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Weight-Normative versus Weight-Inclusive Narratives in Weight-Related Public Health Campaigns: Effects on Anti-Fat Attitudes, Stigma, Motivation, and Self-Efficacy

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Abstract: Research has shown that weight-related public health campaigns can inadvertently stigmatise individuals with obesity. We compared the effects of weight-normative (personal responsibility and public health crisis) versus weight-inclusive (Health at Every Size [HAES] and fat acceptance) campaign narratives on anti-fat attitudes and reactions to campaigns in two studies. In study 1, participants (n = 283) from a range of Body Mass Index (BMI) categories viewed one of four mock campaigns before rating their anti-fat-attitudes (dislike, fear of fat, willpower, social distance), and reactions to the campaign (motivation, stigma). In study 2, participants (n = 175) in overweight or obese BMI categories viewed one of four mock campaigns before rating their reactions to the campaign (motivation, stigma, self-efficacy). Study 1 results showed that weight-normative campaigns were perceived as significantly more stigmatising than weight-inclusive ones. However, weight-inclusive campaigns did not decrease anti-fat attitudes or increase motivation for health behaviour change in this sample. Similarly, study 2 results showed that the personal responsibility campaign was rated as significantly more stigmatising than other campaigns among women with overweight or obesity. Fat acceptance was rated as the least stigmatising campaign in this sample, but weight-inclusive narratives did not increase motivation or self-efficacy for health behaviour change. Future research should focus on developing campaign narratives that are non-stigmatising, motivating, and efficacious by addressing health behavior benefits irrespective of sex or weight.

Keywords: obesity; weight stigma; public health; campaigns

1. Introduction

Obesity is the subject of intense scientific, political, and media attention. According to the World Health Organisation (WHO) [1], in 2016 over 1.9 billion adults were overweight and, among them, more than 650 million were obese. WHO [2] defines obesity as an abnormal or excessive fat accumulation which poses a risk to a person’s health, with body mass index (BMI; calculated as kilograms divided by height in metres squared) providing a crude population measure of obesity. A BMI above 25 is considered overweight, and above 30 is considered obese. The aetiology of obesity is complex, however major contributing factors include environmental factors (sedentary work environments, accessible food, and decreased leisure time and access to outdoor space) and individual factors (lower socioeconomic status, parental obesity, genetic predisposition, endocrine diseases, caloric intake, physical activity, sleep, medication use, stress, and mental illness) [3,4]. Obesity is a significant risk factor for several chronic diseases including type two diabetes, cardiovascular disease, and some cancers [5,6]. Given its global prevalence and associated health risks, governments around the world have acted to combat obesity, including the use of weight-related public health campaigns [7]. Such campaigns highlight obesity as a modifiable risk factor for disease and emphasise personal responsibility for obesity, linking weight to caloric intake and physical activity [7–9]. Additionally, campaigns often present
obesity as a public health crisis; a risk to not only the individual, but also the economy and wider community [7,10]. In the current study, campaign narratives that emphasise weight when defining health will be referred to as ‘weight-normative’ [11]. Alternatively, campaign narratives that do not focus on weight when defining health will be referred to as ‘weight-inclusive’.

1.1. Weight-Normative Narratives

Weight-normative narratives are rooted in the belief that there is a strong, positive, linear relationship between weight and risk of disease, and dominate western healthcare practices, public health policy, and public health campaigns [11]. Weight-normative public health campaigns present weight loss in obesity as a central strategy to prevent and treat disease, and typically use language that portrays individuals with obesity as lazy, unattractive, or socially undesirable [12]. Negative images are also central in these campaigns, for example, cropped (headless) bodies [13]. An underlying assumption of weight-normative campaigns is that shaming or stigmatising individuals who are overweight or obese will motivate them to lose weight [7]. However, a growing body of research suggests that these campaigns perpetuate obesity via weight stigmatisation [9,14].

Weight stigma describes anti-fat attitudes, beliefs, and consequential discrimination of individuals with obesity [15]. Weight stigma also contributes to ‘self-stigma’ or internalised weight stigma, the application of negative weight-related beliefs and attitudes to oneself [11], which can be experienced by individuals at all weights [15] and is associated with obesity-promoting behaviours, body image dissatisfaction, low self-esteem, depressive symptoms, and physiological responses linked to weight gain [16,17]. Internalised weight stigma is also associated with healthcare-related distress and avoidance, which can have significant negative health and economic consequences [18].

Recent studies have sought to quantify the association between different forms of weight stigma and mental health, with concerning results. A quantitative synthesis of 30 studies on the association of perceived weight stigma (n = 15,496) and internalised weight stigma (n = 9345) to psychological distress [19] identified moderate associations between perceived stigma and depression, and internalised weight stigma and anxiety and depression. The authors highlighted the importance of designing appropriate and effective interventions to address public weight stigma and self-stigma. Emmer et al. [20] noted that weight stigma is rarely targeted in the prevention and treatment of individuals with overweight or obesity. They found medium to large associations between weight stigma and a broad range of mental health outcomes (anxiety, body image dissatisfaction, depressive symptoms, eating disorders and disordered eating, life satisfaction, psychological distress, quality of life, self-esteem, and other psychopathological symptoms) across 105 studies (n = 59,172), exacerbated by heavier body weight. Particularly strong associations were found between weight stigma and (higher) body image dissatisfaction and depressive symptoms, and (lower) quality of life. In addition, they found that internalised weight stigma had a larger effect on outcomes than public weight stigma.

1.1.1. Personal Responsibility

Weight-normative public health campaigns frequently emphasise personal lifestyle habits as the cause of obesity and attribute sole responsibility to individuals with overweight and obesity [21]. In a review of 30 weight-related public health campaigns in Australia, the US, and the UK, Puhl et al. [9] found that personal responsibility-focused campaigns were rated as the most stigmatising and the least motivating in relation to health behaviour change. Findings also suggested that these campaigns may promote public anti-fat attitudes and behaviours. Campaign messages that focused solely on health-promoting behaviour, for example, increasing fruit and vegetable intake, and promoted self-efficacy for these behaviours were rated as the least stigmatising and more motivating than personal responsibility campaigns.
1.1.2. Public Health Crisis

Weight-normative public health campaigns may also frame obesity as a public health crisis or epidemic [22]. These campaigns portray obesity as a disease to be feared and a moral failing [23]. Such campaigns encourage alarmist news reporting of obesity [23] and may promote public and self-stigma in the community [24]. In a review of Australian obesity prevention campaigns, Couch et al. [25] found that campaigns which focused on the link between obesity and chronic disease encouraged ‘public debate about obesity’. In addition, these campaigns were accompanied by images and messages equating fatness to toxicity and uncleanness, associations that are strongly linked to self-stigma [9,25].

