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Experiences of weight stigma and links with self-compassion among a population-based sample of young adults from diverse ethnic/racial and socio-economic backgrounds

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Abstract

Objective: This study examines weight stigma experiences in a population-based sample of young adults from diverse ethnic/racial and socio-economic backgrounds, and explores cross-sectional associations between weight stigma and self-compassion, including gender differences in this relationship.

Methods: Data come from EAT 2018, a population-based study of weight and related behaviors in young adults (N=1,523, mean age=22 years, 53.5% females). Adjusted models tested associations between different experiences of weight stigma and the Self-Kindness Subscale of the Self-Compassion Scale, controlling for age, body mass index (BMI), ethnicity/race, and SES.

Results: Over a third (32.3–52.2%) of participants reported experiences of weight teasing, and almost half (39.2–54.8%) indicated that people in their work or school settings are treated differently based on weight. There were few differences across ethnic/racial groups in reports of weight stigma. The prevalence of weight stigma experiences reported by participants in their current school or work environment was similar across gender, and those who had experienced weight stigma had lower levels of self-kindness. Among both females and males, lower self-kindness scores were associated with the experience of weight teasing (females: χ^2=22.6, df=1, p<0.001, d=0.32; males χ^2=7.6, df=1, p<0.001, d=0.22). For females only, lower self-kindness scores were associated with being treated unfairly due to weight (χ^2=11.1, df=1, p<0.001, d=0.23), and having others make comments about your weight (χ^2=14.6, df=1, p<0.001, d=0.28). Findings remained after adjusting for race/ethnicity, BMI, and SES.

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Conclusion: Associations between self-compassion and experiences of weight stigma found in our diverse sample of young adults offers insights on this understudied relationship.

Keywords

self-kindness; self-compassion; weight stigma; weight teasing; young adults; gender

Introduction

People with higher body weight (e.g., overweight or obesity) are vulnerable to societal stigma and discrimination because of their body size. These stigmatizing experiences incur a range of negative psychological and physical health consequences, ranging from depression and anxiety to increased risk of disordered eating, physiological stress, and mortality.[1–4] Furthermore, the stress induced by weight stigma can elicit psychological, behavioral, and physiological responses that contribute to weight gain, triggering a harmful cycle where stigma begets weight gain.[5] Recognition of these adverse health outcomes has elevated attention to weight stigma as a public health issue,[6] as many people in the general population stand to be affected by weight stigma and its harmful consequences. In community and general population samples, estimates indicate that approximately 40% of US adults report a history of experiencing some form of weight stigma (e.g., being teased about weight).[7,8] Among individuals with higher weight (e.g., BMI > 30), prevalence rates of weight discrimination can similarly reach 41%, with higher prevalence estimates of weight discrimination present in women compared to men.[9]

The estimated adult prevalence of experiencing weight stigma and discrimination are based on a literature that is unbalanced with respect to the diversity of participant samples used, with comparably fewer studies examining weight stigma in ethnically and economically diverse populations compared to studies with samples comprised primarily of white, and often well-educated, participants. The need for weight stigma research with more diverse populations has been noted in the literature,[7,10] and is warranted given evidence suggesting that both adults [7, 11,12] and youth [13–15] from diverse ethnic/racial backgrounds experience weight stigma. Furthermore, research documenting higher rates of obesity among ethnic/racial minority populations and low income groups, especially for women, indicates the importance of increased attention to weight stigma in ethnically and economically diverse populations.[16,17]

Also important to this field of study are efforts to identify psychological resources that people can use to help reduce distress resulting from weight stigma. Resources for reducing distress may be particularly important for ethnic minority and low-resource communities, who face multiple adversities in addition to potential inequities resulting from their body weight. A neglected but potentially relevant psychological aspect of experiencing weight stigma is the role of self-compassion. Self-compassion refers to one’s ability to apply compassion toward oneself during times of stress, judgement, or personal inadequacies.[18] This can involve being kind and caring toward oneself during times of suffering, being accepting and tolerant of one’s personal flaws, and being patient and understanding about personal characteristics that one dislikes about oneself. Self-kindness, or refraining from

harsh self-criticism, is an important component of self-compassion; rather than criticizing or blaming oneself for negative experiences or in response to personal threats, self-compassion involves non-judgmental awareness, self-kindness and understanding.[18] A considerable literature shows that higher levels of self-compassion are associated with improved psychological and physical wellbeing, including lower levels of depression, anxiety, stress, [19–21] fewer body image concerns and less eating pathology,[22] and improved dietary and exercise behaviors.[23,24] Thus, self-compassion may be an important quality to help promote positive health behaviors among individuals who are vulnerable to stigma-related distress and associated health consequences. Indeed, evidence has indicated that for people with stigmatized identities, such as individuals who identify as a sexual minority, perceived stigma is associated with lower self-compassion, resulting in greater psychological distress and reduced quality of life.[25,26]

