Enhancing the Role of Nutrition Professionals in Weight Management: A Cross-Sectional Survey

Sara N. Bleich¹, Sachini Bandara¹, Wendy Bennett²,³, Lisa A. Cooper²,⁴, and Kimberly A. Gudzune²,⁴

Objective: (1) To determine the nonphysician health profession perceived as best qualified to provide weight management. (2) To examine nutrition professionals’ current practice characteristics and perceived challenges and solutions for obesity care. (3) To examine the association between nutrition professionals’ quality of training and self-efficacy in weight management.

Methods: A 2014 national cross-sectional online survey of 500 U.S. nonphysician health professionals (100 from each: nutrition, nursing, behavioral/mental health, exercise, pharmacy) was analyzed.

Results: Nutrition professionals most commonly self-identified as the most qualified group to help patients lose weight (92%), sentiments supported by other health professionals (57%). The most often cited challenge was lack of patient adherence (87%). Among nutrition professionals, 77% reported receiving high-quality training in weight loss counseling. Nutrition professionals who reported high-quality training were significantly more likely to report confidence (95% vs. 48%) and success (74 vs. 50%) in helping obese patients lose weight ($P < 0.05$) than those reporting lower-quality training.

Conclusions: Across all nonphysician health professionals, nutrition professionals were identified as best suited to provide routine weight management counseling to obese patients. Yet nutrition professionals’ receipt of high-quality weight management training appears critical to their success in helping patients lose weight.

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Introduction

Obesity affects one-third of the U.S. adult population and is estimated to cost $147 billion annually (1,2). Earlier studies, primarily focused on primary care physicians (PCPs), documented various provider and system barriers to providing obesity care and suboptimal treatment of obesity (3-18). As a result, PCPs are often unable to provide "intensive, multi-component behavioral interventions" as recommended by the U.S. Preventive Services Task Force (USPSTF) for all persons with obesity (19). The USPSTF has acknowledged PCPs’ potential difficulty in offering intensive weight loss counseling and has suggested that clinicians consider collaborative treatment with nutrition and other health professionals (20).

Recent guidelines on the management of overweight and obesity in adults also recommended that PCPs refer patients to high-intensity lifestyle interventions delivered by trained nutrition professionals (21). A prior study of PCPs also noted that these physicians believe that nutrition professionals are the group best suited to take on weight management (22). Yet, little research to date has specifically focused on the current role of nutrition professionals in obesity care.

Nutrition professionals include registered dieticians (RD), certified clinical nutritionists (CCN), and certified nutrition specialists (CNS). There are several factors that may lend nutrition professionals to a primary role in obesity care. First, these professionals undergo 2-4 years of training in nutrition, which they could apply to weight-related counseling. Nutrition professionals have routinely been utilized as key interventionists in randomized controlled trials of multi-component behavioral interventions (21). Second, unlike physicians and nurses, who consistently demonstrate weight bias (the inclination to form unreasonable judgments based on a person’s weight) that negatively impacts care nutrition professionals are a less common source of weight bias (23-25). Third, more individuals are expected to be pursuing education and training in nutrition science.
in the coming years. According to the Bureau of Labor Statistics, employment of nutrition professionals is projected to grow by 22\% from 2012 to 2022, which is twice the average growth rate for all occupations (26). Finally, the Patient Protection and Affordable Care Act (ACA), calls for primary care teams to include professionals from several disciplines (including nutrition) to help patients address complex behavioral changes such as lifestyle modification and weight management (27). There are no prior studies assessing the perspectives of nutrition professionals about the weight management of obese patients.

Our first objective was to determine which nonphysician health professional was perceived as best qualified to participate in weight management among all potential nonphysician health professional partners. Based on our prior work with PCPs, we hypothesized that nonphysician health professionals would identify nutrition professionals as the most qualified group and that this group would also endorse their aptitude for this role (22). Therefore, our second objective focused on examining the self-reported current practice characteristics and perceived challenges and solutions for weight management as reported by nutrition professionals. Our final goal was to examine the association between quality of obesity training and self-efficacy in providing weight management among nutrition professionals.

**Methods**

**Study design**

We conducted a national cross-sectional internet-based survey of nonphysician health professionals in the United States among the following groups: nutrition, nursing, behavioral/mental health, exercise, and pharmacy.

