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An exploratory examination of medical and nursing students' intentions to discuss body image, weight, and eating disorders with their patients

Charlotte H. Markey^{1*}, Kristin J. August¹, Diane L. Rosenbaum², Meghan M. Gillen², Dua Malik¹ and Simran Pillarisetty¹

Abstract

Background Although many people have concerns about their body image, weight, and eating behaviors these issues are not usually discussed in a productive manner with medical providers. Thus, we examined nursing and medical students' willingness to discuss patients' weight, body image, and eating disorders and reasons why they may do so.

Method One hundred and eighty-three nursing and medical students ($M_{age} = 25.06$, $SD = 5.43$) participated in this study. Participants completed open-ended questions pertaining to their willingness to discuss body image, eating, and weight-related issues with future patients. We further queried students' perspective on body mass index (BMI) as a measure of weight status and sought to determine if participants' own weight, weight concerns, appearance evaluation, body appreciation, and experiences of stigma were associated with their willingness to discuss weight-related issues with prospective patients.

Results Coding of qualitative data indicated that nursing and medical students were "sometimes" willing to discuss prospective patients' weight, body image, and eating disorders, especially if a health concern was evident. Nursing students seemed somewhat more willing to discuss weight issues than medical students and willingness to discuss one of these issues (e.g., body image) was positively associated with willingness discuss the others. Plans for future discussions of body image and weight were marginally associated with personal experiences of weight stigma. The majority of participants indicated that BMI was not a valid measure of health.

Conclusions Taken together, findings suggest that future providers' conversations with patients about these sensitive topics are less likely to be associated with their own experiences and more with the relevance of these topics to specific patients.

Plain English Summary

The aim of this study was to better understand nursing and medical students' interest and willingness to discuss body image, eating behaviors, and weight with their patients. Although medical organizations and training suggest

*Correspondence:
Charlotte H. Markey
chmarkey@camden.rutgers.edu

Full list of author information is available at the end of the article



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the importance of talking with patients about these issues, providers often do not feel comfortable doing so or do not know how to best broach these sensitive topics. Our results revealed that nursing students seemed somewhat more comfortable discussing these issues with patients than medical students. Nursing and medical students were more apt to feel they would discuss these issues if a patient had an obvious health concern that was relevant (e.g., sudden weight loss). Medical and nursing students who had experiences with weight stigma were more apt to try to discuss these issues with patients.

Keywords Body image, Eating disorders, BMI, Medical education, Nursing education, Provider communication

Introduction

Medical research and clinical practice guidelines [1, 2] include recommendations for medical providers to discuss patients' weight with them. Current guidance even indicates weight loss-focused conversations in pediatric settings [3]; however, these recommendations have been a source of controversy [4]. Some have questioned the appropriateness of focusing on weight or body mass index (BMI) as a primary marker of health status [5]. Alternative approaches de-emphasize the importance of weight in the interest of shifting conversations to other markers of wellness [6]; nonetheless, weight screenings remain the norm in medical settings. Unfortunately, it is well documented that healthcare providers do not typically have effective conversations about weight-related issues with patients, often perpetuate weight stigma in these exchanges, and differ in their personal readiness to engage with patients about weight, body image, and eating disorders [7, 8]. The consequences of insensitive or stigmatizing exchanges about weight in health care contexts are vast and can contribute to patients' negative health outcomes and avoidance of medical care [7]. Further, some individuals perceive stigma from intersecting identities (e.g., race, gender), which can compound any weight stigma they experience from a provider [9].

Communication with patients about weight-related issues

Research [10] using the National Health and Nutrition Examination Survey found an increase in the number of adults reporting that their doctor or a health professional had ever talked with them about their weight. However, providers were more likely to discuss weight with older (80%) versus younger (24%) adults and with heavier patients. These findings could suggest that providers are more likely to initiate conversations about behavioral health, including weight, eating habits, and physical activity with individuals, such as older adults, who have other presenting health concerns [11]. Despite this overall increase in communication about weight in healthcare settings, providers often report having little time during medical visits to discuss these potentially sensitive issues and indicate feeling uncomfortable and ill-equipped to have these conversations [12, 13]. At least one qualitative study [14] found that practitioners were reluctant to discuss weight issues because of frustration with patients'

“lack of success” (with weight loss). Further, research suggests that providers are reluctant to talk about *any* behavioral health issues, in part because they do not feel it is their responsibility to do so [15]. It remains unclear, however, if providers who do discuss weight issues with patients approach these exchanges with sensitivity to patients' psychological well-being and body image; the medical literature mainly focuses on the need for providers to discuss weight *loss* [16].

In addition to an interest in providers communicating about weight with patients, there is also growing concern that providers miss signs of eating disorders among patients [17]. Research suggests very limited training for healthcare professionals about eating disorders (e.g., <2 h of training total; [18]). Given the chronic nature of these disorders, their physical and mental toll, and the high fatality rates associated with eating disorders, increased discussion about eating disorders in a variety of healthcare settings, especially primary care, has been encouraged [19].

Relevant to both weight and eating disorders is patients' body image, a multidimensional construct including cognitive, affect, and behavioral facets [20], which is rarely discussed in healthcare contexts [8]. Some research indicates that both patients and providers feel that body image is an important health issue; however, the vast majority of patients report never discussing body image with a healthcare provider [21, 22]. Further, one study found that most patients who did discuss their body image with a provider considered the interaction to be negative [22] and providers have indicated that they are not sure how to measure body image or know if it should be of concern due to lack of clinical guidelines [23].

