



Distressed or not distressed? A mixed methods examination of reactions to weight stigma and implications for emotional wellbeing and internalized weight bias

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ABSTRACT

People react to, and are affected by, stigmatizing experiences in different ways. The current study examined different reactions to weight stigma to identify who may be vulnerable to lasting distress from these experiences. Using a mixed methods approach, this study compared qualitative descriptions of reactions to experiences of weight stigma in conjunction with quantitative measures of weight bias internalization (WBI) and other health indices. Data were collected from September 2017 to August 2018. Participants were U.S. adults enrolled in a commercial weight management program ($n = 425$, 96% female) who reported previous experiences of weight stigma (on quantitative measures), and who also qualitatively described feeling either *no longer distressed* ($n = 178$) or *still distressed* ($n = 247$) by those experiences. Qualitative analyses revealed that participants who were *no longer distressed* engaged in self-acceptance, were not concerned about other's evaluations of them, and prioritized health rather than appearance. Those who were *still distressed* from previous weight stigma experiences considered their body weight, and being stigmatized for it, as playing a prominent role in shaping their self-perception, they blamed themselves for experiencing the consequences of weight stigma, and ruminated on their memories of stigmatizing experiences. Hierarchical regressions demonstrated that participants who were *still distressed* reported greater WBI, greater perceived stress, and poorer mental health than participants who were *no longer distressed*. When adding WBI to the model predicting perceived stress, differences between participants who were *no longer distressed* versus *still distressed* attenuated and became statistically insignificant, suggesting that these qualitative reaction patterns to stigma may be related to participants' level of WBI. Given that some people may experience longer term distress from weight stigma than others, this study can inform interventions aimed to prevent or mitigate the negative consequences associated with being stigmatized.

1. Introduction

The stigmatization of individuals on the basis of body weight is both a social injustice and public health issue (Puhl and Heuer, 2009). According to Goffman (1963), a social stigma is an attribute that is associated with undesirable stereotypes in a given culture. More specifically, stigma involves the co-occurrence of labeling, stereotyping, separation, status loss, and discrimination within the context of a power imbalance between perpetrators and those with stigmatized identities (Link and Phelan, 2001). In the United States, sociocultural values of thinness and ideals of physical attractiveness are commonly

perpetuated in the mass media (Grabe et al., 2008), contributing to considerable societal stigma towards individuals whose body size deviates from these expectations of thinness. Indeed, as many as 40% of adults report that they have experienced weight stigma, such as weight-based teasing, unfair treatment, or discrimination (Himmelstein et al., 2017). Quantitative evidence indicates that weight-based stigmatizing experiences occur across multiple domains of living, and that common sources of weight stigma include medical professionals, family and friends, employers and co-workers, as well as strangers (Pearl et al., 2018).

Qualitative studies parallel these findings. Evidence from qualitative

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interviews suggests that people with high body weight often perceive anti-fat attitudes to be ubiquitous, and that stigma can be direct (e.g., being called a derogatory name), environmental (e.g., not being able to fit into seats in public modes of transportation), or indirect (e.g., being stared at when eating in public; Lewis et al., 2011). Davis and Bowman (2015) interviewed weight loss surgery candidates and found that participants reported weight stigma in multiple areas of their lives, including employment, health care, and family relationships; these experiences had negative implications for wellbeing, including poor body image, and feeling worthless and inferior.

Experiencing weight stigma can have adverse emotional and physical health consequences (Wu and Berry, 2018), which may be long lasting. For example, a recent longitudinal study showed that weight-based teasing in adolescence predicted higher body mass index (BMI), eating to cope with stress, and body dissatisfaction 15 years later, independent of baseline BMI and demographic factors (Puhl et al., 2017b). Qualitative studies echo these findings, in which adults express that the weight stigmatization they experienced in childhood had long-term emotional consequences (Thomas et al., 2008).

1.1. Reactions to weight stigma

The ways in which someone reacts to being stigmatized, such as their coping mechanisms, can mediate the relationship between weight stigma and poor health outcomes (Himmelstein et al., 2018). Quantitative research suggests that adults who cope with weight stigma by engaging in healthy lifestyle behaviors or use of acceptance-based coping (e.g., positive self-talk) have better physical health, psychological health, and psychosocial functioning, while less adaptive coping mechanisms (e.g., disordered eating and negative affect) were associated with poorer physical and psychological health (Fettich and Chen, 2012; Himmelstein et al., 2018). Qualitative evidence has found that relatively few people react to weight stigma by becoming socially isolated, while the majority carry on with their everyday activities (Thomas et al., 2008). Although some people may be more impacted by weight stigma than others, a common reaction to stigmatizing experiences is self-blame. For instance, Lewis et al. (2011) interviewed adults with high body weight, and found that few people challenged weight stigma that they confronted, but often blamed themselves; only some attributed unfair treatment to a flaw in the perpetrator, rather than themselves. Collectively, these findings suggest that individuals respond to weight stigma in a variety of ways.

Given both qualitative and quantitative evidence that people react to, and are affected by, weight stigma in varying ways, it is important to identify who may be at greater risk for experiencing lasting distress from weight stigma. Some people may respond to experiences of weight stigma more adaptively (e.g., engaging in self-compassion) than others (e.g., engaging in self-blame), and as a result may experience different levels of distress in response to these experiences. Obtaining a comprehensive understanding of how people describe their reactions and distress in response to weight stigma, and examining these reactions in the context of different health indices, could help inform interventions aiming to prevent or mitigate the negative consequences associated with being stigmatized (Quinn and Chaudoir, 2009).

