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ARTICLE

How conceptualizing obesity as a disease affects beliefs about weight, and associated weight stigma and clinical decision-making in health care

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Abstract

Objectives: This study empirically investigated how conceptualizing obesity as a disease (i.e., pathologizing obesity) affects beliefs about weight, and weight stigma and discrimination among health professionals.

Design: An experiment that manipulated the pathologization of obesity was completed by a multi-nation sample of health professionals from Australia, UK, and USA ($N = 365$).

Methods: Participants were randomly assigned to one of two conditions where they were asked to conceptualize obesity as a disease or not a disease; then presented with a hypothetical medical profile of a patient with obesity who was seeking care for migraines. We measured biogenetic causal beliefs about obesity, endorsement of weight as a heuristic for health, negative obesity stereotypes, and treatment decisions.

Results: Participants in the disease (vs. non-disease) condition endorsed biogenetic causal beliefs more strongly and made more migraine-related treatment recommendations. No effect of the manipulation was found for the remaining outcomes. Biogenetic causal beliefs about obesity were associated with *less* weight stigma. Endorsing weight as a heuristic for health was associated with *greater* weight stigma and differential treatment recommendations focused more on the patient's weight and less on their migraines.

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Conclusions: Pathologizing obesity may reinforce biogenetic explanations for obesity. Evidence demonstrates complex associations between weight-related beliefs and weight stigma and discrimination. Biogenetic causal beliefs were associated with less weight stigma, while endorsing weight as a heuristic for health was associated with greater weight stigma and differential treatment. Further research is needed to inform policies that can promote health without perpetuating weight-based rejection in health care.

KEYWORDS

health care, health professionals, obesity as a disease, weight stigma, weight-based discrimination

Statement of contribution

What is already known on this subject?

- Weight stigma and discrimination can lead to poor health outcomes and avoidance of health care..
- Pathologizing obesity has mixed effects on weight stigma among laypeople.
- Among health professionals, pathologizing obesity is associated with reduced blame.

What does this study add?

- Pathologizing obesity strengthens health professionals' biogenetic causal beliefs about obesity.
- Biogenetic causal beliefs about obesity are associated with less weight stigma in health care.
- Endorsing weight as a heuristic for health is associated with greater weight discrimination.

INTRODUCTION

Obesity—a condition that is diagnosed when a person's body mass index (BMI) is 30 kg/m² or above—has been established as a risk factor for a number of non-communicable diseases, including cardiovascular disease, diabetes type II, and several types of cancer (Australian Institute of Health and Welfare, 2017). However, the question of whether obesity is itself a disease, or should be classified as one, has been the subject of ongoing debate. Two key areas of disagreement are whether recognizing obesity as a disease will (1) improve the quality of health care for people with obesity and (2) reduce weight stigma. The current research aims to address these issues by empirically investigating the effect of conceptualizing obesity as a disease (i.e., pathologizing obesity) on weight stigma and discrimination among health professionals.

People with obesity¹ are frequent targets of weight stigma (i.e., negative attitudes) and discrimination (i.e., prejudicial behaviour; Spahlholz et al., 2016). We refer to stigma and discrimination here collectively as weight-based rejection. Weight-based rejection is fuelled by negative stereotypes and assumptions about weight. In particular, weight is typically assumed to be controllable—something that can be readily altered through diet and physical activity—and is often used as a heuristic for determining a person's health, with higher weight assumed to mean poorer health (Hunger et al., 2020; Puhl & Brownell, 2003). Consequently, people with obesity are often stereotyped as being unhealthy, lazy, overindulgent, incompetent, and lacking in self-control and motivation (Diedrichs & Puhl, 2016).

Previous research suggests that health professionals are a common source of weight-based rejection (Sutin & Terracciano, 2017). Health professionals have been found to (1) hold negative attitudes towards patients with obesity; (2) blame patients with obesity for their weight and other health conditions; and (3) provide unsolicited and inappropriate weight management advice (Phelan et al., 2015; Rathbone et al., 2020). Research has demonstrated that weight-based rejection is associated with increased inflammation and physiological stress responses, as well as depression, anxiety, and disordered eating (Wu & Berry, 2018). It has also been found to reduce body satisfaction, self-esteem, and motivation to engage in healthy eating and exercise behaviours (Hunger et al., 2018; Vartanian & Novak, 2011). In addition, experiencing weight-based rejection in health care can damage patient-provider rapport and lead patients to avoid care altogether (Phelan et al., 2015).

Does pathologizing obesity reduce weight-based rejection?

