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ORIGINAL RESEARCH

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The prevalence and practice impact of weight bias among New Zealand registered dietitians

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Abstract

Aim: This study explored demographics and three characteristics of registered dietitians—optimism, perfectionism, and weight bias and whether they affect three components of dietetics practice—dietetics assessment, dietetics recommendations, and dietitian's perception of the client's success.

Methods: A self-administered questionnaire was completed by 92 registered dietitians and student dietitians in New Zealand to assess explicit weight bias. Participants were randomised to receive a case study for a condition unrelated to weight accompanied by a photo of a woman with either a smaller or a larger body. Participants then assessed the client based on data provided, provided recommendations, and rated their perception of the client.

Results: Mean (±SD) scores indicated mild fatphobia (2.63±0.39) in participating dietitians. Dietitians presented with the photo of a larger client assessed the client to have lower health and were more likely to provide unsolicited weight management recommendations. Additionally, dietitians rated the larger client as less receptive and motivated, and less likely to understand the recommendations adequately, with a lower ability to comply with and maintain these recommendations.

Conclusions: Dietitians and student dietitians in New Zealand may practise in a manner that could be perceived as influenced by negative implicit weight bias, despite the explicit fatphobia scale scores assessing only mild fatphobia. Further research examining the extent of the problem in New Zealand, how it impacts client outcomes, and possible solutions are required.

KEYWORDS

dietetics, dietitians, fat bias, fatphobia, obesity, weight stigma

1 | INTRODUCTION

Weight stigma refers to the social devaluation, denigration, and marginalisation of fat people.[1] Weight bias includes beliefs and preferences for or against specific body shapes and sizes. This can be internalised to the self 'I don't like my body shape', and it can be externalised to others, 'I don't like their body shape'.[2] Weight stigma is the negative social impact of weight bias and discrimination, such as being bullied or verbally abused by strangers. Examples of weight stigma include ridicule from strangers, unsolicited advice regarding weight or diet from strangers, family, friends, and microaggressions such as staring, rolling eyes, and tutting.[3,4]

Weight stigma in our physical environment, healthcare system, media, entertainment, politics, from loved ones, and social stereotypes make people feel like they should take up less space.[5,6] Weight stigma is positively associated with diabetes risk, cortisol level, oxidative stress level, C-reactive protein level, eating disturbances, depression, anxiety, body image dissatisfaction, and negatively associated with self-esteem.[6,7] Weight stigmatisation of larger-bodied individuals threaten their health, generates health disparities, and interferes with effective public health intervention efforts.[5,8] Many of the adverse biochemical changes that are associated with adiposity can also be caused by the psychological stress that accompanies the experience of frequent weight-based discrimination.[9,10] Social disadvantages may specifically affect body weight through chronic stress, anxiety, and negative mood, which are associated with abdominal adiposity. They may increase the risk for weight gain by activating physiological mechanisms that can increase appetite and blunt the satiety system, increasing fat retention and food intake.[5,10] Compared to other forms of prejudice (e.g. racism, sexism), the prejudice and discrimination directed towards fat people are more likely to be publicly sanctioned even when openly hostile; which is why weight stigma is often referred to as the last socially acceptable prejudice.[1] Weight shaming does not motivate behaviour change.[11]

Weight bias includes inflexible and irrational attitudes and opinions held by members of one weight-based group about another.[3] Weight bias comes from multiple contributors.[12] Weight bias can stem from misinformation which is a culturally held untrue belief that people can control the size and shape of their body and that people need to have a smaller body to be healthy.[13] The development and perpetuation of stereotypes about people in higher-weight bodies has come from the portrayal of people in higher-weight bodies in entertainment media.[14] Weight bias also comes from the sociocultural narrow range of acceptable female body sizes and shapes.[15] Diet culture which is a belief system that focuses on and values weight, shape, and size over well-being also contributes to weight bias.[16] There is also conflicting and confusing information about food, weight, bodies, and health. Education and training in healthcare also contribute to weight or size bias.[17,18] Personality traits (e.g. optimism and perfectionism) also influence weight bias. Optimists are people who expect good things to happen to them and people with higher levels of optimism are more likely to make positive health changes, have greater persistence when trying to achieve health goals, and be more likely to engage in health-promoting behaviour.[32,33,34] Perfectionism is a trait that can be described as having high and unrealistic personal standards combined with self-criticism.[35] Perfectionists have an increased risk for all-cause mortality compared to those with lower perfectionism scores.[25,35] The optimism and perfectionism level of dietitians in New Zealand and how this may affect weight bias and/or dietetics practice has not been assessed previously.