However, while there has been increased attention to self-compassion in the broader scientific community, including examination of its links with health among socially stigmatized groups, it has received very little consideration in the context of weight stigma. One German study by Hilbert and colleagues found that among adults with higher weight (N=1,158) self-compassion was negatively associated with internalized weight stigma, and partially mediated the relationship between internalized weight stigma and depression, health status, and quality of life, acting as a potential buffer against adverse health indices associated with weight stigma.[27] In another study, Webb and Hardin observed links between higher levels of internalized weight stigma and lower levels of self-compassion in a sample of weight-diverse college women (N=333), and found that an inverse association between internalized weight stigma and intuitive eating was partially explained by low levels of self-compassion, even after controlling for BMI. [28] Other evidence, while not directly examining links with weight stigma, suggests that self-compassion may be a way to protect body image in the face of body-related social comparisons and negative appearance self-worth. Homan and Tylka found that among women (N=263), self-compassion may help preserve acceptance and appreciation of one’s body in response to situations that otherwise increase body-related shame.[29] Another study found that self-compassion weakened the relationship between body shame and fat talk in college women (N=309), adjusting for BMI. [30] Although these initial studies suggest that self-compassion is a relevant construct to examine in the context of body weight, the absence of research examining the relationship between self-compassion and weight stigma leaves much unknown. For example, some evidence suggests that women engage in less self-compassion than men [31]. As women may also be more vulnerable to experiences of weight stigma than men,[32] it is important to examine whether experiencing weight stigma contributes to lower self-compassion in women than men. Examining these associations and the nature of the relationship between self-compassion and weight stigma can offer new knowledge about the potential role of self-compassion as a psychological resource that may be helpful in response to weight stigma.

In light of these gaps in the literature and calls for research to more fully understand weight stigma in ethnically/racially and economically diverse samples,[33] the present study aimed to explore weight stigma experiences among a population-based sample of young adults from diverse ethnic/racial and socio-economic backgrounds and to examine whether there is a relationship between weight stigma and self-compassion in this population, including

gender differences in this relationship. Our focus on young adults provided an opportunity to examine these novel stigma relationships during a life stage of increasing independence and during a high-risk period for transitioning to obesity, thus offering additional insights for understanding weight stigma experienced at this life stage of entry into adulthood. The high prevalence of young adults from ethnic/racial minority and low-income backgrounds addresses the need for a greater understanding of populations who may be underserved and for whom more data are needed.

Methods

Study Design and Population

EAT 2010–2018 (Eating and Activity over Time) is a population-based, longitudinal study of weight-related health and associated factors in young people. For EAT 2010, middle and senior high school students at 20 urban public schools in Minneapolis-St. Paul, Minnesota completed classroom surveys and anthropometric measures in a private area of their school. [34–36] The follow-up EAT 2018 assessment was designed to allow for examining changes in weight-related outcomes as participants progressed through adolescence and into young adulthood. Parents' consent and participants' written assent were obtained in 2009–2010. For the follow-up survey, participants reviewed a consent form as part of the online survey or were mailed a consent form with their paper survey. Completion of a follow-up survey implied written consent. All study protocols were approved by the University of Minnesota's Institutional Review Board Human Subjects Committee. The analytic sample for the present study examines data from EAT 2018, and includes 908 females, 649 males, and 11 participants identifying with a different gender identity (e.g., transgender, non-binary).

Of the original 2,793 participants, 410 (14.7%) were lost to follow-up for various reasons, primarily missing contact information at EAT 2010 or no current address found at follow-up (N=397). Attrition did not occur completely at random; non-responders more likely than responders to be male (53.3% versus 41.7%), non-white (87.0% versus 76.7%), report being born outside the U.S. (20.0% versus 16.3%), and have parents with low educational attainment (41.4% versus 36.0%) in 2010. Therefore, inverse probability weighting (IPW) was used for all analyses to account for non-random attrition.[37,38] IPW minimizes potential response bias and allows for extrapolation back to the original EAT 2010 school-based sample. Weights for IPW were derived as the inverse of the estimated probability that an individual responded at the two time points based on characteristics reported in 2010, including demographics, past year frequency of dieting, and weight status. Demographic characteristics of the weighted 2018 sample included in the current analysis are shown in Table 1.