There is an ongoing debate among health experts, policy makers, and activists regarding whether obesity should be recognized as a medical disease. This debate not only revolves around whether obesity meets the definition of a disease, but also the merits of categorizing it as one, regardless of whether it meets formal criteria (Allison et al., 2008). Those who believe that obesity should be labelled a disease have argued that such a label will increase attention and resources devoted to treating and preventing obesity, such as increased insurance coverage for evidence-based obesity treatments (Kyle et al., 2016). They have also argued that categorizing obesity as a disease will reduce weight-based rejection by attenuating the amount of blame placed on individuals with obesity (Pearl, 2018). Based on these arguments (among others), several leading medical organizations have formally recognized obesity as a chronic disease (e.g., World Obesity Federation, American Medical Association; Bray et al., 2017). However, critics have argued that recognizing obesity as a disease may increase weight-based rejection, particularly if it leads health professionals to rely more on weight as a heuristic for health (NAAFA, n.d.; Fox et al., 2021). In this context, health professionals may focus on weight management as a proxy for health management, which could be discriminatory if weight-related advice is unsolicited or leaves other health issues pertinent to the patient going untreated (Amy et al., 2005; Moore, 2014).

While both arguments are compelling, there has been little empirical investigation of the consequences of recognizing obesity as a disease. Preliminary research suggests that pathologizing obesity in this way may have mixed implications for weight-based rejection. On the positive side, several studies among laypeople in the US and Canada have found that framing obesity as a disease may decrease weight stigma by reducing perceptions of weight controllability and blame directed towards people with obesity (Ata et al., 2018; Nutter et al., 2018). To date, only one study has investigated the effect of pathologizing obesity among health professionals. MacInnis and colleagues conducted a correlational study with physicians in Canada and found that those who perceived obesity as a disease blamed people with obesity for their weight significantly less (MacInnis et al., 2020). This reduction in blame was associated with more positive attitudes towards people with obesity.

On the negative side, however, preliminary research suggests that pathologizing obesity may also *increase* weight stigma through an opposing psychological process: essentialism. Essentialism is the belief that an entity has an ‘essence’ that is fixed, stable, and identity defining (Dar-Nimrod & Heine, 2011; Rydell et al., 2007). Previous research in the context of mental illness suggests that the disease model of mental disorders encourages essentialist thinking in part because it endorses biogenetic explanations for mental disorders and categorizes the affected as distinct from the unaffected (Haslam, 2000). In doing so, disease models may reinforce negative stereotypes that emphasize a clear distinction between “us” (the unaffected) and “them” (the affected), increasing stigma (Haslam & Kvaale, 2015; Kvaale et al., 2013).

In the context of weight, studies have found associations between biogenetic causal explanations for weight, essentialist thinking, and stigma (Hoyt et al., 2019; Puhl & Liu, 2015). For example, Hoyt et al. (2016) conducted a series of experimental studies in which US adults were randomly assigned to read an article that either (1) explained why obesity had been classified as a disease by the American Medical Association;

or (2) discussed the high degree of control that people have over their weight. Results revealed that framing obesity as a disease did not directly affect weight stigma (operationalized as anti-fat attitudes) but instead had opposing indirect effects on weight stigma through blame and essentialism. Participants who read about obesity being recognized as a disease attributed significantly less blame towards people with obesity for their weight, and as a result, reported significantly less weight stigma, compared with participants who read about the controllability of weight. Yet, simultaneously, these participants also reported an increase in the degree to which they essentialized weight, which was in turn associated with *increased* weight stigma.

In sum, the existing literature suggests that pathologizing obesity may have mixed implications for weight stigma, due to the opposing psychological processes at play. However, MacInnis et al.' (2020) correlational study with Canadian physicians remains the only extant research (to our knowledge) that has examined the consequences of pathologizing obesity among health professionals—a study that did not examine the role of biogenetic explanations or essentialism. How pathologizing obesity affects health professionals' biogenetic causal beliefs or essentialist thinking regarding obesity is unknown. Furthermore, no research to date has examined the impact of pathologizing obesity on health professionals' reliance on weight as a heuristic to assess patient health, or their treatment approach. The assumption that weight is an indicator of health is thought to be a key driver of weight-based rejection, particularly in primary and public health care (Hunger et al., 2020). Therefore, if pathologizing obesity does indeed reinforce health professionals' endorsement of weight as a heuristic for health, this may be an additional psychological mechanism through which pathologizing obesity may influence both weight stigma and the presence of discrimination in health professionals' treatment approach towards patients with obesity.

The aim of the current research was to investigate the consequences of pathologizing obesity for weight-related beliefs (biogenetic causal beliefs about obesity and endorsing weight as a heuristic for health) and weight-based rejection among health professionals. We conducted an experimental test of the effect of conceptualizing obesity as a disease (as opposed to not a disease) on the extent to which health professionals (a) believed that obesity is caused by biogenetic factors, (b) endorsed weight as a heuristic for health, (c) endorsed negative obesity stereotypes (weight stigma), and (d) provided unsolicited weight management advice to a patient with obesity whose presenting condition was not clearly associated with weight (weight-based discrimination).