Dietitians are also exposed to the toxic messages in our culture and will have their stereotypes, biases, and stigma to become aware of and ensure that these are not passed on to the client in various verbal, non-verbal, or systemic ways.[18–20] Weight-neutral interventions are based on the fundamental idea that a person's health status or risk level cannot be assumed based solely on a number on a scale.[15] The weight-neutral approach acknowledges that body weight is determined by a complex set of genetic, metabolic, physiological, cultural, social, and behavioural determinants, many of which individuals cannot change.[21] Instead of focusing on a weight-oriented outcome, participants in weight-neutral programs are taught to take charge of the factors they can, such as thoughts and behaviours which ultimately lead to improved well-being, regardless of weight.[22] Weight-inclusive interventions acknowledge that the person in a higher weight body has experienced weight discrimination based on their body size and this may have caused further harm to psychological and physical well-being.[21,23] Non-stigmatising health care assumes everybody can achieve greater health and well-being regardless of current body weight.[5] Proponents of this approach believe weight is not a behaviour and countless self-care behaviours can improve health measures and day-to-day life.[21,23] Dietitians are not truly seeing their clients if they do not seek to understand the suffering that accompanies body-based oppression.[24] Dietitians need to develop a deeper and broader understanding of how weight stigma shows in the world, in their communities, and in practice spaces.[13,20]

The initial part of this study aimed to examine whether New Zealand registered dietitians and student dietitians possess a weight bias as assessed by the

fatphobia scale.[25] The subsequent part of this study tested two hypotheses. First, it was hypothesised that a client's perceived weight status would influence patient care including perception, assessment, and recommendations. Second, it was hypothesised that a picture of a woman in a higher weight body would prime more negative responses from dietitians than a picture of a woman with a smaller body, concerning their attitude towards working with the patient.

2 | METHODS

The research methods used in this study are adapted from the study conducted by Diversi et al which assessed the prevalence and practice impact of weight bias among Australian dietitians.[25]

Participants completed an online, anonymous, five-part self-report survey using Qualtrics (Supplementary file 1).[26] The initial section (Part A) of the questionnaire asked demographic questions and questions related to dietetics qualifications. Part B was the Revised Life Orientation Test questionnaire to measure optimism. Part C was the Perfectionism Inventory to measure perfectionism. Part D was the fatphobia scale to measure fatphobia. Part E was the case study and Parts E1–E3 were questions related to the case study and dietetics practice. Participants were randomised into one of two groups; one group viewed a photo of a client with a smaller body and the other group viewed a photo of a client with a larger body.[25] The case studies for either option was the same, except for the photo that accompanied the case study. The case study was a fictional case study of a client: Sally Smith. The two photos of the case study client were chosen because they were the same photos used in the original study by Diversi et al.[25] have several similarities including style and colour of dress, stance, level of the smile, the colour of eyes, colour of hair, style of hair in the photo, and eyeglasses. The case study identified that Sally was consulting the dietitian due to lactose intolerance. This condition was chosen because the management should be the same regardless of weight status.[27] Previous studies investigating dietitian assessment used lactose intolerance successfully.[25,28]

The diet history was designed to replicate healthy eating as outlined by the Eating and Activity Guidelines for New Zealand Adults for women between 19 and 30 years of age.[29] The case studies both indicated that their level of exercise was between the recommendation of 30 min per day for health and prevention of disease and 60–90 min per day for weight loss.[30] Biochemical and biomedical data commonly collected in chronic disease risk screening was provided to reflect good health, by being within the reference range for each measure.[31] The profile of the case study presented can be found in Supplementary file 1.

A purposive sample of New Zealand Registered Dietitians and student dietitians was invited to participate through an email list serve by Dietitians New Zealand, a membership organisation for dietitians and student dietitians, after approval from the University of Auckland Institutional Review Board Human Research Ethics Committee (Reference Number 024334). At the time of data collection, the invitation had the potential to reach 600 dietitians and student dietitians through Dietitians New Zealand membership. Results were included for participants who completed the questionnaire in its entirety. Of the 116 that started the questionnaire, 92 (79%) completed the questionnaire in its entirety. Of all the 92 respondents, $n = 85$ (92%) were Registered Dietitians, and the remaining participants were student dietitians $n = 7$ (8%). Information on the number of potential participants who opened the email invitation was not available. If all opened the email, the response rate would be 19.3%.