**Survey development and implementation**

Detail about the survey development can be found in the Supporting Information Appendix A. We consulted SSRS/Social Science Research Solutions to design and implement the survey. The survey instrument was reviewed for content by health professionals (in each of the fields included in the survey) and experts in the field of obesity, and was then pretested for length and comprehensibility. The survey was revised on the basis of these pilot tests and the final version included forty-eight questions. A total of 20 pretest interviews (four in each of the five professional groups) were conducted by inviting panel members to participate in the study and asking them for comments about any of the questions. Following the pretest, several changes were incorporated into the final questionnaire. For example, we changed the response categories for some questions and the stem question for others (e.g., expanding the list of addition obesity training options respondents could choose from). The pilot interviews were conducted by the survey firm (Social Science Research Solutions) which is external to Johns Hopkins. Two polling experts from Social Science Research Solutions also reviewed the survey for comprehensibility. Four obesity experts (independent of the research team and internal to Hopkins) commented on the content of the survey questions.

Data collection was conducted online between January 20 and February 5, 2014. One-hundred respondents from each of five nonphysician health professions were recruited. Participants were randomly recruited from the Medical Market Research (MMR) Panel which includes more than 200,000 healthcare professionals and has a 90\% retention rate year-over-year. Respondents were asked to complete a 10-min survey about obesity care. To be eligible for the study, respondents needed to: (1) confirm their profession (included professions: nutrition, nursing, behavioral/mental health, exercise, and pharmacy) and (2) indicate that they work at their profession at least 15 h a week in an ambulatory setting. We excluded predominantly inpatient providers, as they are less likely to participate in obesity care.

This study was approved by the Johns Hopkins University Institutional Review Board and determined to be exempt.

**Measures**

For objective 1, we assessed perspectives of each of the nonphysician health professional groups about the most qualified profession to provide obesity care with the following questions, comparing responses from nutrition professionals to all other health professionals: “In your experience, which one of the following groups of health care professionals is most qualified to help obese individuals lose weight?”; “In your experience, which group of health care professionals is most qualified to help obese individuals maintain their weight?” and “In your experience, which group of health care professionals would be best suited to partner with primary care physicians to provide healthcare practice-based weight loss programs?” For each question, health professionals were given nine health professional categories: (1) nutritionist/registered dietician (nutrition professional group), (2) nurse, (3) behavioral psychologist or mental health professional, (4) exercise physiologist or physical therapist, (5) pharmacist/Pharm D, (6) PCP, (7) specialty physician, (8) health coach/personal trainer, (9) a team of professionals. These categories were collapsed into five professional groups: nutrition, nursing, behavioral/mental health, exercise, pharmacy, and other (responses 6-9).

For all additional objectives, we focused only on responses from the nutrition professional group on a series of questions (detailed in Supporting Information Appendix B) which focused on challenges to helping obese patients lose weight and solutions for improving obesity care, quality of weight management training, self-efficacy, and practice patterns (e.g., number of hours of direct patient care in a typical week, common types of nutritional counseling provided to obese patients, and common types of behavioral counseling provided to obese patients). For the questions assessing challenges and solutions for improving obesity care, respondents were asked to pick three options from a list of 10 challenges and three options from a list of twelve solutions. For each, we selected the three most frequently endorsed options.

We assessed the quality of weight management training by asking, “How would you describe the training you received regarding obesity care and weight loss counseling during your health professional degree or educational training?” Respondents indicated whether it was very good, somewhat good, not very good, or not at all good. We dichotomized this variable as “high-quality training” (very/somewhat good) and “low-quality training” (not very/not at all good) based on the cut points in the data. We evaluated self-efficacy by asking, “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)?” and “How successful
are you helping your obese patients or clients achieve a clinically significant weight loss (at least 5% body weight)?” We dichotomized respondents responses as “high” if very/pretty confident or successful and “low” if not very/not at all confident or successful.

Statistical analyses
Survey response 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 data were adjusted in weighting so that the final weighted sample approximate the known distribution for these occupations as reflected in the American Community Survey. We calculated weight means (adjusted for age and education) and performed descriptive analyses for all variables. The t-tests were used to test for differences between nutrition professionals by self-reported quality of obesity care training received. Statistical analyses were performed using the STATA, version 13.0 software package (StataCorp 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%.

Results
We screened 1052 panel members who responded to the survey invitation, and excluded 290 screened as ineligible for not meeting the inclusion criteria described above (by profession—nutrition: 51, nursing: 63, behavioral/mental health: 62, exercise: 49, pharmacy: 65) 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 68% (717/1052). Working qualified emails were calculated by adding qualified emails (completing or breaking off) plus the estimated number of qualified emails among the unknown.