It was hypothesized that health professionals in the disease (vs. non-disease) condition would report significantly stronger biogenetic causal beliefs about obesity (H1) and greater endorsement of weight as a heuristic for health (H2). We also hypothesized that health professionals in the disease (vs. non-disease) condition would report significantly greater weight stigma (H3) and provide significantly more unsolicited weight-related treatment recommendations to a patient with obesity (H4). These hypotheses were preregistered on the Open Science Framework and can be accessed [here](#).

In addition to the preregistered hypotheses, we explored the impact of the disease (vs. non-disease) condition on health professionals' treatment of the patient's presenting condition (migraines); as well as associations among measures of weight-related beliefs and weight-based rejection.

METHOD

Participants

Health professionals in Australia, the United Kingdom (UK), and the United States of America (USA) who were fully qualified or completing their practitioner training (e.g., medical students) were invited to participate in “A study about patient treatment from the health professional's perspective”. We defined a health professional as a qualified or in-training member of a health care profession that provided health care services to human patients and was likely to be involved in the care of patients with obesity (e.g., medical doctor, nurse, dietitian, psychologist; Australian Capital Territory Government Department of Health, 2020). A key outcome of interest in this study was the diagnostic and medical procedures participants recommended for a patient with obesity (further details provided in Measures). Therefore,

recruitment focused on medical professionals (i.e., medical doctors and nurses) wherever feasible, resulting in slightly different inclusion criteria in each sample.

Australian respondents were recruited online using snowballing methods and Facebook advertising, and were entered into a draw to win one of three AUD \$50 gift cards. UK respondents were recruited by medical students as part of their research project. USA respondents were recruited online through Amazon Mechanical Turk (MTurk). To recruit the target sample, respondents on MTurk first completed a short screening survey consisting of five demographic questions, one of which was their occupation, and received USD \$0.03 for their participation. Those who indicated they were a qualified or in-training Doctor of Medicine or Nurse were invited to complete the full 15-min study for an additional USD \$1.85. A total of 2370 respondents completed the screening survey, of which 78 completed the full survey.

Of the 465 respondents obtained across all three samples, 100 were excluded from analyses because they failed to confirm that they were a qualified or in-training health professional in Australia, UK, or USA, and/or they did not respond to the manipulation (i.e., provided no response or a response that was unintelligible, such as a string of letters). This resulted in a final sample of $N = 365$ (196 qualified health professionals and 169 in-training). Age ranged from 18 to 70 years ($M = 33.48$); BMI ranged from 17.63 to 60.75 ($M = 25.13$); 74.5% identified as female; 83.4% identified as Caucasian/White. Full participant demographics are reported in [Table 1](#).²

Design and procedure

The current study was approved by the human research ethics committees from each author's institution. A between-participants experimental design was used and the study was conducted using Qualtrics. An adaptation of a paradigm developed by Haslam et al. (1999) was used to manipulate the extent to which participants conceptualized obesity as a disease. Participants were randomly assigned to one of two conditions, where they were asked to provide three arguments for either why obesity should (disease condition) or should not (non-disease condition) be classified as a disease. This paradigm has been used in previous research and found to be effective in manipulating the extent to which people endorse a particular group or perspective (Western et al., 2022). However, as it has not been used in the current context before, a manipulation check was included to confirm whether the manipulation was successful in creating a significant difference between conditions in participants' self-reported pathologization of obesity. Following the manipulation, all participants were presented with a hypothetical female patient's medical profile. After examining the profile, participants responded to questionnaires assessing weight-related beliefs and weight-based rejection.

Materials

Participants were presented with the medical profile for a hypothetical female Caucasian patient named Susan. The profile included a photo, demographic information (e.g., 44 years of age), and medical history which indicated that Susan had a BMI of 36.13, no existing diagnoses or illnesses, normal cholesterol levels, and slightly elevated blood pressure. Susan was described as seeking health care for “two serious migraines [she had experienced] in the past 12 months”. Acute migraine was chosen as the presenting condition because its association with weight is comparatively less clear than other conditions, such as cardiovascular disease (Winter et al., 2009). In addition, best practice guidelines for treating acute migraines do not include weight management (Becker et al., 2015; Jenkins, 2020). Thus, we reasoned that including weight management in the treatment of Susan's acute migraines may be considered inappropriate—particularly given that Susan did not request weight management advice. This paradigm was adapted from Rathbone et al. (2020).