All participants completed the Revised Life Orientation Test, which is considered a unidimensional measure, assessing the level of optimism.[32] It is a 10-item; self-report measure that assesses optimism according to the respondent's expectations for positive outcomes on a 5-point Likert scale. Of the 10 items, only six items are scored, half of these scores are phrased in a positive direction, and half of these scores are phrased in a negative direction.[33] To compute an aggregated single score ranging from 0 to 24 for each participant, the negatively worded items were reverse coded before being summed with the positively worded items. The Revised Life Orientation Test scale was chosen for its length, reliability, and validity.[34] A score of 13 or less signifies low optimism. A score between 14 and 18 identifies moderate optimism, and a score of between 19 and 24 indicates high levels of optimism.

Perfectionism was calculated using the perfectionism inventory.[35] The perfectionism inventory is an eight-item self-report measure to assess perfectionism traits. Respondents are asked to report how much they agree with statements such as 'I am particularly embarrassed by failure' on a 5-point Likert scale from 'I agree a lot' to 'I disagree a lot'. The eight-perfectionism inventory scales measured are concern over mistakes; high standards for others; the need for approval; organisation; parental pressure; planfulness; rumination; and striving for excellence. To calculate an aggregated single score ranging from 8 to 40 for each participant, all individual scores on the eight items were added. The perfectionism inventory was chosen for its length, reliability, and validity.[35] In

development, this scale was designed to capture the most important constructs of the Multidimensional Perfectionism Scale and the new perfectionism scales.[35] Scores between 29 and 40 indicate high levels of perfectionism. Scores between 21 and 28 indicate moderate levels of perfectionism, and scores below 20 indicate low levels of perfectionism.

The term 'fatphobia' refers to a pathological fear of fatness often manifested as negative attitudes and stereotypes about fat people.[36] The fatphobia scale is a measure of a person's attitude towards fat people.[36] The short form was found to be reliable (Cronbach's alpha 0.87 and 0.91 for two different samples) and highly correlated with the original scale ($r = 0.82$ and 0.90 for the same two samples) while reducing the number of items from 50 to 14.[37] The short-form scale was chosen because the 14-item questionnaire is relatively short, reducing inconvenience for participants. The 14-item questionnaire uses a 5-point Likert scale between competing terms where subjects choose a number closest to the adjective, they believe most closely describes 'obese' or 'fat' people. Competing adjectives include lazy/industrious; has willpower/has no willpower; and attractive/unattractive. The total fatphobia score is obtained by summing the values obtained for each of the 14 items on a scale of 1 to 5 and dividing this sum by 14. Higher scores indicated a higher degree of fatphobia. A score above 4.4 (on a scale of 5) is considered to indicate a high level of fatphobia. A neutral or positive view of overweight people is indicated by a score of less than 2.5, a low level of fatphobia is indicated by a score of 2.51–3.45, and a moderate level of fatphobia is indicated by a score of 3.46–4.39 in the United States in 2001.[37] The mean score for the general population is 3.6[37] and the mean score for students of dietetics majors has been calculated previously at 3.66[38] and for dietitians at 3.83.[39]

The recommendations for the case study that the participants could choose from were a mix of strategies suggested and commonly used for lactose intolerance[27] and overweight and obesity, as outlined in Clinical Guidelines for Weight Management of New Zealand adults.[40] The recommendations (a) exclude all dairy products; (b) allow lower lactose dairy products; (c) recommend probiotic supplements; (d) replace dairy with dairy alternatives; (e) use lactase treated foods; and (f) recommend low glycaemic index or load foods were presented with a 5-point Likert scale from 'strongly disagree' through to 'strongly agree'. The recommendations (a) body weight; (b) portion sizes; (c) exercise; (d) fibre intake; (e) energy intake; (f) fat intake; (g) carbohydrate intake; and (h) protein intake was presented with a 5-point scale from 'reduce greatly' to 'increase greatly'.