Widespread acceptance of weight-normative narratives of obesity may serve to absolve social, economic, and political structures of blame, instead allocating individuals with obesity to a subordinate position in society, stripping them of social power, and burdening them with personal, economic, and political penalties [26]. Rather than improving health, using personal responsibility and public health crisis narratives in weight-related public health campaigns may perpetuate weight stigma and unhealthy behaviours [24,27]. Weight-inclusive narratives challenge traditional, weight-normative narratives of obesity.

1.2. Weight-Inclusive Narratives

Weight-inclusive approaches to health reject the singular focus on body weight, instead approaching health as a multidimensional phenomenon, including physical, psychological, and social wellbeing [11]. Such approaches advocate for the acceptance of body size diversity and reject the pathologisation of larger bodies.

1.2.1. Health at Every Size

The Health at Every Size (HAES) movement was developed by the Association for Size, Diversity and Health (ASDAH) in 2003 and views health through five principles: (1) weight inclusivity; (2) health enhancement; (3) respectful care; (4) eating for well-being; and (5) life-enhancing movement [28]. The movement supports interventions that promote health behaviour rather than weight loss [11] and is based on the premise that most weight loss interventions, which are consequential to weight-normative narratives, are ineffective in reducing obesity [11]. The HAES narrative differs from weight-normative narratives by de-emphasising the role of weight in health and is based on the belief that everybody can achieve health and well-being, regardless of body size [29].

A review of 10 studies [30] comparing the effect of weight-inclusive and weight-normative approaches on a range of health outcomes found modest trends in favour of weight-inclusive interventions for diet quality and physical activity, and a significant improvement for disordered eating behaviours. However, long-term follow-up studies are needed. One longitudinal study [31] comparing the effectiveness of a HAES-based weight loss intervention to a conventional weight loss intervention found that only the HAES group maintained weight loss at two-year follow up, as well as improvements in blood pressure, cholesterol, depression, and self-esteem. These findings suggest that a HAES approach may be more effective than weight-normative approaches in producing motivation and self-efficacy for sustainable health behaviour change.

Given the preliminary evidence for the superior effect of the HAES approach, as well as its non-stigmatising emphasis, this narrative could be suitable for weight-related public health campaigns [28]. However, critics of HAES argue that the movement does not acknowledge the value of weight loss in improving health [32]. Additionally, HAES is a relatively new approach and thus far has been researched predominantly using female participants with a history of disordered eating or chronic dieting and in non-obese BMI ranges [29,33,34]. Thus, further research is needed to understand the effectiveness of HAES campaigns in the general population.
1.2.2. Fat Acceptance

A second weight-inclusive approach to health is the fat acceptance movement [35]. In alignment with HAES, this movement challenges the assumption of weight as a core determinant of health. Furthermore, the movement rejects the notion that being healthy is a moral obligation [36] and proposes that framing obesity as a public health crisis has created a system of bias that violates the human rights of individuals with obesity in relation to dignity, education, employment, and housing [37]. The fat acceptance movement is focused on dismantling the societal framework that serves to stigmatize and discriminate against fat people [38] through personal resistance and public activism to change social attitudes and practices towards fat people [35].

The use of fat acceptance narratives in public health campaigns may combat both anti-fat attitudes and internalized weight stigma. Frederick et al. [39] found that fat acceptance narratives in obesity-related news articles led to stronger fat-positive attitudes than controls, and that weight-normative narratives contributed to stronger anti-fat attitudes and willingness to discriminate against obese people.

Critics of fat acceptance suggest that the movement may decrease self-efficacy for improving health [26]. However, to our knowledge, this assumption has not been tested. Both the HAES and fat acceptance movements have also been criticized for promoting ‘unhealthy’ body weights. However, several population studies suggest that BMI is not associated with higher mortality [40,41]. In fact, studies have shown that individuals in the overweight BMI category experience the lowest mortality rates, and those in the obese category have similar mortality risks as those in the healthy category [40,42]. Other studies show that the association between obesity and risk of disease disappears or significantly reduces after controlling for other health-related factors, for example, diet quality, physical activity, and socioeconomic status [29,43]. Given these findings and the established negative outcomes of weight stigma, it is important to investigate the effectiveness of weight-inclusive public health campaigns in improving health and wellbeing.

1.3. The Current Research: Aims and Hypotheses

Previous research suggests that weight-normative public health campaigns may inadvertently encourage anti-fat attitudes and weight stigma and discourage motivation and self-efficacy for health behaviour change. Therefore, it is important to evaluate the impact of such campaigns on these outcomes. Additionally, it is possible that the use of weight-inclusive narratives in public health campaigns may reduce anti-fat attitudes and weight stigma. However, the use of weight-inclusive messaging in public health campaigns could also interfere with the promotion of health behaviour change. For instance, fat acceptance messaging may reduce motivation and self-efficacy to engage in health behaviours [26]. Currently, research into the use of such campaigns is lacking.

Therefore, the aim of the current research is to investigate the effect of mock weight-related public health campaigns featuring weight-normative (personal responsibility, public health crisis,) versus weight-inclusive (HAES, fat acceptance) narratives on anti-fat attitudes, weight stigma, and motivation and self-efficacy for health behaviour change.

Study 1 included participants from a range of BMI categories. Four experimental conditions presented campaign messages that differed according to obesity narrative (i.e., personal responsibility, public health crisis, HAES, or fat acceptance), paired with the same image of an overweight woman (see Materials and Measures for study 1). Additionally, two control conditions were used, featuring either the image of the overweight woman or a woman in a healthy BMI category, both without text. The control conditions were used to isolate the effects of the messages from the image. The study also examined BMI, participant sex, motives to control prejudiced reactions, contact with people with obesity, and personal experience with weight-based discrimination as possible covariates [44]. The hypotheses for study 1 were:
1. Weight-normative campaigns (personal responsibility, public health crisis) would be associated with stronger anti-fat attitudes than weight-inclusive campaigns (HAES, fat acceptance);
2. Weight-normative campaigns would be rated as more stigmatising than weight-inclusive campaigns;
3. The HAES campaign would be rated as more motivating than all other campaigns;
4. The fat acceptance campaign would be rated as less motivating than all other campaigns.