1.2. Consideration of internalized weight bias

The different ways in which people respond to experiences of weight stigma may be facilitated through an increased understanding of weight bias internalization (WBI). WBI refers to the extent to which an individual agrees with and applies weight-based stereotypes to oneself and devalues oneself on the basis of his/her body weight (Durso and Latner, 2008; Pearl and Puhl, 2018). Recent evidence has documented high levels of WBI in approximately 20% of adults in the general population and 52% of adults with BMIs of 30 or greater (Puhl et al., 2018). WBI is associated with poor psychological and physical health

outcomes, such as reduced physical and mental health related quality of life (HRQOL) and perceived stress, independent of BMI and experienced weight stigma (Pearl and Puhl, 2018). Further, WBI predicts unhealthy coping responses and psychological distress (Hayward et al., 2018; O'Brien et al., 2016), and could be a potential mechanism to help explain different reactions to weight stigma and consequent psychological outcomes.

1.3. Current study

While weight stigma is a multifaceted experience that can elicit long-term consequences, not everyone who experiences weight stigma suffers negative outcomes. Important questions remain in efforts to understand why some people experience longer term distress from weight stigma than others, and in particular, what might protect people from emotional distress and/or adverse health consequences of weight stigma. The nature and health implications of different reactions to weight stigma have not been examined with a mixed methods design, but identifying how opposing reactions to weight stigma qualitatively and quantitatively differ from one another could point to potential avenues for future interventions aimed at reducing and preventing stigma-related distress. Furthermore, using a mixed methods approach provides opportunities to triangulate quantitative scores of relevant constructs like WBI with participants' qualitative descriptions of their reactions to experienced weight stigma, providing information that could enable practitioners to identify those who may have heightened vulnerability to WBI based on the manner in which they describe their distress in response to stigmatizing experiences. Moreover, considering that nearly half of U.S. adults try to lose weight in any given year (Martin et al., 2018), and that levels of WBI are higher in people engaged in weight loss (Pearl and Puhl, 2018), it is important to gain a better understanding of differing reactions to weight stigma and implications for WBI and health indices among treatment-seeking adults. To begin to address these research gaps, the present study aimed to: 1) qualitatively examine how adults enrolled in a commercial weight management program reflect on their experiences with weight stigma, by comparing participants who express enduring distress from previous experiences of weight stigma to participants who indicate no longer feeling distressed by these experiences; and 2) quantitatively compare those two groups of participants on self-report measures of WBI, perceived stress, and mental and physical HRQOL.

2. Methods

2.1. Study design

Data analyzed in the present study were drawn from a larger survey study examining weight stigma in a sample of adults enrolled in a commercial weight management program, WW (formerly Weight Watchers), which focuses on health behaviors pertaining to food, activity, and mindset (Ahern et al., 2017; Gudzone et al., 2014; Marrero et al., 2016; O'Neil et al., 2016). Eligibility criteria was limited to WW members living in the United States, aged 18 or older, who had been a member of WW for a minimum of three months. From September 2017 to August 2018, WW sent out email invitations to a random selection of 1,155,000 members. Each email invited members to participate in an online survey about their "experiences related to body weight and health, and challenges that come with these experiences such as stress, self-confidence, and stigma." Participants provided informed consent, and participation was anonymous and voluntary. All procedures were approved by the University of Connecticut's institutional review board. In total, 23,432 eligible individuals entered the survey, but 4663 were excluded for not completing at least 50% of the survey or for not providing key demographic or anthropometric information, resulting of a final sample of 18,769 individuals who completed a battery of closed-ended questions. Additional information pertaining to recruitment and

procedures is reported elsewhere (Pearl et al., 2019).

All participants were prompted with an optional open-ended question at the end of the survey, inviting them to share any additional information about their previous stigma experience(s), which was completed by a total of 4065 individuals. Participants who answered the open-ended question were similar to the full sample with regard to sex [$\chi^2(1) = 0.23, p = .630$], racial identity [$\chi^2(4) = 8.94, p = .063$], and BMI [$t(18,767) = 1.75, p = .081$], but were slightly older [$M_{age} = 55.57, SD = 12.33$ versus $M_{age} = 51.23, SD = 12.85, t(6630.20) = 19.54, p < .001$], and had a higher level of education [$t(6694.90) = 5.98, p < .001$] compared to participants who did not respond to the open-ended question. Of the 4065 participants who completed the open-ended question, 2831 (69.6%) reported experiencing weight stigma on the quantitative measure. Due to the breadth of the open-ended question, participant responses described a variety of different topics, such as the setting, source, type, and reaction to weight stigma. The current study focuses on the subsample of participants ($N = 425$) who both quantitatively reported experiencing weight stigma in our survey measures and who qualitatively described their reaction to weight stigma as either being *still distressed* ($n = 247$) or *no longer distressed* ($n = 178$). The subsample of 425 participants was similar to the full sample of 18,769 participants with regard to sex [$\chi^2(1) = 1.08, p = .298$] and racial identity [$\chi^2(4) = 5.65, p = .227$], but had a higher BMI [$M_{BMI} = 33.48, SD = 7.50$ versus $M_{BMI} = 31.88, SD = 7.02, t(18,767) = 4.62, p < .001$], were slightly older [$M_{age} = 55.29, SD = 12.16$ versus $M_{age} = 52.10, SD = 12.87, t(445.47) = 5.33, p < .001$], and had a higher level of education [$t(448.84) = 3.36, p < .001$] compared to participants who were not included in this subsample. The subsample of 425 participants were not significantly different from the full sample on any of the primary measures (weight bias internalization, perceived stress, and mental and physical health-related quality of life), with the exception of reporting a greater history of experienced stigma [$M = 2.16, SD = .89$ versus $M = 1.35, SD = 1.25, t(463.08) = 18.31, p < .001$] than the full sample.

2.2. Study sample

Sociodemographic characteristics of the sample are presented in Table 1. Participants were almost exclusively female (95.8%), white (92.0%), and highly educated with an average age of 55.29 years (range 23–82 years, $SD = 12.16$), and BMI of 33.48 kg/m² (range 20–67, $SD = 7.50$). Participants who expressed that they were *still distressed* by weight stigma were very similar on these variables to participants who indicated that they were *no longer distressed* by weight stigma, with the exception that the *still distressed* group of participants were an average of 4.5 years younger than the *no longer distressed* group ($t(422) = -3.81, p < .001$).