Body mass index as a measure of weight status

Body mass index (BMI) is used almost exclusively as a measure of weight status in medical settings, in spite of its questionable relation to health [24]. Monitoring weight status can aid in the identification of eating disorders, for example if a drastic change in weight is noted. However, individuals with a BMI defined as “overweight” or “obese” (i.e., by the CDC) may still be experiencing disordered eating or body image concerns. Further, BMI is increasingly viewed as an inadequate measure as it does not take into account body build or shape, muscularity

and fitness, gender, or race/ethnicity, all of which are relevant to body weight [25]. However, other reliable, resource- and time-efficient measures of body weight or size have not been developed resulting in an almost exclusive reliance on BMI in healthcare settings. Unfortunately, patients often report avoiding medical appointments because they do not want to be weighed and do not want to discuss changes in their BMI, in part, due to concerns about experiencing weight shaming or stigma from their providers [26].

Doctors' and nurses' personal biases and experiences

A recent meta-analysis found that healthcare providers, including doctors and nurses, demonstrate both implicit and explicit weight bias [27]. This bias has been associated with reduced quality of care for higher weight patients (e.g., over-attributing symptoms to weight, neglecting non-weight-related treatments), which could adversely affect patients' health outcomes [26, 28]. A large study of healthcare professionals in training in the U.K. found pervasive fat phobia, but also revealed that providers of higher weight were less likely to express fat phobia [29]. The same and other studies have revealed that nurse trainees and practicing nurses were less likely to express fat phobia than doctors and more likely to provide weight management advice [29, 30]. One review found that doctors and nurses who had relatively small bodies were more likely to direct heavier patients to engage in weight loss than were providers who were heavier themselves [31].

Relatedly, medical trainees in one study who reported successfully losing weight themselves also reported being less compassionate towards potential patients who were deemed in need of weight loss [32]. Compassion is necessary for effective communication about these sensitive topics [33]; when individuals of higher weight experience anti-fat bias and weight-based discrimination in healthcare settings, they report poorer communication with and less trust in their providers. Patients who experience weight stigma from their healthcare provider subsequently report poorer treatment adherence and disease self-management and avoidance of follow-up visits [34]. Unfortunately, recent research [35, 36] has revealed that the prevalence of anti-fat bias and weight-based discrimination has been increasing, which may contribute to negative physical and mental health consequences for patients [7, 37]. Thus, although there have been recent calls [26] for education about weight stigma and the harms it perpetuates, medical education does not typically devote significant time to this topic and more research is needed to understand future providers' interest and motives to discuss these topics with patients.

Aims and hypotheses

Although there is some research examining providers' willingness to discuss weight-related issues and eating disorders with their patients [38, 39], there is no research to our knowledge that examines their willingness to discuss body image and their perceptions of the most often used metric of weight status, BMI. Further, by examining students, we were able to consider current medical and nursing educational experiences. Students may also feel freer to indicate what they hope to do in the future without feeling critiqued for their current practices.

In this study we aimed to:

- 1) Evaluate the extent to which nursing and medical students anticipated discussing body image, weight, and eating disorders with their patients and their reasons for doing so (or not).
- 2) Determine nursing and medical students' perceptions of the standard measure of weight in medical settings, BMI.
- 3) Explore potential associations between students' reports of their willingness to discuss these body image and weight issues with their patients and their own experiences of their bodies and weight (i.e., own BMI, weight concerns, appearance evaluation, body appreciation, and experienced weight stigma). Given past research [31], we expected differences between nursing and medical students in their plans to discuss these issues, and that students' own weight statuses could be associated with their intentions.

Method

Participants and procedure

One hundred and eighty-three medical and nursing students ($M_{age}=25.06$, $SD=5.43$, range=18–56 years) participated in this study. The majority of the sample was female-identifying (76%; 86% of nursing students were female-identifying while 68% of medical students were). Regarding the race/ethnicity of nursing students, 58% were white/European-American, 22% were Asian/Pacific Islander, 9% were Black/African American, 10% were Hispanic/Latinx, 1% were of an "other" race/ethnicity. Regarding the race/ethnicity of medical students, 58% were white/European-American, 27% were Asian/Pacific Islander, 7% were Black/African American, 5% were Hispanic/Latinx, 3% were of an "other" race/ethnicity. Finally, in terms of nursing students' self-reported annual household income, 36% had an income less than \$50,000, 35% between \$51,000-100,000, and 30% over \$100,000 per year. Medical students' self-reported annual household income was somewhat lower as 54% had an income less than \$50,000, 19% between \$51,000-100,000, and 27% over \$100,000 per year.

Approximately half of the sample (54%) indicated that they were in medical school (pursuing a MD or a DO) and 46% indicated that they were pursuing a nursing degree (BSN, RN, or NP). When asked what specialty they were considering practicing, 32% indicated an interest in pediatrics, 21% in emergency medicine, 17% in family medicine, 13% in psychiatry, 12% in oncology, 10% in neurology, 8% in dermatology, 7% in gastroenterology, 3% in surgery, 2% in urology, and 28% indicated “other” interests. Participants were recruited at the medical and nursing schools at the university where this research took place. Further, participants were asked to share the survey with their networks. Eligibility required participants to be at least 18 years old, fluent in the English language, and currently in medical or nursing school. Participants completed a consent form before beginning the survey and were offered an opportunity to be placed in a raffle to receive a \$100 gift card to Amazon in exchange for completing the survey. This protocol was approved by the IRB where the research took place.

Measures

Intentions Concerning Weight-Related Discussions.

Participants were asked to reply to a series of open-ended questions about their expectations in terms of future interactions with their patients. These questions included items about routine care (e.g., measuring patients’ height, weight) and topics of conversation (e.g., health behaviors, mental health). Of interest in this particular study was participants’ anticipation of discussing body image, weight status, and eating disorders with their patients. Participants were asked the following questions, which they responded to on a 5-point scale (1=“never,” 5=“always”): “Will you typically discuss your patients’ body image with them?”, “Will you typically discuss your patients’ weight status with them?”, and “Will you discuss eating disorders with your patients?” Participants were then prompted to explain their reasoning in a text box for open-ended responses. Not all participants provided an explanation, but available participants’ responses ($n=109$ for body image; 110 for weight status; 93 for eating disorders) were coded.

