BMC Medical Education

RESEARCH

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Advice over empathy: a national cross-sectional examination of communication in united states dietetic education

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Abstract

Background Empathy is an important element of patient communication and is well operationalized in established approaches to one-on-one communication, such as motivational interviewing (MI). The accurate demonstration of empathy is especially important when seeking to facilitate a change in behavior, such as in lifestyle or diet, given these issues often involve psychological barriers versus knowledge deficits. Registered dietitians are a key licensed healthcare provider tasked with facilitating changes in diet, but the extent to which current educational standards in the United States (US) contribute to cultivation of empathy as a professional skill has not been systematically evaluated. The objective of this study was to characterize therapeutic empathy and communication among US dietetics students.

Methods A cross-sectional survey-based study was conducted among US-based dietetics students, recruited via forwarded e-mail messages from directors of accredited programs. Personal characteristics and responses to the Helpful Responses Questionnaire (HRQ)– a validated measure of therapeutic empathy– were collected. All HRQ responses (6/participant) were reviewed and scored from 1 to 5 based on the use of reflections and communication roadblocks (1 = least empathetic, 5 = most empathetic) per established methods. One mean total HRQ score was computed per participant and precise roadblocks used were tabulated. Given the distribution of the final data set, a binary variable was created to capture whether participants had a total HRQ score of 1 or > 1. Logistic regression and chi-square tests were used to identify participant attributes associated with achieving scores > 1.

Results Participants ($n = 506$) were mostly white females (95.06% female, 79.05% white). The mean total HRQ score was 1.21 (SD: 0.47), with $n = 175$ participants (34.6%) achieving a mean total HRQ score > 1. Age, being married, having a previous non-nutrition-related career, or enrollment in a standalone internship were associated with HRQ score > 1 ($P \leq 0.001$). The most common roadblock used was advising followed by using logic.

Conclusion US-based dietetics students may not be consistently using empathetic communication, instead prioritizing problem-solving-oriented strategies (e.g., giving advice). Exploring optimal strategies to training that facilitate improved empathy, and the relative importance of empathy versus problem-solving strategies in facilitating

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behavior change, are important next steps. Further, the HRQ was successfully implemented, and its use should be replicated in other regions and populations.

Keywords Motivational interviewing, Empathy, Diet therapy, Education, Nutritionists, Behavior change

Background

Good communication is pivotal for high-quality patient-provider relationships and supporting a change in patient/client cognition and health behavior [1]. The notion that good communication is important has been appreciated in select fields (e.g., psychology), and has served as the basis of empirically-driven therapies (e.g., person-centered counseling, motivational interviewing [MI]) [2]. As illustrated by such therapies, quality communication includes demonstration of empathy. This is empirically supported: in a meta-analysis of health interventions, Elliott et al. found empathy-informed interventions improve health behavior and patient outcomes (d = 0.58) [3]. Empathy can be especially useful with difficult-to-change behaviors (e.g., diet) [1, 3, 4] that are shaped by non-modifiable factors. These non-modifiable factors cannot be changed via education, but rather acknowledged to show empathy and assist with coping [5]. For example, trauma-informed care highlights the importance of acknowledging trauma (e.g., adverse childhood experiences) even when it cannot be acted upon [5].

As appreciation for non-modifiable factors in dictating diet-related behaviors grows, preeminent organizations (e.g., American Academy of Pediatrics) have emphasized the need to utilize empathy in supporting patients in changing their diet and related health outcomes (e.g., weight) [4, 6, 7]. This includes via the use of MI specifically [6]. Registered dietitians are a key licensed provider in this endeavor, and while they may demonstrate more empathy than some other providers, there is room for improvement (e.g., mean score of 49.72 ± 5.62 on the Toronto Empathy Questionnaire (range: 0–64)) [8]. Some evidence suggests that in certain practice settings, patients see dietitian communication as paternalistic [9], and historically dietitians have reported their behavior change training as insufficient [10, 11]. Indeed, no standards exist in dietetics education or curricula as it pertains to teaching or applying empathetic communication [4, 7].