2.3. Qualitative measures and data analysis

2.3.1. Qualitative question

Participants responded to the following question presented at the end of the survey: *Is there anything about your experience with stigma that you would like to share with us?* Participants were provided with unlimited space to write in their responses.

2.3.2. Data analysis

Participants' responses to the qualitative question were coded using the qualitative data management software, NVivo 11. Participant responses were coded and analyzed according to Creswell and Poth's data analysis strategy (2018). Based on an initial review of the data, we developed a preliminary codebook, that the first and second authors used to independently code 50 responses, after which they met to discuss discrepancies and revise the codebook. This process was repeated with another 50 responses, at which point agreement was reached on a

Table 1
Sample Characteristics.

	Full Sample		No longer distressed		Still distressed	
	N = 425		N = 178		N = 247	
	M	SD	M	SD	M	SD
Age ^a	55.29	12.16	58.00	12.00	53.00	12.00
BMI	33.48	7.50	35.00	7.00	33.00	8.00
	N	%	N	%	N	%
Sex						
Male	18	4.2	12	6.7	6	2.4
Female	407	95.8	166	93.3	241	97.6
Race/Ethnicity						
White, non-	391	92.0	160	89.9	231	93.5
Hispanic, non-						
Latino						
Black or African	10	2.4	6	3.4	4	1.6
American						
Asian or Pacific	4	0.9	1	0.6	3	1.2
Islander						
Latino, Hispanic, or	9	2.1	5	2.8	4	1.6
Mexican-						
American						
Other	11	2.6	6	3.4	5	2.0
Education						
High school/GED	15	3.5	5	2.8	10	4.0
Votech or Some	105	25.0	47	26.4	58	23.4
College						
College graduate	140	32.9	53	29.8	87	35.2
Postgraduate	165	38.8	73	41.0	92	37.2
degree						

Note. Due to rounding, percentages may not add up to 100.

^a Participants in the "no longer distressed" group were older than participants in the "still distressed" group: $t(422) = -3.81, p < .001$.

finalized list of codes with respective definitions and inclusion criteria. An additional 219 responses were double-coded, which resulted in a high level of agreement demonstrated by an average kappa coefficient of 0.77 (kappa range = 0.41 to 1). Of the 2831 qualitative responses of people who reported experiencing weight stigma on the quantitative measure, 425 of these responses specifically indicated that they were *still distressed* or *no longer distressed* by their experience, which is the primary focus of this paper. Responses were coded as *still distressed* when the participant expressed sentiments of never forgetting the stigmatizing experience, or that it has had long-term consequences, whereas responses were coded as *no longer distressed* when the participant mentioned that they no longer feel upset or bothered by past or current experiences of weight stigma, or that they had never been distressed by such experiences. The remaining 2406 qualitative responses focused on other themes, such as sentiments that did not explicitly reference weight stigma (e.g., descriptions of weight loss journey) or descriptions of other aspects of weight stigma, such as the setting (e.g. workplace, healthcare), source (e.g. mother, romantic partner), or type of experienced weight stigma (e.g. teased, stereotyped), but without reference to feelings of distress, or lack thereof.

After coding, we ran queries to identify patterns that emerged across responses, which were then discussed during team meetings and interpreted in connection to the broader weight stigma literature. The participants' reactions to weight stigma were noteworthy given that two of the most common reactions, *no longer distressed* and *still distressed*, were in stark contrast to one another. Therefore, the first author did further sub-coding in order to describe these opposing reactions in greater detail. For example, the *no longer distressed* participants commonly explained why they were no longer distressed, so new sub-codes were created to capture those reasons.

2.4. Quantitative measures and data analysis

2.4.1. Demographics and anthropometrics

Participants answered questions regarding their age, sex, race, and education. Participants self-reported their current height and weight, which we used to calculate their BMI.

2.4.2. History of experienced weight stigma

We measured experienced weight stigma with three (yes/no) questions to assess whether participants had ever been teased, treated unfairly, or discriminated against because of their weight (Puhl et al., 2011). We summed these experiences to create an experienced stigma scale that ranged from one (experienced one type of weight stigma) to three (experienced all three types; Puhl et al., 2017a).

2.4.3. Weight bias internalization

We measured internalized weight bias using the Modified Weight Bias Internalization Scale (WBIS-M), a validated measure that assesses the extent to which people apply negative weight-based stereotypes to themselves and blame themselves for their weight status (Durso and Latner, 2008; Pearl and Puhl, 2014). We used the 10-item version of the WBIS-M, which is appropriate for individuals of diverse body weight categories and aligns with recent research recommending that the first item be dropped from the original 11-item scale (Lee and Dedrick, 2016). Participants responded to statements such as, "I don't feel that I deserve to have a really fulfilling social life because of my weight," using a seven-point Likert scale ranging from "strongly disagree" to "strongly agree," where higher scores indicate greater WBI. Responses to the 10 questions were averaged resulting in an overall score from 1 to 7 ($\alpha = 0.91$).

2.4.4. Perceived stress

We measured perceived stress using the four-item Perceived Stress Scale (PSS-4), which assesses the participants' feelings of being overwhelmed during the past month (Cohen and Williamson, 1988). Participants responded using a five-point Likert scale ranging from "never" to "very often," where higher scores indicate greater perceived stress. Responses to the four questions were averaged resulting in an overall score from 0 to 4 ($\alpha = 0.78$).

2.4.5. Mental and physical health-related quality of life (HRQOL)

We measured mental and physical HRQOL using the 12-item Short-Form Health Survey (SF-12), which is a shorter, yet valid, alternative to the SF-36 (Ware et al., 1996). Scores were computed by following scoring instructions (Ware et al., 1995), resulting in a score from 0 to 100, where higher scores indicate better HRQOL.