Invitations to participate in the online EAT 2018 survey were mailed to the remaining 2,383 young people along with a two-dollar bill. To further encourage participation, non-responders were mailed up to eight reminders and additional contact attempts were made using email, phone calls, text messages, messaging through social media, and home visits. Two of these reminders included paper copies of the survey. All participants were mailed a financial incentive ($50 gift card) following survey completion. Data collection ran from June 2017 to November 2018 and was conducted by the Office of Measurement Services

(https://oms.umn.edu/) at the University of Minnesota, Minneapolis. The University of Minnesota's Institutional Review Board Human Subjects Committee approved all protocols used at each time point. The diverse sample of 1,523 young people who completed surveys at both time points represents 65.8% of the original participants for whom contact information was available at EAT 2018.

Survey Measures

Key items from the EAT 2010 survey [39–40] were retained on the follow-up EAT 2018 survey. Decisions to retain or drop items were based on their relevance to the aims of the follow-up survey, their use in earlier analyses, and the performance of represented constructs in the peer-reviewed literature. Additions to the survey were also made to reflect the study's focus on learning how institutional environments, various forms of stigma, traumatic events, and relationships with friends and significant others influence weight-related outcomes. Changes to the EAT 2010 survey items were made when appropriate to reflect secular trends and participants' developmental transition from adolescence to young adulthood. Focus groups with a community-based sample (n=29) were conducted to pretest the EAT 2018 survey and, after it was finalized, the test-retest reliability of measures was examined using data from a subgroup of the longitudinal sample (n=112) who completed the EAT 2018 survey twice within a period of three weeks. Similarly, test-retest reliability of the baseline EAT 2010 survey was examined in a separate sample of 129 middle school and high school students who completed the survey twice at an interval of one week.

Weight Stigma.—The EAT 2018 survey examined experiences of general weight teasing as well as weight stigma experienced specifically in work and educational settings. General weight teasing was assessed by asking participants how often they are teased about weight with response options including *1=Never, 2=Less than once a year, 3=A few times a year, 4=A few times a month, and 5=At least once a week* (test-retest r=0.78). For the current study, the experience of weight teasing was defined by any response other than *Never*.

To assess weight stigma experienced by participants in their school or work environment, participants were asked *To what extent do you agree or disagree with the following statements about your CURRENT work or school situation?* This question was followed by five statements: 1) *There is pressure to be thin and not gain weight;* 2) *People of all sizes are equally accepted*; 3) *People are treated differently because of their weight*; 4) *I have been treated unfairly at work or school because of my weight*; and 5) *People at work or school have made comments about my body shape or size*. Participants responded to each of the items using Likert responses (*1=Strongly disagree, 2=Disagree, 3=Agree, 4=Strongly agree, and 5=Not applicable).* Those who responded *Agree* or *Strongly agree* were classified as having experienced weight stigma for that particular item (test-retest agreement = 74–91%). Participants' responses of *Not applicable* were excluded from analyses specific to that item. Additionally, a five-item summary score was calculated as the average of Likert responses for the five items assessing weight stigma at work/school; those who indicated *Not applicable were* recoded to missing, and the item stating that *people of all sizes are equally accepted* was reverse coded (Cronbach's alpha = 0.72, Test-retest r=0.65). Participants who

were missing data on three or more of these items were set to missing for the summary variable (4.6% of the analytic sample).

Self-compassion.—Participants completed the five-item Self-Kindness Subscale of the Self-Compassion Scale (SCS) developed by Neff and colleagues.[41] This subscale of the SCS was selected for the EAT 2018 survey as it represented the construct that the authors predicted would be most important to examine in relation to experiencing weight stigmatization and other forms of discrimination. In addition, given the wide array of variables assessed in EAT 2018, it was necessary to limit survey items to avoid participant burden and thus it was not feasible to include the full SCS. The Self-Kindness Scale asks participants to indicate how often they behave in the following ways: 1) *I try to be understanding and patient towards those aspects of my personality I don't like*; 2) *I'm kind to myself when I'm experiencing suffering*; 3) *When I'm going through a very hard time, I give myself the caring and tenderness I need*; 4) *I'm tolerant of my own flaws and inadequacies*; and 5) *I try to be loving toward myself when I'm feeling emotional pain*. Participants responded to these items on a 5-point Likert scale *(1=Almost never to 5=Almost always),* with a self-kindness score calculated as the sum of the five items (Cronbach's alpha = 0.88, Test-retest r=0.61). Participants who were missing data on two or more of these five items were excluded from the analytic sample (2.9% of the EAT 2018 cohort).