Participants were asked how much they would enjoy working with this patient to determine differences between working with larger bodied versus smaller bodied individuals on a 5-point Likert scale from 'very little' to 'very much'. Participants were asked to rate their (a) client's diet quality; (b) overall health status; (c) energy intake; and (d) level of physical activity on a 5-point Likert scale from 'very inadequate' to 'excellent'. Participants were also asked about their perception of their client's future success in weight management. On a 5-point Likert scale from 'very well' to 'very poorly', participants were asked to rate how (a) receptive the patient will be to treatment recommendations; (b) well their patient understood treatment recommendations; (c) motivated their client was to change their diet; (d) compliant their client was to treatment recommendations (e) successful the client will be in making changes, and (f) successful the patient will be at maintaining these changes.

Total recommendation score for each client was calculated by adding individual scores on the 15 items (five of them were reverse coded). Total recommendation score was divided by the number of items answered (15) to represent average recommendation score ranging from 1 to 5. Total dietetics assessment (evaluation) score was calculated by adding individual scores on the 4 items. Total evaluation score was then divided by the number of items (4) to represent average evaluation score ranging from 1 to 5. Total perception was also calculated by adding individual scores on the 6 items. This score was divided by the total number of items answered (6) to represent average perception score ranging from 1 to 5. Working attitude score was only measured by a single item.

All data were analysed using SPSS version 20.0 (IBM Corp, Armonk NY). This included the fatphobia scale score, perfectionism inventory score, revised life orientation test score, the total score for dietetics assessment, the total score for dietetics recommendations, and total score for dietitian's perceptions of the client's future success. Frequency analysis was completed for height, weight, age, body mass index (BMI), experience, fatphobia scale, perfectionism inventory, revised life orientation test. Frequency analysis was also used to determine whether the BMI of our sample was different from those reported by the Ministry of Health.[41] Several correlations were computed to determine whether any dietitian characteristics correlated with fatphobia scale score or any of the items within dietetics practice. Correlations were also calculated between mean fatphobia scores and perceptions of patients, and between the two personality characteristics (optimism and perfectionism) to determine any relationship to weight bias and/or dietetics practice. Analysis of variance (ANOVA) was conducted to examine whether

the institution (where dietitians received their education/qualification) explained any difference in dietitians' weight bias, dietetics assessment, or dietetics recommendations. The Mann–Whitney *U* test was used to determine any differences in groups where the results were not normally distributed to determine the statistical significance in the way dietitians showed their working attitudes towards larger bodied and smaller bodied female clients were carried out. The Mann–Whitney *U* test examined whether physical appearance (i.e., pictures of patients) caused any difference in any of the recommendations for lactose intolerance between the two patients.

3 | RESULTS

A total of 92 participants were included in the study. They were then randomised equally to receive either the larger bodied case study ($n = 46$) or the smaller bodied case study ($n = 46$). The majority (99%) of participants were women. Most participants (35.4%) were between 25 and 34 years, and one-quarter (25.7%) were aged between 35 and 44 years. The average weight and height of participants was 66.42 kg (*SD* 12.92) and 164.9 cm tall (*SD* 9.28), respectively. Participants had a mean BMI of 24.95 kg/m^2, and most participants 57.5% ($n = 65$) were within the 18.5–24.9 kg/m^2 BMI range, 17.7% ($n = 20$) were between 25 and 30 kg/m^2, and 8% ($n = 9$) had a BMI over 30 kg/m^2. Compared with the general population, a greater proportion of dietitians in this study had a BMI in the 18.5–25 kg/m^2 range (68.4% vs. 36%). There was no significant difference in participant characteristics between those who reviewed the smaller and larger body case studies. The demographics of the participants are reported in Table 1.

TABLE 1 Participant demographics

Demographic	Mean	Standard deviation
Age (years)	27	9.1
Height (cm)	164.9	9.28
Weight (kg)	66.42	12.92
BMI (kg/m^2)	24.95	8.67
Graduation year	2009	11.54
Years of experience (years)	10.94	11.46
Fatphobia[a]	2.63	0.39
Optimism[b]	17.1	4.30
Perfectionism[c]	10.18	5.28

Abbreviation: BMI, body mass index.
[a]Fat phobia scored out of 5 (3.51–3.45 = low, 3.46–4.39 = moderate, ≥4.4 = high, ≤2.5 = neutral).[37]
[b]Optimism scored out of 24 (≤13 = low, 14–18 = moderate, 19–24 = high).[33]
[c]Perfectionism scored out of 40 (≤20 = low, 21–28 = moderate, 29–40 = high).[35]