2.4.6. Data analysis

Quantitative data were analyzed using SPSS Statistics version 25. Using hierarchical regression, we integrated our qualitative and quantitative results by comparing the participants who were qualitatively coded as being *still distressed* to the *no longer distressed* participants on measures of WBI, perceived stress, and mental and physical HRQOL. Demographics (age, sex, race, education, and BMI) as well as experienced weight stigma were entered in the first step (model 1), while qualitative group classification (*still distressed* vs. *no longer distressed*) was entered in the second step (model 2). Furthermore, given that we suspected that qualitative group covaries with WBI, we entered WBI into the third step (model 3) in the models where the dependent variable was either perceived stress, mental HRQOL, or physical HRQOL. We examined the change in R-squared between models to determine whether including the qualitative group classification accounted for a unique and significant amount of the variance in each of the dependent variables, and whether the inclusion of WBI in the model would override the amount of the variance explained by the inclusion of qualitative group. Given the findings from the hierarchical regression, we

conducted exploratory analyses to test for mediation using the PROCESS macro for SPSS (Hayes, 2012). Fifteen of our 425 participants did not fully answer the mental and physical HRQOL scale. These 15 cases were assumed to be missing at random and were handled using listwise deletion. To reduce the likelihood of Type-1 error given the size of the sample in the larger study, we only interpreted p-values less than or equal to 0.001 (Benjamin et al., 2018).

3. Results

3.1. Qualitative findings

Results indicated that there were key commonalities among the sentiments of participants categorized as *no longer distressed* that were distinct from the commonalities expressed in responses coded as *still distressed*. The common themes shared among the *no longer distressed* participants, followed by the *still distressed* participants, are summarized below.

3.2. 'No Longer Distressed' Participants

3.2.1. Not concerned with others' evaluations of appearance

A theme that emerged from the *no longer distressed* responses was that participants expressed no longer being concerned about other people's evaluations of their appearance. Participants referenced that "getting older" has enabled them to feel differently about how others view their body weight and appearance:

"The best cure is getting older. Grandkids don't care if you are chubby. Grandmas don't have to look good in a bathing suit." (74-year-old woman)

Respondents explained that they viewed stigmatizing weight-based treatment as a reflection of others, as opposed to blaming themselves:

"[...] I generally don't pay attention to what other people think, because if they make an opinion on me based on solely on my weight then their opinion is not worth my time." (50-year-old man)

"[...] I understand that people who are being mean and negative towards someone based solely on their looks are generally pretty miserable themselves and it's not my burden to bear. Instead of the 'let it go' mantra that I hear a lot, I prefer to say 'their insecurity and emotional issues are not because of me and are not my problem'. I surround myself with people who are positive and uplifting." (39-year-old woman)

3.2.2. Self-acceptance

A second theme that emerged from the *no longer distressed* responses was that participants emphasized self-acceptance to overcome negative emotions associated with experiences of weight stigma. For example, participants explained that their ability to love and accept themselves protects them from feeling stigmatized:

"[...] As I am almost 60 yrs old, I have learned to let things "go" that would have troubled me deeply in my youth. There probably have been recent instances where others have discriminated or judged me and I have been unaware because try to I focus on myself rather than what others may think or feel. Learning to love myself for who I am has become my goal. My thoughts are that if young girls are taught to love themselves and others whatever size they are, not be held to an impossible size standard/expectation - STIGMATIZED - the future women of the world will benefit!" (59-year-old woman)

Participants additionally stated that they are trying to practice self-love by actively challenging negative weight-related messages that they have internalized:

"[...] I've done a lot recently to discover what I think about myself versus what other people think of me, why I think the way that I do about myself"

and what I can do to make it more positive. [...] My experiences with stigma in childhood definitely shaped how I saw [myself] for a long time and it had taken immense work to overcome those thoughts. Identifying specific experiences had helped me see how illogical it is to view myself through the lens of childhood trauma, but understanding didn't make it go away automatically. I've had to face what had become social fears and practice feeling accepted by putting myself in social situations (ex. Giving hugs to friends, specifically men) that feel like an opportunity for rejection, and proving that I can be loved and that I am [worth] it, at any weight. (30-year-old woman)

Of note, sentiments of self-acceptance/self-worth commonly occurred in conjunction with expressions of no longer being concerned with others' evaluations. For example:

Being in my mid-thirties has allowed me to experience life differently than in my twenties. Therefore, I am no longer strongly bound by what others think of me. I am a complicated, intellectual, compassionate, but can be ruthless in defense of herself, human being. I am not perfect, but I know my life is worth it. Weight shaming does not affect me as much as it might have in my adolescence or early twenties. (35-year-old woman)

3.2.3. Prioritizing health rather than appearance

Other themes that emerged from participants' responses included an emphasis on health over appearance, as contributing to their reduced distress from stigma. For example, participants referenced valuing improvements to their health rather than changing their appearance, and this oftentimes coincided with the themes of getting older and/or caring less about what other people think:

"As I have gotten older, I have become less upset about my weight and about how others see me. Although I want to lose weight, it is less about what others think of me and more about how I feel and a desire to feel healthier. Because of this, I focus more on eating healthier and trying to be more active. I wish that I had done this earlier in life [...]" (64-year-old woman)

"As I've gotten older, what other people think of my appearance doesn't concern me much. I dress for myself and comfort. I am clean and groomed. I've looked for, and for the most part, found inner happiness for myself and family. My weight loss is mostly for my health." (66-year-old woman)

3.2.4. Social belonging as a source of strength

Participants also referenced feelings of greater social belonging in the broader society, as well as surrounding themselves with people who love them, as potential reasons why they are less concerned about what others think of their appearance and are better able to practice self-acceptance in the face of weight stigma:

"I think that the weight stigma, from my point of view, has maybe gotten better over the past few years. There are a lot of body-positive activists out there that shine the light on things that "plus-sized" people go through and it's been nice knowing I'm not alone. I think people are also becoming a little more accepting of people of all shapes and sizes. The frequency of discrimination that I experience has started to become less and less, compared to 10 years ago." (31-year-old woman)

"I'm normally a confident fat person. I have lots of friends who love me at any weight and a husband who still makes me feel sexy. [...]" (68-year-old woman)

3.3. 'Still Distressed' Participants

3.3.1. Body weight and stigma continue to shape self-perception

In contrast to the no longer distressed group, a common theme that emerged in responses among participants who were still distressed from

weight stigma was that their previous experiences of weight stigma have continued to negatively shape their self-perception, even many years later:

"Most of the issues I've had with stigma occurred when I was young but have stayed with me all of my life. Often people say to move on it since it was so long ago. I don't think people understand that it isn't that easy. It never goes away. In addition, I think the times when I felt stigmatized by someone important in my life have made the most lasting impact on how I feel about myself now. Those are the times I remember most clearly." (46-year-old woman)

"[...] The bullying and social stigmas reinforced negative messages from early childhood that have kept me in cycles of punishment and self-loathing with food/eating/obesity masking the underlying emotional issues. [...]" (54-year-old woman)

Participants also noted that their distress from weight stigma persists and continues to negatively influence their self-perception regardless of weight loss:

"I haven't been considered morbidly obese in over a decade, but my brain doesn't understand that. [...] I still worry about sitting in chairs, I get nervous climbing ladders or standing on flooring. [...] I had a terrific childhood and wonderful family, but my weight was always a problem and was always remarked about. These comments and teasing left me forever scarred and even as a grown woman, I can't shake them. [...] Being a fat woman in the world is exhausting, it is like having to apologize every minute to the world for taking up space and existing. [...] I had things yelled at me from cars when I was learning to run and had pictures taken of me at the gym. I received judgments from flight attendants for needing a buckle extender and have been refused from rides at the fair because of my weight. They hate us for being fat and tease us when we try have the audacity to exist. The pain is still never ending, even as a woman who is now considered "normal". (38-year-old woman)

"The stigma of being overweight/obese is ALWAYS with you - regardless of what you actually weigh. The focus on weight NEVER goes away." (48-year-old woman)

3.3.2. Blaming/criticizing oneself for stigma

Another theme that emerged from the still distressed responses was that participants blamed themselves for suffering the consequences of being stigmatized and became their "own worst critic":

"This is such a deep seeded emotional issue. I was raised thinking I was fat, and you never really get over it! Was I held back because of weight issues? I held myself back, regardless of what other people thought, I was the one holding myself back from trying things." (50-year-old woman)

"[...] every day of my life thereafter I felt like I was being judged for my appearance and weight (though likely much of it was in my own head) - and after years of it, I reached a point where I became my own worst critic. Once I became an adult, the stigma I placed on myself was probably worse than anything any other person did." (43-year-old woman)

For some participants, the self-blame for weight extends to broader feelings of low self-worth:

"I have been heavy for 55 years. The rejection by my parents still hurts. I often feel worthless and don't understand why people search me out. They do but why? I am often puzzled why people tell me they like me or like being with me. It totally contradicts everything that everyone taught me during my childhood ... that I was too fat and therefore I was ugly and nobody would ever love me or want me. [...]" (65-year-old woman)

Table 2
Summary of Hierarchical Regression Analysis for Variables.