Study 2 repeated study 1 using a sample of individuals in overweight or obese BMI categories. Given the change of sample population, anti-fat attitudes were removed as a dependent variable. Anti-fat attitudes, a form of weight stigma common in the general population, were considered less relevant than the reactions of individuals with overweight or obesity to campaigns (stigmatising, motivating). Relatively, self-efficacy for health behaviour change in response to campaigns was added as a dependent variable. Measuring both motivation and self-efficacy allowed for assessment of participants’ intent and confidence to change their health behaviour in response to campaigns. As per study 1, four experimental conditions presented campaign messages that differed according to obesity narrative, paired with the same image; this time, the image featured a woman with obesity due to the higher sample BMI (see Materials and Measures for study 2). There was one control condition, which featured the same image with no text (based on the results of study 1, a second control condition was deemed unnecessary). The same potential covariates from study 1 were included, except for motives to control prejudiced reactions and contact with people with obesity, which were previously included as potential covariates of anti-fat attitudes, and therefore not assessed in study 2. The hypotheses for study 2 repeated the last three hypotheses of study 1 with the following additional hypotheses:
5. The HAES campaign would be associated with higher self-efficacy than all other campaigns;
6. The fat acceptance campaign would be associated with lower self-efficacy than all other campaigns.

2. Study 1
2.1. Methods
2.1.1. Participants
Participants (n = 283) were recruited from a research experience program at an Australian university (68% female, 31% male, 1% other). Participants’ ages ranged from 18 to 74 years (M = 33, SD = 12.03). The mean BMI was 26.66 (SD = 6.70). Most participants (51%) were within the healthy BMI category, with 23% in the overweight category, and 22% in the obese category. A small proportion were underweight or did not specify weight and/or height.

2.1.2. Materials and Measures
Campaign Messages
A pool of campaign messages was developed by the first two authors. The messages for the weight-normative narratives were adapted from Puhl et al. [9] and the Australian ‘Live Lighter’ and ‘Rethink Your Sugary Drink’ campaigns [45]. The messages for the weight-inclusive narratives were developed from the Australian HAES advisory committee website [28] and Frederick et al. [39]. Messages that fitted more than one narrative were subsequently excluded, as were messages that related only to childhood obesity, or messages that were too lengthy for a campaign format. A short-list of nine message options were then rated for fit with each of the four narratives by a panel of (<10) psychology graduate students. The highest rating message for each narrative was then retained for use: “Take steps to reduce toxic fat. Taking the stairs instead of the escalator or lift is an easy way to be more active in everyday life” (personal responsibility); “Two out of three Australians are either overweight or obese. Obesity is a major risk factor for heart disease, type two diabetes and some cancers” (public health crisis); “Healthy should be your goal, not thin. Focus on healthy behaviors that have a meaningful impact on your physical, mental and
social health” (HAES); and “We come in all sizes . . . Understand it. Accept it. Support it.” (fat acceptance).

Campaign Images
In study 1, image 1 (experimental conditions 1–4 and ‘control 1’) consisted of a colour image of a white, overweight woman reproduced from Johnstone and Grant [44]. Image 2 (‘control 2’) consisted of a colour image of a white woman in a healthy BMI category who was of similar attractiveness (objectively rated by participants) to the woman in image 1. In both images the women were shown against a plain backdrop. Images were sourced from Adobe Stock’s online image library (https://stock.adobe.com/au, accessed on 18 March 2018) as per Johnstone and Grant.

Campaign Stigmatisation
Participants answered seven questions [14] about the extent to which the campaign stigmatised overweight or obese people, e.g., “This campaign is insulting towards overweight/obese people” (1 = strongly disagree, 5 = strongly agree). Items were averaged to create total scores, with higher scores indicating higher stigma. Cronbach’s alpha = 0.88 for Campaign Stigmatisation.

Campaign Motivation
Participants answered six questions [14] about the extent to which the campaign motivated health behaviour, e.g., “This message would motivate a person to exercise more” (1 = strongly disagree, 5 = strongly agree). Items were averaged to create total scores, with higher scores indicating higher motivation. Cronbach’s alpha = 0.92 for Campaign Motivation.

Anti-Fat Attitudes
Anti-fat attitudes were measured using the 13-item Anti-fat Attitudes Scale [46]. This scale comprises three subscales measuring dislike, e.g., “I really don’t like fat people much”, fear of fat e.g., “I feel disgusted with myself when I gain weight”, and willpower e.g., “Some people are fat because they have no willpower”. Items were rated on a scale from 1 (very strongly disagree) to 10 (very strongly agree). Subscale items were averaged to create subscale total scores, with higher scores indicating stronger anti-fat attitudes. Cronbach’s alpha = 0.86, 0.80 and 0.76 for Dislike, Fear of Fat and Willpower respectively.

Social Distance
Attitudes about socialising with an individual with obesity were measured using a 6-item Social Distance Scale [47], e.g., “I wouldn’t mind being friends with an obese person” (1 = strongly disagree to 5 = strongly agree). Items were reverse scored then summed so that higher total scores (ranging from 6 to 30) indicated stronger desire for social distance from individuals with obesity. Cronbach’s alpha = 0.81 for Social Distance.

Positive Contact and Negative Contact with Obese Persons
Participants answered two questions [48] about the frequency of positive and negative interactions with obese people: “On average, how frequently do you have positive/good contact with overweight or obese people?” and “On average, how frequently do you have negative/bad contact with overweight or obese people?” (1 = never, 7 = extremely frequently). Higher scores on item one indicated more frequent positive contact with overweight or obese people, and higher scores on item two indicated more frequent negative contact with overweight or obese people.

Personal Experiences of Weight-Based Discrimination
Participant experiences of weight-based discrimination were measured using a 6-item scale [49], e.g., “I regularly encounter weight-related discrimination” (1 = totally disagree,
7 = agree very much). Item scores were summed to create total scores (ranging from 6 to 42), with higher scores indicating more frequent experiences of weight-based discrimination. Cronbach’s alpha = 0.91 for Personal Experiences of Weight-based Discrimination.