TABLE 1 Participant demographic information

	All (<i>N</i> = 365)	Qualified (<i>N</i> = 196)	In-training (<i>N</i> = 169)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Age	33.48 (13.73)	41.68 (13.24)	24.01 (6.07)
Body Mass Index	25.13 (5.30)	26.51 (5.91)	23.53 (3.92)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Gender			
Female	272 (74.5)	156 (79.6)	116 (68.6)
Male	91 (24.9)	40 (20.4)	51 (30.2)
Country			
Australia	161 (44.1)	103 (52.6)	58 (34.3)
United Kingdom	146 (40.0)	51 (26.0)	95 (56.2)
United States of America	58 (15.9)	42 (21.4)	16 (9.5)
Ethnicity			
Caucasian/White	302 (83.4)	168 (87.1)	134 (79.3)
Asian	30 (8.3)	9 (4.7)	21 (12.4)
African American/Black	3 (0.8)	2 (1.0)	1 (0.6)
Aboriginal and Torres Strait Islander	3 (0.8)	2 (1.0)	1 (0.6)
Hispanic	2 (0.6)	2 (1.0)	0 (0.0)
Other/Not specified	22 (6.1)	10 (5.2)	12 (7.1)
Qualification status			
Qualified	196 (53.7)	–	–
In-training	169 (46.3)	–	–
Occupation (or relevant degree)			
Medical Doctor	179 (49.0)	51 (26.0)	128 (75.7)
Nurse	114 (31.2)	89 (45.4)	25 (14.8)
Physiotherapist	16 (4.4)	16 (8.2)	0 (0.0)
Dietitian	9 (2.5)	6 (3.1)	3 (1.8)
Psychologist	19 (5.2)	12 (6.1)	7 (4.1)
Other	28 (7.68)	22 (11.2)	6 (3.6)

Measures

Manipulation check

The extent to which health professionals pathologized obesity was assessed using a single item: “Obesity should be classified as a disease”, on a sliding scale from 0 (No, obesity should definitely not be classified as a disease) to 100 (Yes, obesity should definitely be classified as a disease).

Biogenetic causal beliefs

Participants indicated their agreement with the statement “Obesity is caused by biological factors such as genes and hormones” on a 6-point Likert scale (1, very strongly disagree to 6, very strongly agree). This item was adapted from the Immutability subscale of the Essentialist Beliefs Scale (Haslam & Levy, 2006).³

Weight as a heuristic for health

Three items from the Health subscale of the Fat Attitudes Assessment Toolkit, which has been found to have excellent reliability ($\alpha = .82$) and criterion and construct validity (Cain, 2019), assessed endorsement of weight as a heuristic for health. Participants indicated their agreement with three statements (“Body weight isn't a reliable indicator of health”, “Fat people are not necessarily unhealthy”, “Healthy bodies come in all shapes and sizes”) on a 7-point Likert scale (1, strongly disagree, to 7, strongly agree). All items were reverse scored such that higher scores indicated greater endorsement of weight as a heuristic for health ($\alpha = .79$).

Weight stigma

Weight stigma was operationalized as negative stereotypes about the patient and assessed using the six-item Negative Obesity Stereotypes scale (Beames et al., 2016). Participants rated the patient on six common obesity stereotypes: lazy, sloppy, self-disciplined (reverse scored), over-indulgent, motivated (reverse scored), poor personal hygiene. Responses were given on a 7-point Likert scale (1, not at all, to 7, extremely; $\alpha = .74$).

Treatment recommendations

Participants were presented with a list of 43 diagnostic and medical procedures (adapted from Hebl & Xu, 2001) and asked to indicate which procedures they would consider to be an important part of Susan's care. Participants could select as many or as few as they deemed appropriate. The degree to which procedures were related to migraines and weight varied. Eight procedures were primarily related to migraines (conduct a visual screen, eye test, MRI, and CT scan; check blood hormone levels; gather menstrual cycle information; prescribe pain medication; refer to a neurologist); ten related primarily to weight (test cholesterol, triglyceride, and glucose levels; assess body fat percentage; gather dietary intake information; consult about weight-loss, exercise, nutrition, and bariatric surgery; prescribe weight-loss medication). The remaining 25 procedures were not explicitly relevant to treating either weight or migraines (e.g., test for blood type, reflex test, prescribe anti-depressants).

The proportion of available *weight-related recommendations* made (total number of weight-related recommendations divided by 10), and the proportion of available *migraine-related recommendations* made (total number of migraine-related recommendations divided by 8) were examined.⁴

RESULTS

Correlations, means, and standard deviations for all variables are reported in Table 2.⁵ Analyses were conducted in R version 4.1.0. A series of Analysis of Variance (ANOVA) tests were conducted to assess the effect of condition on the manipulation check and each outcome.

Manipulation check

Condition had a significant effect on pathologizing obesity, $F(1, 358) = 21.54, p < .001, \eta^2 = .06$. As expected, compared with the non-disease condition ($M = 54.13, SD = 30.21$), the disease condition was associated with greater pathologization of obesity ($M = 68.27, SD = 27.52$).

