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Women's refusal to be weighed during healthcare visits: Links to body image

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ABSTRACT

The purpose of this mixed methods study was to assess the relationship between body image and refusal to be weighed by a healthcare provider among women in the United States, including examination of their reasons for refusal. Between January 15 to February 1, 2021, an online mixed-methods cross-sectional survey assessing body image and healthcare behaviors was administered to adult cis-gender women. Of the 384 respondents, 32.3 % reported refusing to be weighed by a healthcare provider. After controlling for SES, race, age, and BMI in multivariate logistical regression, the odds of refusing to be weighed were 40 % lower for every unit increase in body image score (positive body appreciation). The most common reasons for refusing to be weighed were having a negative impact on emotions, self-esteem, or mental health (52.4 %). Higher body appreciation decreased the odds of refusing to be weighed among women. Reasons for refusing to be weighed ranged from shame and embarrassment to lack of provider trust, personal autonomy, and concerns about discrimination. Identifying interventions and alternatives such as telehealth to provide healthcare services that are weight-inclusive may mediate these negative experiences.

1. Introduction

Stigma regarding body weight is common in healthcare settings (Puhl & Brownell, 2006), and is related to the utilization and avoidance of healthcare (Alberga et al., 2019). However, research suggests that weight stigma is counterproductive, and is in fact a "vicious cycle", where weight stigma is related to subsequent weight gain (Tomiyama, 2014, p. 8). Research suggests that one reason women avoid healthcare, is to avoid being weighed (Amy et al., 2006; Drury & Louis, 2002; Forhan et al., 2013). Recent conversations have questioned whether weighing needs to be a standard practice for all healthcare situations (e.g., Wong, 2022), and educational campaigns regarding the right to refuse weighing have appeared on social media networks, and throughout popular new sources.

A robust body of research also suggests that higher weight-related stigma is related to poorer body image (Meadows & Calogero, 2018). While the majority of research is focused on negative constructions of body image (e.g., body dissatisfaction), research has also found that weight-related stigma is related to positive constructions of body image (e.g., Carels et al., 2013; O'Neill et al., 2022). Body appreciation, which refers to "accepting, holding favorable opinions toward, and respecting the body, while also rejecting media-promoted appearance ideals as the only form of human beauty" (Tylka & Wood-Barcalow, 2015, p. 53) is one measure of positive body image. Like weight-related stigma, research suggests that body appreciation is also related to healthcare utilization and avoidance (Andrew et al., 2016; Cook et al., 2020). Given body appreciation's relationships with weight stigma and healthcare, and the emerging popularity of refusing to be weighed at healthcare visits, it is relevant to examine relationships between body appreciation and women's refusal to be weighed.

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1.1. Literature review

1.1.1. Weight stigma and weighing in healthcare

Research over the last 50 years has documented negative perceptions that physicians have towards patients with larger bodies (e.g., Klein et al., 1982; Maddox et al., 1968; Puhl & Brownell, 2006; Sabin et al., 2012), and similar perceptions are documented for other medical personnel: for example, nurse practitioners (e.g., Alberga et al., 2019), and nurses (e.g., Poon & Tarrant, 2009; Puhl et al., 2014). Weight stigma is also not isolated to one specific type of healthcare. Research suggests that weight stigma is found in a variety of healthcare settings, including, for example, primary healthcare (Alberga et al., 2019), eating disorder treatment (Puhl et al., 2014), and obstetrical care (Incollingo Rodriguez et al., 2020).

Weight stigma in healthcare settings presents barriers to receiving quality healthcare and is related to avoidance of, and engagement in, healthcare (Alberga et al., 2019). Barriers include external weight stigma and bias from healthcare providers (Amy et al., 2006; Drury & Louis, 2002; Lee & Pausé, 2016; Phelan et al., 2015), internalized weight stigma and shame (Mensinger et al., 2018; Phelan et al., 2015; Puhl et al., 2021), and the absence of healthcare equipment designed for people with larger body sizes (Lee & Pausé, 2016; Phelan et al., 2015). Mensinger et al. (2018) examined a theory-driven model regarding avoidance of healthcare, finding that internalized and experienced weight stigma were related to healthcare avoidance through body-related shame, body-related guilt, and healthcare stress.