Variable	Model 1					Model 2					Model 3				
	B	SE(B)	β	t	p	B	SE(B)	β	t	p	B	SE(B)	β	t	p
Weight Bias Internalization (n = 423)															
Age	-0.02	0.01	-0.16	-3.47	0.001	-0.01	0.01	-0.06	-1.55	0.122					
BMI	0.01	0.01	0.08	1.57	0.117	0.03	0.01	0.15	3.53	< 0.001					
Female (male ref)	0.16	0.33	0.02	0.49	0.624	-0.14	0.28	-0.02	-0.48	0.631					
White (non-white ref)	0.40	0.25	0.08	1.63	0.105	0.15	0.21	0.03	0.73	0.467					
Education	-0.12	0.07	-0.09	-1.87	0.062	-0.09	0.06	-0.06	-1.61	0.109					
Experienced weight stigma	0.36	0.08	0.22	4.59	< 0.001	0.31	0.07	0.20	4.70	< 0.001					
Still distressed (no longer distressed ref)						1.48	0.12	0.51	12.55	< 0.001					
R ²	0.11					0.36									
F for change in R ²	8.87					157.47									
Perceived Stress (n = 423)															
Age	-0.02	0.00	-0.25	-5.25	< 0.001	-0.01	0.00	-0.20	-4.25	< 0.001	-0.01	0.00	-0.18	-3.95	< 0.001
BMI	0.00	0.01	-0.02	-0.42	0.675	0.00	0.01	0.02	0.32	0.749	-0.01	0.01	-0.04	-0.92	0.359
Female (male ref)	0.23	0.20	0.05	1.14	0.256	0.14	0.19	0.03	0.71	0.478	0.17	0.18	0.04	0.93	0.355
White (non-white ref)	0.06	0.15	0.02	0.38	0.703	-0.02	0.14	-0.01	-0.12	0.902	-0.05	0.14	-0.02	-0.39	0.695
Education	-0.13	0.04	-0.15	-3.24	0.001	-0.12	0.04	-0.14	-3.09	0.002	-0.10	0.04	-0.12	-2.70	0.007
Experienced weight stigma	0.07	0.05	0.07	1.43	0.152	0.05	0.05	0.06	1.18	0.237	-0.02	0.04	-0.02	-0.43	0.669
Still distressed (no longer distressed ref)						0.45	0.08	0.26	5.53	< 0.001	0.10	0.09	0.06	1.14	0.254
Weight Bias Internalization											0.23	0.03	0.39	7.36	< 0.001
R ²	0.09					0.16					0.25				
F for change in R ²	7.22					30.55					54.18				
Mental HRQOL (n = 410)															
Age	0.24	0.04	0.28	5.70	< 0.001	0.18	0.04	0.21	4.48	< 0.001	0.17	0.04	0.19	4.19	< 0.001
BMI	0.11	0.07	0.08	1.58	0.114	0.05	0.07	0.04	0.78	0.437	0.11	0.07	0.08	1.70	0.089
Female (male ref)	-1.11	2.56	-0.02	-0.43	0.665	0.17	2.43	0.00	0.07	0.943	-0.31	2.36	-0.01	-0.13	0.897
White (non-white ref)	-0.29	1.86	-0.01	-0.16	0.877	0.87	1.77	0.02	0.49	0.622	1.23	1.72	0.03	0.72	0.474
Education	0.71	0.50	0.07	1.42	0.155	0.56	0.47	0.05	1.18	0.239	0.42	0.46	0.04	0.91	0.363
Experienced weight stigma	-0.90	0.59	-0.08	-1.52	0.129	-0.73	0.56	-0.06	-1.30	0.193	-0.07	0.56	-0.01	-0.12	0.906
Still distressed (no longer distressed ref)						-6.92	1.00	-0.32	-6.89	< 0.001	-3.83	1.14	-0.18	-3.34	0.001
Weight Bias Internalization											-2.11	0.41	-0.28	-5.14	< 0.001
R ²	0.09					0.19					0.24				
F for change in R ²	6.75					47.43					26.42				
Physical HRQOL (n = 410)															
Age	-0.24	0.04	-0.28	-6.51	< 0.001	-0.25	0.04	-0.30	-6.77	< 0.001	-0.26	0.04	-0.31	-6.92	< 0.001
BMI	-0.53	0.06	-0.38	-8.52	< 0.001	-0.54	0.06	-0.39	-8.71	< 0.001	-0.52	0.06	-0.38	-8.26	< 0.001
Female (male ref)	2.97	2.23	0.06	1.33	0.184	3.28	2.23	0.06	1.47	0.141	3.11	2.22	0.06	1.40	0.162
White (non-white ref)	0.63	1.62	0.02	0.39	0.696	0.92	1.63	0.03	0.57	0.572	1.05	1.62	0.03	0.65	0.519
Education	0.79	0.44	0.08	1.82	0.070	0.76	0.44	0.08	1.74	0.084	0.71	0.43	0.07	1.62	0.105
Experienced weight stigma	-1.19	0.52	-0.10	-2.30	0.022	-1.15	0.52	-0.10	-2.23	0.027	-0.91	0.53	-0.08	-1.73	0.085
Still distressed (no longer distressed ref)						-1.70	0.92	-0.08	-1.84	0.066	-0.61	1.08	-0.03	-0.57	0.572
Weight Bias Internalization											-0.75	0.39	-0.10	-1.92	0.055
R ²	0.27					0.27					0.28				
F for change in R ²	24.45					3.40					3.70				

Note. B = unstandardized regression coefficient, β = standardized regression coefficient. p < 0.001 is displayed where p could not be exactly expressed within three decimal points.

3.3.3. *Ruminating on memories of weight stigma*

A third theme that emerged from these responses was that the participants appear to be ruminating about their experience(s) of being stigmatized, as evidenced by their enduring focus on their past memories:

“For me the worst one was when I bumped into someone and they yelled “Lose some weight!!” I just had lost some weight and so it especially hurt. And that was more than 30 years ago. It still stirs up all kinds of

emotions.” (63-year-old woman)

“Even though I am 70 years old, I still remember my father expressing disgust about my weight. The first time it happened was when I came home from college at Thanksgiving. I had gained “the freshman 15”. It went on from there. Once I let myself get so upset that I ate an entire 3-pound cheesecake. I kept telling myself “just one more piece”, until it was gone. Once I had eaten half of it, I saw no reason to stop.” (70-year-old woman)

Participants often stated that these memories have continued to elicit negative emotions, such as sadness (e.g. hurt, pain), shame (e.g. embarrassed, humiliated), anger, anxiety, and depression:

“I don't think anyone who hasn't experienced it understands how extremely devastating it is to the person being stigmatized. Children are especially cruel. One of the most difficult things for me to accept was that rarely did anyone ever come to my defense or try to stop the cruel teasing of others. If they were punching the daylight of out me, someone would have tried to intervene. If they were stabbing me repeatedly in the chest, I would hope someone would try to stop them. But, the emotional pain was just as painful as punching and stabbing, and the scars are still tender to this day. [...]” (53-year-old woman)