TABLE 2 Frequencies, means, standard deviations, and correlations

Variables	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8	9	10
1. Condition ^a	—	—									
2. Manipulation check	61.16 (29.72)	.24***	—								
3. Biogenetic causal beliefs	3.94 (1.02)	.13*	.15**	—							
4. Weight as a heuristic for health	3.23 (1.31)	.05	.17**	-.19***	—						
5. Weight stigma	3.39 (0.84)	-.04	-.05	-.18***	.29***	—					
6. Weight-related treatment	0.32 (0.26)	.02	.08	-.05	.14**	.12*	—				
7. Migraine-related treatment	0.26 (0.20)	.12*	.03	.09	-.19***	-.19***	-.02	—			
8. BMI	25.13 (5.30)	.02	.11*	.05	-.05	-.09	-.07	-.05	—		
9. Status ^b	—	-.01	-.07	.18***	-.18***	-.07	.05	.08	-.28***	—	
10. Australia (vs. UK/USA) ^c	—	-.06	.13*	.02	-.05	-.07	-.02	.01	.11*	-.18***	—
11. UK (vs. Australia/USA) ^d	—	.09	-.15**	-.06	-.05	.02	-.07	.10	-.25***	.31***	-.73***

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

^aCondition was coded 1 = non-disease, 2 = disease.

^bStatus was coded 1 = qualified, 2 = in-training.

^cCountry dummy variable 1 was coded 1 = Australia, 0 = UK, 0 = USA.

^dCountry dummy variable 2 was coded 0 = Australia, 1 = UK, 0 = USA.

Preregistered hypotheses

Condition had a significant effect on biogenetic causal beliefs, $F(1, 361) = 6.39, p = .012, \eta^2 = .02$. In comparison with the non-disease condition ($M = 3.81, SD = 1.07$), the disease condition was associated with a stronger belief that obesity is caused by biogenetic factors ($M = 4.08, SD = 0.95$), supporting H1 (see Figure 1).⁶

No significant effect of condition was found for weight as a heuristic for health, $F(1, 361) = 1.06, p = .305, \eta^2 < .01$; weight stigma, $F(1, 362) = 0.63, p = .428, \eta^2 < .01$; or weight-related recommendations, $F(1, 363) = 0.09, p = .769, \eta^2 < .01$, inconsistent with H2, H3, and H4.

Exploratory analyses

ANOVA was used to test the effect of condition on migraine-related recommendations. Linear regression analyses were also conducted to examine associations between weight-related beliefs (biogenetic causal beliefs and weight as a heuristic for health) and weight stigma and treatment recommendations.⁷ Each outcome was examined separately, with associations displayed in Figure 2.

Condition had a significant positive effect on migraine-related recommendations, $F(1, 363) = 4.90, p = .027, \eta^2 = .01$. This suggested that, in comparison to the non-disease condition ($M = 0.24, SD = 0.19$), the disease condition was associated with an average 20% increase in the proportion of available migraine-related recommendations made for the patient ($M = 0.29, SD = 0.21$).

Regression analyses revealed a significant negative association between biogenetic causal beliefs and weight stigma, $\beta = -.12, p = .016, \eta_p^2 = .02$. Participants with a stronger belief in the biogenetic causes of obesity endorsed fewer negative stereotypes. Biogenetic causal beliefs were not significantly correlated with weight-related, $\beta = -.03, p = .582, \eta_p^2 < .01$, or migraine-related, $\beta = .06, p = .279, \eta_p^2 < .01$, recommendations.

Significant positive associations were found between endorsing weight as a heuristic for health and both weight stigma, $\beta = .26, p < .001, \eta_p^2 = .07$, and weight-related recommendations, $\beta = .13, p = .014, \eta_p^2 = .02$. Health professionals who reported greater endorsement of weight as a heuristic for health also endorsed more negative stereotypes and provided more unsolicited weight management advice. Endorsing weight as a heuristic for health was also negatively associated with migraine-related recommendations, $\beta = -.18, p = .001, \eta_p^2 = .03$. Health professionals who reported greater endorsement made significantly fewer migraine-related recommendations.