The dietitians' fatphobia scale score and optimism scores showed mild explicit weight bias and high optimism, whilst the great majority of the dietitians showed low perfectionism. Dietitians within this sample had a mean fatphobia scale score of 2.63 (*SD* 0.39) and most participants recorded fatphobia scores that indicated mild fatphobia. Three participants indicated neutral fatphobia scores (≤2.5), two participants indicated moderate fatphobia scores (3.46–4.39), and none indicated high fatphobia scores (>4.40). Mild (scores of 2.51–3.45) fatphobia was indicated by $n = 91$ (95%) participants. There was no relationship between dietitian BMI and fatphobia ($r = -0.102$, $p > 0.1$). Forty-five percent of the participants scored in the 'high optimism' category (19.00–24.00). The level of optimism in this sample was not linearly related to fatphobia ($r = 0.001$, $p > 0.1$). There was no evidence to suggest that dietitians who scored higher on the optimism scale held either more positive or more negative attitudes towards higher body weight people. Ninety-eight percent of participants had low perfectionism scores, 2% had moderate perfectionism scores and there were no high perfectionism scores within this group. As the level of perfectionism increased, there was no significant correlation between positive or negative dietetics assessments or dietetics recommendations. There were no statistically significant differences in means of fatphobia scale score, dietitians, and student dietitians according to the year of graduation. There were also no statistically significant differences in means of fatphobia scale score and dietitians' BMI. There were no statistically significant associations between the level of fatphobia and any prescriptions for weight management.

Dietitians were asked to make a dietetics assessment of their client's health. Overall, the dietitians evaluated both the client in the larger body and the client in the smaller body as having adequate levels of health. Diet quality and adequacy of physical activity were rated slightly lower for the client in the smaller body ($p < 0.05$) (Table 2).

Participants were asked to advise their client Sally based on the case study. Table 3 shows that the type and frequency of recommendations dietitians made were significantly different depending on the client profile they were presented. Participants who viewed the client with a larger body made significantly more recommendations focused on weight management compared with those who viewed the client with a smaller body. Specifically, they were more likely to recommend a reduction in body weight ($p < 0.001$), portion sizes ($p < 0.05$), energy intake ($p < 0.001$), and carbohydrate intake ($p < 0.05$). When making dietetics recommendations for lactose

TABLE 2 Mean scores on individual assessment items within dietetics assessment

Item	Smaller body client	Larger body client	*t*	*p* value
N	46	46		
Diet quality	4.13 (0.72)	4.51 (0.62)	−2.732	<0.05
Health status	4.11 (0.77)	4.30 (0.66)	−1.277	0.205
Appropriateness of kilojoule intake	3.96 (0.76)	3.98 (0.67)	−0.149	0.882
Adequacy of physical activity	4.43(0.65)	4.70(0.62)	−2.018	<0.05

Note: 5-point Likert scale where 1 = minimum and 5 = maximum. *T*-tests were computed to determine the differences in dietetics assessment between the two groups of dietitians who were presented with different pictures accompanying their case studies. $p < 0.05$ (significant).

TABLE 3 Mean rank for weight management recommendations according to client weight status

Recommendation	Smaller body client	Larger body client	Mann–Whitney *U*	*Z*
N	46	46		
Body weight	50.5	43.57	920	−2.707**
Portion sizes	51.25	42.84	885.5	−2.496*
Exercise	47.55	46.46	1015	−0.383
Fibre intake	45.57	48.40	1015	−0.655
Energy intake	52.20	41.91	842	−3.049**
Fat intake	47.48	46.53	1059	−0.225
Carbohydrate intake	50.32	43.76	928.5	−2.092*
Recommended low GI/GL foods	48.95	45.10	991.5	−0.705
Protein intake	48.89	45.15	994	−1.149

Note: $n = 92$. The Mann–Whitney Test examined whether physical appearance (i.e., pictures of patients) caused any difference in any of the weight-management recommendations between the two patients.
Abbreviations: GI, glycaemic index; GL, glycaemic load.
*$p < 0.05$; **$p < 0.001$ (significant).