The healthcare practice of weighing is one potential source of weight-related stigma in healthcare settings, and research suggests that women avoid healthcare due to not wanting to be weighed (Amy et al., 2006; Drury & Louis, 2002; Forhan et al., 2013). For example, Amy et al. (2006) found that 35 % of their sample (N = 498) reported they had delayed cancer-screening tests due to embarrassment about being weighed. Additionally, Drury and Louis (2002) found that 13.4 % of their sample (N = 216) reported ever delaying or avoiding healthcare due to not wanting to get weighed. Some research suggests that women with larger body sizes may want to avoid being weighed due to their belief that their healthcare provider may conflate their weight with their health (Ferrante et al., 2016; Forhan et al., 2013), or due to the scale being located in a non-private area (Forhan et al., 2013).

In stark opposition to these beliefs, is that weighing a patient is "as routine as checking blood pressure" (Dollar et al., 2017, p. 1) in healthcare settings in the United States. For example, the National Coordinating Council for Medication Error Reporting and Prevention (2018) recommends weighing "as soon as possible" for each admission and medical encounter. This "weight-centric emphasis" (Tylka et al., 2014, p. 2) conflates weight with health, and may lead to unnecessary medical tests/procedures and delays in necessary treatment. Given research on the stigma imposed by weighing, evidence is emerging that questions the benefits of weighing as a standard healthcare practice (Dollar et al., 2017, p. 1). Importantly, there are times that a patient's weight is relevant to their diagnosis and treatment (e.g., compute correct dosage of medication, to monitor patient with congestive heart failure, monitor the growth of neonate and infants); however, recent discourse suggests that weighing may not be necessary for all medical encounters (e.g., Wong, 2022). In response to this, assertions regarding the right to refuse weighing at a healthcare visit have been popularized by mental health and body positive websites, social networks, and publications (Fuller, 2018; Wheatman Hill, 2021), and even by mainstream media outlets (Jacoby, 2022; Wong, 2022).

1.1.2. Body appreciation, weight stigma, and healthcare avoidance

Research by Cook et al. (2020) provides evidence of a relationship between body appreciation and avoidance of healthcare to avoid being weighed. Their study of 499 women in the United States found that higher body appreciation was associated with decreased odds for avoiding medical visits to avoid being weighed, after controlling for BMI and social determinants of health.

Research also suggests that body appreciation, and other measures of positive body image, may mitigate weight stigma (e.g., Alleva et al., 2021; O'Neill et al., 2022). For example, a study by Alleva et al. (2021) found that a body functionality intervention reduced some of the effects of weight stigma in their sample of 98 women. Specifically, intervention participants were found to have improved appearance satisfaction, functionality satisfaction, body appreciation, and body complexity, compared to control group participants. Additionally, O'Neill et al. (2022) found that body appreciation mediated relationships between anti-fat microaggression experiences (e.g., comments that suggest a person does not exercise enough) and perceived physical and mental health for cisgender women (N = 384).

1.2. Current study

The right to refuse weighing is congruent with a weight-inclusive approach that emphasizes beneficence over malfeasance (Tylka et al., 2014), upholds a person's right to self-determination, and reflect a social justice orientation towards combatting weight stigma in healthcare settings. No research to date has assessed the prevalence of, and reasons for refusing to be weighed, or the role that body image plays in this decision. To address this gap in the literature, we conducted a mixed methods study of cisgender women in the United States to assess the relationship between body appreciation, as a measure of body image, and refusal to be weighed by a healthcare provider, including examination of reasons for refusal or non-refusal.

2. Method

2.1. Participants

The final sample (N = 384) consisted of primarily White (n = 260, 67.7 %) cisgender women with over a quarter identifying their race as Black (n = 99, 25.8 %). The mean age was 33.2 years with a range of 19–65 years (SD = 7.4 years). See Table 1 for additional participant demographics and descriptive statistics.

2.2. Procedure

This study used a parallel mixed methods cross sectional survey design. After obtaining IRB approval (project number 2040882; approved 11/20/2020), we obtained informed consent and collected data via an online Qualtrics questionnaire with fixed responses and open-ended questions on body image and healthcare access and behaviors between January 15, 2021 and February 1, 2021. At the time of the survey, participants had to be 18 years or older, living in the United States, identifying as a cisgender woman, and with English as a first language. We used a convenience sampling method through social media (i.e., Facebook and Twitter). Recruitment ads read: "Wanted: Women of all sizes for an online survey on body image, weight stigma, and healthcare" and included images of racially-, ethnically-, and size-diverse women. To minimize bot infiltration, we used reCAPTCHA. All participants were compensated with a $5 gift card for their time. We maintained anonymity by collecting email addresses for gift card distribution separately from the primary survey.

