

## Challenging oppression

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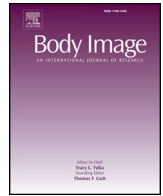
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# Challenging oppression: A social identity model of stigma resistance in higher-weight individuals



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## ABSTRACT

Many higher-weight individuals have internalised societal weight stigma, devaluing themselves because of their weight. Rejecting and challenging societal devaluation is generally associated with superior outcomes compared with stigma internalisation or inaction; however, stigma resistance has not been studied in higher-weight individuals, despite ubiquitous weight stigma in daily life. Applying a social identity framework, we utilised decision tree analysis to explore predictors of responses to weight stigma in 931 self-classified higher-weight individuals. While ingroup identification with the group 'Fat' was the major predictor of stigma resistance (versus internalisation), perceived illegitimacy of societal weight stigma defined a subgroup of resisters even in the absence of group identity. Interventions focusing on the illegitimacy of unequal social status and treatment may be effective at reducing internalisation and fostering resistance in a population with characteristically low ingroup identity.

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## 1. Introduction

Higher-weight individuals now account for approximately two-thirds of the general population in many western countries. Despite this numerical dominance, weight stigma is ubiquitous, being reported in all domains of daily life, including education, healthcare, employment, interpersonal interactions, and in the media (Puhl & King, 2013). In addition, many higher-weight individuals internalise negative societal attitudes toward fatness and devalue themselves because of their weight, a phenomenon variously labelled as 'internalised weight stigma,' 'weight bias internalisation,' or weight-related self-stigma (Durso & Latner, 2008; Lillis et al., 2010). Whilst different measures treat the self-devaluation component of internalised weight stigma as distinct from fear of being stigmatised by others (Lillis et al., 2020; Meadows & Higgs, 2020), others combine these aspects as part of the same phenomenon (Durso & Latner, 2008). However, the most fundamental component of weight-related stigma directed at oneself remains the endorsement of negative stereotypes attributed to higher-weight individuals, applying those stereotypes to oneself, and exhibiting reduced self-worth as a

result of one's higher weight status (Durso & Latner, 2008; Meadows & Higgs, 2020).

Internalised weight stigma has been linked with a wide range of negative health and behavioural outcomes in both treatment-seeking<sup>3</sup> and community samples (Pearl & Puhl, 2018). It should therefore follow that, compared with those who tend to agree with self-stigmatising comments, non-internalisers would benefit from improved health and wellbeing. Indeed, evidence from the wider stigma literature indicates that, across a range of marginalised or oppressed groups, rejecting and challenging societal devaluation is generally associated with superior psychological and physiological outcomes compared with stigma internalisation or inaction (Czopp, 2019). However, stigma resistance has not been studied in higher-weight individuals, and we do not know why some people internalise societal weight stigma, whereas others actively resist it. Understanding how these processes occur, and identifying potential targets for intervention, is therefore of critical importance at both the individual and societal level.

<sup>3</sup> "Treatment-seeking" refers to samples recruited from sources related to their desire to lose weight, for example, members of a commercial weight-loss programme or participants signed up for a trial of a weight-loss intervention. It should be noted, though, that given the prevalence of dieting behaviour within the general population, it is inevitable that at least some individuals recruited from community samples will also be engaged in weight-loss attempts.

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### 1.1. Social identity model of stigma response

Social identity theory provides one framework for making predictions about how individuals respond to group-related identity threat (Tajfel, 1974). Social categorisation involves the conceptual clustering of individuals within a society into entitative groups, based on their attributes, attitudes, beliefs, or behaviours, in a way that is meaningful for members of that society (Tajfel, 1974; Tajfel & Turner, 1979). According to social identity theory, an individual's social identity is that part of the self-concept that derives from these group memberships. The group's status therefore reflects on the identity of its members. The theory further states that individuals will act to maximise their self-esteem. This means that, if possible, individuals will maintain a social group membership only as long as it confers some benefit to them in terms of their social identity.

When group membership fails to confer a positive social identity, for example, if the group is socially devalued, individuals will mostly prefer to dis-identify with the lower-status ingroup and try to leave the group (Ellemers et al., 1993; Tajfel, 1974; Wright et al., 1990). In the case of the group "Fat,"<sup>4</sup> many individuals who believe that weight is largely under individual control are likely to pursue the goal of becoming "Not-Fat" through diet, exercise, or medical means to try and leave the group. In contrast, people who have repeated failed attempts at weight loss may conclude that significant permanent weight-loss is unlikely to occur (Bombak & Monaghan, 2017), making group boundaries largely impermeable. When group boundaries are perceived as objectively or subjectively impermeable, members of a devalued group can engage in a number of individual or group-based identity-enhancement strategies to maximise their self-esteem within the current status structure (Branscombe & Ellemers, 1998; Crocker & Major, 1989; Tajfel & Turner, 1979). In this situation, the individual's response is likely to depend upon whether they consider their unequal status to be legitimate. If the status quo is seen as fair and just, the most likely outcome is acceptance and internalisation (Tajfel, 1974; Martin, 1986, as cited in Wright, 1997). Alternatively, where the discrimination is considered unfair, responses will vary based upon their likelihood of success. If the current status quo appears to be stable and unlikely to change, individuals can maximise self-worth by engaging in social creativity strategies to change the perceived value of their group, for example, the "Big is Beautiful" reframing strategy, but if the situation is unstable, people may be more likely to foment social change (Branscombe & Ellemers, 1998; Tajfel, 1974; Tajfel & Turner, 1979; Wright, 1997). Finally, how strongly one identifies with other members of the group is critical in determining whether to pursue strategies likely to maximise personal self-worth or collective strategies likely to improve the status of the group as a whole (Ellemers et al., 1993, 1997; Tajfel & Turner, 1979; Turner, 1985) as well as the impact of the societally devalued status on one's self-worth and psychological wellbeing (Ellemers et al., 2002; McCoy & Major, 2003; Schmitt et al., 2014).