Motivation to Control Prejudiced Reactions

A 4-item subset [44,50] of the Motivations to Control Prejudices Reactions Scale [51] was used to measure external motivation to control prejudice or socially desirable responding, e.g., “I always express my thoughts and feelings, regardless of how controversial they might be” (reversed; 1 = strongly disagree, 6 = strongly agree). Item scores were summed to create total scores (ranging from 4 to 24), with higher scores indicating stronger external motivation to control prejudice. Cronbach’s alpha = 0.81 for Motivation to Control Prejudiced Reactions.

Demographic Information

Participants were asked to provide their sex, age, height (centimetres) and weight (kilograms). Weight was divided by height (metres$^2$) to calculate BMI.

Manipulation Checks

At the end of the survey, participants received one of five multiple-choice questions, dependent on experimental condition, to test their recall of the campaign, for example, condition 4, fat acceptance: “According to the campaign you viewed, who come in all sizes?” answer, A = “We do”. In addition, all participants rated the attractiveness (1 = not at all attractive, 7 = very attractive) and weight (1 = underweight, 7 = overweight) of the women featured in the images to assess if the overweight and average weight women were perceived similarly for attractiveness and differently for weight [52]. The weight manipulation check was deemed correct if those who viewed the overweight target gave a weight rating $\geq 5$ and those who viewed the healthy weight target gave a weight rating $\leq 4$. One-way analysis of variance (ANOVA) indicated no significant difference in perceived attractiveness of the woman featured in the image across conditions, $F(5, 209) = 1.52, p = 0.19$. There was a significant difference in perceived weight of the woman featured in the image across weight conditions, $F(5, 209) = 46.93, p < 0.001$. Tukey’s post-hoc test showed that the weight rating for control 2 (healthy BMI category) was significantly lower than for all other campaign conditions ($p < 0.001$), confirming that participants rated the weight images as expected based on condition.

2.1.3. Procedure

The research was approved by the university’s Human Research Ethics Committee (approval number 2018106). The experiment was delivered online, via Qualtrics (https://www.qualtrics.com/au/ accessed on 9 February 2022), with random assignment of participants to conditions activated within the online survey platform. On the first screen of the online experiment, participants read a consent information statement which outlined participants’ rights and interests and informed them that they would be viewing a public health campaign and answering questions that included their impressions of it. Consent was implied by completion of the survey. Participants completed measures in the order shown above and were provided with a debriefing statement at the end of the survey. Participants received course credit in exchange for participation. Survey duration was 30 min.

2.1.4. Data Analysis

Forty cases had substantial missing data ($\geq 30\%$) and were subsequently removed. Twenty-five cases failed a manipulation check ($n = 5$ failed the campaign check; $n = 20$ failed the weight check), leaving 215 cases for analysis with a relatively even spread of participants across conditions (public health crisis condition $n = 39$; fat acceptance condition $n = 38$; HAES condition $n = 37$; personal responsibility condition $n = 36$; control condition
The expectation–maximization (EM) algorithm was used to estimate minimal (<0.50%) missing values on a scale-by-scale basis; Little’s Missing Completely at Random (MCAR) was non-significant for all scales \( p > 0.05 \).

Associations between potential covariates and dependent variables were examined to determine the need to control for continuous covariates in models testing hypothesised differences between conditions (see Results). The effect of condition on campaign stigmatisation and campaign motivation was analysed in separate analysis of variance (ANOVA) models. There were no covariates. The inter-correlated anti-fat attitudes measures (dislike, fear of fat, willpower, and desire for social distance) were analysed in a single, multivariate model which included continuous covariates (i.e., multivariate analysis of covariance; MANCOVA), with the significance level adjusted for the number of dependent variables to \( p < 0.0125 \) (0.05/4). Participant sex showed a significant main effect, \( F (4, 197) = 7.50, p < 0.001 \), but no interaction effect with campaign condition, \( F (20, 792) = 0.61, p = 0.951 \), in the prediction of anti-fat attitudes and was thus controlled in the final model.

### Results

Table 1 shows the correlations among study variables. BMI was positively correlated with campaign stigma and fear of fat, and negatively correlated with dislike and social distance. However, as the correlations were weak, BMI was omitted from the models. Experiences of weight-discrimination was similarly positively correlated with campaign stigma and fear of fat, and negatively correlated with willpower. Again, as these correlations were weak, it was not included as a covariate in the models. Motivation to control prejudiced reactions showed a weak, negative correlation with dislike only and was thus omitted from the models. Positive contact and negative contact with obese persons were moderately correlated with dislike and social distance and were thus controlled in the model for anti-fat attitudes.

| Variable                              | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| 1. Campaign Motivating                | 0.03 |      |      |      |      |      |      |      |      |      |      |
| 2. Campaign Stigmatisation            | 0.02 | −0.04|      |      |      |      |      |      |      |      |      |
| 3. AFAS Dislike                       | 0.03 | 0.12 | 0.23 |      |      |      |      |      |      |      |      |
| 4. AFAS Fear of Fat                   | −0.03| −0.09| 0.54 | 0.21 |      |      |      |      |      |      |      |
| 5. AFAS Willpower                     | −0.01| 0.07 | 0.69 | 0.14 | 0.39 |      |      |      |      |      |      |
| 6. Social Distance                    | 0.09 | 0.23 | −0.09| 0.27 | −0.18| −0.04|      |      |      |      |      |
| 7. Experience of Weight Discrimination| 0.11 | 0.06 | −0.14| −0.03| −0.27| −0.05| −0.06|      |      |      |      |
| 8. Motivation to Control Prejudice    | 0.09 | 0.04 | −0.40| −0.03| −0.13| −0.42| 0.11 | −0.06|      |      |      |
| 9. Positive Contact with Obese Persons| −0.06| 0.16 | 0.30 | 0.04 | 0.06 | 0.31 | 0.18 | −0.04| 0.16 |      |      |
| 10. Negative Contact with Obese Persons| 0.11 | 0.18 | −0.16| 0.18 | −0.12| −0.17| 0.58 | −0.21| 0.21 | 0.01 |      |

Note: Numbers in bold indicate significant correlations, where \( r \geq 0.18 \) is significant; at \( p < 0.01 \) and \( \geq 0.14 \) significant at \( p < 0.05 \). AFAS = Anti-fat Attitudes Scale.