Sociodemographic characteristics.—On the original school-based survey (EAT 2010), participants reported their ethnicity/race (test-retest agreement=98–100%) and several indicators of socio-economic status (SES). SES was primarily determined by the highest education level of either parent at EAT 2010. Additional variables were used to reduce the impact of missing data and to prevent SES misclassification: family eligibility for public assistance (response options: *no/yes/I don't know*), adolescent eligibility for free or reduced-price school lunch (response options: *no/yes/I don't know*), and maternal and paternal employment status (response options: *full-time/part-time/not working for pay/I don't know*).[42] Body mass index (BMI) was from self-reported height and non-pregnant weight at the time of EAT 2018 survey completion, and used to determine weight status.

Data Analysis

Descriptive statistics were used to examine modeling assumptions, participant characteristics, weight stigma and self-kindness across the analytic sample. Unadjusted logistic regression models were used to determine the percentage of participants experiencing each weight stigma item and to examine statistical differences of weight stigma items by gender. Unadjusted and adjusted linear regression models were used to estimate mean values and statistical differences for self-kindness in association to each weight stigma item independently and separately by gender. Means from margins generated from adjusted linear regression models are mean estimates averaging over all other covariates in the model where all covariates are present. All adjusted models controlled for age, BMI, ethnicity/race, and SES. Dunn-Sidak correction with type I error at 5% were used to adjust for multiple comparisons where noted. All regression models use Huber-White robust standard errors with Wald tests for independent variables; as previously described, to adjust for attrition, all regression analyses and percentages were weighted with the non-response weights while raw

sample size values are presented. Effect sizes are Cohen's d calculated from Wald tests. All analyses were performed in Stata 15.SE (College Station, TX).

Results

Sample characteristics

The analytic sample included young adults who responded to at least four of the five items of the Self-Kindness Subscale of the Self-Compassion Scale (N=1523). Participants were 18–30 years old, with a weighted mean age of 22 years (SD = 2.0), and included 887 females, 625 males, and 11 participants identifying as transgender or non-binary. The sample was ethnically and economically diverse with 18.9% white, 28.9% Black, 16.8% Hispanic, 20.2% Asian (80% of whom also identified with Hmong ethnicity), 4.2% Hawaiian, Pacific Islander or Native American, and 11.0% reporting more than one race. Over half of the sample (61.5%) were at low to low-middle socio-economic status levels (Table 1).

Associations between weight stigma and gender and ethnicity/race

More than a third (37.8–42.7%) of participants reported previous experiences of weight teasing, across genders. In general, the prevalence of weight stigma experiences reported by participants in their current school or work environment was similar across gender (see Table 2). One exception is that gender differences were observed for participants' perceived pressure to be thin in the work or school setting (χ^2=11.4, df=2, p=0.003); more females felt pressures to be thin (35.5%) than males (24.9%). There were no other significant differences in experiences of weight stigma across gender; about 10% of both males and females reported weight mistreatment and approximately 1 in 5 (21.1% of women, 24.0% of men) reported others making comments about their weight in their current work or school setting.

Across ethnic/racial groups, 32.3–52.2% of participants reported previous experiences of weight teasing, and at least 20% (20.9–26.6%) reported that others had made comments about their weight in their current work or school setting (see Table 2). More Asian participants reported a history of being teased about their weight (52.2%) compared to participants who identified as White (32.3%) or Black (38.4). In addition, more Black participants (54.8%) than White participants (39.2%) reported that people are treated differently because of their weight in their school or work setting. No other significant differences in experiences of weight stigma were observed across ethnic/racial groups.

Self-kindness scores across participant characteristics

In the total sample, the mean score on the Self-Kindness Subscale of the Self-Compassion Scale was 17.2 (SD=4.6). Self-kindness scores did not significantly differ by gender (see Table 3). However, there were differences in self-kindness scores by ethnicity/race (χ^2=6.4, df=5, p<0.001), with lower mean self-kindness scores for Hawaiian, Pacific Islander or Native American participants compared to all other groups except White and Black participants. Asian and Hispanic participants also had significantly higher self-kindness scores than white participants, after statistical adjustment for all pair-wise comparisons. Weight status was significantly associated with self-kindness scores (χ^2=2.9, df=3, p=0.04),

where participants with the highest weight (BMI ≥ 30 kg/m^2) had lower average self-kindness scores compared to those with a BMI range of 18–25.