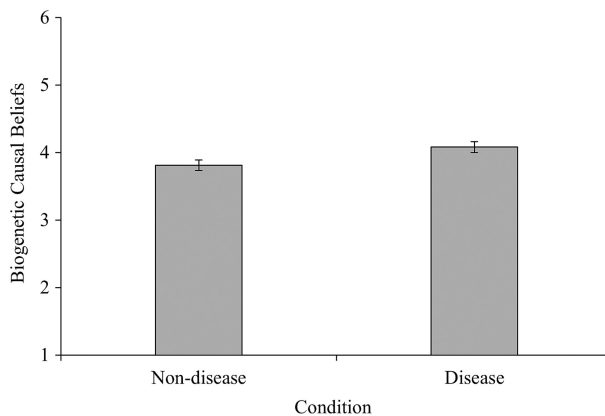
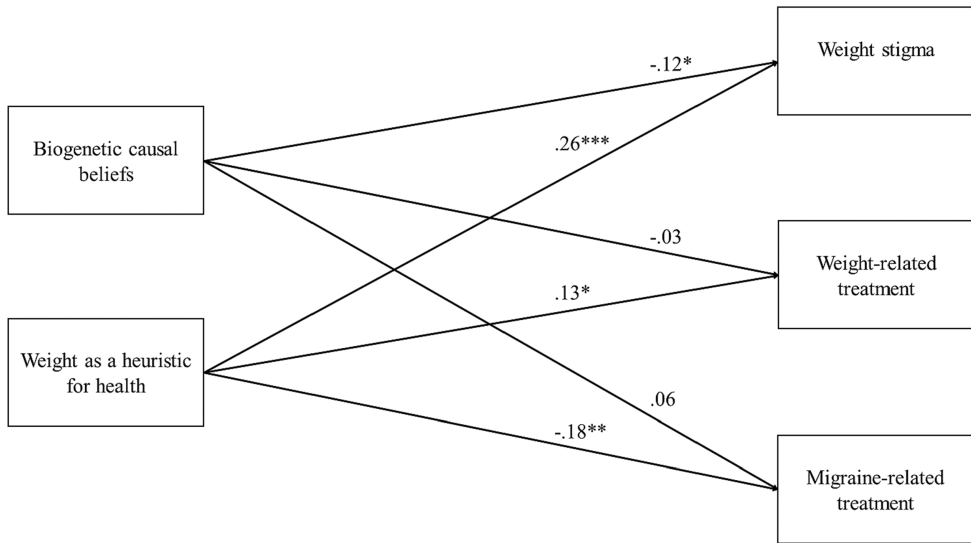


FIGURE 1 Effect of experimental condition on biogenetic causal beliefs. *Note:* Bars represent standard error. Higher scores indicate a stronger belief that obesity is caused by biogenetic factors



* $p < .05$. ** $p < .01$. *** $p < .001$.

FIGURE 2 Standardized coefficients from linear regression analyses demonstrating associations between weight-related beliefs and indices of weight-based rejection. * $p < .05$. ** $p < .01$. *** $p < .001$

DISCUSSION

The purpose of the current research was to investigate the effect of pathologizing obesity on weight-related beliefs (biogenetic causal beliefs about obesity and endorsing weight as a heuristic for health) and weight-based rejection among health professionals. Results revealed that health professionals in the disease (vs. non-disease) condition believed more strongly that obesity is caused by biogenetic factors—providing support for H1. This is consistent with previous research (Haslam & Kvaale, 2015; Puhl & Liu, 2015) and suggests that a disease model for obesity may encourage acceptance of biogenetic explanations for obesity. Although essentialism was not directly assessed in this study, previous research in weight and non-weight contexts suggests that endorsing a disease model for obesity may also increase essentialist thinking among health professionals (Haslam, 2000; Hoyt et al., 2016).

Inconsistent with our other hypotheses, the experimental manipulation did not influence the extent to which health professionals endorsed weight as a heuristic for health (H2), endorsed negative stereotypes about the patient with obesity (H3), or provided unsolicited treatment for the patient's weight (H4). Rather, exploratory analyses found that health professionals in the disease condition focused significantly more on treating the patient for their migraines than health professionals in the non-disease condition. Together, these findings suggest that pathologizing obesity may not lead health professionals to rely any more on weight as a heuristic for health than they may already do; nor may it directly influence the prevalence of weight-based rejection in health care. Although the focus on weight may not change, pathologizing obesity may increase health professionals' focus on treating patients with obesity for presenting conditions that are not clearly associated with weight.

While the manipulation used in this study appeared to work as expected, its effect on self-reported pathologization of obesity was small to moderate. Thus, the manipulation may not have been powerful enough to influence participants' endorsement of weight as a heuristic for health or weight-based rejection, or we may not have had sufficient power to detect small effects on these outcomes. Despite the lack of experimental evidence, correlational data suggest that self-reported pathologization of obesity was significantly associated with greater endorsement of weight as a heuristic for health, as well as stronger biogenetic causal beliefs about obesity. Given that self-reported pathologization of obesity was used here as a manipulation

check, interpretation of these findings should be made with caution. Still, they highlight a need for further investigation in to the relationship between pathologizing obesity and weight-related beliefs.

