Impact of Non-Physician Health Professionals’ BMI on Obesity Care and Beliefs

Sara N. Bleich1, Sachini Bandara1, Wendy L. Bennett2,3, Lisa A. Cooper2,3, and Kimberly A. Gudzune2,3

Objective: Examine the impact of non-physician health professional body mass index (BMI) on obesity care, self-efficacy, and perceptions of patient trust in weight loss advice.

Methods: A national cross-sectional Internet-based survey of 500 US non-physician health professionals specializing in nutrition, nursing, behavioral/mental health, exercise, and pharmacy collected between January 20 and February 5, 2014 was analyzed.

Results: Normal-BMI professionals were more likely than overweight/obese professionals to report success in helping patients achieve clinically significant weight loss (52% vs. 29%, P = 0.01). No differences by health professional BMI about the appropriate patient body weight for weight-related care (initiate weight loss discussions and success in helping patients lose weight), confidence in ability to help patients lose weight, or in perceived patient trust in their advice were observed. Most health professionals (71%) do not feel successful in helping patients lose weight until they are morbidly obese, regardless of BMI.

Conclusions: Normal-BMI non-physician health professionals report being more successful than overweight and obese health professionals at helping obese patients lose weight. More research is needed to understand how to improve self-efficacy for delivering obesity care, particularly among overweight and class I obese patients.

Funding agencies: This work was supported by two grants from the National Heart, Lung, and Blood Institute (1K01HL096409 and K24HL083113) and one grant from the Health Resources and Services Administration (T32HP10025-17-00).

Disclosure: The authors declared no conflict of interest.

Author contributions: SNB, KAG, LAC, and WLB conceived the study and developed the hypotheses. SB analyzed the data. All authors contributed to the interpretation of study findings. SNB drafted the manuscript, and all authors contributed to the final draft. SNB had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Additional Supporting Information may be found in the online version of this article.

Received: 24 July 2014; Accepted: 10 August 2014; Published online 4 September 2014. doi:10.1002/oby.20881

Introduction

Healthcare for obesity, which affects one-third of the US adult population (1) and is estimated to cost $147 billion annually (2), is suboptimal with only about one-third of patients receiving a diagnosis and a fifth receiving weight-related counseling (3,4). Physician body mass index (BMI) has recently been identified as a potential barrier to obesity care (5,6). Normal-weight physicians are more likely than overweight and obese physicians to provide recommended obesity care to their patients and feel confident doing so (5,6). The body weight of non-physician health professionals may similarly impact weight management practices and self-efficacy. However, we are unaware of any studies that have examined this question.

The objective of this study was to examine differences in self-reported obesity care practices, self-efficacy, and perceived patient trust in weight-related advice by non-physician health professional BMI. We hypothesized that normal-BMI non-physician health professionals would be more likely than overweight/obese professionals to report providing obesity care, to feel confident doing so, and to perceive their advice as trustworthy to patients.

Methods

Study design and administration

Details about the survey development can be found in the Supporting Information Appendix A. We conducted a national cross-sectional Internet-based survey in the US among five non-physician health professional groups: nutrition, nursing, behavioral/mental health, exercise, and pharmacy. Data collection was conducted online between January 20 and February 5, 2014. One hundred

1 Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA. Correspondence: Sara N. Bleich (sbleich@jhu.edu) 2 Department of Medicine, Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA 3 Welch Center for Prevention, Epidemiology, and Clinical Research, Johns Hopkins University, Baltimore, Maryland, USA.

Obesity (2014) 22, 2476–2480. doi:10.1002/oby.20881
respondents from each of five professions were recruited. In order to qualify for the study, respondents needed to: 1) confirm their profession and 2) indicate that they work at their profession at least 15 h a week in an ambulatory setting. Participants were recruited from the Medical Market Research (MMR) Panel which consists of 200,000 non-physician health professionals.