TABLE 4 Mean scores for dietitians' perceptions of patient characteristics according to client weight status

Patient characteristics	Smaller body client	Larger body client	*t*	*p* value
N	46	46		
Receptive to treatment recommendations	1.93 (0.44)	1.55 (0.50)	3.884	<0.001
Understand treatment recommendations	1.87 (0.49)	1.55 (0.50)	3.045	<0.05
Motivated to change diet	1.91 (0.46)	1.47 (0.50)	4.429	<0.001
Compliance with treatment recommendations	1.96 (0.41)	1.51 (0.55)	4.216	<0.001
Successful in making dietary changes	1.96 (0.42)	1.57 (0.62)	3.487	<0.05
Successful in maintaining dietary changes over time	2 (0.42)	1.64 (0.64)	3.211	<0.001

Note: $n = 92$.*T*-tests were computed to determine the differences in dietitians' perceptions of patient characteristics between the two groups of dietitians who were presented with different pictures accompanying their case studies. $p < 0.05$; $p < 0.001$ (significant).

intolerance (which is the condition the client was seeking treatment for), no significant differences were found in recommendations for managing lactose intolerance across the two case studies.

There appeared to be a trend for dietitians to rate the client in the larger body as less receptive (mean rating 1.55 ± 0.5 vs. 1.93 ± 0.44), with lower abilities to understand recommendations (1.55 ± 0.50 vs. 1.87 ± 0.5), less motivated (1.47 ± 0.5 vs. 1.91 ± 0.46), less compliant (1.51 ± 0.55 vs. 1.96 ± 0.42), less successful in making dietary changes (1.57 ± 0.62 vs. 1.96 ± 0.42), and less successful in maintaining dietary changes over time (1.64 ± 0.64 vs. $M = 2 \pm 0.42$). These results were statistically significant (Table 4).

4 | DISCUSSION

The study aimed to examine whether dietitians and student dietitians in New Zealand possess a weight bias as assessed by the fatphobia scale and whether perceived client weight status would influence patient care including perception, assessment, and recommendations and their attitude towards working with the patient.

Consistent with other studies, New Zealand dietitians possess weight bias towards a client with a larger body with almost all participants indicating mild levels of fatphobia.[20,25,28,37–39] However, dietitians within this sample had lower levels of weight bias than other groups previously researched. Although dietitians in this sample had lower BMIs than the general population, there was no association between the BMIs of dietitians and levels of fathobia. BMI was found to not be associated with perfectionism, optimism, dietetics assessment, or dietetics recommendations. The personal level of optimism of dietitians did not affect their dietetics practice or their level of weight bias. The personal level of perfectionism of dietitians did not affect their dietetics practice either. The client in the larger body did not receive a more negative response, in fact, dietitians in this study were more likely to enjoy working with the female client in the larger body as compared to the female client in the smaller body. However, dietitians in this study were more likely to provide advice aligned with weight management recommendations if they were presented to the client with a larger body. This could be because dietitians believe that they are the profession best trained to manage 'obesity', and many of their beliefs regarding body weight reflect conventional scientific evidence and guidelines.[40,42,43]

Participants in the current study recorded a mean fatphobia scale score of 2.63, and this was lower than the mean fatphobia scale scores of 3.7 reported by Puhl and colleagues in 2007 among dietetics students in United States,[28] and 3.66 reported by Berryman[38] in two different samples of U.S. dietetics students and non-dietetics students in 2006. In the general population, the mean fatphobia scale score has been cited as 3.6[37] and 3.83[39] in two studies in the United States in 2001 and 2011 respectively. The reasons are unknown; however, this could relate to differences between New Zealand, the United States, and the Australian dietetics populations, the changes in weight discrimination over the years, and the difference between weight bias of student dietitians and qualified dietitians. The mean fatphobia scale score of dietitians and student dietitians in New Zealand in this study was lower than that reported in the general population.

These research findings may be representative of dietitians and student dietitians in New Zealand increasingly adopting the Health at Every Size approach, focusing on health and improved wellbeing rather than weight loss as an outcome.[44] The level of optimism in this sample was not linearly related to fatphobia either. There was no evidence to suggest that dietitians who scored higher on the optimism scale held either more positive or more negative attitudes towards higher body weight people. Dietitians in this study were optimistic professionals and were classified as low in perfectionism; neither of which affects their dietetics practice. The results showed that dietitian and student dietitian participants in the current study have lower BMIs than the general population. These results are expected because of the age, socioeconomic status, and professional self-selection bias of the sample. However, dietitians with lower BMIs did not have higher levels of fatphobia, and BMI was found not to be associated with perfectionism, optimism, dietetics assessment, or dietetics recommendations. The Health at Every Size approach is becoming more popular among dietitians, and this may be representative of the approach, and underlying philosophies (including weight and body acceptance) becoming more accepted by the profession.[21]

The majority of dietitians and student dietitians within the current study held mild levels of fatphobia and weight bias. Participants anticipated more negative outcomes for the larger bodied client. In fact, the findings indicate that the fatphobia scale may not be the most appropriate tool to assess the attitudes of dietitians towards larger bodied clients given the narrow fatphobia results but the marked differences in perceived characteristics between the two body sizes of client. More exposure to clients with larger bodies may not decrease such biases among dietitians and fatphobia may remain stable over time.[45] It was thought that because dietitians with more career and life experience would have had more exposure to clients with larger bodies, they would be less biased.[25] However, the results of this study do not support this.