Associations between weight stigma and self-compassion

In general, young adults who had experienced weight stigma had lower levels of self-kindness (see Table 4). Among both females and males, lower self-kindness scores were associated with the experience of weight teasing (females: χ^2=22.6, df=1, p<0.001; males χ^2=7.6, df=1, p<0.001). For females only, lower self-kindness scores were significantly associated with being treated unfairly due to weight (χ^2=11.1, df=1, p<0.001), and having others make comments about your weight (χ^2=14.6, df=1, p<0.001). Among females, self-kindness scores were 1.3 points lower among those who had been teased about weight (16.7) compared to those who had not (18.0, χ^2=12.9, df=1, p<0.001), after accounting for covariates. Higher self-kindness scores were reported by both females and males who indicated that their work/school setting had equal acceptance of all body sizes (females: χ^2=4.1, df=1, p=0.04; males: χ^2=7.9, df=1, p=0.01) after adjusting for race/ethnicity, BMI, and SES. Among females, the perceived pressure to be thin at work/school (χ^2=5.2, df=1, p=0.02) was associated with lower self-kindness after adjusting for demographics. As shown in Table 4, effect sizes for all associations were small; Cohen's d's ranged from 0.10–0.30. For both males and females, the 5-item summary score for experiencing weight stigma within the work or school environment was associated with at least a 1.2 point difference in average self-kindness score (females: χ^2=20.5, df=1, p<0.001; males: $\chi^2$13.1, df=1, p<0.001). Analysis for gender identity of transgender/non-binary was not included due to the low sample size.

Discussion

To date, research on weight stigma and self-compassion has been conducted largely in isolation of one another, with little connection between these amassing literatures. Our study begins to address this gap by examining links between experienced weight stigma and self-kindness, an important component of self-compassion. Our study also responds to the need for research attention to weight stigma experienced by people from ethnically and economically diverse backgrounds. Findings of our study show that for both males and females, experiencing weight stigma is associated with lower self-kindness, even after adjusting for ethnicity/race, SES, and BMI. Specifically, lower self-kindness was reported by both males and females who had a history of being teased about their weight. Additionally, lower self-kindness scores were present in females who reported being treated unfairly due to their weight, and having others comment on their weight. In contrast, both males and females who reported equal acceptance of all body sizes in their work or school setting expressed higher levels of self-kindness. While further research, particularly intervention research, is needed prior to drawing conclusions, our preliminary findings suggest that interventions aimed at enhancing self-compassion may have value for those who have faced stigma.

To our knowledge, this study is the first to examine self-compassion in relation to experienced weight stigma. Sparse, but recent, evidence suggests that self-compassion may

also be relevant for internalized weight stigma in adults with high body weight.[27,28,43] For example, a 2019 study by Palmeira and colleagues tested an acceptance, mindfulness, and compassion-based intervention with women of high body weight, and found that women showed increased self-compassion abilities and there was a decrease in internalized weight stigma at post-treatment.[43] Thus, addressing self-compassion could potentially be a beneficial psychological resource for reducing distress resulting from weight stigma. Examining these issues in ethnically and economically diverse samples seems particularly warranted given our current study findings, and because weight stigma may compound adverse health consequences resulting from other vulnerabilities and inequities faced by people of ethnic minority and lowincome backgrounds.

Our findings additionally highlight the similarities in weight stigma experienced across gender in our sample. There were no significant differences in the proportion of men, women, or non-binary/transgender participants who reported being teased about their weight. These similarities persisted for weight stigma experienced at work and/or school, with no gender differences observed in four of the five survey items assessing weight stigma experiences. Given society's stringent ideals of thinness as a central component of female physical attractiveness,[44] it is not surprising that more women than men reported pressures to be thin from people at work or school, and why for women only, these were also associated with lower self-kindness. However, the lack of gender differences in perceptions that people are treated differently because of their weight in these settings, and in the proportion of participants reporting that they themselves had been treated unfairly because of their weight, or that others had commented on their weight, suggests that women and men may have equal vulnerability to weight-based differential treatment in these settings. These findings contrast with previous work documenting a higher prevalence of weight stigma among women compared to men,[32] but align with recent evidence from general population samples (older in age, primarily white, and with higher SES), showing no gender differences in general experiences of weight stigma.[7]

Furthermore, similarities in weight stigma experiences were observed across ethnic/racial groups in our sample. There were no differences across ethnic/racial groups in participants' reports of others making comments about their weight or being treated unfairly because of their weight in their current work or school setting. These findings align with recent work demonstrating no differences in experienced weight stigma among White, Black, and Hispanic/Latino adults [7], and extend these comparisons to include Asian, Hawaiian, Pacific Islander and Native American young adults, as well as those who identify with more than one ethnic/racial identity. At the same time, we found that more Asian young adults reported a history of weight teasing compared to other racial/ethnic groups, and that more Black than White participants perceived weight mistreatment in their work or school setting, both of which indicate the need for continued research examining weight stigma among ethnic/racial minority populations, for whom intersecting stigmatized identities related to weight and race have received little attention. Collectively, our findings reiterate the importance of testing and implementation of interventions to reduce weight stigma toward diverse populations, and suggest that future research is warranted to examine weight stigma in the context of intersecting identities.