2.3. Measures

2.3.1. Body appreciation

Body appreciation was measured with the Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015). The BAS-2 is a 10-

Table 1
Participant Demographics and Descriptive Analyses.

Characteristic	*n*	%
Race		
White	255	66.4
Black	99	25.8
Other Person of Color	30	7.8
Is it OK to Refuse to be Weighed by a Healthcare Provider		
Yes	185	50.1
No	130	35.2
I am not sure	54	14.6
Ever Refused to be Weighed by a Medical Provider		
Yes	124	32.3
No	260	67.7
If Yes, How Often do you Refuse to be Weighed…		
Every time	13	10.5
Some of the time	69	55.6
Rarely	41	33.1
Never	1	0.8
Characteristic	***M (range)***	***SD***
Age	33.2 (19–65)	7.4
Body Appreciation Scale-2 Score	3.3 (1.30–5.00)	0.6
Financial Strain Index	8.4 (5–15)	2.8
Body Mass Index	28.4 (15.94–62.64)	7.6

item scale with 5 response options (1 =*strongly disagree*, 5 =*strongly agree*). A sample item is "I take a positive attitude towards my body." The BAS-2 was estimated to have high reliability with the current sample (Cronbach's α = 0.86). The BAS-2 items were averaged to calculate a mean score with a higher score indicating better body image which is equated with higher body appreciation.

2.3.2. Ever refusing to be weighed

Ever refusing to be weighed by a healthcare provider was the dependent variable of interest for the current study. This was measured with one item: "Have you ever refused to be weighed by a healthcare provider?" (0 =*no*, 1 =*yes*).

2.3.3. Covariates

We statistically controlled for socioeconomic status, race, age, and BMI. Socioeconomic status was measured by the Financial Strain Index (FSI; Hamby et al., n.d.), a 5-item measure. The FSI was estimated to have high reliability in the current sample (Cronbach's α = 0.83). The FSI items were summed to calculate a score, with higher scores indicating higher financial strain. Race was collected with one item, "Please indicate the racial and ethnic backgrounds with which you identify. (Select all that apply.)" Response options included: Hispanic/Latinx/Spanish origin; Caucasian/White/European American; Black/African American; Indigenous Peoples/Alaska Native; Asian/Asian American; Native Hawaiian/Pacific Islander; and not listed, please describe. Race was categorized (0 = *White*, 1 =*Black*, 2 =*Other Person of Color*) for the current study due to a lack of variance. Age was collected with the following item: "What is your age (in years)?" and was treated as a continuous variable. Body Mass Index (BMI) was calculated using self-reported height (in inches) and weight (in pounds) and was also treated as a continuous variable.

2.4. Quantitative analytic plan

Using IBM SPSS 27, we ran a series of analyses to test for statistical assumptions, followed by descriptive statistics and a multivariate logistic regression. BMI and BAS Score were missing more than 5 % (12.5 %, 7 % respectively) and based on significant t-tests, the data were not missing at random. Thus, we imputed these two variables using the Series Mean Replace Missing Values function in SPSS, which is recommended for data not missing at random above 5 % (Saunders et al., 2006). We used the imputed variables in the analyses.

2.5. Qualitative-specific methods

Participants who responded that they had refused to be weighed were asked the open-ended question, "Why do you choose to refuse being weighed when you visit a healthcare provider?" All answers were entered into an Excel spreadsheet and analyzed using content analysis (Hsieh & Shannon, 2005) and thematic coding (Braun & Clarke, 2006). First, all responses were read by author 3, inductive codes were generated, and codes were entered into a coding dictionary. The coding dictionary was revised during three subsequent iterations through the data, during which codes were refined and arranged into hierarchical meaningful categories. Then author 3 and a research assistant independently coded all responses. Overall interrater agreement was 0.96, with *Cohen's Kappa* of.92, indicating excellent interrater agreement, with individual variables ranging from K = 0.65 (moderate agreement) to K = 1.0 (perfect agreement). Following this, all variables were double coded by both coders and discrepancies were resolved through discussion and consensus.