A 2 × 6 between-groups MANCOVA was conducted to investigate the effect of participant sex (participant sex: male, female) and campaign condition (campaign condition: personal responsibility, public health crisis, HAES, fat acceptance, control 1, control 2) on anti-fat attitudes, with positive and negative contact with obese persons included as covariates. The main effect for participant sex on the combined dependent variables was significant, Pillai’s Trace = 0.12, \( F (4, 195) = 6.46, p < 0.001, \eta^2 = 0.12 \), but the main effect of campaign condition was not significant, Pillai’s Trace = 0.10, \( F (20, 792) = 0.99, p = 0.47, \eta^2 = 0.02 \). The effect of positive and negative contact with obese persons on the combined...
dependent variables was also significant, Pillai’s Trace = 0.17, $F (4, 195) = 9.86, p < 0.001$, $\eta^2 = 0.17$ and Pillai’s Trace = 0.12, $F (4, 195) = 6.32, p < 0.001$, $\eta^2 = 0.12$ respectively.

Women reported significantly higher fear of fat ($p < 0.01$) than men (Estimated Marginal Mean $[EMM] = 6.38$, Standard Error $[SE] = 0.21$ and $EMM = 5.16$, $SE = 0.31$ respectively) and men reported significantly higher dislike (of fat) ($p < 0.05$) than women ($EMM = 3.25$, $SE = 0.19$ and $EMM = 2.73$, $SE = 0.12$ respectively). Men also reported significantly higher willpower ($p < 0.05$) than women ($EMM = 6.10$, $SE = 0.26$ and $EMM = 5.43$, $SE = 0.17$ respectively). There was no significant sex difference for social distance (see Table 2).

Table 2. Estimated Marginal Means ($EMM$) and Standard Errors ($SE$) for DVs across Campaign Conditions (Study 1).

| Variable (score range) | Personal Responsibility $n = 36$ | Public Health Crisis $n = 39$ | Health at Every Size $n = 37$ | Fat Acceptance $n = 38$ | Obese Control $n = 32$ | Average Weight Control $n = 30$ |
|------------------------|---------------------------------|---------------------------------|-------------------------------|------------------------|------------------------|------------------------|
|                        | $EMM$ $SE$                       | $EMM$ $SE$                       | $EMM$ $SE$                    | $EMM$ $SE$             | $EMM$ $SE$             | $EMM$ $SE$             |
| AFAS (1–10) Dislike    | 2.97 $0.25$                     | 2.73 $0.24$                     | 2.89 $0.25$                  | 3.19 $0.24$           | 3.03 $0.27$           | 3.17 $0.28$           |
| Fear of Fat            | 5.66 $0.41$                     | 5.39 $0.40$                     | 5.12 $0.41$                  | 6.01 $0.40$           | 6.07 $0.44$           | 6.32 $0.46$           |
| Willpower              | 6.46 $0.39$                     | 5.29 $0.33$                     | 5.55 $0.34$                  | 6.10 $0.33$           | 5.64 $0.36$           | 5.66 $0.37$           |
| Social Distance (6–30) | 10.93 $0.67$                    | 9.04 $0.65$                     | 10.36 $0.66$                 | 9.95 $0.65$           | 10.26 $0.71$          | 9.44 $0.74$           |
| Reaction to Campaign (1–5) |                             |                                 |                               |                        |                        |                        |
| Stigmatising           | 3.07 $0.14$                     | 2.68 $0.15$                     | 2.26 $0.16$                  | 2.47 $0.15$           | 2.83 $0.17$           | 2.21 $0.17$           |
| Motivating             | 3.05 $0.14$                     | 2.68 $0.15$                     | 2.27 $0.14$                  | 1.87 $0.13$           | 2.81 $0.15$           | 2.32 $0.15$           |

Note. Bolded means are significantly lower than underlined means. AFAS = Anti-fat Attitudes Scale. *Significantly lower than personal responsibility only.

A one-way between-groups ANOVA indicated that campaign condition had a significant effect on campaign stigmatisation, $F (5, 209) = 5.24, p < 0.001$, $\eta^2 = 0.11$. Tukey’s post-hoc tests showed the personal responsibility and public health crisis campaigns were rated as significantly more stigmatising than the HAES campaign and control 2 (see Table 2). The personal responsibility campaign showed a non-significant trend towards being more stigmatising than the fat acceptance campaign ($p = 0.07$).

A one-way between-groups ANOVA showed that campaign condition had a significant effect on campaign motivation, $F (5, 209) = 9.58, p < 0.001$, $\eta^2 = 0.19$. Tukey’s post-hoc tests showed that the fat acceptance campaign was rated as significantly less motivating than all campaigns except control 2 (see Table 2).

2.3. Discussion

Study 1 compared the effect of weight-normative (public health crisis, personal responsibility) and weight-inclusive (HAES, fat acceptance) obesity narratives on anti-fat attitudes and reactions to campaigns (stigmatisation, motivation) in mock, weight-related public health campaigns among participants from a range of BMI categories.

2.3.1. Anti-Fat Attitudes

Hypothesis 1 was not supported. Contrary to prediction, weight-normative campaigns were not associated with stronger anti-fat attitudes than weight-inclusive campaigns. In fact, there were no differences across campaign conditions for any specific anti-fat attitudes (dislike, fear of fat, willpower, social distance). Surprisingly, even the fat acceptance campaign, which promotes body size diversity, failed to influence anti-fat attitudes. These findings are inconsistent with Frederick et al.’s [39] study, where the fat acceptance narrative was associated with weaker anti-fat attitudes. According to the elaboration likelihood model of persuasion [53], meaningful attitude change is most likely to occur when an individual is presented with personally relevant and detailed arguments or messages that
can be integrated into established belief structures. It is possible that the brief campaign format used in the current study was unable to provide the depth of information required to challenge participants’ established anti-fat attitudes.

In line with previous research [54,55], we found that there were sex differences in anti-fat attitudes, such that women reported stronger fear of being fat, and men reported stronger dislike and blame of people with obesity. These sex differences are likely influenced by the greater degree of weight stigmatisation of women compared to men [56]. Future health campaigns aimed at changing anti-fat attitudes should consider using anti-fat messages that are targeted to specific audiences to address personal relevance, e.g., internalised weight stigma among women.