Finally, self-kindness scores did not differ across gender in our sample. The literature on gender differences in self-compassion is not consistent, with some studies finding that men have higher levels than women [31,45] and other studies finding no gender differences. A meta-analysis of studies examining gender differences in self-compassion found small differences across gender, with slightly higher levels among men, leading the authors to conclude that "gender differences in self-compassion should not be overemphasized." [31] However, they also reported that gender differences appeared to be larger for ethnic/racial minorities, which is not what we found in our sample of diverse young adults.

Strengths and Limitations

Several aspects of this study strengthen its contribution to the literature. First, our findings bring together literatures that have primarily been isolated from each other, indicating the presence of a significant relationship between self-compassion and weight stigma that warrants additional research. Second, the ethnic/racial and socioeconomic diversity of our sample allows for insights on weight stigma in these groups which have received less attention in previous weight stigma research, particularly with regard to the institutional stigma that was examined here in work/school settings. Third, given that emerging adulthood is a period of many life transitions (e.g. increased independence), in addition to a high-risk period for transitioning to obesity, the findings from our sample are informative for understanding the nature of weight stigma experienced at this life stage of entry into adulthood. However, certain limitations are also present in this study that should be taken into account in interpreting the findings. The cross-sectional data do not allow for a determination of temporality with regard to the relationship between self-compassion and weight stigma; there is a need for longitudinal examination. Self-kindness was assessed with a subscale of the Self-Compassion Scale, and more comprehensive measurement with the full Self-Compassion Scale could have provided additional insights into the relationship between other elements of self-compassion (such as self-judgment and mindfulness) and weight stigma. Our measurement of weight stigma was relatively brief and focused on school/work settings which does not adequately capture the breadth, nature, or directionality of weight stigma experiences. Future research should use more comprehensive, validated measures of weight stigma including assessment of different forms and sources of weight stigma. An additional topic relevant to this research that was not available to measure in EAT 2018 is internalized weight stigma. It will be important for future studies to examine the relationship between self-compassion and both experienced and internalized weight stigma, as to date these have been examined independently of each other. Finally, participants in this study came from one state and my not be generalizable to other parts of the U.S. or to other countries. It will be important for future research to study weight stigma and its psychosocial correlates in other cultures and countries. Although weight stigma has been documented in a number of countries [46], there have been very few cross-cultural comparisons of the extent and nature of weight stigma experiences and their psychosocial consequences [47].

Conclusions

Self-compassion has received little attention in research on weight stigma, despite considerable literature on each of these topics as important factors that can affect psychological and physical health. The significant association between self-compassion and experiences of weight stigma found in our diverse sample of young adults, and for both females and males, offers initial insights on this understudied relationship. Longitudinal research will be particularly valuable to delve beyond these findings into the directionality of this relationship, potential mechanisms underlying links between self-compassion and weight stigma, and to determine whether self-compassion can be a useful psychological resource in response to weight stigma, particularly for those most vulnerable to the distress and harmful consequences resulting from stigma. Research is also needed to determine if interventions aimed at improving self-compassion can help those who have experienced stigmatization. More broadly, systems-level interventions to reduce weight stigma and its harmful impact are needed; examining the utility of compassion-based frameworks as part of these societal level stigma reduction initiatives may be useful to consider in future research.

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Highlights

- Little is known about self-compassion among people who experience weight stigma
- Young adults who experienced weight stigma had lower levels of self-compassion
- Weight stigma experienced in school or work was similar across gender and race

Table 1.

Participant characteristics (N = 1523; weighted percentages).