Because weight status is typically operationalized using BMI in clinical settings and this metric has come under scrutiny in recent years [40], we further asked participants to indicate, “Do you think BMI is a good measure of patients’ weight status?” Again, participants ($n=107$ responses) responded on a 5-point scale (1=“never,” 5=“always”) and then explained their reasoning in a text box for open-ended responses. The same inductive coding process used for the aforementioned items was used.

Coding of Qualitative Data. Qualitative data was coded using an inductive coding scheme. More specifically, we used a Thematic approach in that coders (1)

read and reread participants’ responses to familiarize themselves with these data, (2) generated categories that captured important features of the data and would allow the majority of the data to be coded into one of the categories, (3) coded data into these categories, (4) reread through qualitative data to ensure that the codes were adequately capturing the themes in these data and (5) quantified the data that fell into specified codes and used these codes in analyses [41]. Three researchers reviewed all responses and determined the categories that most responses fell into (steps 1 and 2; see Table 1 for categories). Two researchers then independently coded all responses using this scheme and discussed any disputes until a resolution was reached (steps 3 and 4). The results provide representative qualitative responses and utilized this coding scheme to summarize these responses. Thematic analysis was chosen as it is a commonly used and appropriate strategy for organizing and understanding participant experiences to help answer a research question [41]. Further, given the novelty of these data and study of these issues among nursing and medical students, we wanted to initially carefully review responses. We also sought to create categorical codes that could be utilized in quantitative analyses.

All of the researchers who helped to code these data identified as women and ranged in age from emerging to middle-aged adults. Their education ranged from completing undergraduate courses towards their degree to several years post-doctoral studies and their ethnic/racial backgrounds were White/Euro-American, Southeast Asian, and Hispanic/Latina. The authors of this manuscript also all identified as women and ranged in age from early to middle-adulthood. Authors are either doctoral students with master’s degrees or several years post-completion of PhDs. Authors’ ethnic/racial backgrounds were also White/Euro-American, South Asian, and Hispanic/Latina.

BMI. Participants’ own weight status was estimated using their self-reported height and weight, which was converted into BMI using the standard formula, ($BMI = \text{weight (kg)} / \text{height (m}^2\text{)}$).

Body appreciation. Body appreciation was evaluated using the 10-item Body Appreciation Scale-2 [42], which includes items such as, “I take a positive attitude towards my body.” Participants rated items on a 5-point scale (1=“never,” 5=“always”), which were then summed ($\alpha=0.96$). Previous research has demonstrated that scores obtained from the BAS-2 exhibit good construct validity and a reliable test-retest consistency over a 20-day period among both women and men in the U.S [42].

Appearance evaluation. Appearance evaluation was evaluated using a 7-item subscale from Cash’s [43] Multidimensional Body-Self Relations Questionnaire (MBSRQ). This subscale captures participants’

Table 1 Summary of qualitative information concerning nursing and Medical Student' rationale for discussing weight-related issues with their patients

Categories	%	Example Responses
Discuss body image?		
Patient is concerned/brings it up/reason for visit	32%	"When/if the patient is interested in discussing it." "It depends on if the patient brings it up."
Because relevant to mental health	29%	"If patient has/may have an eating disorder." "Body image has an impact on self- confidence, which has a great impact on mental health."
Is or isn't relevant to particular specialty/med visit	16%	"Very unlikely to occur in neurology." "It will not come up before surgery."
To gauge patients' health/lifestyle	15%	"It will come up in talking about healthy choices." "I'll only discuss it with them if they look unhealthy."
Other	5%	"Not sure. It had not occurred to me to discuss body image as part of a regular assessment." "I think this really depends on the scenario."
Because relevant to pediatric/adolescent patients	3%	"Body image should be discussed regularly among adolescents." "Adolescents need to have a safe space to talk about their body image."
Discuss weight?		
Because relevant to healthy/health risks	54%	"If the patient's weight is associated with other health conditions such as hypertension." "If their health is at risk."
Provider concerned about weight/BMI	12%	"It is important to explain the risks of being overweight/obese." "If the patient's BMI puts them at risk for developing serious chronic health conditions."
If patient asks/wants to discuss	11%	"I would discuss it with them if they wanted me to or if that was the goal of the visit." "If related to their visit/ health issue."
Should discuss as part of visit because healthy lifestyle	10%	"I will discuss it as a part of the exam in addition to health behaviors." "Yes. Healthy eating and exercise are two very important topics that should be addressed by all health professionals."
If changes in weight	9%	"If either they lost or gained weight."
If possible eating disorder/body image issue	4%	"I will ask what they've done differently since the last visit to see the cause of their weight loss or gain." "Underweight may signify an eating disorder." "Low weight or weight change could be a sign of an eating problem."
Discuss eating disorders?		
If signs of an eating disorder are present	34%	"If the patient is clearly displaying disordered behavior." "Only if an eating disorder is suspected."
If it seems relevant	27%	"When it is relevant to their health." "Only if relevant"
Other	23%	"As a part of screening for a variety of health issues." "Excellent in primary care settings; not relevant to emergency care."
If weight is a concern to patient	7%	"If they bring it up or have concerns." "Patients who have concerns about body weight."
If weight is low/too low/changes drastically	5%	"If a patient has low body weight." "With patients that have severe weight changes."
If working in pediatrics	4%	"I think that if I went into pediatrics, it is something I would discuss because education is key to preventing something like this." "If I'm in pediatrics, these conversations will absolutely need to happen if there are any red flags."
Is BMI a good measure of weight status?		
It is not always related to health	49%	"I haven't seen literature that can effectively argue it as an accurate indicator of health." "BMI has proven to be inaccurate for health outcomes."