Notably, study 1 utilised a convenience sample (students) which comprised a higher proportion of women and individuals in the healthy BMI category compared to the general population. Given sex differences in anti-fat attitudes and differing experiences of weight-related discrimination based on BMI [57], future studies should utilise representative, general population samples to better clarify the influence of different weight-related campaign narratives on anti-fat attitudes in the community.

2.3.2. Stigmatisation

Study 1 partially supported hypothesis 2. As expected, the weight-normative campaigns were rated as more stigmatising than the HAES campaign. Contrary to prediction, the weight-normative campaigns were not rated as more stigmatising than the fat acceptance campaign; however, results showed a non-significant trend in the hypothesised direction. Given the link between weight stigma and obesity-promoting behaviours [17], HAES campaigns may have an important benefit over weight-normative campaigns. Additionally, the weight-normative campaigns were rated as significantly more stigmatising than control 2 (healthy BMI image) but not control 1 (overweight image), suggesting that images of individuals who are not overweight may be preferred in health campaigns.

2.3.3. Motivation

Contrary to hypothesis 3, the HAES campaign was not rated as more motivating for health behaviour change than the other campaigns. This finding is inconsistent with Bacon et al.’s [31] study, which found that an HAES intervention for participants with obesity led to long-term improvements on a range of health outcomes, suggesting greater motivation for health behaviour change. However, individuals with obesity made up only 22% of the sample in the current study, which might have reduced the potency of the message’s effect on motivation for behaviour change.

In partial support of hypothesis 4, the fat acceptance campaign, which lacks a call for action on weight reduction, was rated as less motivating than the HAES and weight-normative campaigns. This finding is consistent with Puhl et al. [58], who found that overweight and obese participants who viewed a range of national obesity campaigns rated messages with no specific, actionable health behaviours as the least motivating. However, the fat acceptance campaign was not rated as less motivating than control 2 (healthy BMI image). This finding may reflect upward social comparison, which can decrease motivation for health behaviour change [59]. Given this, future research may benefit from examining the effectiveness of campaigns that focus on a range of health behaviours rather than a singular focus on weight loss.

3. Study 2
3.1. Methods
3.1.1. Participants

Participants (n = 175) were recruited from Prolific (Prolific.co accessed on 9 February 2022), an online participant crowd-sourcing platform that matches participants to study eligibility criteria using demographic screeners. Eligibility criteria were: Australian citizen or resident, aged 18 years and above, and BMI of 25 or above. Regarding participant sex,
53.4% were male, 44.2% were female, and 1.7% identified as ‘other’. Participants’ ages ranged from 18 to 74 years ($M = 35.61$, $SD = 11.07$). The mean BMI was $31.48$ ($SD = 6.16$) with 53.7% in the overweight category and 46.3% in the obese category (24.6% in obesity class I, 10.9% in obesity class II and 10.9% in obesity class III) [60].

3.1.2. Materials and Measures

Campaign Messages

Campaign messages were the same as study 1, except for the HAES message, which was rewritten using ASDAH principles [28] to better reflect the narrative: “Reject diet mentality, and make peace with your body, do physical activities that you enjoy”.

Campaign Image

The campaign image consisted of a colour image of a white, obese woman walking in a park. The image was sourced from the University of Connecticut Rudd Center for Food Policy and Obesity (https://uconnruddcenter.org/media-gallery/ accessed on 9 February 2022).

Campaign Stigmatisation

See description for study 1. Cronbach’s alpha = 0.86 for Campaign Stigmatisation.

Campaign Motivation

See description for study 1. Cronbach’s alpha = 0.85 for Campaign Motivation.

Campaign Self-Efficacy

Participants answered four questions [14] about the extent to which the campaign generated self-efficacy for health behaviour change, e.g., “I am likely to change my behaviour based on this message” (1 = strongly disagree, 5 = strongly agree). Items were averaged to create a total score, with higher scores indicating higher self-efficacy. Cronbach’s alpha = 0.83 for Campaign Self-efficacy.

Personal Experiences of Weight-Based Discrimination

See description for study 1. Cronbach’s alpha = 0.92 for Personal Experiences of Weight-based Discrimination.

Demographic Information

See description for study 1.

Manipulation Check

At the end of the survey, participants were asked to identify from a list which campaign message they had read, to test their recall of the campaign. Fifteen cases failed the manipulation check and were removed (control condition $n = 5$; HAES condition $n = 3$; personal responsibility condition $n = 3$; fat acceptance condition $n = 2$; public health crisis condition $n = 2$), leaving 175 cases for analysis with a relatively even spread of participants across conditions (public health crisis condition $n = 37$; fat acceptance condition $n = 37$; personal responsibility condition $n = 34$; HAES condition $n = 34$; control condition $n = 33$).

3.1.3. Procedure

The research was approved by the university’s Human Research Ethics Committee (approval number 202030454843). The procedure was the same as study 1, with the exception that participants received a small amount of money in exchange for participation. Survey duration was shorter (10 min) due to assessing fewer potential covariates.
3.1.4. Data Analysis

As per study 1, associations between potential covariates and dependent variables were examined to determine the need to control for continuous covariates in models testing the hypothesised differences between conditions (see Results). Campaign stigmatisation was analysed via analysis of covariance (ANCOVA) to allow for control of experiences of discrimination, identified as a covariate. There was a significant interaction between campaign condition and participant sex in the prediction of campaign stigmatisation, thus participant sex was also controlled in the ANCOVA model for this dependent variable. Campaign motivation and self-efficacy had no covariates and were analysed via separate ANOVA models.

3.2. Results

Twenty-one cases had a BMI in the healthy range and were subsequently removed for not meeting inclusion criteria (BMI > 25). There were no missing data.