While early researchers of social stigma believed that membership in a stigmatised group would inevitably be accompanied by internalisation of society's negative evaluations and reduced global self-esteem (e.g., Allport, 1954; Goffman, 1963), a wealth of empirical evidence among a wide range of traditionally stigmatised populations – by definition, lower-status social groups – has failed to provide strong support for this hypothesis (Crocker & Major, 1989; Twenge & Crocker, 2002). In an attempt to explain this "paradox of

<sup>4</sup> The word "Fat" is used to describe the ingroup in the sense of a value-neutral descriptor, in line with the preferences of organisations that advocate for fat rights. This usage "reclaims" the word and strips it of its acquired pejorative overtones, signalling that fatness is neither unacceptable nor inferior (Meadows & Danielsdóttir, 2016).

self-stigma," Corrigan and Watson (2002) utilised a social identity theory framework to propose a model whereby the self-esteem of members of a stigmatised group would diverge, based primarily on how legitimate they perceived the devalued status of the group to be and how strongly they identified with that group, to produce three distinct outcomes (see Fig. 1). Their model predicts that in the presence of a salient stigmatised or devalued identity, perceived legitimacy of the group's low status would be the major predictor of internalisation, with high perceived legitimacy predicting internalisation of devalued status and subsequent damage to global self-esteem. Among individuals rejecting the legitimacy of the group's low status, group identification would determine stigma response. Specifically, individuals who were highly identified with the group would experience "righteous anger" and have unmarred or even elevated global self-esteem, whereas those with low ingroup identity would be largely indifferent to the stigmatised status of the group.

### 1.2. The current study

Little is known about the processes underlying the development of internalised weight stigma and, to our knowledge, no efforts have been made to characterise individuals who internalise weight stigma compared with those who reject and challenge this societal devaluation. The present study aims to address this gap in the literature by building upon Corrigan & Watson's paradox model of self-stigma and applying it to a higher-weight population. We maintain the terminal endpoints in the paradox model, pre-defining three distinct groups based on their primary stigma response, but further extend it by incorporating two main differences. First, perceived boundary permeability was included in the model to test whether higher-weight individuals who consider weight to be largely under individual control, and thus envision the possibility of leaving the group "Fat," respond differently to perceived stigma, i.e., whether they internalise, resist, or are unaffected by their devalued status, compared with those who consider group barriers to be largely impermeable. Second, stigma resistance was conceptualised not only as an affective state (righteous anger), but rather, as a combination of cognitive, affective, and behavioural responses to perceived weight stigma. Thus, utilising a social identity theory framework, we explore the extent to which key constructs known to predict intergroup behaviour can differentiate between three alternative responses to societal weight stigma.

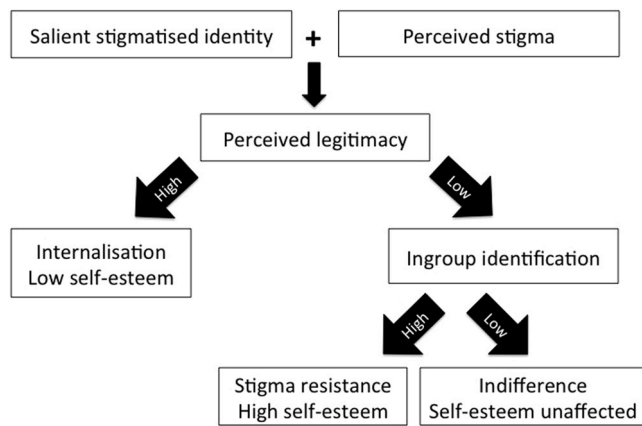
## 2. Method

### 2.1. Design and procedure

This was an online cross-sectional study conducted in non-treatment-seeking higher-weight adults. The survey was conducted using Qualtrics. After providing consent, participants completed a series of questionnaires and provided demographic data. Prompts were used if participants attempted to progress through the study without providing answers to questionnaire items, but responses were not forced if participants chose to continue without answering. After completing all measures, participants were debriefed and were able to download a list of resources on health, body image, healthy living, and mental wellbeing. All participants were entered into a prize draw to win a £ 50 Amazon voucher (or local equivalent). The study was approved by University of Birmingham Ethical Review Committee.

### 2.2. Sample size considerations

Chi-squared Automatic Interaction Detection (CHAID) decision-tree analysis requires large sample sizes to work effectively but



**Fig. 1.** Paradox model of self-stigma.  
(adapted from Corrigan & Watson, 2002).

recommendations for minimum sample sizes vary widely in the literature. Based on number of predictors, authors have suggested anything from 33 to 200 cases per predictor; minimum recommended sizes for the full sample range from 200 to over 1000 (Baron & Phillips, 1994). Based on five predictors (perceived stigma, perceived legitimacy, the two superordinate subscales of the group identification questionnaire – group investment and group self-definition, and weight controllability beliefs, we aimed to recruit approximately 1000 participants.