Table 1 (continued)

Categories	%	Example Responses
It is generally not accurate/good	19%	"BMI doesn't fully capture a person's health status." "There seems to be more literature disputing BMI as the primary indicator of weight status."
Muscle/fat mass is not accounted for	18%	"Someone could be really healthy and muscular and have a high BMI" "Sometimes it is [a good measure] but in situations such as bodybuilders or individuals that are shorter this can be misleading."
It is generally good	7%	"BMI is good for getting a baseline for a patient." "BMI is a good way to compare oneself to the average of where someone's weight should be."
Athletic/fit/unfit not accounted for	7%	"BMI does not apply with athletes." "Someone with the same BMI could be fit or unfit."

perspectives on their physical appearance such as, "I like my looks the way they are." Participants rated items on a 5-point scale (1="definitely disagree," 5="definitely agree"), which were then summed ($\alpha=0.91$). Previous research conducted with adults in the U.S. has demonstrated that scores obtained from this subscale exhibit robust construct and criterion validity, and it also demonstrates a high test-retest reliability of 0.91 over a 3-month period [43].

Weight concerns. Weight concerns were evaluated using the 5-item Weight Concerns Scale developed by Killen et al. [44]. This scale assesses individuals' current apprehension about weight gain, the significance they attach to weight, their perception of fatness, and their worries regarding weight and body shape. A modification was made to the question, "When was the last time you went on a diet?" to instead ask "Have you ever gone on a diet?" Additionally, one item was altered to include five response options instead of four, ensuring greater comparability with the other items on the scale (see [45]). Items were standardized and then summed ($\alpha=0.83$). This scale has been used in numerous studies to predict weight concerns across various populations, including men, women, and adolescents [46].

Weight stigma. Experiences of weight stigma were evaluated using a 9-item adapted version of the Daily Discrimination Scale by Williams and colleagues [47], which assesses the frequency with which participants had experienced stigma due to their *weight* such as, "People act as though you are inferior." Participants rated items on a 4-point scale (1="never" to 4="often"), which were then summed ($\alpha=0.90$). Past research has found this to be a valid assessment of stigma experienced by different groups (e.g., race; [48]).

Results

Nursing and medical students were most likely to indicate that they would "sometimes" talk with their patients about their body image, weight, and eating disorders. Further, nursing and medical students were unlikely to indicate that BMI was always a good measure of weight status, with most indicating that it was "sometimes" a good measure (see Table 2). Independent samples *t*-tests were conducted to determine whether there were differences between nursing and medical students in their responses to these questions. Nursing students indicated that they would discuss body image with their patients to a greater extent than medical students, $t(107)=2.09$, $p=.04$ and nursing students were marginally more likely to discuss eating disorders, $t(106)=1.68$, $p=.09$, and weight, $t(108)=1.71$, $p=.09$, to a greater extent than medical students. Nursing and medical students' perceptions of BMI did not differ significantly, $t(105)=-0.30$, $p=.76$.

Table 2 Nursing and medical students' willingness to discuss weight-related issues with patients

	Nursing students M (SD)	Medical students M (SD)	Cohen's d
Discuss body image? *	3.30 (1.17)	2.86 (1.00)	0.40
Never	10%	9%	
Rarely	8%	25%	
Sometimes	42%	44%	
Often	22%	15%	
Always	18%	7%	
Discuss weight?+	3.51 (0.90)	3.22 (0.87)	0.33
Never	0%	3%	
Rarely	10%	10%	
Sometimes	47%	56%	
Often	25%	22%	
Always	18%	9%	
Discuss EDs? +	3.32 (1.02)	3.02 (0.85)	0.33
Never	1%	4%	
Rarely	14%	19%	
Sometimes	54%	55%	
Often	10%	17%	
Always	20%	5%	
BMI good measure?	2.96 (0.91)	3.02 (1.05)	-0.06
Never	10%	5%	
Rarely	19%	17%	
Sometimes	53%	47%	
Often	12%	31%	
Always	6%	0%	

Note: *Independent *t*-tests indicate a significant difference ($p < .05$) between nursing and medical students. +indicates a marginally significant difference ($p \leq .10$). ED=eating disorder

Table 1 includes the categories that were developed to summarize participants' reasons offered as to why they would discuss body image, weight, or eating disorders and their perceptions regarding the use of BMI as a measure of weight status and examples of those responses. As shown in the table, nursing and medical students reported an intention to discuss body image if patients expressed concern about their body image or brought it up during a medical visit. Students' most common response was that they would discuss weight when they believed it was relevant to patients' health or health risks. Students' most common response concerning eating disorders was that they would discuss them when

they believed that a patient was suffering from an eating disorder. Almost half of these nursing and medical students (49%) did not believe that BMI is always relevant to patients' health.

Descriptive statistics (means and *SD*) were computed, and *t*-tests were conducted, to determine whether nursing and medical students differed significantly on BMI or any of the survey measures explored in this study (see Table 3). Results indicated that compared to medical students, nursing students had significantly higher BMIs, $t(177)=2.79$, $p=.01$, marginally greater weight concerns, $t(105)=1.83$, $p=.07$, and more experiences of weight-related stigma, $t(103)=4.34$, $p < .001$.

Next, correlations were conducted to determine possible relations between nursing and medical students' reports that they would discuss body image, weight, and eating disorders and perceptions of BMI as a good measure of weight status with their own experiences of their bodies and weight (see Table 4). Because of our modest sample size, nursing and medical students were considered together in these analyses. Correlations revealed that nursing and medical students who reported they would discuss weight with their patients to a greater extent also reported they would discuss body image and eating disorders with their patients to a greater extent. There was a marginal, positive association between intention to discuss weight and body image issues with patients and personal experiences of weight concerns and stigma. That is, greater student weight concerns and stigma experiences were somewhat more likely to be associated with greater intentions to have weight and body image conversations with patients.