MI has consistently been touted as a logical tool in dietetics [7, 12, 13] as it provides a clear operationalization of empathy. In MI, empathy is defined as a clinician's attempt to understand a patient's perspective, including through "*complex reflections that seem to anticipate what clients mean but have not said*" [14]. This often involves patients/clients sharing emotionally-charged personal details. Improper navigation of these topics can hinder communication [15] and manifest as roadblocks to communication that focus prematurely on arriving at a solution to problems [15–18]. Unfortunately, most dietetics training focuses on implementing the Nutrition Care Process to conduct an assessment, render a diagnosis, and provide an intervention; none of these outlines how to show empathy or use established approaches such as MI [19–21]. Motivational interviewing is included as a potential intervention to use within the Nutrition Care Process and thus is integrated to some extent in current educational standards [7, 22]. Therefore, training on specific approaches for showing empathy– via MI– are implicitly included in educational standards, but not explicitly.

Researchers have recently advocated for a comprehensive understanding of the field's use of MI given gaps in knowledge regarding if these skills are commonly employed [7]. Most research examining communication in dietetics has been in non-US cohorts [23–25], or examined dietitians providing care in randomized controlled trials that involve interventions that are not necessarily standard care [26]. Knight et al. [27] found in a scoping review of empathy in dietetics that > 70% of relevant studies were in non-US countries. There is a need to understand communication used by US dietetics students to inform education [28]. Differences in empathy and communication may also exist based on individual characteristics (e.g., age), examination of which can inform understanding of how to nurture the development of empathy [29].

Some existing studies have sought to examine empathy in dietetics [4]. Ideally, this process involves use of instruments (e.g., Motivational Treatment Integrity Tool (MITI) [30]) that evaluate actual counseling sessions. However, this approach is resource-intensive, resulting in the frequent use of self-report or self-rating tools (i.e., 68.2% of studies use self-report alone) [4, 8, 29]. Self-report tools are susceptible to biases, and demonstrate poor reliability [31] and validity when compared to observation [32], patient-report [33–35], and behavioral tasks evaluating underlying constructs (e.g., emotion recognition) [36, 37]. One tool that exists yet is underutilized in nutrition is the Helpful Responses Questionnaire (HRQ). While the HRQ is a survey– enhancing scalability/reach– it does not rely on self-rating, has good reliability (e.g., interrater reliability range: 0.71–0.932) [15, 38], is sensitive to changes after MI-specific training [39, 40], and scores from the HRQ correlate significantly with the MITI [40]. In previous evaluations of written

assessments of communication, the HRQ has emerged as a most optimal candidate [41].

The HRQ presents fictitious patients/client statements to which respondents craft a response they feel would be most helpful. Responses are then coded using an established system that involves evaluation of respondents' use of reflections and Gordon's Twelve Roadblocks (Fig. 1) [15, 18, 42, 43]. Roadblocks include problematic clinician behaviors (e.g., criticizing) and those that are often well-intended but focus on arriving at a solution to a problem (e.g., advising). As pointed out within the 12 Roadblocks: "*When people are experiencing a problem, most of us have the tendency to jump in with "help" in the form of "good advice" from our own experience, or questioning to get at the "facts" or reassuring to make them feel better"* [43]. This notion is consistent with empirical data in communication sciences that emphasize the prioritization of emotional support over advice or changing one's mind during counseling [44–46].

Gordon's Twelve Roadblocks are used to conceptualize and teach MI [47], and are consistent with the Fixing Reflex, or clinicians' use of well-intended behaviors to correct, educate, or direct patients towards a particular action [30] due to *"the natural impulse to jump into action and direct the client toward a specific change*" [47]. The HRQ has been used in other professions (e.g., rehabilitation professionals [48], residents [49, 50]). However, this tool is underutilized in dietetics as an indicator of communication and therapeutic empathy [39].

Methods

The aim of this cross-sectional study was to characterize communication among dietetics students in the US, with an emphasis on therapeutic empathy via the HRQ. This study was reviewed and deemed exempt by the Oklahoma State University Institutional Review Board: IRB-22-470-STW.