### 2.3. Participants

Adult participants (age 18–69 years) who self-identified as “overweight,” “obese,” or “fat” were recruited to complete an anonymous online survey on the “Life experiences of overweight individuals.” The upper limit of 69 years was selected as previous research has suggested that weight stigma is less of a concern in older individuals, possibly superseded by age-related stigma (Jackson et al., 2015). We utilised a conservative two-step inclusion strategy (Durso et al., 2012; Hunger et al., 2018) that required participants both to self-classify as higher-weight and have a BMI equal to or greater than 25 kg/m<sup>2</sup> based on self-reported height and weight. Although self-classified high-weight is a reliable predictor of weight-related beliefs, body image, self-stigma, and disordered eating behaviour (Lee & Dedrick, 2016; Major et al., 2014), the lived experience of individuals with misclassified higher-weight status is likely to differ in important ways to the experience of those whose body size is objectively larger, particularly in the occurrence of weight-related stigmatising incidents. In the paradox model of self-stigma, the divergent paths emanate in response to a salient stigma; thus, these differences in lived experience are likely to be pertinent in terms of stigma awareness. Invitations to participate in the survey were posted on social media and Internet forums related to weight, weight-loss, health, nutrition, fitness, plus-size fashion, and the size acceptance movement. This purposive recruitment strategy was intended to provide a sample likely to have a range of views on the acceptability of societal weight stigma, both positive and negative emotions about their own body weight, and to differ in their levels of fat identity.

A total of 1154 participants began the study and 963 (83.4%) completed it. Thirty-two participants were excluded for not meeting age ( $n = 5$ ) or BMI ( $n = 26$ ) eligibility criteria.<sup>5</sup> The final sample size

was therefore 931. Average age was 40.2 years ( $SD = 11.4$ , range 18–69, 3.8% missing). The sample was predominantly female (85.5%; 9.7% male, 1.9% with another gender identity, 2.9% missing), White (83.7%; 1.9% Black, 1.5% Hispanic, 1.2% Asian, 2.1% multi-racial,<sup>6</sup> 8.2% identified as another racial or ethnic group,<sup>7</sup> 8.1% missing), and highly educated, with 75.5% having a college degree or higher. Mean BMI was 40.2 kg/m<sup>2</sup> ( $SD = 10.8$ , range 25.0–95.0, 5.5% missing). Additionally, the BMI distribution was evenly spread across the higher-weight spectrum: BMI 25.0–29.9, 14.1%; BMI 30.0–34.9, 21.4%; BMI 35.0–39.9, 17.9%; BMI 40.0–49.9, 27.8%; BMI  $\geq 50.0$ , 13.3%.

### 2.4. Measures

Unless otherwise noted, the following measures were scored on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree), with item scores averaged to give a final score for each measure.

#### 2.4.1. Perceived stigma

Perceived stigma was measured using the 10-item Stigma Consciousness Questionnaire (SCQ; Pinel, 1999). The SCQ includes items related to both awareness of societal stigma in general and to personal experience specifically. The measure has been used in “overweight/fat” populations (Carels et al., 2013; Schmalz, 2010). A sample item is, “My being overweight/fat does not affect how people act with me” (reversed scored). Following Carels et al. (2013), the scale was scored on a 6-point Likert-type scale (from strongly agree to strongly disagree) with no neutral point, but the lower anchor was changed to 0, to indicate no perceived stigma; thus the upper anchor was 5. Higher scores indicate greater perceived anti-fat stigma. Cronbach’s  $\alpha$  in the present sample was .861.

#### 2.4.2. Group identification

Group identification was assessed using the Multicomponent Ingroup Identification Scale (Leach et al., 2008). The questionnaire was designed to be adapted to any group situation. Here, the group was labelled “overweight/fat,” in line with the wording used in the perceived stigma scale. The questionnaire comprises 14 items representing two superordinate dimensions: group self-investment, comprising group solidarity, centrality, and satisfaction; and group self-definition, comprising self-stereotyping – the extent to which the individual feels commonalities with other group members, and ingroup homogeneity – the perceived cohesiveness of the ingroup. Studies that have used the measure have reported differential findings for the group investment and group self-definition dimensions (e.g., Jans et al., 2015; Leach et al., 2008), suggesting that these dimensions capture different aspects of group identity and inclusion of both may be necessary to more fully elucidate the role of group identification.

Mean scores are calculated for each dimension, with higher scores indicating stronger group identity. Item 8 on the Centrality component, “I often think about the fact that I am overweight/fat” significantly reduced the internal reliability of the subscale to .593 and it was excluded from further analyses. Cronbach’s  $\alpha$ s for Self-Investment and Self-Definition were .865 and .774, respectively.

(footnote continued)

stigma, and weight-controllability beliefs than did the remaining participants.

<sup>6</sup> White-Native American,  $n = 5$ ; White-Black,  $n = 4$ ; White-Arab,  $n = 2$ ; White-Asian,  $n = 1$ ; White-Indian,  $n = 1$ ; Unspecified,  $n = 8$ .

<sup>7</sup> South Asian,  $n = 8$ ; Native American,  $n = 3$ ; First Nations,  $n = 1$ ; Greek,  $n = 1$ ; Middle Eastern,  $n = 1$ .

<sup>5</sup> Independent samples  $t$ -tests showed that the 26 participants with BMI  $< 25.0$  had significantly lower scores on measures of internalised weight stigma, group solidarity, and stigma resistance, and higher scores on perceived legitimacy of societal weight



#### 2.4.3. Perceived legitimacy of anti-fat discrimination

Five items were created to assess the extent to which participants believed the unequal treatment of higher-weight people to be legitimate; for example, “Treating overweight/fat people poorly is justified if it makes them change their lifestyle.” Higher mean scores indicated higher perceived legitimacy of stigma towards heavier individuals. Internal reliability of this five-item scale was .785.