3. Results

3.1. Descriptives

The mean body appreciation score was 3.3 (SD = 0.6), which is slightly lower than the mean score among a community sample of women (M = 3.5, SD = 0.9; Tylka & Wood-Barcalow, 2015). Half of the participants reported that they think it is okay to refuse to be weighed by a healthcare provider (n = 185, 50.1 %) and almost a third reported ever refusing to be weighed by a healthcare provider (n = 124, 32.3 %). Of those, 10.5 % (n = 13) reported refusing to be weighed every time, 55.6 % (n = 69) some of the time, and 33.1 % (n = 41) reported rarely refusing to be weighed.

3.2. Multivariate regression

We compiled a multivariate logistic regression model of BAS-2, FSI, race, age, and log-transformed BMI to predict the likelihood of ever refusing to be weighed by a healthcare provider with details provided in Table 2. The generated model was significantly different from the constant-only model (X^2 (6) = 31.67, p < .001). The model correctly predicted 68.5 % of those who reported not ever refusing to be weighed by a healthcare provider and 60.2 % of those who reported ever refusing to be weighed by a healthcare provider, for an overall classification rate of 65.8 %. An increase in body appreciation score was associated (p = .052) with a decreased likelihood of ever refusing to be weighed (OR =0.68, CI = 0.47–1.00). Among the covariates, only socioeconomic status was significantly related - higher financial strain was related to an increased likelihood of ever refusing to be weighed by a healthcare provider (OR = 1.24, CI = 1.13–1.36).

Table 2
Odds Ratios of Ever Refusing to be Weighed by a Healthcare Provider.

Characteristic	*B*	*OR*	p value	*CI*
Body Appreciation Scale-2 Score	-0.50	0.68	0.052	0.47–1.00
SES: Financial Strain Index	0.25	1.24	< 0.001	1.13–1.36
Race				
Black	-0.18	1.07	0.790	0.64–1.81
Other Person of Color	0.46	1.14	0.768	0.48–2.68
Age	-0.00	1.61	0.441	0.48–5.45
Body Mass Index	0.07	1.00	0.871	0.97–1.03

Note: White was the reference group for the race variable.

3.3. Qualitative

Qualitative results are summarized in Table 3. Over half (52.4 %) of participants who declined to be weighed reported doing so due to the negative impact on their emotions, mental health, and self-esteem. The most reported emotion evoked by weighing was shame and embarrassment (25.4 %). Participants spoke of feeling "so embarrassed," of weighing "hurt[ing] my self-esteem," and contributing to an "inferiority complex." A subset of these participants (11.1 %) specifically mentioned shame around their higher weight status, citing being "too fat," "obese," "heavy," or "feeling fat." Participants also reported feelings of fear (22.2 %) and avoidance (17.5 %), reporting that they were "scared to see" their weight, overcome by feelings of worry, or avoiding weights due to a sense of self-protection. As an example, one participant responded, "I find being weighed extremely triggering and I do not want to know the number for fear of an eating disorder relapse." Other participants reported ambiguous "bad reactions" or senses of sadness: "It makes me feel sad and sad." In response to these negative feelings, one participant described their refusal as, "an act of radical self-care."

Nearly a third of participants (30.2 %) reported that they chose not to be weighed out of a sense of personal autonomy ("It is your right"), personal preference or dislike (20.6 %), or a sense of privacy (6.3 %) regarding their weight. Participants endorsing privacy concerns considered weight a sensitive issue and feared exposure: "I don't want to expose my weight" or "I don't want anyone other than myself to know my weight." Others also expressed that beyond not wanting others to know their weight, they also preferred not to know their weight themselves, due to the negative impact such knowledge had on their emotions. Some explicitly mentioned declining weights so that their weight would not be entered into their medical chart, which made it difficult for the patient to avoid seeing their weight: "Even when I turn around on the scale and request not to be informed, the number ends up in my record and when I see it, I have a bad reaction."

Over a quarter (28.6 %) of participants declining weighing did so out of concern for their relationship with their provider. These participants (28.6 %) reported a lack of trust in their providers and explicit concern about providers laughing at them (9.5 %) behind their backs. One patient recalled a negative interaction contributing to this lack of trust, "They mentioned my weight in a way that humiliated me." Regarding lack of trust, participants also mentioned that when they did not wish to be informed of their weights (e.g., in the case of a backwards weight), they feared providers would mistakenly tell them: "I had a provider share my weight with me after they said they would not so now I do not trust medical providers to follow directions and honor my wishes. Refusing to be weighed means they cannot tell me my weight since they wouldn't know it."

