed experience of weight stigma from their healthcare provider, current community participants who were heavier rated items such as "My healthcare provider treats me with respect and dignity" lower than those who weighed less. Future prospective research may help elucidate some of the mechanisms of the associations observed in the current research.

Demographic differences included individuals identifying as a Person of Color and male as endorsing poorer perceptions of their interactions with their healthcare providers. Taken together with the results related to weight and binge eating status, these data highlight the importance of intersectionality awareness [37]. The current findings suggest that People of Color, especially those identifying as male, who also struggle with a higher BMI and binge eating may be particularly vulnerable to worse interactions in healthcare settings, which likely become a barrier to necessary preventative and

interventional healthcare for both medical conditions and disordered eating. These findings expand upon previous research reporting disparities in provider communication quality experienced by Black individuals with overweight/obesity and Hispanic individuals with normal weight [23], as well as evidence showing that gender and race/ethnicity is related to delayed treatment seeking and disparities in treatment utilization among people with BED and obesity [17, 41].

Diversity, equity, and inclusion efforts, including implicit bias training, seek to lessen the impact of weight stigma for healthcare providers. Unfortunately, empirical evidence is limited regarding the long-term effectiveness in reducing weight bias [42]. One relevant area of needed focus includes weight-related medical terminology used in healthcare providers' interactions with their patients. For example, the medical diagnosis of obesity is used for medical charts, insurance purposes, and likely in verbal interactions with patients. It is important to note that this assumed benign medical term is not perceived as neutral by individuals with higher weight [43–45]. Furthermore, individuals with both a BMI over 30 and binge eating rated many weight-related terms as less desirable compared to those with a similar BMI but without binge eating, further highlighting the complex nature of weight stigma [45]. It is vitally important to continue empirically assessing if and how diversity, equity, and inclusion effort interventions may reduce weight stigma.

The novel combination of perceptions of healthcare provider interactions, binge eating, and weight stigma are a strength of this study. Further, the sample size is large, community-based, and includes standardized measures. Individuals represented a broad range of ages, BMIs, and both men and women were included. Despite these strengths, it also is important to consider the limitations of the current study. All the measures were self-reported from an online convenience sample that included primarily White, non-Hispanic participants. Numerous and rigorous data validity assessments were followed, however, replication within other community samples is recommended. It will be important for future research to include more diverse samples. Due to limited numbers, Persons of Color were collapsed into one category and thus, important differences across race and ethnicity may have been overlooked in the current results. Diversity including increased heterogeneity regarding sexual and gender identity will also be important for future research. Individuals who identify within a gender or sexual minority also are vulnerable to stigma and discrimination and this may be an important additional factor to consider from an intersectionality lens [46]. Due to the cross-sectional data, causal or directional relationships cannot be interpreted from this study, although the relationships examined here may be bidirectional [11]. Participants were not seeking treatment for health- or eating-related concerns, and therefore results may not generalize to treatment-seeking samples. On one hand, these relationships were still significant within this nonclinical sample, and perhaps even stronger relationships may be found among those who meet *DSM-5* criteria for BED. On the other hand, participants recruited for research via their primary care office or a clinical trial are already engaged in clinical care and perhaps a biased sample in that way. Unfortunately, individuals who experience significant weight stigma may be overlooked in research simply because they may not be consistently engaged in healthcare systems. While the current study examined generalized weight stigma, internalized weight stigma is suggested for inclusion in future research as well. Lastly, we did not assess the reasons for the healthcare provider interaction quality ratings (i.e., as a result of experiencing weight stigma), nor did we assess healthcare provider weight stigma, weight status or other identity characteristics, and future research using more detailed assessments of healthcare provider interactions will be needed to clarify further.

In conclusion, more negative experiences with healthcare providers was associated with worse weight stigma, higher BMI, regular binge eating, and overall symptoms of disordered eating. Participants identifying as male or a Person of Color reported relatively worse experiences with healthcare providers. Individuals' poorer quality interactions in healthcare may be barriers to receiving the care needed for both disordered eating and other health-related concerns. The results suggest that one does not need to meet criteria for BED for these concerns and barriers to be present. These results also add to the growing body of literature considering an intersectionality framework to conceptualize weight stigma within nonclinical individuals. Continued efforts are critically needed to empirically test methods of reducing weight stigma in healthcare.

Author contributions

Both authors conceptualized the manuscript and research hypotheses. R.D.B. wrote the methods, results (including the data analyses), and discussion. J.L.L. wrote the introduction and prepared the figures. Both authors reviewed the manuscript.

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Data availability

The data generated during and/or analyzed during the current study are available on reasonable request.

Declarations

Ethical approval

This study received approval from the Human Investigation Committee (i.e., IRB) from Yale School of Medicine (#2000021070) and the study was conducted with ethical standards in compliance with the Declaration of

Helsinki and the Association for the Accreditation of Human Research Protection Programs, Inc.

Informed consent
Informed consent was obtained from all individual participants included in the study.

Competing interests
The authors declare no competing interests.

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