#### 2.4.4. Group permeability

Perceptions of group boundary permeability were assessed with three questions from the Anti-Fat Attitudes Questionnaire-Revised Willpower subscale (Quinn & Crocker, 1999), which assess weight-loss controllability beliefs; for example, “Overweight/fat people can lose weight if they really want to.” Higher scores indicate stronger belief that individuals have control over their weight, and thus represent greater perceived boundary permeability. Internal reliability was .917 in the present sample.

#### 2.4.5. Stigma resistance

Weight stigma resistance was measured with Weight Stigma Resistance Scale (WSRS; Meadows et al., 2021). The scale comprises seven items capturing cognitive, affective, and behavioural responses to societal weight stigma. A sample item is, “As a result of how overweight/fat people are treated, I want to stand up for weight-related issues. Cronbach’s  $\alpha$  was .876.

#### 2.4.6. Internalised weight stigma

Internalised weight stigma was measured with the 13-item 2-factor version of the Weight Bias Internalization Scale (WBIS-2F; Meadows & Higgs, 2019). The WBIS-2F comprises two subscales measuring (1) weight-related self-devaluation and (2) weight-related distress. The self-devaluation subscale includes items such as, “I do not feel that I deserve to have a really fulfilling social life as long as I am overweight.” The distress subscale includes items such as, “I feel anxious about being overweight because of what people might think of me.” Cronbach’s  $\alpha$ s were .763 and .910 for the Self-devaluation and Weight-related Distress subscales, respectively.

#### 2.4.7. Global self-esteem

Global self-esteem was measured using the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965). An example item is, “On the whole, I am satisfied with myself.” Items are scored on a 4-point Likert scale ranging from 0 (strongly disagree) to 3 (strongly agree). Items are summed to give a maximum possible score of 30, with higher scores indicative of higher self-esteem. Cronbach’s  $\alpha$  in the present sample was .903.

### 2.5. Handling of missing values

Missing values analysis of questionnaire items indicated nineteen participants had missing responses. Little’s MCAR test was used to assess the pattern of missingness. A non-significant  $p$  value on this test indicates that data are missing completely at random (MCAR). In this case, Little’s MCAR test was statistically significant,  $\chi^2(898) = 1028.5$ ,  $p = .002$  indicating the data were not missing completely at random. Case by case inspection indicated that 13 participants had only one or two data points missing, but six participants had more than 5% missing data. Five of these had data missing on the group identification scale, four on the stigma consciousness scale, and one on the resistance scale. Investigation of response patterns indicated no evidence of unengaged responding; rather, some items on the group identification scale, in particular, appeared difficult for these participants to answer. Participants with over 20% items unanswered on any questionnaire ( $n = 2$ ) were excluded pairwise, otherwise mean scores were substituted for the missing items.

Slightly more data points were missing on demographic and anthropometric items. Fifty-one participants (5.3%) were missing height and/or weight information such that BMI could not be computed. Missing values analysis indicated no overall pattern of missingness, Little’s MCAR test  $\chi^2(60) = 68.2$ ,  $p = .219$  indicating that these data were missing completely at random, and independent samples  $t$ -tests confirmed no differences on any study variable between participants with or without BMI data available. As BMI was collected predominantly for descriptive purposes, and was not included in the hypothesised model, missing BMI values were not imputed. Missing values on demographic variables were also not imputed.

### 2.6. Data analysis

Descriptive statistics were calculated. Bivariate correlations and partial correlations controlling for BMI were calculated for continuous study variables.

Decision tree analysis was conducted to determine how individuals could best be classified into one of the three proposed terminal outcomes along the self-stigma ‘continuum’ model, namely internalisers, indifferents, and resisters.

The chi-squared automatic interaction detection (CHAID) algorithm (IBM Corp, 2017; Kass, 1980) was used to grow the model. CHAID uses a stepped procedure to identify the cut-points of the possible predictors that best differentiate between the three groups using a significance-testing framework using the  $\chi^2$  test for independence. At each step, the algorithm considers all possible predictors, identifies the best partition for each possible predictor, and selects the one that would best differentiate between outcome options on the dependent variable (i.e., has the lowest  $p$  value). The predictor is then further subdivided, being split into ten intervals, or child nodes, and neighbouring nodes are iteratively tested for statistical significance of dependence between the split variable and the outcome variable. Only cut points that produce statistically significant group splits are retained, with interim categories merged together. The CHAID algorithm treats cases with missing data on a predictor as a distinct category and allocates these cases as appropriate based on similarity of outcome prediction to valid cases. To prevent over-fitting, the minimum node sizes were set at 100 participants for parent nodes and 50 for child nodes. Nodes not meeting these criteria were not split. The significance level set for splitting and merging criteria was set at .05, with Bonferroni correction to adjust for multiple comparisons. This procedure is repeated iteratively until further splits are independent of the outcome variable, at which point, tree growth is terminated. The final model provides information on the levels of predictors that best differentiate between the outcome groups.