Exploratory results also shed light on the complex relationships between weight-related beliefs and weight-based rejection. Contrary to previous research (Hoyt et al., 2016; although see Hilbert, 2016), biogenetic causal beliefs appeared to be associated with *less* weight stigma. No significant correlations were found between health professionals' biogenetic causal beliefs about obesity and their treatment decisions. In contrast, health professionals who reported greater endorsement of weight as a heuristic for health also endorsed *more* negative stereotypes about the patient, and had a greater tendency towards differential treatment that focused more on providing unsolicited weight management advice and less on treating the patient's presenting condition. While these results are correlational, they suggest that, if endorsing weight as a heuristic for health is an important predictor of weight-based rejection in health care, health policies and training programs that encourage this heuristic may inadvertently perpetuate weight-based rejection in this context.

A closer examination of the means revealed that health professionals, on average, made more treatment recommendations for the patient's weight (32% of available weight-related recommendations) than their migraines (26% of available migraine-related recommendations). This pattern was apparent among participants in both experimental conditions, indicating that health professionals in this study appeared to focus more on providing unsolicited weight management advice than on treating the patient for their presenting condition.

It is perhaps unsurprising that health professionals' attention was directed towards weight management as well as the presenting condition. If a patient presents with a medical condition, health professionals have a duty of care to provide treatment for that condition, regardless of whether the patient was initially seeking that treatment or not. Although the evidence supporting an association between weight and acute migraines has been inconsistent, some research suggests that people with a BMI ≥ 35 kg/m² are more likely to experience chronic migraines (Winter et al., 2009), and that weight-loss or positive lifestyle changes may reduce migraine severity and duration among people with obesity who experience migraines regularly (Razeghi Jahromi et al., 2018). Therefore, it is not unreasonable for health professionals to see weight management as a part of care for patients with obesity experiencing migraines. However, if this focus on weight management is unsolicited—as found in the current study—and comes at the expense of providing best practice forms of treatment for the patient's health needs, it may be experienced by patients as discriminatory and have serious negative consequences for patient health.

Implications, strengths, and limitations

The current study is the first to demonstrate a relationship between endorsing weight as a heuristic for health and weight-based rejection. While the assumption that weight is an indicator of health is widely recognized in the literature as a key driver of weight-based rejection (Hunger et al., 2020), the effect of this assumption on weight-based rejection has been largely untested. We found that endorsing weight as a heuristic for health is associated with greater weight stigma and discrimination among health professionals. In addition, this study provides further empirical evidence that recognizing obesity as a disease may increase beliefs linked to essentialist thinking, which were associated with lower weight stigma.

The findings from the current study have important implications for policy and education. They suggest that recognizing obesity as a disease may be ineffective in reducing weight-based rejection in health care, but it is not clear that it would exacerbate weight-based rejection in this context either. Correlational findings suggest that health policies that endorse biogenetic explanations for obesity—such as those that recognize obesity as a disease—may be associated with *lower* weight stigma (but not weight-based discrimination), while policies that endorse weight as a heuristic for health may be associated with *greater* weight stigma and discrimination. Whether such policies directly influence weight-based rejection among health professionals remains unclear. Nevertheless, it is our hope that the results from this study will draw attention to the potential negative and positive consequences that may arise from policies that encourage these weight-related beliefs.

The current study was not without limitations. First, most of the exploratory findings were correlational, limiting conclusions regarding causal effects of weight-related beliefs on weight-based rejection. Second, several deviations from the preregistered methods were made, including the decision to combine the two samples and use a single item measure of biogenetic causal beliefs. While the latter deviation was made on theoretical grounds and due to the poor internal consistency of the combined scale in one sample, the psychometric properties of this single item may not have been substantially stronger than the combined scale. Third, the rationale behind participants' treatment decisions was not examined. It is therefore unclear whether the observed differential treatment occurred because participants believed that the patient's weight and migraines were (a) linked and thus weight management was seen as an important part of migraine treatment or (b) separate conditions and that treating the patient's weight was more important than treating their migraines—the latter of which would provide stronger evidence of weight-based discrimination.

Further research is required to conduct more rigorous tests and gain a more comprehensive understanding of the psychological processes through which pathologizing obesity may influence weight-based rejection in health care, while considering contextual factors. For example, future research could investigate health professionals' reasoning behind their clinical decisions for higher weight patients; and how the pathologization of obesity, beliefs about the causes of obesity, and the use of weight as a heuristic for health might inform this decision-making. This research is critical to ensure that policies are developed based on evidence that is both robust and relevant to the context in which it is implemented. It is also necessary for the successful development and implementation of training programs and interventions that aim to reduce weight-based rejection in health care.