Table 3 shows the correlations among study 2 variables. BMI (skewed to overweight and obesity in this sample) was unrelated to reactions to campaigns. Experiences of weight-based discrimination showed a moderate, positive correlation with campaign stigmatisation only.

| Variable                           | 1       | 2       | 3       | 4       | 5       |
|------------------------------------|---------|---------|---------|---------|---------|
| 1. Campaign Motivation             | -0.25   |         |         |         |         |
| 2. Campaign Stigmatisation         |         | -0.23   |         |         |         |
| 3. Campaign Self-efficacy          | 0.69    |         |         |         |         |
| 4. Experience of Weight Discrimination | 0.03   | 0.30    | 0.07    |         |         |
| 5. BMI                             | -0.04   | 0.12    | -0.01   | 0.47    |         |

Note: Numbers in bold indicate significant correlations, where \( r \geq 0.23 \) is significant at \( p < 0.01 \) and \( \geq 0.19 \), significant at \( p < 0.05 \).

The final model for campaign stigmatisation revealed significant main effects for campaign condition, \( F(4, 161) = 2.71, p < 0.05, \eta^2 = 0.06 \) and personal experiences of weight discrimination, \( F(1, 161) = 9.23, p < 0.05, \eta^2 = 0.05 \), and a significant interaction effect for campaign condition by participant sex, \( F(4, 161) = 3.43, p < 0.05, \eta^2 = 0.08 \). Pairwise comparisons of estimated marginal means showed that the personal responsibility campaign was rated as significantly more stigmatising than all other campaigns (see Table 4).

To examine the interaction between campaign condition and participant sex for campaign stigmatisation, separate ANCOVAs were conducted for men and women, controlling for experiences of weight-based discrimination. The ANCOVA model for women was significant, \( F(4, 80) = 6.447, p < 0.001, \eta^2 = 0.26 \). Consistent with the overall model, pairwise comparisons showed that the personal responsibility campaign was rated as significantly more stigmatising than all other campaigns. However, the ANCOVA model for men was non-significant, \( F(4, 86) = 0.68, p = 0.611, \eta^2 = 0.03 \) (see Table 4).

There was no main effect of participant sex and no interaction between campaign condition and participant sex for campaign motivation or self-efficacy. One-way between-groups ANOVAs indicated that campaign condition had a significant effect on campaign motivation, \( F(4, 170) = 8.40, p < 0.001, \eta^2 = 0.17 \) and campaign self-efficacy \( F(4, 170) = 8.53, p < 0.001, \eta^2 = 0.17 \). Tukey’s post hoc tests showed that the fat acceptance campaign was rated as significantly less motivating than all the other campaigns except the HAES campaign (see Table 4). Similarly, the fat acceptance campaign showed significantly lower self-efficacy than all other campaigns, and the public health crisis campaign showed significantly lower self-efficacy than the personal responsibility campaign (see Table 4).
Table 4. Estimated Marginal Means (EMM) and Standard Errors (SE) for DVs across Campaign Conditions (Study 2).

| Campaign Condition          | Variable (score range) | EMM | SE  | EMM | SE  | EMM | SE  | EMM | SE  |
|-----------------------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Personal Responsibility     | Reaction to Campaign   |     |     |     |     |     |     |     |     |
| n = 34                      | (1–5)  Stigmatising     | 3.07| 0.14| 2.62| 0.14| 2.50| 0.15| 2.43| 0.14|
| Public Health Crisis        | All                    |     |     |     |     |     |     |     |     |
| n = 37                      | Men                    | 2.61| 0.21| 2.50| 0.21| 2.74| 0.20| 2.40| 0.20|
| Health at Every Size        | Women                  | 3.54| 0.19| 2.76| 0.18| 2.27| 0.22| 2.47| 0.19|
| Fat Acceptance              | Motivation             | 3.27| 0.14| 2.90| 0.15| 2.79| 0.15| 2.26| 0.14|
| Control                     | Self-efficacy          | 3.54| 0.17| 2.89*| 0.16| 3.18| 0.17| 2.27| 0.16|

Note: **Bolded** means are significantly lower than underlined means. * Significantly lower than personal responsibility only.

3.3. Discussion

Study 2 compared the effect of weight-normative and weight-inclusive obesity narratives on reactions to campaigns (stigmatisation, motivation, self-efficacy) among participants with overweight or obesity.

3.3.1. Stigmatisation

Study 2 partially supported hypothesis 2. Among individuals with overweight and obesity, the weight-normative personal responsibility campaign was rated as more stigmatising than all other campaign conditions. This was not surprising, given that framing obesity as an individual problem assumes blame and ignores broader societal factors such as socioeconomic status and obesogenic environments [61]. This finding is consistent with Frederick et al. [39] who found that messages that blame individuals for their heaviness are perceived as the most stigmatising. However, our results showed that when data for men and women were analysed separately, only women rated the personal responsibility campaign as more stigmatising than the other campaigns. Women with overweight or obesity may be more sensitive to stigmatisation in messages due to a higher frequency of, or more distressing, personal experiences with weight stigma [62]. Notably, our campaign featured an image of a woman with obesity; thus, female participants might have identified more closely with the campaign than men. Given this finding, future health campaigns could include both men and women to reduce the focus on women.

Contrary to hypothesis 2, results of study 2 found that the public health crisis campaign was not rated as more stigmatising than the weight-inclusive campaigns. Individuals with overweight or obesity may perceive the public health crisis narrative as less stigmatising than the personal responsibility narrative because it focuses on health and humanity rather than personal traits or lifestyle habits.

3.3.2. Motivation

Consistent with study 1, study 2 did not support hypothesis 3; the HAES message was not more motivating than the other campaigns, despite a focus in this study on individuals with overweight or obesity. Although not a significant finding, the personal responsibility campaign (“Take steps to reduce toxic fat. Taking the stairs instead of the escalator or lift is an easy way to be more active in everyday life”) showed the highest mean for motivation in both studies. It is possible that the explicit, graphic focus of the personal responsibility campaign message (i.e., reduction of “toxic fat”), coupled with specific behavioural recommendations provided more incentive for behaviour change. Another potential explanation is that participants were not as familiar with the weight-inclusive HAES narrative as the
weight-normative narratives, thus limited exposure to the HAES message was insufficient to encourage motivation, especially given the likelihood of entrenched, internalised weight stigma among heavier individuals [63]. In Bacon et al.’s [31] study, participants received six months of weekly exposure to HAES messaging; in contrast, our participants were exposed to the HAES message once. Future studies should consider increasing exposure time or frequency to campaigns to facilitate familiarity and comprehension of the messages and underlying principles before assessing the motivational properties of each campaign.