Measures
The question wording and response categories for the outcome variables can be found in Supporting Information Appendix B. The primary outcome was professionals’ perception of the appropriate body weight to initiate weight loss discussions and self-efficacy for helping patients achieve clinically significant weight loss (at least 5% of body weight). Like past studies (5), the survey displayed pictures of five different body sizes that ranged from normal BMI to class III obese, and respondents were asked to select the patient size at which they typically initiate obesity care. We elected to use pictures rather than provide BMI categories so as not to bias responses. Our secondary outcomes assessed self-efficacy for helping patients achieve clinically significant weight loss and perceived patient trust in health professionals’ advice. Trust was based on two survey questions: 1) “Do you think overweight/obese patients are more likely, less likely, or as likely to trust weight loss advice from overweight/obese health care professionals?” and 2) “Do you think overweight/obese patients are more likely, less likely, or as likely to trust weight loss advice from health care professionals who have a healthy weight?”

Table 1: Characteristics of the study sample

| Non-physician health professional groups | Normal BMI (%) | Overweight/obese (%) | P-value* |
|-----------------------------------------|---------------|----------------------|----------|
| Nursing                                 | 45            | 55                   | 0.34     |
| Nutrition                               | 75            | 25                   | <0.01    |
| Behavioral/mental health                | 51            | 49                   | 0.84     |
| Exercise                                | 46            | 54                   | 0.46     |
| Pharmacy                                | 46            | 54                   | 0.53     |

| Non-physician health professional characteristics | Normal BMI (%) | Overweight/obese (%) | P-value* |
|--------------------------------------------------|---------------|----------------------|----------|
| Female                                           | 93            | 79                   | <0.01    |
| White                                            | 85            | 76                   | 0.20     |
| Age 45 and older                                 | 40            | 57                   | 0.04     |
| Mean BMI                                          | 22            | 29                   | <0.01    |
| Seriously trying to lose weight at this time      | 16            | 74                   | <0.01    |
| More than college education                      | 49            | 57                   | 0.40     |
| Completed training >20 years ago                  | 32            | 33                   | 0.84     |
| Received high-quality weight management training during degree program | 52            | 51                   | 0.87     |

| Non-physician health professional-reported demographics of their patients | Normal BMI (%) | Overweight/obese (%) | P-value* |
|--------------------------------------------------------------------------|---------------|----------------------|----------|
| Almost all patients in practice are obese                                 | 15            | 16                   | 0.88     |
| Most obese patients in practice are from a broad range of demographic groups | 66            | 69                   | 0.69     |
| Most obese patients in practice are low income                           | 49            | 39                   | 0.23     |

Source: Survey of health professionals between January 20 and February 5, 2014. Health professionals included nurses, nutritionists, behavioral or mental health providers, exercise professionals, and pharmacists.

Note: Numbers may not add up to 100% because of rounding.

*Comparing characteristics between normal-BMI and overweight/obese groups.

Statistical analyses
The final data were weighted to address concerns with systematic under- or over-representation of health professional subpopulations in the panel, and to account for systematic nonresponse along known demographic parameters of these professions. The final weighted sample approximates the known distribution for these occupations in the American Community Survey (7).

Statistical analyses were performed using the STATA, version 13.0 software package (StatCorp LP, College Station, TX), using SVY functions to adjust for the complex survey design. The weighted margin of error for the survey was ±5.3%. We conducted multivariate logistic regression analyses to evaluate the relationship between non-physician health professional BMI and the outcome variables. All models were adjusted for health professional age, gender, education, specialty (nutrition, nursing, behavioral/mental health, exercise, and pharmacy), and weight loss intention (assessed by a Yes or No answer to the survey question—“At this time, are you seriously trying to lose weight?”).

Results
We screened 1,052 panel members who responded to the survey invitation, and excluded 290 screened as ineligible and 45 qualifying respondents who did not complete the questionnaire. The completion
rate, calculated as completed interviews over the total of estimated working qualifying emails was 70%. The final sample included 500 non-physician health professionals; 100 in each professional group.

Table 1 reports the characteristics of the study sample. We observed significant differences in health professional body weight by gender, age, and weight loss efforts. In addition, nutrition professionals were more likely to be normal BMI. Table 2 shows non-physician health professional responses on the appropriate patient body weight to initiate a discussion about weight loss, by health professional BMI. We observed no significant relationships between professional BMI and each of the three outcomes. Table 3 shows non-physician health professional weight management self-efficacy and perceived patient trust in advice by professional BMI. Normal-BMI professionals were more likely than overweight/obese professionals to report success in helping obese patient achieve clinically significant weight loss (52% vs. 29%, \( P = 0.01 \)). We observed no differences in non-physician health professional perceptions of their confidence to help obese patients lose weight or patient trust in weight loss advice by professional BMI.