Nearly a quarter (23.8 %) of participants mentioned direct concerns about weight discrimination: "I am worried about being discriminated against." Participants mentioned concerns about being treated "badly" or "differently" if their providers knew their weight. They also mentioned fears that providers would choose to focus on their weight at the expense of their visit reason, "I want them to focus on the issues I came to see them for, not my weight." While some cited past negative experiences of discrimination, many reported anticipating stigma without citing specific past occurrences. One participant explained their concern in this way, "Unless my weight is needed for dosing a medication or a procedure, that knowledge won't support a provider in measuring my health, and it

Table 3
Themes regarding weight refusal (n = 63).

Theme	%	Illustrative Quote
Negative impact on emotions, self-esteem, or mental health	**52.4**	If I do get weighed and find out the number my mood changes and I am full of negative self- talk which affects everything I do that day.
• Shame, embarrassment	25.4	I am worried that the doctor laughed at my weight, which would make me very embarrassed.
• Fear	22.2	Afraid to face your weight.
• Avoidance of weight	17.5	The number causes my harm to my mental health than it is worth. If I were having a surgery or taking a medication doses by weight I would for those purposes and ask to not see or hear the number.
• "Bad reaction"	6.3	Even when I turn around on the scale and request not to be informed, the number ends up in my record and when I see it, I have a bad reaction.
Personal autonomy	**30.2**	And to some, it feels like a bold stance to take. But it is your right.
• Preference or dislike	20.6	I don't like weighing myself.
• Sense of privacy	6.3	I don't want anyone other than myself to know my weight, I feel very private about it.
• Do not want weight in medical chart	3.2	Even when I turn around on the scale and request not to be informed, the number ends up in my record and when I see it, I have a bad reaction.
Concerns with provider relationship	**28.6**	I don't want to expose my weight. I worry about being laughed at.
• Lack of trust in medical providers	28.6	I am afraid that they will treat me badly after knowing my weight.
• Fear providers will laugh at me	9.5	After they know my weight and height, they will laugh at me behind their backs.
• Providers do not honor my wishes	4.8	I had a provider share my weight with me after they said they would not so now I do not trust medical providers to follow directions and honor my wishes.
Concerns about discrimination	**23.8**	I am worried about weight discrimination.
• Discrimination concern	19.0	I am worried about being discriminated against.
• Past negative experience	3.2	They mentioned my weight in a way that humiliated me.
• Social justice beliefs or actions	3.2	History of eating disorder and I am adamant about weight liberated care.
Beliefs about weight and health	**19.0**	I don't think it has much to do with my health.
• Weight irrelevant to visit reason	17.5	Because the last time I went it had nothing to do with my weight.
• Weight does not equal health	4.8	I don't believe that my weight dictates my health so unless they are like putting me to sleep for surgery my weight shouldn't be a part of why I am there!
Eating disorder, disordered eating, dieting concerns	**9.5**	Sometimes it would be upsetting for me to know the actual number, based on a history of dieting and eating disorders.
• Eating disorder history	9.5	I have a history of disordered eating and obsessive calorie/points counting, weighing and measuring food (weight watchers), etc. I don't want to go back to that.
• Eating disorder recovery	4.8	After chasing numbers and living with an and eating disorder for over 15 years (taken many shapes/ behaviors uses over the years) and then finally get diagnosed at 28 and being in various levels of treatment including residential, I am in recovery.
• Trigger eating disorder relapse	4.8	I find being weighed extremely triggering and I do not want to know the number for fear of an eating disorder relapse.
Weight Status Identity	**11.1**	I am worried that they will be very embarrassed when they talk about my obesity.
• Identify as fat or overweight	7.9	I think I'm too fat.

will increase the likelihood of weight-based mistreatment." Importantly, some also referenced anti-oppression values as contributing to their refusal ("I am adamant about weight-liberated care"), and other referenced concerns about intersecting forms of discrimination, such as weight and race: "I am worried that they will laugh at my weight and skin tone."