Based on a prespecified sample size determination, the final sample included 500 nonphysician health professionals with 100 in each professional group. Each participant received an incentive for their participation. Table 1 provides the characteristics of the overall study sample and the nutrition professionals group. Overall, most were female, white, under age 45, and had more than a college education. These characteristics of this study sample are comparable to U.S. Health Workforce Chartbook (e.g., our sample of pharmacy professionals is 47% male and 53% female, which is the same as the Chartbook) (28).

Figure 1 displays the perspectives of nonphysician health professionals about which profession is most qualified to participate in weight management where nutrition professionals are compared to all other health professionals. Nutrition professionals self-identified as the best group to help patients with obesity lose weight (92%) and maintain their weight (75%). The other nonphysician health professionals in our study (nursing, behavioral/mental health, exercise, pharmacy) also identified the nutrition professionals as the best group for these activities (57 and 44%, respectively). Nutrition professionals perceived that they were best suited to partner with PCPs to provide weight loss programs (94%), and other nonphysician health professionals cited them most commonly to fulfill this role as well (53%). Therefore, all additional results focus on the nutrition professionals group alone.

Among the nutrition professional group, most stated that they spent at least 21 h a week engaged in direct patient care (79%) and patients are typically referred into their practices by physicians (75%). Only 34% of nutrition professionals reported that the majority of patients’ health insurance covered at least some of the costs of their services.

Nutrition professionals most often endorsed using the following five nutrition counseling strategies in their practice: reducing portion size (96%), reading nutrition labels (91%), avoiding high-calorie ingredients when cooking (91%), reducing sugar-sweetened beverage consumption (90%), and avoiding high-calorie menu items when eating outside the home (88%). Interestingly, only 67% created

TABLE 1 Characteristics of the overall study samplea (N = 500) and the subgroup of nutrition professionals (N = 100)

| Characteristic                  | Overall, N (%) | Nutrition professionals group, N (%) |
|--------------------------------|----------------|-------------------------------------|
| **Female**                     | 386 (86)       | 99 (95)                             |
| **Race/ethnicity**             |                |                                     |
| White-Non-Hispanic             | 416 (81)       | 87 (80)                             |
| Black-Non-Hispanic             | 14 (5)         | 0 (0)                               |
| Asian                          | 27 (4)         | 3 (6)                               |
| Hispanic                       | 19 (3)         | 6 (7)                               |
| Other                          | 8 (3)          | 0 (0)                               |
| **Age, years**                 |                |                                     |
| Under 35                       | 75 (25)        | 12 (32)                             |
| Aged 35–44                     | 142 (26)       | 31 (23)                             |
| Aged 45–54                     | 127 (20)       | 28 (20)                             |
| Aged 55 and older              | 156 (28)       | 29 (25)                             |
| **Education**                  |                |                                     |
| Less than college,            | 34 (15)        | 1 (1)                               |
| College                       | 164 (32)       | 46 (50)                             |
| More than college              | 302 (53)       | 53 (49)                             |
| Completed training more than 20 years ago | 220 (44) | 50 (38)                             |

aOverall study sample include 100 professionals from each of the following groups: nutrition, nursing, behavioral/mental health, exercise, and pharmacy.

bThe race/ethnicity categories do not sum to 100% as some health professionals reported their race category as “prefer not to say.” For the overall population, this included 16 observations (4%), and for nutrition professionals, this included 4 observations (8%).

Source: Survey of health professionals between January 20 and February 5, 2014.
Menu plans for their patients and only 24% used meal replacements. Most nutrition professionals reported advising patients to engage in recommended levels of physical activity (83%) as a part of their weight management services. Nutrition professionals endorsed the use of some behavioral strategies as a part of weight management, including goal setting (91%) and self-monitoring of calories (80%) and exercise (81%), while other behavioral strategies such as problem solving (57%), self-monitoring of weight (40%), contingency planning (33%), and stimulus control (33%) were less common. The majority of nutrition professionals do not offer alternative therapies like hypnosis, herbal supplements or acupuncture as a part of their practice (91%).

Table 2 presents nutrition professionals’ perspectives on the three biggest challenges to helping obese patients lose weight and solutions to improve obesity care (full set of responses can be found in Supporting Information Appendix C). The two most often cited challenges were related to patient level factors, which were perceived lack of patient adherence and perceived lack of patient willpower. The final most common challenge was related to lack of reimbursement for services. Nutrition professionals identified reimbursement for services not currently covered by insurance companies and higher reimbursements for covered services as two priority solutions in their practices. They also perceived that being able to collaboratively manage patients with colleagues with expertise in obesity care would be beneficial for their practice. Nutrition professionals most often identified behavioral psychologists or mental health professionals as the professionals best suited for them to partner with to provide obesity care (41%), while only 12% believe physicians were their best partners.