3.4. Quantitative findings

The *still distressed* participants were not significantly different than the *no longer distressed* participants with regard to physical HRQOL ($t(464.63) = .19, p = .847$), but they had greater WBI ($t(483) = 13.65, p < .001$), history of experienced stigma ($t(429.76) = 6.18, p < .001$) and perceived stress ($t(483) = 7.69, p < .001$), and worse mental HRQOL ($t(454.11) = -9.347, p < .001$) than the *no longer distressed* participants. Using hierarchical regression, we examined relationships between qualitative group classification (*no longer distressed* vs. *still distressed*) and WBI, perceived stress, and mental and physical HRQOL, while controlling for demographic characteristics and experienced weight stigma. The final models accounted for 35% of the variance in WBI ($R^2 = .36, F(7, 416) 32.95, p < .001$), 25% of the variance in perceived stress ($R^2 = .25, F(8, 415) 17.62, p < .001$), and 24% of the variance in mental HRQOL ($R^2 = .24, F(8, 402) 15.60, p < .001$). Model 1 explained 27% of the variance in physical HRQOL ($R^2 = .27, F(6, 404) 24.45, p < .001$), and Models 2 and 3 did not explain an additional amount of the variance in physical HRQOL. Qualitative group classification in Model 2 explained a significant amount of the variance in WBI ($\beta = .51, p < .001$), perceived stress ($\beta = .26, p < .001$), and mental HRQOL ($\beta = -.32, p < .001$), after adjusting for the demographic, anthropometric, and experienced stigma variables in Model 1. Adding WBI to the models (Model 3) significantly improved the variance accounted for in both perceived stress ($\beta = .39, p < .001$) and mental HRQOL ($\beta = -.28, p < .001$), and this resulted in qualitative group classification no longer being associated with perceived stress ($\beta = .06, p = .254$), but the association with mental HRQOL remained significant ($\beta = -.18, p = .001$). This suggests that WBI may, in part, explain the difference between participants who express still being distressed by weight stigma, compared to those who report no longer being distressed. Additionally, several consistent relationships emerged between outcome variables and control variables. Experienced weight stigma was positively associated with WBI across Model 1 and Model 2 ($\beta_1 = .22, \beta_2 = .20, \text{all } p\text{'s} < .001$), and age was consistently associated with less perceived stress ($\beta_1 = -.25, \beta_2 = -.20, \beta_3 = -.18, \text{all } p\text{'s} < .001$), greater mental HRQOL ($\beta_1 = .28, \beta_2 = .21, \beta_3 = .19, \text{all } p\text{'s} < .001$), and poorer physical HRQOL ($\beta_1 = -.28, \beta_2 = -.30, \beta_3 = -.31, \text{all } p\text{'s} < .001$) across all three models. Results from the full regression models are presented in Table 2.

Given that the relationship between qualitative group classification and mental HRQOL remained significant after WBI was included in the model, and because the qualitative group variable became non-significant when WBI was added to the model predicting perceived stress, we tested for mediation via bootstrapping with 5000 sampling replications to determine if WBI had any indirect effects on the relationships between qualitative group classification and mental HRQOL and perceived stress. Those analyses suggested that qualitative group classification had a direct relationship with mental HRQOL ($B = -3.83, p < .001$), as well as an indirect relationship with mental HRQOL via WBI ($B = -3.09, \text{Bootstrapped CI: } -4.44, -1.85$). In

addition, while there was not a direct relationship between qualitative group classification and perceived stress ($B = .10, p = .254$), there was an indirect relationship between qualitative group classification and perceived stress via WBI ($B = .34, \text{Bootstrapped CI: } 0.29, 0.46$). As in the hierarchical regression, WBI was also directly associated with both mental HRQOL and perceived stress. We did not test for an indirect relationship between qualitative group classification and physical HRQOL via WBI because there were no direct relationships between these variables in the hierarchical regressions.

4. Discussion

This study is the first to employ a mixed method design to examine qualitative descriptions of reactions to experiences of weight stigma in conjunction with quantitative measures of WBI and health indices. Findings suggest that some people who have been previously stigmatized because of their weight remain distressed from these experiences years later, while others reported no longer experiencing distress. Many of the *no longer distressed* participants expressed that they were no longer concerned about other's evaluations of them, they practiced self-acceptance and self-love, and they prioritized health rather than appearance. Conversely, many of the *still distressed* participants considered their body weight, and being stigmatized for it, as playing a prominent role in shaping their self-perception, persisting for some people even after they lost weight. Individuals in the *still distressed* group also blamed themselves for experiencing the consequences of weight stigma and were critical of themselves, and their responses suggested that they ruminated on their memories of stigmatizing experiences, which continued to evoke strong, negative emotions, even many years later.

Our quantitative results extend these qualitative findings, suggesting that WBI may be a mediating variable that can help explain the contrasting differences in the themes that emerged in the *still distressed* responses versus the *no longer distressed* responses. Being in the *still distressed* group was associated with greater WBI, greater perceived stress, and poorer mental HRQOL than being in the *no longer distressed* group. In addition, when including WBI in the model predicting perceived stress, the variable representing the qualitative group classification was not significant, and our mediation analysis further confirmed that qualitative expressions of still being distressed by weight stigma versus no longer feeling distressed could be indicative of WBI. Unlike WBI, experienced weight stigma was not associated with negative health outcomes, further indicating that the consequences of WBI can occur independent of experienced weight stigma.

The quantitative findings align with the themes we identified in the qualitative data, as most of the themes demonstrated two prominent features of WBI: self-blame and self-devaluation on the basis of weight (Durso and Latner, 2008). For example, the *still distressed* participants commonly referenced self-blame and were highly aware of the judgments of others. In contrast, the *no longer distressed* participants attributed negative treatment to discrimination instead of blaming themselves, and were not concerned with others' evaluations of them. Furthermore, the *still distressed* participants tended to express low levels of self-worth as the result of their body weight and subsequent stigma, whereas the *no longer distressed* participants practiced self-love and acceptance, and did not base their self-worth on their weight. Given that WBI is associated with poor mental and physical health outcomes, practitioners may find it useful to ask their patients about their experiences with weight stigma, particularly if assessing WBI with self-report measures (i.e. WBIS-M) is not feasible. If patients express lasting distress in response to previous stigmatizing experiences, it may be indicative of who is at risk for WBI.