A survey was administered in Qualtrics with questions regarding demographic, educational, and professional characteristics; questions to assess previous MI exposure and MI-related confidence and skillfulness; and an adapted version of the HRQ [15]. Confidence and skillfulness were measured on 10-point Likert scales based on other MI and communication-related self-rating tools (10 = most confident/skillful) [51]. The original HRQ includes six fictitious patient/client statements (stimuli) to which respondents are instructed to respond with "*the next thing that [they] would say if [they] wanted to be helpful*" [15] (Supplementary File 1). Per the original HRQ, participants are told to respond in 1–2 sentences. The original HRQ stimuli centered on "crisis" situations (e.g., domestic violence) [15], thus the investigative team altered stimuli to make them more specific to dietetics, while preserving the tone and covering six different types of patient/client concerns (Fig. 2). The collaborative team has experience in dietetics and motivational interviewing (e.g., lead author is a dietitian and member of the Motivational Interviewing Network of Trainers). Per the original HRQ, before presentation of stimuli, instructions stated:

> *Now, you will complete responses to the mock patient/client statements. The following six paragraphs are things that a person might say to you. For each paragraph imagine that a patient or client is talking to you and explaining a problem that they are having. You want to help by saying the right thing. Think about each paragraph as if you were really in the situation, with that person talking to you. In each case write the next thing that you would say if you wanted to be helpful. Write only one or two sentences for each situation.*

Each stimulus was presented with a text box for response with unlimited text space. Within the survey, participants could not go backwards and were permitted to finish their survey later if desired.

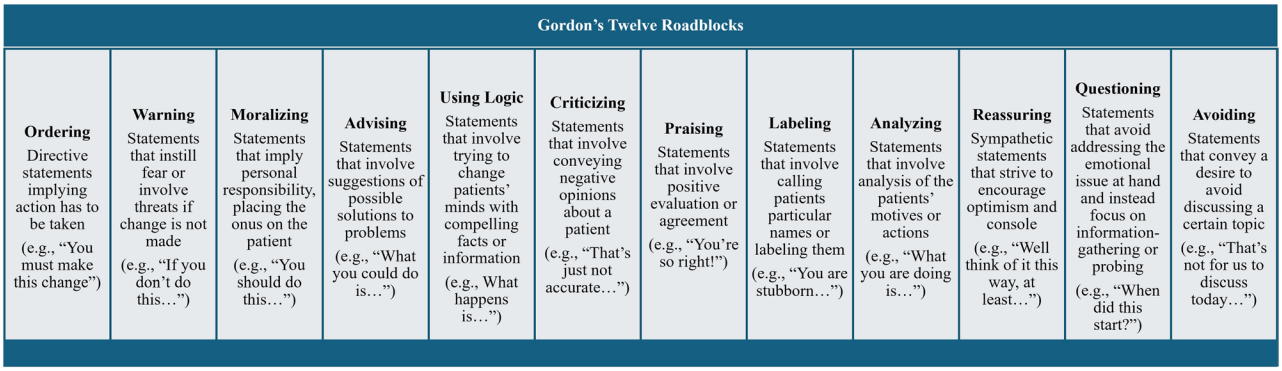

Fig. 1 Gordon's Twelve Roadblocks to Effective Communication. Representation of Thomas Gordon's Twelve Roadblocks to Effective Communication, which include types of communication (often well-intended) that can be roadblocks to effective communication. Presented with permission.

Stimuli Number	Stimuli Prompt
1	A 25-year-old woman says: "My friends, who are much smaller than me, have been making comments about my weight. I have tried several diets and supplements, but nothing seems to work. I don't know what to do."
2	A 68-year-old man says: "My daughter keeps nagging me to visit with a dietitian since I was diagnosed with Type 2 Diabetes. I don't see the point. I am going to live my life and eat the way I want to, plus I'm on meds. I have made it this far without food causing any issues."
3	A 45-year-old man says: "I just can't seem to stop eating fast food. It's so much more convenient and tastes better than the food I cook at home. But, I know my blood pressure has been high and heart disease runs in my family and I don't know what will happen if I keep this up."
4	A 42-year-old woman says: "I know I'm supposed to eat more fiber. My doctor tells me every time I visit them, but I just can't do it. I've never liked whole grain products or fruits and vegetables. I've almost bought them in the store a few times, but I don't know if they'll really help lower my cholesterol and they're very expensive."
5	A 36-year-old woman says: "I feel really awful. Last night I went out to eat and planned on getting one of the healthier menu items, but I fell off the bandwagon and got something unhealthy. This morning I could tell my weight went up and I just feel fatigued and unwell. I know I need to make the healthier choices, but life is too short to not eat things you enjoy. I want to eat what I like, but need to find a balance."
6	A 22-year-old man says: "Cancer runs in my family, and I've been doing everything I can to eat healthy. So I've decided to stop eating all sugar since it feeds cancer. I don't eat fruit, dairy, or candy, and I've started reading labels to make sure that I don't have anything that has any hidden sugar. But I might still get cancer, so I guess, what's the point?"