Individuals were first categorised into one of the three groups based on their scores on the self-report measures of internalised weight stigma and weight stigma resistance (method described in detail below). The CHAID algorithm was then used to identify the combination of individuals’ scores on measures of perceived weight stigma, perceived legitimacy, group investment, group self-definition, and weight-controllability beliefs that most accurately predicted correct group membership. K-fold cross-validation was used to assess generalisability of the model (IBM Corp, 2017; Ounpraseuth et al., 2012), with  $K = 10$ . The data set is randomly divided into ten subsamples, or folds, of approximately equal size. A series of tree models are then generated, each excluding data from one of the subsamples. For each tree, the derived model is applied to its excluded subsample to estimate misclassification risk. For categorical dependent variables, this represents the proportion of cases incorrectly classified when cases are assigned to the majority outcome in their respective terminal node. The cross-validated risk estimate for the final tree model, which includes the full data set, is calculated as the mean risk for all ten validation trees, and is an indicator of the

**Table 1**  
Means, Standard Deviations, And Bivariate Correlations Between Study Variables.

Variable	2	3	4	5	6	7	8	9	10
1. Body mass index	-0.08*	0.31**	-.04	-.005	-.022***	.29**	.13 <sup>†</sup>	-.33***	.29**
2. Self-esteem	1	-.039***	-.58***	-.71***	-.19***	.21***	-.05	-.008**	.21***
3. Perceived stigma		1	0.17***	.33***	-.16***	.21***	.09 <sup>†</sup>	-.32***	.25***
4. WBIS-2F-Self-devaluation			1	0.58***	.50***	-.32***	.05	0.29***	-.46***
5. WBIS-2F-Distress				1	0.33***	-.45***	.00	0.29***	-.44***
6. Legitimacy					1	-.038***	-.03	0.52***	-.67***
7. Group investment <sup>a</sup>						1	0.42***	-.50***	.67***
8. Group self-definition							1	-.009 <sup>†</sup>	.16***
9. Weight controllability								1	-.067***
10. Stigma resistance									1
Possible range	0–30	0–5	1–7	1–7	1–7	1–7	1–7	1–7	1–7
Mean	17.43	3.51	2.13	4.60	1.83	3.29	3.06	3.04	4.65
Standard deviation	5.88	0.83	1.03	1.53	0.90	1.19	1.15	1.74	1.37
Actual range	0–30	1.0–5.0	1.0–6.7	1.0–7.0	1.0–6.0	1.0–7.0	1.0–7.0	1.0–7.0	1.1–7.0

Note. Ns vary slightly due to missing data. Partial correlations controlling for BMI did not significantly affect correlation coefficients (all absolute Z < 1.8, p > .05).

WBIS-2F, 2-factor Weight Bias Internalization Scale.

<sup>a</sup> Excluding item 8 from original scale.

\* p < .05

\*\* p < .01

\*\*\* p < .001.

generalised predictive accuracy of the tree, with lower scores indicating greater accuracy.

### 3. Results

#### 3.1. Descriptive statistics

Descriptive statistics and correlation coefficients are displayed in Table 1. Scores on the Self-devaluation subscale of the WBIS-2F were considerably lower than those on the Weight-related distress subscale, confirming lack of redundancy between the two components of internalised weight stigma.<sup>8</sup> Scores on the WSRS had moderate to strong positive correlations with BMI and negative correlations with weight-related self-devaluation and distress. Additionally, the WSRS was very strongly positively correlated with group investment, and negatively with perceived legitimacy and weight controllability beliefs (i.e., perceived boundary permeability), consistent with the predictions of a social identity model of weight stigma resistance; However, WSRS scores were only weakly correlated with self-definition as an ingroup member.

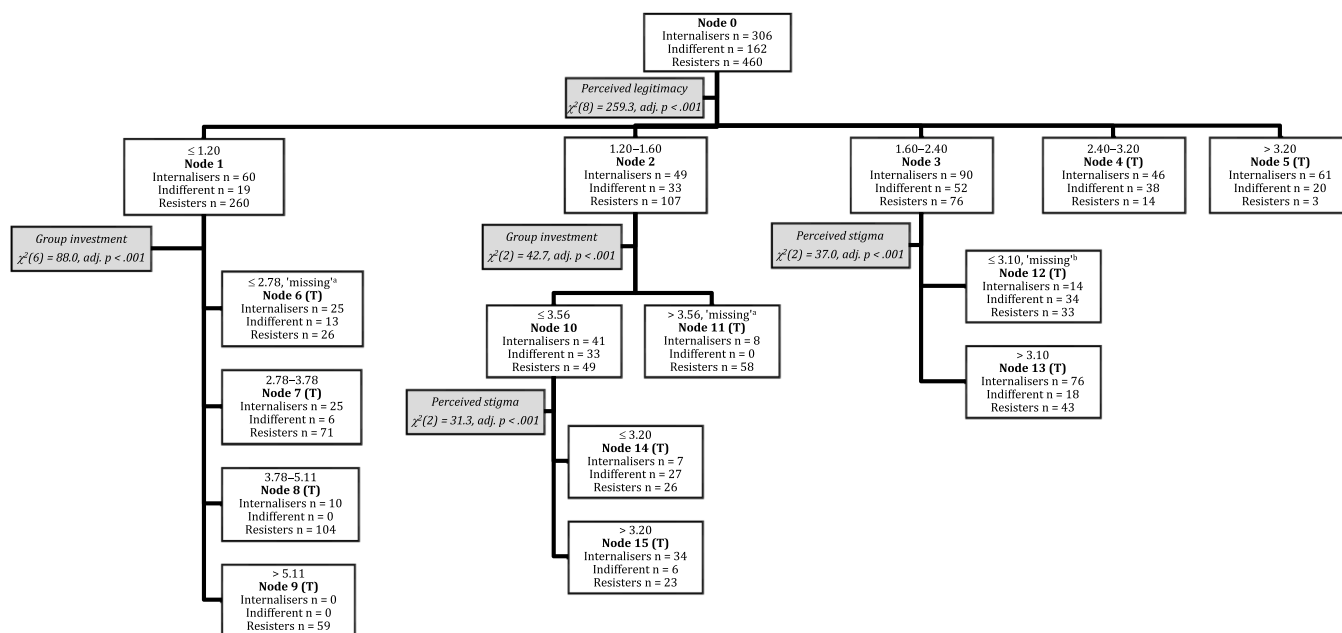
#### 3.2. Classification of stigma response