Discussion

Fifty years ago, approximately 15% of Americans had a BMI of 30 or higher [49]. Today, it is estimated that 41% of Americans have a BMI of 30 or higher [34]. This dramatic change in weight statuses in the U.S. and globally has led to consideration of medical providers' role in discussing weight-related issues with patients. This study sought to assess nursing and medical students' intentions to discuss body image, weight, and eating disorders with their patients, along with their rationale for these potential exchanges. We found that nursing students seemed

Table 3 Differences between nursing and medical students' BMI and body-related experiences

	Nursing students M(SD)	Medical students M(SD)
BMI	26.24 (7.23)	23.76 (4.54)
Body appreciation	37.75 (9.43)	38.45 (8.22)
Appearance evaluation	24.65 (6.10)	24.93 (6.88)
Weight concerns*	0.65 (4.18)	-0.70 (3.44)
Stigma	14.61 (5.56)	10.78 (3.23)

Note. Bolded values are significantly different for nursing versus medical students ($p < .05$)

*Because different response options are available for the items on the Weight Concerns Scale, items were standardized and then summed

Table 4 Correlations between medical and nursing students' anticipated discussions with patients and their own BMI and body-related experiences

	Discuss weight	Discuss EDs	BMI good measure	Own BMI	Bod appreciation	Appearance evaluation	Weight concerns	Stigma
Discuss body image	0.44**	0.59**	0.07	0.07	-0.15	-0.12	0.18+	0.17+
Discuss weight	---	0.30**	0.14	0.03	-0.03	-0.10	0.11	0.17+
Discuss EDs		---	0.00	0.02	-0.02	-0.04	0.10	0.10
BMI good measure			---	-0.22*	0.01	0.01	-0.15	0.03
Own BMI				---	-0.12	-0.22*	0.35**	0.43**
Bod appreciation					---	0.82**	-0.64**	-0.20*
Appear evaluation						---	-0.63**	-0.31**
Weight concerns							---	0.38**
Stigma								---

Note. "Discuss body image," "Discuss weight," "Discuss EDs," and "Body image a good measure" are all coded 1 = never to 5 = always. ED = eating disorders

+ $p < .10$, * $p < .05$, ** $p < .01$

slightly more willing to discuss weight-related issues than medical students and that, on average, nursing and medical students had a flexible idea regarding the frequency with which they would discuss these concerns. Based on the themes that emerged in the qualitative analysis, the most common reasons for planning to address these issues during appointments were based on patient interest and obvious relevance to physical or mental health. We also found that willingness to discuss these issues tended to cluster together within participants, as there were positive associations among intentions to discuss weight, body image, and eating disorders. These results suggest that future providers may be using clinical judgement to determine the contexts in which these conversations may be most relevant or hold the most value for patients. This is an encouraging finding as it is in line with the goals of providing patient-focused care [50], such as considering patient preferences in concert with treatment protocols.

We also evaluated nursing and medical students' perceptions regarding the utility of BMI and their reasoning for their perceptions. These students indicated they did not find BMI to be a uniformly "good" measure of weight status, which is consistent with the idea that providers who use BMI as a screening tool should follow-up with direct assessments of health risks, such as for cardiovascular disease and diabetes, before determining whether weight may be a health risk for any given patient [51]. Other factors, such as body fat distribution, are associated with health risk and may need to be considered [52].

We also hypothesized that nursing and medical students' willingness to discuss body image, weight, and eating disorders with their patients would be related to their own body image and weight-related experiences. Our findings somewhat supported this hypothesis, as there were trends for students who had greater weight concerns and more experiences of stigma to indicate more willingness to discuss weight and body image issues with their patients. This finding underscores that providers'

delivery of care often includes a reflection of their own lived experiences including those pertaining to weight [31, 32]. It may be the case that future providers of higher weight who have lived experience that includes negative interactions with their own providers may be more sensitive to the importance of addressing these topics from a patient-focused lens in their own work.

Although it is encouraging to learn that nursing and medical students have an interest in discussing weight-related issues with patients, it is also important to equip them with evidence-based tools to have sensitive and effective interactions in medical settings. This need was articulated in a report from the U.K., which argued that fatalities from eating disorders are a direct result of limited training during medical school [53]. Related, it has been found that many patients, particularly heavier individuals, have had stigmatizing interactions in healthcare settings, which can date back to youth [54]. Providers may aim to motivate patients toward weight loss by voicing negative beliefs about weight, yet this approach often increases the likelihood of both poorer physical and mental health [55, 56]. However, completely avoiding conversations about weight, body image, and eating disorders is also a disservice to patients who rely on healthcare providers for accurate and helpful information about these issues.

Limitations and implications

The current study is limited by its modest sample size and recruitment of medical and nursing students mostly from a single institution, thus limiting the generalizability of the conclusions that can be drawn. With a larger sample, we would be better situated to address potential differences in providers' responses based on gender, race/ethnicity, and year of study (which we did not measure), as these factors may influence willingness to discuss weight-related topics with patients. Further, it is possible that findings are affected by self-presentation biases; some medical and nursing students may be reluctant to

indicate that they are unwilling to discuss any health-related topic with their patients.