Nineteen percent of participants who refused weighing did so while citing beliefs about the importance of weight to understanding their health. Five percent of participants remarked that they did not believe weight determined their health ("I don't believe that my weight dictates my health"), and 17.5 % reported that weight was "irrelevant" or had "nothing to with" their visit reason (e.g., "allergies," "dermatologist," "sleep"). Most participants citing this reason also left allowances for weighing if it were to be needed for medication dosing, anesthesia, or other medical procedures in which weight was a more relevant factor.

Finally, 10 % of participants refusing weighing reported lengthy histories of eating disorders, which resulted in significant distress associated with their weight and weighing procedures. While 4.8 % identified as being in recovery, they also reported that weighing was "extremely triggering" for their eating disorders: "I don't feel secure in my recovery that day or am having a day of struggle with ED thoughts, and I want to avoid unnecessary triggers." Another participant stated, "I have a history of disordered eating and obsessive calorie/points counting, weighing and measuring food (weight watchers), etc. I don't want to go back to that."

4. Discussion

Almost a third of our sample refused to be weighed by a healthcare provider, and we found that body appreciation was marginally significant to decrease the odds of refusing to be weighed. We must start to seriously consider when it is medically necessary to be weighed, because literature shows that patients are delaying care because of the stigma of being weighed (Amy et al., 2006; Drury & Louis, 2002; Forhan et al., 2013). Some medically necessary reasons to be weighed could include calculating the appropriate medication or anesthesia dosing, monitoring conditions related to disordered eating, diagnosing and monitoring metabolic disorders/syndrome. This research is particularly important as "refusing to be weighed" is also becoming a more frequent topic among mental health and body positive health stakeholders (Fuller, 2018; Jacoby, 2022; Wheatman Hill, 2021). We need to urgently shift the healthcare paradigm for weight-inclusive care to reduce the negative consequences to patients who experience weight stigma in their healthcare environment while we simultaneously focus on reducing the exposures during routine healthcare.

After controlling for socioeconomic status, race, age, and BMI, the odds of refusing to be weighed are 32 % lower for every unit increase in body appreciation score. In addition, we found that higher financial strain was significantly related to higher odds of ever refusing to be weighed (OR = 1.24, $p < .001$), and more consideration should be given to patients with lower socioeconomic status who already have greater barriers to accessing care (e.g. lower incomes, lower insurance coverage, harder to take off work, concerns about affordability). Our findings are consistent with the previous literature, where Cook and colleagues found that higher body appreciation was associated with decreased odds for ever avoiding the doctor to avoid being weighed (Cook et al., 2020). Body appreciation has also been found to negatively predict body-related shame (Avalos et al., 2005), which is also consistent with our study findings as "shame" was noted by 25.4 % participants in this study as a reason for refusing to be weighed. Furthermore, body shame and dissatisfaction due to negative weight-related experiences decreases body appreciation and may lead to physical signs of anxiety (such as shaking, sweating, increased heart rate; Cash et al., 2004), and a variety of other negative health behaviors, such as excessive exercise (Yager et al., 2017), unhealthy dieting (Slevec & Tiggemann, 2011), and eating disorders (Hoek & van Hoeken, 2003; Stice & Shaw, 2002). Thus, body image is an important modifiable factor, and our findings suggests: (1) healthcare delivery needs account for different levels body appreciation that results in avoidance of stigmatizing healthcare experiences (e.g., refusal to be weighed), and (2) develop and test interventions focused on improving body image in healthcare settings which may help mediate stigma experienced by patients, and potentially refusal of other healthcare services that are medically necessary and potentially life-saving (e.g. such as cancer screening).

While we know that body appreciation can significantly improve mental and physical health while mediating the negative effects of weight-related experiences (also known as microaggressions), this may be particularly beneficial for improving mental health outcomes (O'Neill et al., 2022). Exercise interventions (Campbell & Hausenblas, 2009), body functionality-based approaches (Alleva et al., 2018), and using 3D scanning technology and personalized avatars to train participants to focus on ways they appreciate their bodies are evidence-based strategies that have demonstrated improvements in perceived body image and decreased anxiety in young women (Ramseyer Winter et al., 2019). It may be particularly beneficial if some of these strategies could be incorporated into routine healthcare and build trust between patients and their healthcare systems. Additional research is needed to examine how body appreciation interventions in the context of healthcare settings can improve healthcare experiences, decrease refusal of medically necessary services, and increase overall patient satisfaction and healthcare utilization.