**Discussion**

This study is the first to examine the impact of non-physician health professional BMI on obesity care practices and self-efficacy, as well as perceptions of patient trust in weight loss advice, although past studies have examined this relationship among primary care physician health professionals (5,6). Contrary to our hypotheses, we found no difference by health professional BMI in obesity care practices. We observed differences in self-efficacy with normal-BMI professionals being more likely than overweight/obese professionals to report success in helping patients with obesity achieve clinically significant weight loss. Interestingly, most health professionals in our sample, regardless of BMI, did not feel successful in helping patients lose weight until they are extremely obese (class II obese or greater) suggesting important missed opportunities for early intervention.

The current findings are contrary to our earlier work that suggested normal-BMI physicians more frequently report discussing weight loss compared to overweight/obese physicians (5). These results suggest that normal-BMI non-physician health professionals have higher self-efficacy than overweight and obese health professionals, which is similar to prior research among physicians indicating that personal health promotion behaviors are strong predictors of attitudes toward obesity care (8). For example, physicians who exercise more and maintain a healthy diet are more likely to discuss exercise and weight with their patients (9). Generally, our finding of low self-efficacy in obesity care—regardless of BMI—is consistent with past research (10-13); although some research among health professionals working with the pediatric population report high confidence (14).
TABLE 3 Health professionals’ self-efficacy for providing weight management and perceived patient trust in their advice, overall and by health professional BMI (%)

|                  | Normal BMI | Overweight | Obese  | P-value |
|------------------|------------|------------|--------|---------|
| High confidence in ability to help patients with obesity achieve clinically significant weight lossa | 67         | 55         |        | 0.26    |
| High success in helping patients with obesity achieve clinically significant weight lossb | 52         | 29*        |        | 0.01    |
| Perceived likelihood that patients will trust weight loss advice from an overweight/obese health professionalc | Less likely | 82         | 72     | 0.31    |
|                  | More likely | 7          | 13     | 0.43    |
|                  | As likely   | 11         | 15     | 0.60    |
| Perceived likelihood that patients will trust weight loss advice from a normal-weight health professionald | Less likely | 11         | 46     | 0.39    |
|                  | More likely | 73         | 71     | 0.83    |
|                  | As likely   | 18         | 26     | 0.38    |

Note: Adjusted for age, education, weight loss intention, gender, and type of health professional (nutrition, nursing, behavioral/mental health, exercise, pharmacy).

aSurvey question: How confident are you in your ability to help your obese patients or clients achieve a clinically significant weight loss (at least 5% of body weight)?

bHow successful are you at helping your obese patients or clients achieve a clinically significant weight loss (at least 5% of body weight)?

cSurvey question: Do you think overweight/obese patients are more likely, less likely, or as likely to trust weight loss advice from overweight/obese health care professionals?

dSurvey question: Do you think overweight/obese patients are more likely, less likely, or as likely to trust weight loss advice from health care professionals who have a healthy weight?

Going forward, it will be important to increase self-efficacy among all health professionals regardless of weight, as an unintended consequence of targeted efforts may be to increase obesity stigma, which has risen considerably overtime (15,16). Increased self-efficacy is positively associated with weight management practices (17). Targeting all health professionals may also help address our finding that most professionals do not feel successful in helping patients with weight loss until they are morbidly obese. Increased opportunities for additional training, ideally as part of required certification, may help improve these current practice patterns and reduce negative attitudes of health professionals toward patients with obesity (18). Future research is needed to understand why healthcare professionals do not typically initiate weight management discussions until patients are morbidly obese.

There are several limitations to this analysis. First, our measures of health professional attitudes do not represent the full possible spectrum of attitude measures in the literature (such as perceived skills (19) or comfort in caring for obese patients (20)), which may bias our results toward the null. Second, some of the included health professionals may have had extensive additional training in obesity (considering themselves “obesity specialists”), which could have biased our results positively. While we did collect information on obesity training, we were unable to account for the huge variation across health professional degree programs. Third, our questions related to trust in health professionals’ advice used words to describe body weight rather than pictures, which may have biased responses. Future studies should consider using silhouettes with these questions to confirm our findings. Fourth, our use of self-reported height and weight may underestimate the prevalence of overweight/obesity in our study population. Finally, our use of body images rather than BMI to solicit health professional perspectives about appropriate patient body weights for weight loss conversations and obesity diagnosis may have been differentially interpreted.