Study 2 results provided partial support of hypothesis 4, whereby the fat acceptance campaign was rated as less motivating than the weight-normative campaigns. These findings suggest that although the fat acceptance narrative may be less stigmatising than weight-normative narratives, it does not support health behaviour change. The fat acceptance movement’s rejection of weight loss as a moral obligation is counter to the promotion of health behaviour change, which may explain why the campaign was not perceived as motivating.

3.3.3. Self-Efficacy

Contrary to hypothesis 5, exposure to the HAES campaign did not lead to greater self-efficacy than the other campaigns. As expected, and in support of hypothesis 6, the fat acceptance campaign was associated with lower self-efficacy for health behaviour change than the other campaigns. The personal responsibility campaign was associated with higher self-efficacy than the public health crisis and fat acceptance campaigns but did not differ significantly from the HAES campaign. It is possible that the directive nature of the message used in the personal responsibility campaign contributed to a greater sense of confidence in carrying out the health behaviour recommendations.

4. General Discussion

Research has established that a focus on weight loss alone often fails to produce long-term weight reduction or, importantly, improvements in health behaviour and physical health [64]. Traditional, weight-normative obesity narratives present a higher BMI as the root cause of poor health, alongside implications of individual responsibility for weight, obesity as a public health crisis, and weight loss as a moral obligation [11]. However, more recent research, backed by growing weight-inclusive movements, suggests that the relationship between weight and health is far more complex, and is correlational rather than causal [29,43]. For instance, health behaviours such as poor nutrition and lack of physical activity appear to be a better indicator of health [65]. Furthermore, weight-normative narratives of obesity contribute to anti-fat attitudes and weight stigma in the community [9,14], which are associated with a range of negative health consequences [16,55].

To our knowledge, this study was the first to examine the effect of weight-inclusive versus weight-normative narratives in mock weight-related public health campaigns, extending previous research on obesity narratives explored in different contexts [39]. Our findings build on this research by examining the effect of alternative weight-related health narratives, such as HAES, on weight stigma and indicators of health behaviour change.

The weight-inclusive HAES narrative’s promotion of body-diversity acceptance did not translate into the expected reduction in anti-fat attitudes. Findings suggested that this message may require refinement to strike a balance between content that is non-stigmatising yet favourable for health behaviour change. Overall, the HAES campaign performed well for stigma reduction, but not motivation or self-efficacy. Among individuals with overweight and obesity, this might reflect past discrimination experiences and ingrained beliefs that undermine the notion that one can be fit and healthy at any size. Notably, our study examined the effectiveness of only two examples of a HAES message. Furthermore, it is likely that participants were more familiar with weight-normative narratives than the HAES or fat acceptance narratives, which might have reduced the relative impact of the weight inclusive campaigns on the outcomes assessed compared to weight normative campaigns. Our initial findings for HAES narratives are encouraging and pertinent for
future campaigns. Although the weight-normative personal responsibility campaign was perceived as stigmatising, our findings suggest it could increase motivation and self-efficacy through its message of controllability. To better clarify the effect of weight-normative versus weight-inclusive narratives on self-efficacy, future studies should compare campaigns that target the same health behaviours using different narratives, e.g., “Take steps to reduce toxic fat. Do physical activities” (weight-normative) versus “Reject diet mentality and make peace with your body, do physical activities that you enjoy” (weight-inclusive).

The weight normative public health crisis narrative did not confer an advantage in relation to any of the outcomes examined. This narrative was perceived as more stigmatising than the weight-inclusive narratives in study 1 and was associated with less self-efficacy than the personal responsibility campaign in study 2. The weight-inclusive fat acceptance campaign showed a trend for lower stigma ratings in study 1 and was rated as less stigmatising than the personal responsibility campaign in study 2, but fared the worst for motivation and self-efficacy for health behaviour change.

Strengths, Limitations, and Future Directions

A strength of the current study was the use of an experimental between-subjects design with control conditions to isolate the effect of each obesity narrative, including effects independent of the weight of the women featured in the campaigns. Our approach enabled us to simultaneously compare the effect of different obesity narratives on weight stigma and indicators of health behaviour change, motivation, and self-efficacy. As participants in healthy versus overweight/obese BMI categories are likely to differ in sensitivity to stigmatisation in campaigns due to personal experiences with weight stigmatisation [62], it was important to examine reactions to campaigns specifically within the overweight and obese population. By excluding participants in the healthy BMI category in study 2, we obtained results that reflected overweight and obese individuals’ reactions to weight-related public health campaigns.

To explore the effect of different obesity narratives in the context of weight-related public health campaigns more effectively, repeated exposure to messages and use of multiple mediums should be considered in future studies. It is possible that the static, single image presentation of the mock campaigns used in this study limited the depth of information each campaign was able to convey, subsequently reducing the impact of the narratives. Additionally, the single exposure to campaigns in this study does not reflect real-world experiences where individuals may be exposed to the same campaign repeatedly over an extended period, and sometimes via varying mediums. Future longitudinal studies should assess the effect of repeated, multi-media campaign exposure over time on anti-fat attitudes and reactions to campaigns [66]. Additionally, as the current research was not longitudinal, it was not possible to examine whether the campaigns had any lasting effect, such as positive behavioural change e.g., increased physical activity. Future research would benefit from including follow-up assessments of health behaviour change.

Given that individuals in different BMI categories are likely to experience differing levels of stigma, especially within the higher classes of obesity [67], future research may benefit from examining the impact of specific BMI category membership on reactions to weight-related public health campaigns. Comparisons across BMI categories (e.g., overweight through to morbidly obese), which were not a focus for this study, could provide information about whether particular campaign narratives are more or less stigmatising for different weight groups.

5. Conclusions

The current study compared weight-inclusive and weight-normative narratives in mock weight-related public health campaigns to measure their effect on anti-fat attitudes and reactions to campaigns. Our findings suggest that the use of an HAES narrative in public health campaigns may be beneficial for reducing weight stigma. Our findings also indicate that the inclusion of specific and actionable recommendations for health
behaviour change in public health campaigns may promote self-efficacy for behaviour change, although the translation of higher self-efficacy into health outcomes in this context is yet to be established. We recommend a balanced approach to weight-related public health campaigns whereby campaign messages motivate and empower health behaviour change without stigmatising individuals who are overweight or obese.

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