The dietitians and student dietitians in the current study were not given any background on the client's weight. Therefore, the stronger focus on weight management advice may be seen as discriminatory towards the client in the larger body. Weight bias and discrimination have been shown to dissuade clients with larger bodies from seeking healthcare.[46] Dietitians and student dietitians must be aware that providing unsolicited weight management advice could be a form of weight bias and could negatively impact the client including dissuading them from seeking future health advice and services. There was a trend for the dietitians to rate the client with

a larger body as less receptive, with lower abilities to understand recommendations, less motivated, less compliant, less successful at the implementation of recommendations, and less able to sustain recommendations. It is not clear why more significant negative patient perceptions emerged in some cases (e.g. receptive to treatment, motivated to make dietary changes, compliance with treatment and maintenance).[47] This is consistent with studies showing healthcare professionals hold attitudes that comprise negative stereotypes about larger clients (laziness, lack of motivation, greediness among others) and beliefs that weight is readily under personal control and that being overweight is, therefore, blameworthy.[48] Published results about this among dietetics professionals are scant except to say that dietitians and dietetics students demonstrated negative attitudes towards clients with larger bodies.[49–51] There is good evidence that healthcare professionals hold and perpetuate negative stereotypes and attributions that are core elements of weight stigma and weight bias[48] and this is evident in dietitians in this study.

Several potential limitations could have affected the findings of this research. The chosen pictures of the two women are not identical.[25] The pictures were also only included when the case study was first presented, not throughout the assessment and recommendation sections. The fatphobia scale was also presented directly before the case study and that could have affected the subsequent responses. Dietetics in New Zealand is a small profession, and departments tend to be relatively small. Prior to participating in the study, dietitians may have spoken to other dietitians who had completed the study. Knowing the types of questions and perhaps the purpose of the study, dietitians may have answered the questions to be more socially acceptable. Dietitians could have interpreted the information included in the case study in a few ways, and because there was no opportunity for them to explain their assessment or recommendations, they may not have had enough information. In clinical practice, clarifying questions can also be asked, whereas this was not possible in this case. Dietitians are encouraged to negotiate treatment options with clients and work in a patient–practitioner partnership. When answering questions, dietitians and student dietitians in New Zealand may have envisaged treatment negotiations where the client was responsive to suggestions. Several hypotheses were not confirmed due to results that were not statistically significant as the sample size was too small.

Dietitians have knowledge and skills to support behaviour change and have a strong understanding of nutrition and health. The results of this study provide insights into how demographics and personal characteristics of dietitians may affect weight bias and dietetics practice. It also shows the effect of a client's perceived weight status on dietetics practice. The results provide some considerations for dietitians who work with larger clients. Changing usual dietetics practice may be warranted in some cases, and each client should be assessed individually to determine whether dietetics assessment is accurate, and whether dietetics recommendations are appropriate, and resulting in the intended outcomes. Dietitians and student dietitians in New Zealand would still benefit from ongoing work to ensure decreased bias and ensuring they are not providing unsolicited and unwarranted advice. Developing counselling skills may support dietitians to work with clients to achieve their goals. It may also be important to address weight bias throughout entry-level training and ongoing learning and development to address bias as it remains stable over time. A larger sample size would be beneficial for future research. Further research into the effect of characteristics of dietitians on clinical outcomes including weight management would be beneficial. Future research could investigate other personality traits, characteristics, and behaviours of dietitians and how this affects dietetics assessment and dietetics recommendations. Further studies should triangulate weight bias attitudes with robust observation of healthcare processes and outcomes.[48] This would assist in developing successful weight management or chronic disease management programs; career planning for dietitians; and dietetics course program development.

AUTHOR CONTRIBUTIONS

TD conceived the study. RR and FY developed the research questions. RR and AK collected and analysed the data. All authors contributed to the writing of the article.

CONFLICT OF INTEREST

No conflict of interest was declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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