In conclusion, this study suggests that health professional BMI does not impact obesity care practices, but it does impact self-efficacy. Normal-BMI health professionals feel more successful than overweight/obese health professionals at helping obese patients lose weight. More research is needed to understand how to improve self-efficacy for delivering obesity care for non-physician health professionals through additional training and how to encourage these professionals to engage obese patients in weight management before patients reach extreme obesity.

References
1. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. JAMA 2014;311:806-814.
2. Finkelston EA, Trogeon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: payer- and service-specific estimates. Health Affairs 2009; 28:w822-w831.
3. Bleich SN, Pickett-Blakely O, Cooper LA. Physician practice patterns of obesity diagnosis and weight-related counseling. Patient Educ Couns 2011;82:123-129.
4. Ma J, Xiao L, Stafford RS. Underdiagnosis of obesity in adults in US outpatient settings. Arch Intern Med 2009;169:313-314.
5. Bleich SN, Bennett WL, Gadzune KA, Cooper LA. Impact of physician BMI on obesity care and beliefs. Obesity 2012;20:999-1005.
6. Perrin EM, Flower KB, Ammerman AS. Pediatricians’ own weight: Self-perception, misclassification, and ease of counseling. Obes Res 2005;13:326-332.
7. US Census Bureau. 2005-2009 American Community Survey, Washington DC. 2009.
8. Spencer EH, Frank E, Elion LK, Hertzberg VS, Serdula MK, Galuska DA. Predictors of nutrition counseling behaviors and attitudes in US medical students. Am J Clin Nutr 2006;84:655-662.
9. Abramson S, Stein J, Schaafele M, Frates E, Ragan S. Personal exercise habits and counseling practices of primary care physicians: a national survey. Clin J Sport Med 2000;10:40-48.
10. Story MT, Neumark-Sztainer DR, Sherwood NE, et al. Management of child and adolescent obesity: attitudes, barriers, skills, and training needs among health care professionals. Pediatrics 2002;110:210-214.
11. van Gerwen M, Franc C, Rosman S, Le Vaillant M, Pelletier-Fleury N. Primary care physicians’ knowledge, attitudes, beliefs and practices regarding childhood obesity: a systematic review. Obes Rev 2009;10:227-236.
12. Perrin EM, Flower KB, Garrett J, Ammerman AS. Preventing and treating obesity: pediatricians’ self-efficacy, barriers, resources, and advocacy. Ambul Pediatr 2005; 5:150-156.
13. Bleich SN, Bennett WL, Gadzune KA, Cooper LA. National survey of US primary care physicians’ perspectives about causes of obesity and solutions to improve care. BMJ Open 2012;2:1-5.
14. Lowenstein LM, Perrin EM, Campbell MK, Tate DF, Cai JW, Ammerman AS. Primary care providers’ self-efficacy and outcome expectations for childhood obesity counseling. Child Obes 2013;9:208-215.
15. Pahl RM, Heuer CA. Obesity stigma: important considerations for public health. Am J Public Health 2010;100:1019-1028.
16. Pahl RM, Heuer CA. The stigma of obesity: a review and update. Obesity 2009;17:941-964.

© 2014 The Obesity Society
17. Zhu DQ, Norman JJ, While AE. Nurses’ self-efficacy and practices relating to weight management of adult patients: a path analysis. *Int J Behav Nutr Phys Act* 2013;10:1-11.

18. Budd GM, Mariotti M, Graff D, Falkenstein K. Health care professionals’ attitudes about obesity: an integrative review. *Appl Nurs Res* 2011;24:127-137.

19. Cheng TL, DeWitt TG, Savageau JA, O’Connor KG. Determinants of counseling in primary care pediatric practice: physician attitudes about time, money, and health issues. *Arch Pediatr Adolesc Med* 1999;153:629-635.

20. Jelalian E, Boergers J, Alday CS, Frank R. Survey of physician attitudes and practices related to pediatric obesity. *Clin Pediatr (Phila)* 2003;42:235-245.