Sample Characteristics		% (N)
Age(Years)	Mean (sd)	22.1(2.0)
Gender		
	Female	53.5 (887)
	Male	45.9 (625)
	Non-binary/transgender	0.6 (11)
Race[1]		
	White	18.9 (357)
	Black	28. 9 (333)
	Hispanic	16.8 (264)
	Asian	20. 2 (348)
	HW/PI/NA[2]	4.2 (68)
	Mixed	11.0 (148)
Socioeconomic Status[1]		
	Low	39.2 (546)
	Low-middle	22.3 (327)
	Middle	17. 8 (248)
	Upper-middle	13. 1 (234)
	High	7.6 (132)
Weight Status (of those not pregnant)		
	BMI < 18.5 kg/m^2	3.6 (54)
	18.5 kg/m^2 ≤ BMI < 25 kg/m^2	42.2 (608)
	25 kg/m^2 ≤ BMI < 30 kg/m^2	25.9 (376)
	BMI > 30 kg/m^2	28.3 (387)

[1] Self-report from EAT 2010

[2] HW = Hawaiian, PI = Pacific Islander,

NA = Native American

Table 2.

Weight stigma outcomes by gender and race (raw counts).

	Weight Stigma Items											
	Weight Stigma Experienced at Work and/or School											
	Teased about weight % (N)		**Pressure to be thin % (N)**		**Equal acceptance of all body sizes % (N)**		**Treated differently based on weight % (N)**		**Treated unfairly due to my weight % (N)**		**Comments at work about my weight % (N)**	
Gender												
Female	42.7 (380)		34.7^{a} (293)		72.8 (617)		46.2 (383)		9.8 (78)		21.1 (175)	
Male	39.4 (245)	*P*=0.46	25.9^{b} (145)	*P*=0.003	75.8 (444)	*P*=0.46	50.7 (293)	*P*=0.26	13.2 (69)	*P*=0.06	24.0 (137)	*P*=0.34
Non-binary/ transgender	37.8 (4)		22.8^{ab} (2)		72.8 (7)		41.4 (4)		0.0 (0)		111 (1)	
Race/Ethnicity												
White	32.3^{a} (116)		26.8 (93)		77.9^{a} (265)		39.2^{a} (133)		6.4^{a} (21)		21.3 (74)	
Black	38.4^{ab} (127)		29.7 (90)		68.0^{a} (214)		54.8^{b} (175)		14.7^{b} (43)		23.7 (72)	
Hispanic	44.1^{b_c} (116)	*P*<0. 001	30.0 (76)	*P*=0.20	76.0^{a} (185)	*P*=0.05	44.1^{ab} (108)	*P*=0.002	9.3^{ab} (22)	*P*=0.03	22.1 (53)	*P*=0.91
Asian	52.2^{c} (184)		36.0 (117)		77.6^{a} (252)		51.6^{b} (166)		11.2^{ab} (33)		20.9 (65)	
HW/PI/NA	35.5^{ab_c} (25)		34.3 (21)		77.9^{a} (48)		47.7^{ab} (30)		14.0^{ab} (9)		26.6 (17)	
Mixed	40.8^{ab_c} (58)		28.7 (41)		73.3^{a} (100)		47.5^{ab} (67)		12.5^{ab} (18)		21.9 (30)	

Unadjusted logistic regression models with robust standard errors weighted for attrition.

^{ab}Percentages sharing a letter in the group label are not significantly different at the 5% level using Dunn-Sidak corrections.

Table 3.

Weight stigma summary score and self-kindness scores by sociodemographic characteristics.

	Weight stigma 5-item summary score			Self-kindness		
Characteristic	**Mean**	**95% CI**	***P* Value**	**Mean**	**95% CI**	***P* Value**
Age (1-year increase)	0.001	(−0.016, 0.017)	0.91	0.06	(−0.05, 0.17)	0.31
Gender			0.64			0.12
Male	1.94	(1.89, 1.99)		17.1	(16.8, 17.5)	
Female	1.96	(1.92, 2.01)		17.4	(17.1, 17.7)	
Non-binary/transgender	1.83	(1.48, 2.19)		14.8	(12.1, 17.5)	
Race			0.05			<0.001
White	1.86	(1.80, 1.92)		16.4^{ab}	(16.0, 16.9)	
Black	2.00	(1.92, 2.07)		17.3^{bc}	(16.8, 17.8)	
Hispanic	1.94	(1.86, 2.02)		17.5^{bc}	(16.9, 18.1)	
Asian	1.99	(1.92, 2.05)		17.9^{c}	(17.5, 18.3)	
HW/PI/NA	1.98	(1.82, 2.14)		15.3^{a}	(14.0, 16.5)	
Mixed	1.94	(1.83, 2.05)		17.7^{bc}	(16.9, 18.4)	
Socioeconomic Status			0.55			0.10
Lowest	1.98	(1.92, 2.03)		17.5	(17.1, 17.9)	
Lower	1.95	(1.88, 2.03)		17.0	(16.5, 17.5)	
Middle	1.92	(1.83, 2.00)		17.2	(16.6, 17.5)	
Higher	1.95	(1.86, 2.03)		16.5	(15.9, 17.1)	
Highest	1.88	(1.78, 1.98)		17.5	(16.7, 18.2)	
Weight Status (of those not pregnant)			<0.001			0.04
BMI < 18.5 kg/m^2	1.92^{abc}	(1.75, 2.09)		17.3^{ab}	(15.8, 18.7)	
18.5 kg/m^2 ≤ BMI < 25 kg/m^2	1.81^{a}	(1.76, 1.85)		17.6^{b}	(17.3, 18.0)	
25 kg/m^2 ≤ BMI < 30 kg/m^2	1.98^{b}	(1.91, 2.05)		17.1^{ab}	(16.7, 17.6)	
BMI ≥ 30 kg/m^2	2.16^{c}	(2.09, 2.23)		16.7^{a}	(16.2, 17.2)	