Fig. 2 Helpful Responses Questionnaire Stimuli. Adapted stimuli used in the Helpful Responses Questionnaire (HRQ) and administered to a national sample of US-based dietetics students participating in a survey-based study designed to assess communication.

Recruitment

Yamane's Formula was used to determine the sample required to represent the target population [52]. Using an estimate of 16,000 US dietetics students per the Academy/Commission on Dietetic Registration Needs Satisfaction Survey [53], a confidence level of 95%, and precision level of 0.05, $n = 390$ individuals were required. This was cross-referenced with previous use of the HRQ, which have employed sample sizes below $n = 100$ [39, 54].

For recruitment, emails of Accreditation Council for Education in Nutrition and Dietetics (ACEND)-accredited dietetics program directors in the US and according to the publicly available database on eatrightPRO.org as of October of 2022 were extracted. A recruitment email was sent to each director, with a request to forward a scripted email with information about the study/survey to their undergraduate and graduate dietetic students in exchange for fully anonymous descriptive data regarding their students' HRQ scores. The email included a brief overview of study expectations, risks, and benefits. Participating students had the option to enter a drawing for a $150 Amazon gift card, which required provision of a university-affiliated e-mail address. Provision of an e-mail was not required, and if provided, was not retained with the data set. The gift card recipient was selected via generation of a random number in SPSS. Eligibility criteria included being ≥ 18 years of age, enrollment in an ACEND-accredited dietetics program, and having computer/email access. The only exclusion criteria included being < 18 or not being enrolled in an ACEND-accredited program. The first page of the instrument was an eligibility screener followed by an electronic informed consent. Individuals indicated whether they consented by marking a Yes/No button. One round of recruitment emails was distributed.

The survey was open from 11/2022 to 09/2023. All responses were reviewed for quality; anyone who answered the HRQ inappropriately was removed. For example, participants who did not answer the HRQ by providing a response that would represent what they would say next to the patient in a real-time conversation (e.g., "I would say that they should seek advice from their physician" versus "You should seek advice from your physician").

Data coding and analysis

Responses were scored using the original HRQ methodology [15]. Specifically, each individual participant stimulus response (i.e., six/participant) was reviewed and assigned a score from 1 to 5 depending on use of a roadblock and/or reflection, and the strength of that reflection [14, 30]. A score of 1 is assigned if the response includes no reflection but does include at least one roadblock. A score of 2 is assigned if the response includes both a reflection and a roadblock or contains neither a roadblock nor a reflection. A score of 3 is assigned if the response includes a reflection or a reflection that "merely repeats the content already is stated." A score of 4 is assigned when a reflection is used that reaches paraphrase status ("adding inferred meaning that appears appropriate or plausible"). A score of 5 is assigned when the response meets the criteria for a 4, but also includes a reflection of feeling that fits the original statement or an appropriate metaphor or simile. Each participant has

a total of six individual HRQ scores and one mean total HRQ score, with 1 = lowest therapeutic empathy and 5 = highest. The interrater reliability of the HRQ (including the scoring procedures) ranges from 0.71 to 0.91 for individual stimuli, and 0.932 when examining total scores [15].