All nutrition professionals reported receiving weight management and obesity care training during their health professional degree program and 77% believed that the quality of this training was high. Table 3 presents the association between reported quality of obesity training and perceived self-efficacy in providing weight management among nutrition professionals. Compared with those who reported low-quality weight management training, nutrition professionals who reported high-quality obesity care training were significantly more likely to report confidence in their ability to help obese patients achieve clinically significant weight loss (95 vs. 48%, \(P < 0.01\)) and success in helping obese patients achieve clinically significant weight loss (74 vs. 50%, \(P = 0.05\)). In addition, 86% of nutrition professionals reported participating in additional training beyond their degree program, on how to help patients with obesity lose weight. This training was accomplished mostly through continuing education credit, lectures, seminars and conferences. Of note, most nutrition professionals who reported low-quality training and high success received additional training (90%).

In sensitivity analyses (not shown but available upon request), we reran the results for Tables 2 and 3, adjusting for practice setting. We found no substantive differences from the original results. To be consistent with other published papers using this data (29), we report the tables which adjusted for only age and education.

Discussion
This study is the first to examine perspectives of nonphysician health professionals about their scope of practice and responsibility for offering weight management to obese patients. We found that nutrition professionals were most commonly identified as the most qualified professional group to help obese patients lose or maintain weight. Almost all nutrition professionals self-identified as the best professional group to deliver obesity care, and reported greater
Confidence and success in helping patients with obesity achieve clinically significant weight loss. Among nonphysician health professionals, nutritionists were most commonly identified as the professional group best suited to partner with PCPs to provide weight loss programs and all most all nutritionists self-identified as the best professional group to act in this collaborative manner. These results are consistent with earlier work assessing perspectives of physicians about obesity care, which found that PCPs most commonly identified nutrition professionals as most qualified to help patients with obesity lose or maintain weight (22). Most PCPs in this prior study supported practice-based changes to help them improve their delivery of obesity care (22). Combining the results of these two studies, it appears that all health professionals, regardless of specialty, are looking to nutritionists to take a primary role in weight management and obesity care. Given their potential prominent role in weight management, it becomes critical to understand the training and current practice characteristics of today’s active nutrition professionals.

In our sample, all nutrition professionals reported receiving education on weight management and obesity care during their professional degree program. We also found that most nutritional professionals pursued additional training in obesity after their degree program in this area. In contrast, a prior study of PCPs found that only 63% of these providers had similar educational experience (22). Our results suggest that all nutrition professionals have some educational experience in this domain, which suggests that they have the education and training to take on a lead role in obesity care. However, the quality of this education likely varies across programs and may have consequences for this professional group. Past research suggests that obesity training has been shown to improve obesity care (3). Our results suggest that the quality of weight management training is associated with significantly greater confidence and perceived success in helping patients with obesity lose weight. Therefore, improving the quality of weight management training for nutritional professionals could translate into better patient outcomes. Additional research is needed to evaluate and enhance current weight management curricula for nutrition professionals.

Nutritional professionals reported using many evidence-based methods in their current weight management practice including portion control and calorie tracking (2013 American Heart Association/The Obesity Society Guidelines), although other evidence-based strategies such as meal replacements were uncommon. Most nutrition professionals endorsed using behavioral strategies like goal setting and self-monitoring. Few incorporated other behavioral techniques like problem solving, contingency planning, and stimulus control. Nutrition professionals may benefit from additional training in counseling techniques and behavioral strategies, which may help them to overcome their perceived challenges with patient nonadherence and lack of willpower. Alternatively, collaborative obesity care models might consider pairing nutrition professionals with mental health/behavioral professionals to play upon the strengths of both groups. More research is also needed to identify which components of weight management would be best handled by nutrition professionals and which components would be best handled by mental health/behavioral professionals and/or PCPs with complementary skills.