The findings from our study suggest implications for medical and nursing education. First, it is crucial that doctors and nurses receive education and preparation to effectively communicate with patients about weight and body image concerns [23]. This includes the ability to identify signs of eating disorders and initiate discussions around these sensitive topics [19]. To address the issue of weight stigma, there has been suggestion for a more holistic approach to medical care that aligns with the Health at Every Size (HAES) Principles [57]. This approach emphasizes health behaviors as targets for intervention rather than weight [58–60]. This would improve upon current patient-provider interactions which have been found to be affected by provider weight bias and reduced quality of care for heavier patients [25–27]. Further, HAES-aligned care has the potential to enhance patient-provider relationships, and ultimately improve health outcomes by fostering a non-judgmental and inclusive healthcare setting. By fostering an open and supportive environment, medical professionals can encourage patients to share their experiences and seek appropriate care. Furthermore, medical professionals should proactively ask patients if they would like to discuss various aspects of their mental and behavioral health, including eating behaviors, body image, and weight, without stigmatizing patients [34]. By initiating these conversations, healthcare providers can demonstrate their commitment to patient-centered care and can address the holistic well-being of their patients [36]. In addition, medical professionals must be prepared to offer accurate information and provide referrals to patients who are struggling with body dissatisfaction or disordered eating. It is essential to approach these discussions with empathy and avoid shaming patients about their weight or providers may discourage patients from seeking medical care altogether [32]. By enhancing education, promoting open communication, offering support and referrals, and recognizing the limitations of BMI, medical and nursing professionals can contribute to improved patient outcomes and foster a more inclusive and sensitive healthcare environment.

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Author contributions

C. Markey designed the study, collected data, coded and analyzed data, and drafted the manuscript. K. August designed the study, coded and analyzed data, and drafted the manuscript. D. Rosenbaum coded and analyzed data, drafted and edited the manuscript. M. Gillen drafted and edited the manuscript. D. Malik coded and analyzed data. S. Pilliarsetty drafted and edited the manuscript.

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Data availability

Data is available from the authors upon request.

Declarations

Ethics

This study was approved by the IRB at the university where the research took place.

Consent for publication

NA.

Conflict of interest

The authors have no financial/non-financial conflicts of interest.

Author details

¹Rutgers University, 415 Armitage, 311 N 5th Street, Camden, NJ 08102, USA

²The Pennsylvania State University, Abington, USA

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References

1. Prowidenza C, Hartman LR, Cosgrove S, Hamilton J, Crossman S, Lyons J et al. Fostering positive weight-related conversations: evidence and real-life learnings from the heart of care. A knowledge translation casebook for healthcare professionals. Holland Bloorview Kids Rehabilitation Hosp. 2017. Toronto: ON. <https://www.apa.org/obesity-guideline/discussing-weight/weight-related-conversations.pdf>
2. Wharton S, Lau DCW, Vallis M, Sharma AM, Biertho L, Campbell-Scherer D, et al. Obesity in adults: a clinical practice guideline. *CMAJ: Can Med Association J.* 2020;192(31):E875–91. <https://doi.org/10.1503/cmaj.191707>
3. Hampel SE, Hassink SG, Skinner AC, et al. Clinical practice guideline for the evaluation and treatment of children and adolescents with obesity. *Pediatrics.* 2023;151(2). <https://doi.org/10.1542/peds.2022-060640>
4. The Academy for Eating Disorders Releases a Statement on the Recent American Academy of Pediatrics Clinical Practice Guideline for Weight-Related Care. First, Do No Harm. In: www.newswise.com. <https://www.newswise.com/articles/the-academy-for-eating-disorders-releases-a-statement-on-the-recent-american-academy-of-pediatrics-clinical-practice-guideline-for-weight-related-care-first-do-no-harm>
5. Hunger JM, Smith JP, Tomiyama AJ. An evidence-based rationale for adopting weight-inclusive health policy. *Social Issues Policy Rev.* 2020;14(1). <https://doi.org/10.1111/sipr.12062>
6. Tylka TL, Annunziato RA, Burgard D, Danielsdóttir S, Shuman E, Davis C, et al. The weight-inclusive versus weight-normative approach to health: evaluating the evidence for prioritizing well-being over weight loss. *J Obes.* 2014. <https://doi.org/10.1155/2014/983495>
7. Gudzone KA, Bennett WL, Cooper LA, Bleich SN. Patients who feel judged about their weight have lower trust in their primary care providers. *Patient Educ Couns.* 2014;97(1):128–31. <https://doi.org/10.1016/j.pec.2014.06.019>
8. Yang L, Ene IC, Lamarche L. Exploring patient perspectives of body image conversations in primary care: understandings, experiences, and expectations. *J Patient Experience.* 2022;9. <https://doi.org/10.1177/23743735221117366>
9. Chaney KE, Sanchez DT, Remedios JD. /10//. Dual cues: women of color anticipate both gender and racial bias in the face of a single identity cue. *Group Processes Intergroup Relations.* 2021;24(7):1095–113. <https://doi.org/10.1177/1368430220942844>
10. Hansen AR, Rustin C, Opoku ST, et al. Trends in US adults with overweight and obesity reporting being notified by doctors about body weight status, 1999–2016. *Nutr Metabolism Cardiovasc Dis.* 2020;30(4):608–15. <https://doi.org/10.1016/j.numecd.2020.01.002>
11. CDC. Percent of U.S. Adults 55 and Over with Chronic Conditions. In: Centers for Disease Control and Prevention. 2015 Nov 6. https://www.cdc.gov/nchs/health_policy/adult_chronic_conditions.htm