CONCLUSION

In sum, this research suggests that pathologizing obesity in health care may not directly increase weight-based rejection among health professionals—but neither may it reduce it. However, pathologizing obesity may increase health professionals' endorsement of biogenetic explanations for obesity, and their focus on treating the primary presenting health concerns of higher weight patients. Correlational evidence also highlights complex relationships between weight-related beliefs and weight-based rejection. Specifically, by emphasizing biogenetic explanations for obesity, pathologizing obesity may be associated with less weight stigma among health professionals. In addition, health policies that encourage the use of weight as a heuristic for health may be associated with greater weight stigma, as well as health professionals' tendency to make treatment decisions for patients with obesity that could be experienced as discriminatory. Although further investigation is needed, it is our hope that future considerations for policy change, including the debate over whether obesity should be recognized as a disease, will be informed by the science that demonstrates the likely impact on health professionals, patients, and effective health care for people with obesity.

AUTHOR CONTRIBUTIONS

Joanne A Rathbone: Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; visualization; writing – original draft; writing – review and editing. **Tegan Cruwys:** Conceptualization; investigation; methodology; supervision; visualization; writing – review and editing. **Jolanda Jetten:** Conceptualization; methodology; supervision; visualization; writing – review and editing. **Kasia Banas:** Investigation; methodology; project administration; writing – review and editing. **Lillian Smyth:** Investigation; writing – review and editing. **Kristen Murray:** Investigation; writing – review and editing.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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This article has earned an Open Data badge for making publicly available the digitally-shareable data necessary to reproduce the reported results. The data is available at <https://osf.io/2d9cy/>.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study, as well as the experimental materials, surveys, and preregistrations, are publicly available on the Open Science Framework at this [link](#). Citation: Rathbone, J., Cruwys, T., Jetten, J., Banas, K., Smyth, L., & Murray, K. (2022, July 25). Pathologizing Obesity. Retrieved from osf.io/2d9cy.

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FOOTNOTES

- ¹ Given the medical context, and in line with recommendations from the Obesity Action Coalition (2019) on the use of non-weight-stigmatizing language, person-first language (e.g., “people with obesity”) is used throughout this paper. However, we acknowledge that there is also ongoing debate regarding whether person-first language in the context of weight is in fact less stigmatizing, and that there is currently no consensus among individuals with a BMI ≥ 30 regarding their preferred weight terminology (Meadows & Danielsdóttir, 2016).
- ² This study was originally envisioned as two separate studies: the first with health professionals from Australia and the second with health professionals from the UK and USA, as per preregistration. The second sample was recruited as a follow-up study to test for mediation. However, after collecting the data from the second sample, we made a post hoc decision to combine the two samples and focus on testing the hypotheses preregistered for the first study. Additional analyses were considered exploratory. Combining the two samples provided greater statistical power, reducing the risk of Type II error. Demographics and results separated by sample, as per the preregistration, are available in Table S2.
- ³ Two remaining items from the Immutability subscale were preregistered: “An obese person can be a normal weight” (reverse scored), “Whether or not a person will become obese is pretty much set early on in childhood”. However, the composite measure was found to have poor internal consistency (Cronbach's $\alpha = .30$) in the Australian sample, which did not improve when any one item was deleted (Cronbach's α ranged from .13 to .31). To address this, a post hoc decision was made to retain the item that assessed the belief that obesity is caused by biogenetic factors as a single item measure (because this item was most closely aligned with the previous literature that had informed our research questions and hypotheses) and drop the other two items for the remainder of the project. This decision was made prior to any tests of the hypotheses.
- ⁴ Chi-squared tests were also conducted to investigate differences between conditions for each of the 43 treatment recommendations (in line with preregistration). Results from these analyses with the combined (Table S1) and separate samples (Tables S4 and S5) are reported in the Supporting Information. Additional outcomes derived from the treatment decisions measurement tool were preregistered but were not examined here (see the Supporting Information for further details).
- ⁵ Missing values analysis revealed that all variables and participants had less than 5% missing data. Little's MCAR test was not significant, $\chi^2(203) = 220.172, p = .194$, suggesting no evidence that data were not missing completely at random.

- ⁶ A one-way ANOVA was conducted to test the effect of condition on the combined Immutability subscale with the Australian sample where it was available only. Results revealed no significant effect of condition, $F(1,157) = 1.14, p = .288, \eta^2 < .01$.
- ⁷ It is plausible that participants' weight-related beliefs, weight stigma, and treatment decisions might have been influenced by (a) their own BMI, (b) the level of training and experience when it comes to treating patients with obesity, or (c) contextual differences between the three countries (e.g., the extent to which weight is endorsed as a heuristic for health at a structural level). However, results remained the same when controlling for participant BMI (standardized), qualification status, and country of residence (two dummy coded variables comparing (a) Australia to UK and USA, and (b) UK to Australia and USA).

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