Based on the terminal groupings suggested by the paradox model of self-stigma, individuals who endorsed internalised weight stigma beliefs above the neutral mid-point – that is, they tended to agree with statements relating to internalised weight stigma beliefs, were classified as “Internalisers.” The remaining participants were nominated as either “Indifferent” if they scored at or below the midpoint on the WSRS – that is, they tended to disagree or had no strong opinion about statements relating to either weight stigma internalisation or weight stigma resistance, or “Resisters” if they scored above the midpoint on the WSRS – that is, they tended to disagree with or have no strong opinions about internalisation statements and tended to agree with statements about weight stigma resistance. Approximately one-third of participants (n = 306, 32.9%) had a WBIS-2F score above the neutral midpoint on the scale, indicating that they tended to agree with internalisation statements, and were classified as Internalisers. Half of participants (n = 460, 49.4%) had WBIS-2F scores at or below the midpoint and WSRS scores above the

neutral midpoint on that scale – that is they tended to disagree with internalisation statements and agree with resistance statements, and were classified as Resisters. The remaining 162 participants (17.4%) had low scores on both the WBIS-2F and WSRS, in other words, they tended not to agree with statements relating to either internalisation or resistance, and were classified as Indifferent (n = 928; due to missing data on some items, three participants could not be classified). The paradox model of self-stigma predicts that Internalisers will have reduced self-esteem and Resisters increased self-esteem compared with Indifferents. Univariate ANOVA confirmed that the three groups differed significantly on global self-esteem, Welch’s F(2, 463) = 241.07, p < .001, supporting the validity of the groupings. The Internalisers had the lowest self-esteem scores (M = 12.64, SD = 4.55) and post hoc tests (Games-Howell) indicated that this score was significantly lower than those of both Resisters and Indifferents (both p < .001), consistent with the predictions of the model; however, the scores in the Indifferent group did not differ significantly from the Resisters (M = 19.58, SD = 4.15 versus M = 19.86, SD = 5.22, respectively; p = .771).

The CHAID analysis produced a tree with five forks and 11 terminal nodes (see Fig. 2). Perceived legitimacy of weight stigma emerged as the most important predictor of location on the self-stigma continuum. Perceived legitimacy scores were generally low, with only 31 participants (3.3%) having a score above the neutral mid-point of the scale – that is, they tended to agree with statements suggesting that weight stigma is legitimate. Nevertheless, using a cut-off point of only 1.60 (on a 1–7 scale), i.e., nodes 3–5, separated out the Resisters from the other two groups. Approximately two-thirds of Internalisers (64.4%) and Indifferents (67.9%) scored above this level, whereas only 18.0% of Resisters did so. Even so, around one-third of Internalisers and Indifferents scored below 1.60 on perceived legitimacy of weight stigma (nodes 1 and 2). What separated these groups from the remaining 72.0% of Resisters, was their level of group investment. A cut-off around the neutral midpoint of the scale or above, i.e., nodes 8, 9, and 11, included 48.0% of the Resisters but only 2.6% of Internalisers and none of the Indifferents. Thus, at the lowest levels of perceived legitimacy, higher group investment (nodes 4, 8, and 11) captured nearly half of Resisters but only a small fraction of Internalisers and Indifferents. Interestingly, just under one-third of Resisters (31.7%) exhibited low perceived legitimacy (below the 1.60 threshold) but also low group investment – below the neutral midpoint of the scale. That is, although these individuals tended to disagree with statements about being invested in the group “Fat,” they nevertheless had high levels

<sup>8</sup> For the purposes of comparison with the extant literature on internalised weight stigma, we also calculated the descriptive statistics for the 11 items making up the standard WBIS (Durso & Latner, 2008). Mean score was 4.26 (SD = 1.38).



**Fig. 2.** Graphical depiction of the decision rules for classification as either internalisers, resisters, or indifferent to perceived weight stigma. Empirically derived cut points are displayed, along with number of participants in each of the three categories assigned to each node. All scales scored 1–7 except perceived weight stigma, scored 0–5. (T) = terminal node. <sup>a</sup>n = 8 cases missing data on group investment; <sup>b</sup>n = 5 cases missing data on perceived stigma.

of weight stigma resistance. Thus, it is possible that even without group investment, perceiving the devalued status of higher-weight individuals as highly illegitimate may be associated with resistance.

As perceived legitimacy scores increased slightly, encompassing the 1.20–2.40 range, i.e., nodes 2 and 3, perceived societal weight stigma best differentiated between Internalisers and Indifferents. Greater perceived stigma was associated more with internalisation, whereas lower perceived stigma tended to be linked with indifference. Resisters in this category were not further distinguished by their levels of perceived stigma. Neither group self-definition nor weight controllability beliefs contributed to classification in the model.

Classification accuracy based on assigning each case to the majority outcome in the node that matched its scores on the predictor variables was 70.9% for Internalisers, 69.1% for Resisters, and 37.7% for the Indifferent group. Thus, this model was relatively accurate in distinguishing between Internalisers and Resisters, and less accurate in classifying Indifferents – as would be expected given their lower frequency in the sample; the overall predictive accuracy was 64.2%.<sup>9</sup> Cross-validation risk estimate was .415 (SE = 0.016), suggesting moderate generalisability of the model.