Unadjusted linear regression models with robust standard errors weighted for attrition. Estimates sharing a letter in the group label are not significantly different at the 5% level using Dunn-Sidak corrections.]

Table 4

Self-kindness scores by different types of weight stigma for female and male participants (crude and adjusted[a] mean estimates and 95% confidence intervals).

Weight stigma item	Female							Male						
	Crude			Adjusted				Crude			Adjusted			
	Mean	95% CI	*P* Value	Mean	95% CI	*P* Value	d	Mean	95% CI	*P* Value	Mean	95% CI	*P* Value	d
Teased about weight			< 0.001			< 0.001	0.26			0.006			< 0.001	0.32
Yes	16.5	(16.0, 16.9)		16.7	(16.2, 17.2)			16.5	(15.9, 17.1)		16.1	(15.6, 16.6)		
No	18.0	(17.6, 18.5)		18.0	(17.5, 18.5)			17.5	(17.1, 18.0)		17.5	(17.0, 17.9)		
Work/School Weight Stigma[b]														
Pressure to be thin			0.009			0.02	0.17			0.23			0.19	0.11
Yes	16.8	(16.2, 17.3)		16.9	(16.4, 17.5)			16.8	(16.0, 17.5)		16.6	(15.8, 17.3)		
No	17.7	(17.3, 18.1)		17.8	(17.3, 18.2)			17.3	(16.9, 17.7)		17.1	(16.7, 17.5)		
Equal acceptance of all body sizes			0.01			0.04	0.15			0.07			0.01	0.24
Yes	17.7	(17.3, 18.0)		17.7	(17.3, 18.1)			17.4	(17.0, 17.8)		17.3	(16.9, 17.7)		
No	16.6	(15.9, 17.3)		16.8	(16.1, 17.6)			16.4	(15.6, 17.3)		16.0	(15.3, 16.8)		
Treated differently based on weight			0.51			0.53	0.05			0.35			0.22	0.10
Yes	17.2	(16.8, 17.7)		17.3	(16.8, 17.8)			16.9	(16.4, 17.4)		16.7	(16.2, 17.2)		
No	17.5	(17.0, 17.9)		17.5	(17.1, 18.2)			17.3	(16.8, 17.8)		17.2	(16.6, 17.7)		
Treated unfairly due to my weight			< 0.001			0.04	0.15			0.16			0.08	0.15
Yes	15.6	(14.4, 16.7)		16.2	(14.9, 17.5)			16.5	(15.5, 17.6)		16.2	(15.2, 17.2)		
No	17.6	(17.2, 17.9)		17.6	(17.2, 18.0)			17.3	(16.9, 17.7)		17.2	(16.8, 17.5)		
Comments at work about my weight			< 0.001			< 0.001	0.21			0.02			0.06	0.16
Yes	16.1	(15.3, 16.9)		16.5	(15.7, 17.3)			16.4	(15.6, 17.1)		16.4	(15.7 17.1)		
No	17.7	(17.4, 18.1)		17.7	(17.4, 18.1)			17.4	(17.0, 17.9)		17.2	(16.8 17.6)		
5-item summary score; mean	−1.27	(−1.82, −0.72)	< 0.001	−1.08	(−1.65, −0.50)	< 0.001	0.27	−1.19	(−1.84, −0.55)	< 0.001	−1.22	(−1.91, −0.54)	< 0.001	0.30

Linear regression models with robust standard errors weighted for attrition.

[a]Estimates adjusted for race/ethnicity, body mass index and baseline socioeconomic status.

[b] 'No' responses were (1 = Strongly disagree, 2 = Disagree); 'Yes' responses were (3 = Agree, 4 = Strongly agree); 'Not applicable' was recoded to missing.