As we move toward identifying solutions and alternative services to better collect meaningful patient health indices that are culturally competent and weight inclusive, we need to understand how weight is used in medical decision making by physicians. For what conditions or procedures is weight a major factor that influences outcomes, care protocols, and procedures? Once we comprehensively understand the role of weight in healthcare avoidance, it is possible that healthcare service protocols to weigh patients at the end of the appointment if medically necessary could be beneficial. Healthcare workforce training may also be needed to educate providers of the consequences of weight stigma. In addition, it may be helpful to consider the role of remote-patient monitoring or store-and-forward modalities (e.g., email) with the use of telehealth technologies when patients are avoiding care due to high healthcare stigma. In light of the COVID pandemic, expanding the use of telehealth has been at the forefront of the national healthcare agenda in the post-COVID era (Trout et al., 2017). Telehealth may be useful to bridge the gap for patients to avoid some stigmatizing experiences in healthcare as it enables them to interact with their healthcare provider from the privacy of their own home. More research is needed to determine if telehealth technologies may minimize the stigma and "shame" reported by patients by removing the face-to-face interactions and mitigating fears of being weighed. Future research should identify whether telehealth technologies can help reduce patient perceptions of stigma and negative experiences regarding being weighed and increase their comfort with this practice.

4.1. Limitations

The major limitation of this study is that the data are cross-sectional in nature and do not establish causality. We modeled the outcome of ever refusing to be weighed as binary, and we did not explore how many participants would be amenable to being weighed as long as they did not have to look at their weight on the scales or told their weight by medical personnel. Future studies need to determine if such strategies would be acceptable and induce less

stigma for patients. We note that we found body appreciation to have a relatively small effect size. Future studies should explore other factors not accounted for this this study that influence refusal to be weighed, such as self-stigma, provider weight bias, patient-provider relationship, healthcare environment, healthcare organizational factors (e.g. affiliated with an academic medical center, size, participation in value-based purchasing models, etc.), among others. Next, we did not collect information about healthcare utilization patterns of participants included in the study or frequency of visits in the past year. The use of mixed methods, however, put context to the quantitative findings, thus reinforcing the conclusions and highlighting future areas for interventional studies and the need to determine when weighing patients is medically necessary. With our study sample being primarily white, the study lacked power to conduct subgroup analyses by race and the ability to detect differences between racial/ethnic groups. Future studies in this area should prioritize increased sample diversity. Finally, the study was conducted online, and may be more generalizable to those that have access to digital technologies, such as smart phones, tablets, and computers. Our findings, however, can inform larger evaluations in clinical settings regarding reasons for refusal of healthcare services, and longitudinal studies to evaluate the causal relationship between weight stigma, body appreciation, and healthcare service avoidance.

4.2. Conclusion

Health equity has been at the forefront of the national public health agenda, with increasing attention to the importance of providing weight-inclusive healthcare so that people of all body sizes can achieve optimal health, especially in utilization of primary healthcare services. We identified reasons for refusal of being weighed and found that many women feel a range of negative emotions from negative mental health to discrimination. We must (1) understand specific patient experiences that violate trust in providers, and (2) find alternative strategies to provide healthcare services that are weight-inclusive to mediate these negative experiences. Moving forward, it will be informative to evaluate the role of telehealth in providing more weight-inclusive healthcare service delivery by collecting meaningful and accurate clinical parameters (such as blood pressure) outside of the healthcare setting where patients otherwise experience increased anxiety from weight-related concerns and negative experiences highlighted in this research. Building trust between patients and providers, either with telehealth technologies or practice-based interventions, can facilitate a more supportive and productive dialogue about providing personalized, weight-inclusive healthcare tailored to patients.

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CRediT authorship contribution statement

Virginia Ramseyer Winter: Conceptualization, Methodology, Formal Quantitative Analysis, Data Curation, Writing-Original Draft, Writing – Review and Editing, Funding Acquisition, Kate Trout: Conceptualization, Writing-Original Draft, Erin Harrop: Formal Qualitative Analysis, Writing-Original Draft, Elizabeth O'Neill: Conceptualization, Methodology, Writing-Original Draft, Writing-Review and Editing, Funding Acquisition, Rebecca Puhl: Writing – Review and Editing, Gillian Bartlett-Esquilant: Writing – Review and Editing.

Data availability

Data will be made available on request.

Declaration of Competing Interest

None.

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