#### 4. Discussion

The present study is the first to try to characterise predictors that differentiate between higher-weight individuals who do or do not internalise societal weight stigma. Consistent with Corrigan and Watson’s (2002) social identity model of the self-stigma paradox, perceived stigma, perceived legitimacy of that stigma, and investment in the group “Fat” were able to differentiate between Internalisers, Resisters, and individuals who were largely indifferent to

weight stigma. However, in contrast to that model, Indifferents and Internalisers were not differentiated only by perceived legitimacy. Rather, degree of perceived societal stigma most effectively separated out the two groups, such that those who are more aware of and affected by their devalued societal status tended to internalise societal stigma, whereas those less aware and affected tended to indifference. Although Internalisers were not differentiated from Indifferents solely on the grounds of legitimacy beliefs, as per the Corrigan and Watson model, Internalisers did report significantly lower global self-esteem than did Indifferents. As predicted, Resisters were predominantly characterised by low perceived legitimacy and higher group investment, although a notable proportion of Resisters were not invested in the group “Fat,” indicating that group investment is not a necessary pre-requisite for resistance to societal devaluation. The potential implications of this finding will be discussed further below.

Surprisingly, neither group self-definition nor weight controllability beliefs – that is, perceived boundary permeability, were included in the final model. Both the self-definition and weight controllability scores were positively skewed with the preponderance of scores at the lower end of the scale, and there may not have been enough variance in these measures to reliably differentiate between individuals’ responses to societal weight stigma. Another possible explanation for the apparent unimportance of weight controllability beliefs in predicting stigma response could be that, unlike the case with low perceived legitimacy, low controllability beliefs encompass a heterogeneous population, occurring both in individuals who are frustrated by the futility of their weight-loss efforts and in those who actively reject that they should be expected to lose weight. Similarly, self-definition, operationalised as perceiving homogeneity within the group and rating oneself similar to other group members, may be low for different reasons. Weight stigma internalisers who are currently trying to lose weight may consider themselves very distinct from other higher-weight individuals and as such, reject the homogeneity of the group. For example, Carels et al. (2011) reported that ‘overweight and obese’ adults participating in a weight-loss intervention exhibited explicit dislike of higher-weight individuals, and rated themselves as being

<sup>9</sup> There is no single agreed upon cut-off value that determines whether a model is a ‘good’ fit for the data. However, without any additional inputs, simply classifying all cases as belonging to the group with the highest frequency would be correct more often than any other method (Kuhn & Johnson, 2013). In this case, the largest group was the Resistance group, which comprised 49.4% of the sample. Thus, a model with 64.2% predictive accuracy fares considerably better than would have been achieved by chance.

significantly thinner, better, more attractive, active, disciplined, and likely to 'eat healthy' than other higher-weight individuals. Alternatively, a member of the size acceptance community may express low agreement with questions regarding ingroup homogeneity, stressing within-group variability and thereby undermining devaluing stereotypes. Thus, variance in self-definition scores may be unable to usefully distinguish between Internalisers and Resisters.

Although conceptualised by Corrigan and Watson as diametrically opposed to stigma internalisation, weight stigma resistance in the present study was only moderately correlated with both weight-related self-devaluation and weight-related distress. This is likely, in part, due to the fact that the internalisation construct involves only internal processes, whereas stigma resistance encompasses both rejecting devaluation and fighting back against it, and, as such, includes behaviours that involve interactions with others. It is possible that an entirely intrapersonal measure of weight stigma resistance would reflect a closer approximation of the opposite of internalisation.

Alternatively, although the paradox model of self-stigma places individuals who internalise, resist, or are indifferent to societal stigma into distinct categories, it is likely that internalisation and resistance do not form opposite ends of a single spectrum. It is also likely that some individuals may be ambivalent about their membership of the group Fat, and may feel and respond differently to societal stigma at different times and under different circumstances. Qualitative evidence attests to the conflicting pressures of engaging in fat rights activism and recognising the illegitimacy of stigma and discrimination against higher-weight individuals, whilst at the same time, having to navigate the world in a larger body (LeBesco, 2014; Meleo-Erwin, 2011).

It is also possible that some people who tend to agree with internalised stigmatising attitudes nevertheless exhibit some form of resistance to their stigmatised status. For example, a number of organisations now exist that represent higher-weight individuals who align with the medical model of 'obesity' as a chronic disease requiring treatment and support, but who engage in anti-weight stigma advocacy. A previous study of members of one such group in the US – the Obesity Action Coalition (OAC) – found that participants reported above average scores on the standard Weight Bias Internalization Scale (Puhl et al., 2018), and it is possible that populations such as these might score more strongly on a measure of weight stigma resistance than would a general population of higher-weight individuals. It would be interesting to test the relationship between internalisation and resistance in samples with different ideologies around fatness.

It is also interesting to note how levels of internalised weight stigma in the present study compare with those in previously studied samples. Mean scores on the Self-devaluation subscale of the WBIS-2F were very low in the present sample, indicating little endorsement of statements pertaining to reduced self-worth as a result of higher weight. However, scores on the Weight-related distress subscale were notably higher, with nearly two-thirds of participants scoring above the neutral midpoint. As previously noted, items on the seven-item WBIS-2F Weight-related Distress subscale overlap considerably with the standard 11-item WBIS, which we calculated for the present sample to allow for comparisons with the extant literature. With a mean WBIS score of 4.26, the present sample appears to be more similar to clinical samples described in the literature than to a general population. A 2017 analysis of 31 samples in 30 studies using the standard WBIS to measure internalised weight stigma, found that only 33.3% of studies conducted in treatment-seeking populations had a mean WBIS score at or below the neutral midpoint, compared with 71.4% of non-treatment-seeking populations (Meadows, 2018). This is consistent with more recent data from members of commercial weight-loss organisations (Pearl et al., 2019, 2021) and of the OAC (Puhl et al., 2018). Given the disparity in

scores between the Weight-related Distress and Self-devaluation subscales of the WBIS-2F, this raises a question as to whether the extant literature in treatment-seeking samples is capturing reduced self-worth—arguably the core component of self-stigma—in these populations, as much as it is capturing distress associated with living in a higher-weight body in a society that widely devalues them, with this distress perhaps being the driver of participants seeking out these programmes.