12. Blackburn M, Stathi A, Keogh E, Eccleston C. Raising the topic of weight in general practice: perspectives of GPs and primary care nurses. *BMJ Open*. 2015;5(8). <https://doi.org/10.1136/bmjopen-2015-008546>
13. Reading JM, Snell LM, LaRose JG. A systematic review of weight-related communication trainings for physicians. *Translational Behav Med*. 2020;10(5):1110–9. <https://doi.org/10.1093/tbm/ibaa014>
14. Mercer SW, Tessier S. A qualitative study of general practitioners' and practice nurses' attitudes to obesity management in primary care. In: *Health Bulletin*. 2001;59(4):248–253. <https://europepmc.org/article/med/12664735>
15. Lund C, De Silva M, Plagerson S, et al. Poverty and mental disorders: breaking the cycle in low-income and middle-income countries. *Lancet*. 2011;378(9801):1502–14. [https://doi.org/10.1016/S0140-6736\(11\)60754-X](https://doi.org/10.1016/S0140-6736(11)60754-X)
16. Tremblott M, Poon AY, Aveyard P, Albury C. What advice do general practitioners give to people living with obesity to lose weight? A qualitative content analysis of recorded interactions. *Fam Pract*. 2022;20:1–7. <https://doi.org/10.1093/fampra/cmacc137>
17. Wise J. Eating disorders: Guidance is issued to doctors after 84% rise in past five years. *BMJ*. 2022;377:o1256. <https://doi.org/10.1136/bmj.o1256>
18. Ayton A, Ibrahim A. Does UK medical education provide doctors with sufficient skills and knowledge to manage patients with eating disorders safely? *Postgrad Med J*. 2018;94(1113):374–80. <https://doi.org/10.1136/postgradmedj-2018-135658>
19. Attia E, Guardia AS. Prevention and early identification of eating disorders. *JAMA*. 2022;327(11):1029–31. <https://doi.org/10.1001/jama.2022.2458>
20. Gillen MM. Associations between positive body image and indicators of men's and women's mental and physical health. *Body Image*. 2015;13:67–74. <https://doi.org/10.1016/j.bodyim.2015.01.002>
21. Helms SW, Christon LM, Dellon EP, Prinstein MJ. Patient and provider perspectives on communication about body image with adolescents and young adults with cystic fibrosis. *J Pediatr Psychol*. 2017;42(9):1040–50. <https://doi.org/10.1093/jpepsy/jsx055>
22. Kaitz J, Ray S, Harkins D. Barriers in addressing body image and eating issues in primary care: an overview of women's narratives. *Women Health*. 2019;1–11. <https://doi.org/10.1080/03630242.2019.1635562>
23. Lamarche L, Bailey KA, Awan A, Risdon C, Pauw G, Vinoski Thomas E. Exploring primary care providers' understandings of body image in patient care. *Body Image*. 2020;35:161–70. <https://doi.org/10.1016/j.bodyim.2020.09.001>
24. CDC. About Adult BMI. In: Centers for Disease, Control, and Prevention; 2020 Jun 18. https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html#Used.
25. Tomiyama AJ. Weight stigma is stressful. A review of evidence for the cyclic Obesity/Weight-Based stigma model. *Appetite*. 2014;82:8–15. <https://doi.org/10.1016/j.appet.2014.06.108>
26. Rubino F, Puhl RM, Cummings DE, Eckel RH, Ryan DH, Mechanick JI, et al. Joint international consensus statement for ending stigma of obesity. *Nat Med*. 2020;26(4):485–97. <https://doi.org/10.1038/s41591-020-0803-x>
27. Lawrence BJ, Kerr D, Pollard CM, et al. Weight bias among health care professionals: a systematic review and meta-analysis. *Obes (Silver Spring Md)*. 2021;29(11):1802–12. <https://doi.org/10.1002/oby.23266>
28. Phelan SM, Burgess DJ, Yeazel MW, Hellerstedt WL, Griffin JM, van Ryn M. Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. *Obes Reviews: Official J Int Association Study Obes*. 2015;16(4):319–26. <https://doi.org/10.1111/obr.12266>
29. Swift JA, Hanlon S, El-Redy L, Puhl RM, Glazebrook C. Weight bias among UK trainee dietitians, doctors, nurses and nutritionists. *J Hum Nutr Dietetics: Official J Br Diet Association*. 2013;26(4):395–402. <https://doi.org/10.1111/jhn.12019>
30. Critchlow N, Rosenberg G, Rumgay H, Petty R, Vohra J. Weight assessment and the provision of weight management advice in primary care: a cross-sectional survey of self-reported practice among general practitioners and practice nurses in the United Kingdom. *BMC Fam Pract*. 2020;21(1):1–12. <https://doi.org/10.1186/s12875-020-01184-z>
31. Zhu DQ, Norman IJ, While AE. The relationship between doctors' and nurses' own weight status and their weight management practices: a systematic review. *Obes Rev*. 2011;12(6):459–69. <https://doi.org/10.1111/j.1467-789X.2010.00821.x>
32. Pearl RL, Argueso D, Wadden TA. Effects of medical trainees' weight-loss history on perceptions of patients with obesity. *Med Educ*. 2017;51(8):802–11. <https://doi.org/10.1111/medu.13275>
33. Fotaki M. Why and how is compassion necessary to provide good quality healthcare? *Int J Health Policy Manage*. 2015;4(4):199–201. <https://doi.org/10.15171/ijhpm.2015.66>
34. Ventura AK. Obesity. In: Friedman HS, Markey CH, editors. *Encyclopedia of Mental Health*. 3rd ed. Cambridge, MA: Elsevier; 2023. pp. 660–72.
35. Brown A, Flint SW, Batterham RL. Pervasiveness, impact and implications of weight stigma. *EClinicalMedicine*. 2022;47:101408. <https://doi.org/10.1016/j.eclinm.2022.101408>
36. Puhl RM, Andreyeva T, Brownell KD. Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. *Int J Obes*. 2008;32(6):992–1000. <https://doi.org/10.1038/ijo.2008.22>
37. Chakravorty T. Fat shaming is stopping doctors from helping overweight patients—here's what medical students can do about it. *Br Med J*. 2021;375. <https://doi.org/10.1136/bmj.n2830>
38. Linville D, Benton A, O'Neil M, Sturm K. Medical providers' screening, training and intervention practices for eating disorders. *Eat Disord*. 2010;18(2):110–31. <https://doi.org/10.1080/10640260903585532>
39. Koball AM, Jester DJ, Pruitt MA, et al. Content and accuracy of nutrition-related posts in bariatric surgery Facebook support groups. *Surg Obes Relat Dis*. 2018;14(12):1897–902. <https://doi.org/10.1016/j.soard.2018.08.017>
40. Stoner L, Cornwall J. Did the American Medical Association make the correct decision classifying obesity as a disease? *Australasian Med J*. 2014;7(11):462–4. <https://doi.org/10.4066/AMJ.2014.2281>
41. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE Guide 131. *Med Teach*. 2020;42(8):846–54. Epub 2020 PMID: 32356468.
42. Tylka TL, Wood-Barcalow NL. What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image*. 2015;14:118–29. <https://doi.org/10.1016/j.bodyim.2015.04.001>
43. Cash TF, Grasso K. The norms and stability of new measures of the multidimensional body image construct. *Body Image*. 2005;2(2):199–203. <https://doi.org/10.1016/j.bodyim.2005.03.007>
44. Killen JD, Taylor CB, Hayward C, et al. Pursuit of thinness and onset of eating disorder symptoms in a community sample of adolescent girls: a three-year prospective analysis. *Int J Eat Disord*. 1994;16(3):227–38. [https://doi.org/10.1002/1098-108x\(199411\)16:3%3C227:aid-eat2260160303%3E3.0.co;2-1](https://doi.org/10.1002/1098-108x(199411)16:3%3C227:aid-eat2260160303%3E3.0.co;2-1)
45. Davison KK, Markey CN, Birch LL. Etiology of body dissatisfaction and weight concerns among 5-year-old girls. *Appetite*. 2000;35(2):143–51. <https://doi.org/10.1006/appe.2000.0349>
46. Lam CB, McHale SM. Developmental patterns and family predictors of adolescent weight concerns: a replication and extension. *Int J Eat Disord*. 2012;45(4):524–30. <https://doi.org/10.1002/eat.20974>
47. Williams DR, Yu Y, Jackson J, Anderson N. Racial differences in physical and mental health: socioeconomic status, stress, and discrimination. *J Health Psychol*. 1997;2(3):335–51. <https://doi.org/10.1177/135910539700200305>
48. Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health research on racism and health. *Soc Sci Med*. 2005;61(7):1576–96. <https://doi.org/10.1016/j.socscimed.2005.03.006>
49. CDC. Prevalence of Overweight, Obesity, and Severe Obesity Among Adults Aged 20 and Over: United States, 1960–1962 Through 2017–2018. In: Centers for Disease Control and Prevention; 2021 Feb 8. <https://www.cdc.gov/nchs/data/hestat/obesity-adult-17-18/obesity-adult.htm>
50. Epstein RM, Street RL. The values and value of patient-centered care. *Annals Family Med*. 2011;9(2):100–3. <https://doi.org/10.1370/afm.1239>
51. Khan I, Le A, Brinza C et al. Waist-to-hip ratio is a stronger, more consistent predictor of all-cause mortality than BMI. *DIABETOLOGIA*. 2022;65(1). <https://www.easd.org/media-centre/#/resources/waist-to-hip-ratio-is-a-stronger-more-consistent-predictor-of-all-cause-mortality-than-bmi-sup-sup-bbd93a41-b436-4938-a490-1f36441c175f>
52. Heymsfield SB, Peterson CM, Thomas DM, Heo M, Schuna JM. Why are there race/ethnic differences in adult body mass index-adiposity relationships? A quantitative critical review. *Obes Rev*. 2016;17(3):262–75. <https://doi.org/10.1111/obr.12358>
53. House of Commons Public Administration and Constitutional Affairs Committee. Ignoring the Alarms follow-up: Too many avoidable deaths from eating disorders. [Review of Ignoring the Alarms follow-up: Too many avoidable deaths from eating disorders]. House of Commons Public Administration and Constitutional Affairs Committee. 2019. <https://publications.parliament.uk/pa/cm201719/cmselect/cmpubadm/855/85502.htm>
54. Rosenbaum DL, Gillen MM. Weight bias. In: Halpern-Felsher B, editor. *Encyclopedia of child and adolescent health*. Waltham, MA: Elsevier Academic; 2022. pp. 1–12.
55. Hunger JM, Major B, Blodorn A, Miller CT. Weighed down by stigma: how weight-based social identity threat contributes to weight gain and poor