Given the size of our sample, we utilized approaches recommended for coding-based studies [55, 56]. Specifically, two members of the research team iteratively reviewed subsets of responses and coded them independently, then met and reviewed coding to identify and resolve discrepancies. This process was repeated until an interrater reliability of ≥ 80% was achieved, which happened after $n = 30$ respondents (i.e., 180 unique stimuli responses). One member of the team, (SC), then coded all responses independently, after which lead author, AB reviewed a random 10% of independently coded responses for quality assurance [15]. No discrepancies were found. During coding, AB and SC met every other week and discussed issues to ensure consistency of methods.

Descriptive statistics were used to evaluate demographic, educational, and professional characteristics. The planned analysis included multiple linear regression to examine the influence of these characteristics on HRQ scores, however the final data set skewed right with limited variability, precluding this plan. An alternative approach was employed, creating a binary variable to capture any respondent whose average HRQ score was > 1 (i.e., 1 = 0, > 1 = 1). Binomial logistic regression was used to examine the relationship between continuous characteristics (i.e., age, length of time in respective program) and the likelihood of achieving a total HRQ > 1. Chi-square tests for associations were then used to examine the relationship between categorical demographic, educational, and professional characteristics and achieving a total HRQ score > 1. For significant chi-square results, adjusted residual z scores were examined and post-hoc analyses conducted using Bonferroni corrections to adjust for multiple comparisons. Secondarily, a missingness analysis was conducted to understand if any demographic, educational, or professional characteristics were associated with not completing the HRQ. To do this, methods employed in previous research were used [57], including chi-squared analysis to determine if any variables were associated with not completing the HRQ. Lastly, ordinal regression was conducted to examine the association between collected variables and a total HRQ > 1 while controlling for age. All analyses were performed in SPSS (Version 29). Statistical significance was set at $P \leq 0.05$.

Results

A total of $n = 919$ individuals started the survey while $n = 506$ provided complete HRQ responses (Fig. 3). Participants represented 36 states (Fig. 4); most were female

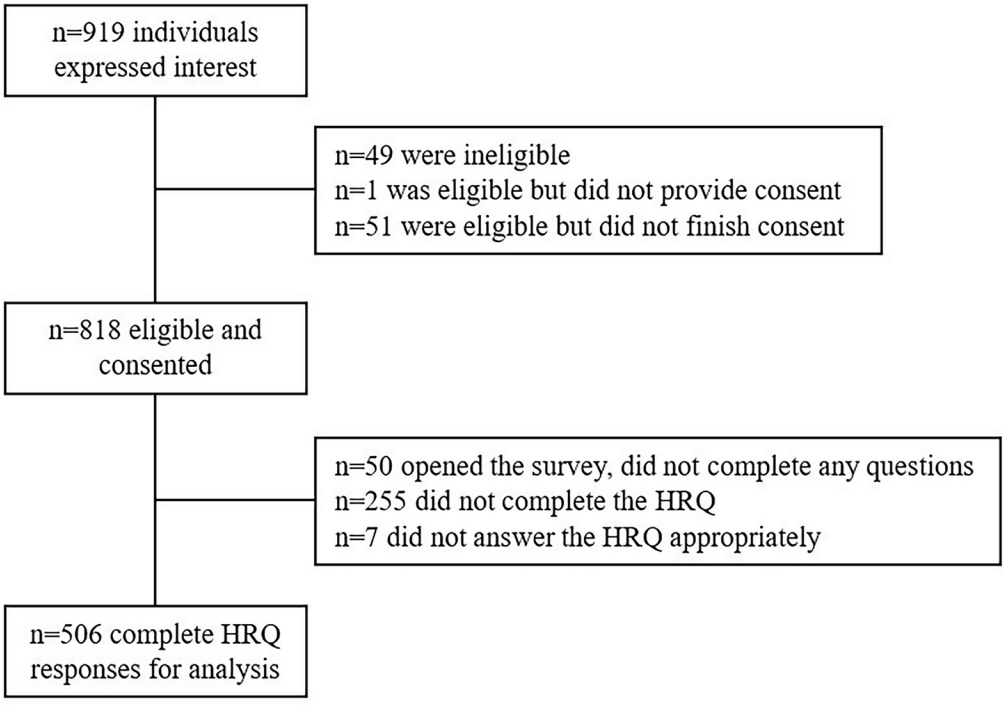

Fig. 3 Flow of Participants in the Study. Flow of potential participants from the point of opening the study instrument (i.e., expressing interest) to the point of inclusion in analysis. HRQ = Helpful Responses Questionnai