Strengths of the present study include the large sample size, balanced representation across the range of the higher-weight BMI spectrum, and the attitudinal diversity of respondents achieved through purposive recruitment strategies. Additionally, recruitment from non-treatment-seeking populations also increases the likelihood of wider generalisability. However, the present study has a number of limitations. First, data were obtained exclusively through the use of self-report measures, which may be prone to demand characteristics and/or social desirability responding. Given the wide range of responses on most measures, this appears not to have presented a major problem. One possible exception is the case of perceived legitimacy of stigma toward higher-weight individuals. Scores on this measure were heavily skewed, with the vast majority of respondents reporting very low perceived legitimacy beliefs. Nevertheless, the correlational analyses provided evidence for the veracity of these self-reports: legitimacy beliefs were negatively associated with group investment, global self-esteem, and stigma resistance, and positively associated with weight-related self-devaluation and distress. Thus, it appears that despite recognising that such stigma is unjustified, many individuals nevertheless devalue themselves because of their weight.

Another limitation is that sample scores for self-devaluation were heavily skewed toward the lower end of the scale, with only 53 participants scoring above the neutral midpoint. It was therefore not feasible to explore the discriminant capabilities of our key variables for groupings defined by self-devaluation or weight-related distress independently. Future work could look to explore cognitions and behaviour in groups that vary along both of these dimensions.

The cross-sectional design of the study precludes determination of causal pathways. In particular, it is unclear whether stigma resistance, as a tool to offset some of the harms associated with societal stigma, would be amenable to interventions designed to promote it, and a better understanding of the causal mechanisms involved in the development of stigma resistance is needed prior to the design of such interventions. It is unclear whether resistance would inevitably arise from interventions focusing on belief structures, for example that weight is entirely under individual control, or attitudes towards weight, or whether it can be taught or developed in isolation of those beliefs.

Finally, despite efforts to attract a demographically diverse sample, the participants in this study were nevertheless predominantly female, White, highly educated, and based in the US or UK. During recruitment efforts, there was a particularly robust initial response from members of the size acceptance community, largely due to the first author's personal connections and goodwill within this community. Given that the size acceptance movement tends to be predominantly female, well educated, professional, and US-based, this will likely have contributed to the homogeneity of the sample, as well as explaining the strong negative association between education and weight-related self-devaluation, distress, and global self-esteem. Thus, this finding should perhaps not be over-interpreted until it has been replicated in a more diverse sample. However, although participants were not asked to indicate where they heard about the study, which might have given some indication of the relative proportions of participants engaged with the size acceptance community versus those from more typical populations, the relatively low sample scores on group investment, a characteristic that would likely be higher in individuals associated with this



movement, would perhaps speak to a relatively balanced sample by the time study recruitment ended. While future studies should seek more information about participant ideologies around fatness, as well as current dieting intentions and behaviour, the findings in the present study do provide initial support for the effectiveness of the purposive recruitment strategy used in capturing a sample with diverse views about weight and their bodies.

#### 4.1. Implications and future directions

Weight stigma resistance is a phenomenon that has been largely overlooked in the weight stigma literature. While the targets of prejudice and discrimination should not be expected to bear the responsibility for improving their lot, weight stigma remains pervasive and structural inequalities deeply embedded. Fostering resistance may provide one means to at least minimise some of the psychological harms associated with this phenomenon. The strong association between resistance and group investment therefore poses a problem for those hoping to encourage weight stigma resistance. Many fat people do not self-identify as fat – rather envisioning themselves as thin people in merely temporarily fat bodies (Kyrölä & Harjunen, 2017; Quinn & Crocker, 1998), and often hold negative explicit and implicit anti-fat attitudes (Crandall & Biernat, 1990; Crandall, 1994; Schwartz et al., 2006). Therefore, the finding from the present study that a subset of Resisters were not invested in the group “Fat” suggests one possible target for interventions. If these findings can be replicated in other higher-weight samples, focusing on the illegitimacy of unequal social status and treatment might be effective at reducing internalisation and fostering resistance. Certainly, studies exploring the development of social activism within socially disadvantaged groups have identified alternate pathways via which individuals become willing to engage in collective action: one involving identifying with a more politicised activism movement, but the other driven predominantly by a personal cost-benefit analysis of potential gains (Simon et al., 1998; Stürmer et al., 2003). However, group identification is known to provide numerous psychological and other health benefits, both in general, and in stigmatised groups (Jetten et al., 2014). These benefits accrue via a number of mechanisms, including ingroup support structures (Haslam et al., 2005; Jetten et al., 2014), and behaviours that affirm group identity (Corrigan et al., 2013; Saguy & Ward, 2011). It remains to be determined whether stigma resistance would confer the same benefits in the absence of that group identity.

#### CRedit authorship contribution statement

**Angela Meadows:** Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft; Writing – review & editing, Visualization, **Suzanne Higgs:** Supervision, Writing – review & editing.

#### Data statement

The data associated with this study are available at <http://doi.org/10.5255/UKDA-SN-854100>.

#### Declarations of interest

none.

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