A weight management model that combines the nutrition professional, mental health/behavioral professional, and PCP would be consistent with The Patient Protection and Affordable Care Act (ACA), which calls for multidisciplinary teams to help patients address complex behavioral changes (27). Collaborative treatment of patients with obesity has been successful in the past (30,31). However, the perceived challenges with reimbursement for nutritional professionals’ services that we identified would need to be overcome before such a model could be implemented. Lack of reimbursement has

TABLE 2 Nutrition professionals’ perspectives on their three biggest challenges to helping obese patients lose weight and solutions to improve obesity care (%)

| Challenges to helping patients lose weight<sup>a</sup> | Nutrition professionals group (N = 100) |
|--------------------------------------------------|---------------------------------------|
| Lack of patient adherence to treatments          | 87                                    |
| Lack of patient willpower to make changes        | 56                                    |
| Lack of reimbursement                            | 47                                    |

| Solutions to improve obesity care<sup>b</sup> | Nutrition professionals group (N = 100) |
|---------------------------------------------|---------------------------------------|
| Reimbursement from insurance companies       | 71                                    |
| for services not currently covered           |                                       |
| Colleagues with expertise in obesity care    | 50                                    |
| to collaborate on patient management         |                                       |
| Higher reimbursement from insurance companies for covered services | 41 |

<sup>a</sup>Survey question: Of the following, which THREE are the biggest challenges that you face in helping your obese patients or clients lose weight?

<sup>b</sup>Survey question: Of the following, which THREE would be the most helpful in your practice to facilitate patient weight loss?

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TABLE 3 Association between reported obesity training quality and perceived self-efficacy in weight management among nutrition professionals (%)

| Nutrition professionals group (N = 100) | High-quality training (77%) | Low-quality training (23%) |
|---------------------------------------|-----------------------------|--------------------------|
| High confidence in ability to help obese patients achieve clinically significant weight loss<sup>a</sup> | 95                          | 48<sup>a</sup>            |
| Perceived high success in helping obese patients achieve clinically significant weight loss<sup>b</sup> | 74                          | 50<sup>b</sup>            |

<sup>a</sup>Significantly different from high-quality group, P < 0.05
<sup>b</sup>Survey 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)? How successful are you at helping your obese patients or clients achieve a clinically significant weight loss (at least 5% of body weight)? Adjusted for age, education, and additional training.
been commonly cited as a barrier to providing obesity care (32). Compensation for weight-related counseling is changing as a result of recent changes in the ACA (which provides federal matching funds to state Medicaid programs that choose to cover obesity screening and treatment) and by the Centers for Medicare and Medicaid Services (which covers intensive behavioral counseling for obese patients). However, it is unclear whether nutrition professionals will be eligible for reimbursement through ACA changes and their services are not eligible for reimbursement through CMS.

Yet, other challenges remain. Nutrition professionals are 70% white, while obesity disproportionately impacts low-income minority groups (33,34). Given that minorities typically live in separate communities with different environmental exposures (35), it is quite possible that nutrition professionals may be unfamiliar with the locally available resources and food options for patients from different racial or socioeconomic backgrounds (36). Therefore, identifying strategies to familiarize nutrition professionals with the local realities of their patients’ food environment may help them provide more relevant and effective weight management. Diversifying the nutrition workforce might also lead to better patient experiences for ethnic minority patients and improve cultural competence of their colleagues (37), although some prior research suggests that patient-provider race concordance may not improve obesity care for black patients with obesity (38). Increased recruitment of men as nutrition professionals may be another target, as a previous study found that male patient-physician gender concordance is associated with increased lifestyle counseling (39). In addition, nutrition professionals are a small professional group (accounting for 67,000 jobs in 2012 compared to 2.7 million nursing jobs (26)), although growing. As a result, it may be unrealistic for them to serve as the primary health professional group delivering weight management for obesity patients with obesity. However, nutrition professionals work in a variety of settings and employment of nutrition professionals is projected to grow by 22% from 2012 to 2022, which is twice the average growth rate for all occupations (26).

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 (40)) which may bias our results towards the null. Second, some of the included health professionals have had extensive additional training in weight management (even considering themselves “weight management specialists”), which could have biased our results positively. It is also possible that health professionals with more interest in the topic of obesity may be more likely to respond to the survey. Third, even though the survey was reviewed by experts in the field of obesity and among each health professional group included in the survey as well as pilot tested for comprehensibility, it is possible that health professionals differentially interpreted some of the questions. Fourth, we restricted our question related to weight loss challenges to factors specific to the health care setting, but nutrition professionals may also consider environmental factors (e.g., lack of access to healthy foods) to be weight loss challenges. Fifth, we did not gather information on years of training and are, therefore, unable to assess the association of training intensity in weight management and self-efficacy to manage obesity.

In conclusion, this study suggests that nonphysician health professionals and nutrition professionals themselves support elevating of the role of nutrition professionals in the delivery of weight management. Additional training for nutrition professionals, a collaborative care model which includes other health professionals with expertise in obesity care that leverages the skills they feel most qualified to deliver, and reimbursement (for additional training or for insurance coverage of relevant services) may facilitate improved delivery of weight management from nutrition professionals.

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