- health. *Soc Pers Psychol Compass*. 2015;9(6):255–68. <https://doi.org/10.1111/spc3.12172>
56. Pont SJ, Puhl R, Cook SR, Slusser W. Stigma experienced by children and adolescents with obesity. *Pediatrics*. 2017;140(6). <https://doi.org/10.1542/peds.2017-3034>
57. O'Hara L, Ahmed H, Elashie S. Evaluating the impact of a brief health at every Size®-informed health promotion activity on body positivity and internalized weight-based oppression. *Body Image*. 2021;37:225–37. <https://doi.org/10.1016/j.bodyim.2021.02.006>
58. Burgard D. What is Health at every size? In: Rothblum E, Solovay S, editors. *The Fat studies Reader*. New York, USA: New York University; 2009. pp. 42–53. <https://doi.org/10.18574/nyu/9780814777435.003.0010>
59. Penney TL, Kirk SFL. The health at every size paradigm and obesity: missing empirical evidence may help push the reframing obesity debate forward. *Am J Public Health*. 2015;105(5):e38–42. <https://doi.org/10.2105/ajph.2015.302552>
60. Provencher V, Bégin C, Tremblay A, Mongeau L, Corneau L, Dodin S, et al. Health-At-Every-size and eating behaviors: 1-year follow-up results of a size acceptance intervention. *J Am Diet Assoc*. 2009;109(11):1854–61. <https://doi.org/10.1016/j.jada.2009.08.017>

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