Although quantitative scores of WBI complemented the qualitative themes of the *no longer distressed* and *still distressed* participants, the addition of WBI to the model predicting mental HRQOL did not completely negate the contribution of the qualitative group variable. In other words, our results indicated that *still distressed* individuals

experience worse mental HRQOL relative to those who reported being *no longer distressed*, independent of WBI and experienced weight stigma. This suggests that there may be other unique aspects of the *still distressed* participants, in addition to having higher levels of WBI, contributing to the relationship between being *still distressed* and poorer mental HRQOL. It may be that individuals with poorer mental HRQOL, or depression (not measured), may recall their past experiences more negatively than others. Because the current study is cross-sectional and retrospective in nature, we cannot comment on the directionality of this relationship other than to say that mental HRQOL and current level of distress about past stigmatizing experiences are associated in this sample. However, it is plausible that this relationship could be partly explained by a theme that emerged in the *still distressed* responses: rumination. A recent study with a sample of adults seeking treatment for binge eating disorder and obesity found that rumination was positively associated with eating disorder psychopathology, as well as WBI (Wang et al., 2017). Given our qualitative findings that many of the *still distressed* participants continued to focus on their past experiences of weight stigma, it would be informative for future research to investigate whether rumination contributes to WBI since we did not quantitatively assess rumination in the present study.

It is important to note that one of our control variables, age, remained a significant predictor of mental HRQOL across all three models, and the strength of age as a predictor of mental HRQOL was nearly the same as the predictive strength of qualitative group classification. Age and “getting older” was commonly referenced in the qualitative data as the reason why some of the participants placed more value on changing their health, rather than their appearance, and/or cared less about what other people think. These findings align with Lewis et al. (2011), who found that older women were more “at ease” with their body size and more likely than younger women to fight back against weight stigma, and with studies showing that physical appearance becomes less important to women as they age (Tiggemann, 2004). Although these sentiments might be more common among older people, the ages of the *still distressed* participants in our sample ranged from 23 to 82 years, and the ages of the *no longer distressed* participants ranged from 26 to 80 years. Given that the ages of both groups included a wide range, it would be helpful for future research to examine the reasons why some young adults who experienced weight stigma are no longer distressed by it, in order to inform interventions aimed at reducing WBI. In addition, it is striking that many of the *still distressed* participants referenced specific stigmatizing instances that happened during youth in their qualitative responses, indicating that the timing of such experiences, as well as the amount of time that has passed since such experiences, may also play a role in level of distress. The larger study did ask participants about the time of life in which they first experienced stigma (six-point scale ranging from never, and ‘childhood’ to ‘older adulthood’). On average, both the *still distressed* and *no longer distressed* participants had their first experience with weight stigma during childhood or adolescence, but there was no mean difference between the two groups in the timing of their first experience (data not shown). More specific measures of time of life, in conjunction with other temporal dimensions of experienced weight stigma would be informative for future research.

The themes identified in the qualitative data provide a more in-depth look at the varying reactions that people have towards their experiences with weight stigma. However, some of the *no longer distressed* participants described reactions that were similar to those in the *still distressed* group, such as feeling humiliated or extremely upset by stigmatizing experiences, but they added that they no longer feel the same way about it. Therefore, it could be that some of the *no longer distressed* participants had greater WBI in the past that has since abated, in addition to those who may always have had lower levels of internalization. Future research should assess changes in WBI over time in order to identify whether (and for what reasons) it changes in some people but not others. Furthermore, given that this was a sample of

individuals engaged in weight management, their experiences with achieving (or not achieving) desired weight loss may have played a role in their WBI, levels of distress from experienced stigma, and mental health. The current BMIs of the *no longer distressed* participants were not significantly different than the BMIs of the *still distressed* participants, but it is possible that the two groups may have differed in their history of weight loss attempts and/or weight loss achievement. The larger study did ask participants about their history with weight cycling, however no difference emerged between the *still distressed* and *no longer distressed* groups (data not shown). It is unknown how the participants in this sample perceived their experiences with weight cycling and weight loss. Therefore, future research should examine whether prior experiences of weight loss are related to level of distress from experienced weight stigma.

The cross-sectional nature of this study prevents drawing conclusions about causality, and because this study is retrospective, participants’ responses could have been influenced by their current mood and may not be representative of their true feelings. The size of our sample is a strength, although having a large amount of qualitative data limits the amount of detail that can be captured and reported in analysis (Rice et al., 2018). Furthermore, we only had one qualitative question and were not able to probe the participants for further information or clarification. Our sample reflects primarily white women, and this population is overrepresented in the weight stigma literature even though evidence suggests that weight stigma occurs across racial/ethnic groups and genders (Himmelstein et al., 2017). In addition, there may have been potential response bias as participants who have experienced weight stigma may have been more likely to respond to the study advertisement. Thus, this self-selected sample of primarily white women limits generalizability, and future research on these topics should target diverse samples. Nevertheless, we were able to capture rich, detailed descriptions from a large number of participants engaged in weight management, which led to the identification of important themes that were corroborated by the quantitative findings, as well as the broader literature.

5. Conclusions

Our mixed methods study offers novel insights about different qualitative reactions to personal experiences of weight stigma, and provides additional understanding regarding the relationship between WBI and feelings of distress from weight stigma. Our qualitative findings suggest that salience of body weight in self-perceptions, blaming/criticizing oneself for stigma, and ruminating on memories of weight stigma may be characteristics of those who remain distressed by weight stigma. In contrast, not being concerned about the evaluations of others, engaging in self-acceptance, and prioritizing health rather than appearance, may be suggestive of those who are no longer distressed by weight stigma. Quantitative findings demonstrate that these two different reactions to previous experiences of weight stigma are related to WBI, which in turn is related to greater perceived stress and poorer mental HRQOL. Future research should examine these variables in more diverse samples in order to better inform interventions aimed at helping prevent and treat WBI and emotional distress and adverse health outcomes resulting from weight stigma.

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CRediT authorship contribution statement

Ellen V. Pudney: Methodology, Formal analysis, Data curation, Writing - original draft. Mary S. Himmelstein: Methodology, Formal

analysis, Data curation, Writing - review & editing. **Rebecca M. Puhl:** Conceptualization, Writing - review & editing, Supervision, Funding acquisition. **Gary D. Foster:** Resources, Writing - review & editing.

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