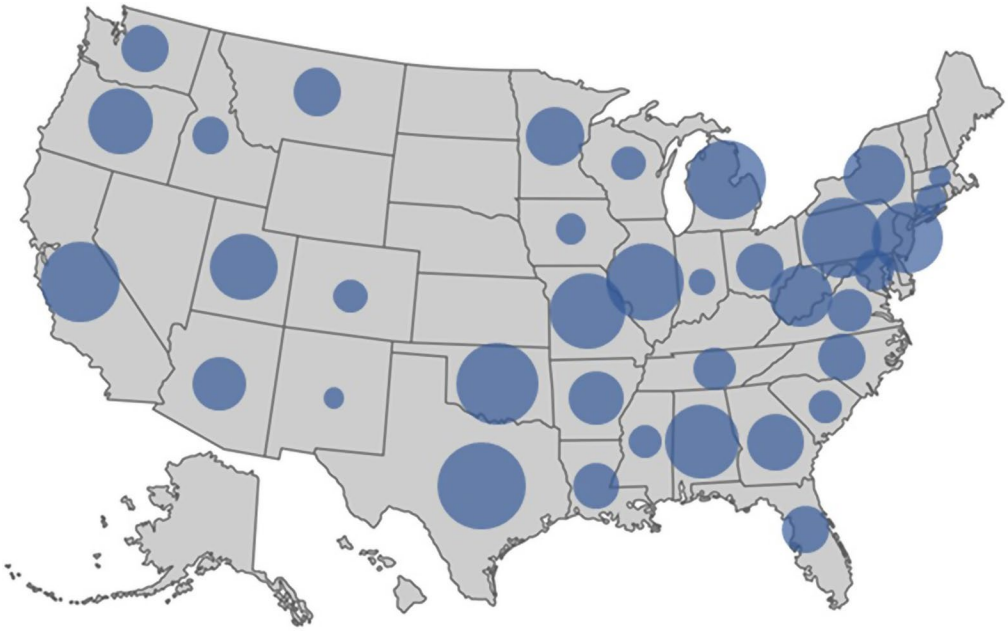

Fig. 4 Nationwide Distribution of Participants. To ensure anonymity, location of each bubble is not city-specific. Size of each bubble corresponds to the number of participants in that state

(95.06%), white (79.05%), and non-Hispanic (86.36%) (Table 1). Among participants who previously completed a non-nutrition degree, a natural sciences degree (e.g., biology) was the most common (29%). Over 70% of participants indicated they previously received MI training, including a MI-specific class (9.3%), multiple MI-specific classes (1.3%), integration of MI into internships ("supervised practice") (11.7%), webinars (1.6%), and/or standalone MI-specific training (4.3%). The most common exposure was general mention of MI throughout courses (65.1%). Many endorsed exposure without in-depth practice (e.g., "*[MI] was covered in a counseling class in undergrad, and again in Medical Nutrition Therapy [courses], but didn't really have much").*

The mean total HRQ score was 1.21 (SD: 0.47) and ranged from 1 to 4.5; $n = 175$ participants (34.6%) achieved a total HRQ score > 1. The most common code assigned was 1 (84% of responses) (Fig. 5). The most common roadblock was advising, followed by using logic; no participants used labeling, all other roadblocks were used (Fig. 6). Illustrative responses reflect data labeled as both "advising" and "using logic" from a 22-year-old female undergraduate student (total HRQ score = 1), who in response to stimulus 1 stated:

> *It sounds like you need to find better friends. Sometimes diets get you in a cycle of losing weight, but then as soon as you get off the diet, you gain it back. There aren't any supplements that are backed up by evidence to help with weight loss. Let's get more information about you and discuss some options for you.*

This is contrasted with the highest scoring participant (total HRQ score = 4.5), a 37-year-old female dietetic intern who, to the same stimulus, responded:

> *Your friends have been making comments on your weight. You feel lost because your attempts at weight loss have not been satisfactory for you.*

Other participants, such as this 22-year-old female Master's student, acknowledged the emotional aspect of the stimulus, but focused on problem solving (labeled as both "advising" and "using logic;" total HRQ score = 1.5):

> *You are defined by so much more than your weight, and I am sorry to hear that your friends are commenting on something that is none of their business. That being said, the most successful weight loss comes from those who want to do it for *themselves*—would you like to talk through some of your goals and passions with me?*

The highest mean score across stimuli was for stimulus 3 (1.29) (theme = blood pressure), while the lowest score was for stimulus 4 (1.18) (theme = cholesterol). Stimulus 6 (theme = cancer) provided a prime opportunity for participants to give tangible education; one participant (HRQ score = 1) stated:

Table 1 Participant demographic, professional, and educational characteristics ($n = 506$)

Variable	Levels	Percent (*n*)
Age (mean (SD))	N/A	25.03 (5.55)
Biological sex	Female	95.06 (481)
	Male	4.94 (25)
Gender	Cisgender female	92.09 (466)
	Cisgender male	4.55 (23)
	Prefer not to say	1.38 (7)
	Non-binary/third gender	0.99 (5)
	Other	0.79 (4)
	Transgender male	0.20 (1)
Race	White	79.05 (400)
	Asian	7.51 (38)
	Other	5.73 (29)
	Black/African American	3.73 (19)
	American Indian/Alaska Native	1.58 (8)
	Prefer not to say	1.38 (7)
	Don't know/Not sure	0.79 (4)
	Pacific Islander	0.20 (1)
Ethnicity	Not Hispanic	86.36 (437)
	Hispanic	13.04 (66)
Marital Status	Never married	64.82 (328)
	Married	20.75 (105)
	A member of an unmarried couple	12.25 (62)
	Divorced	1.58 (8)
	Separated	0.40 (2)
	Prefer not to say	0.20 (1)
Employment Status	Employed part-time	50.20 (254)
	Not currently working for wages	36.17 (183)
	Other	5.33 (28)
	Employed full-time	5.14 (26)
	Self-employed	2.17 (11)
	Prefer not to say	0.79 (4)
Current Dietetics Program Type	Undergraduate Didactic Program in Dietetics	31.0 (157)
	Coordinated Graduate Program in Nutrition and Dietetics	18.0 (91)
	Dietetic Internship (standalone)	16.2 (82)
	Dietetic Internship with Advanced Degree Available	15.6 (79)
	Graduate Didactic Program in Dietetics	6.9 (35)
	Coordinated Undergraduate Program in Nutrition and Dietetics	6.1 (31)
	Distance Internship	2.4 (12)
	Other	2.2 (11)
	Don't Know/Not Sure	1.0 (5)
	Graduate Program (Not Coordinated and Not Didactic)	0.4 (2)
	Individualized Supervised Practice Pathway (ISPP)	0.2 (1)
Previous Career/Profession in a Non-Nutrition Field	No	61.26 (310)
	Yes	36.36 (184)
	Don't know/Not sure	1.98 (10)
	Prefer not to say	0.40 (2)
Completed a Previous Non-Nutrition Degree	No	74.11 (375)
	Yes (Bachelor's)	25.89 (131)

Table 1 (continued)

Variable	Levels	Percent (*n*)
Previous Non-Nutrition Degree Type[a]	Natural science	5.73 (29)
	Exercise/Kinesiology	2.77 (14)
	Social science	2.77 (14)
	International studies	2.17 (11)
	Public health	2.17 (11)
	Culinary arts	1.78 (9)
	General studies	1.58 (8)
	Marketing/Communications	1.38 (7)
	Business	1.19 (6)
	Visual arts	1.19 (6)
	Health science	0.79 (4)
	Social work	0.79 (4)
	Engineering	0.59 (3)
	English	0.59 (3)
	Education	0.40 (2)
	Fashion	0.40 (2)
	Food science	0.40 (2)
	Veterinary medicine	0.40 (2)
	Child/Family studies	0.20 (1)

[a]Participants could state ≥ 1

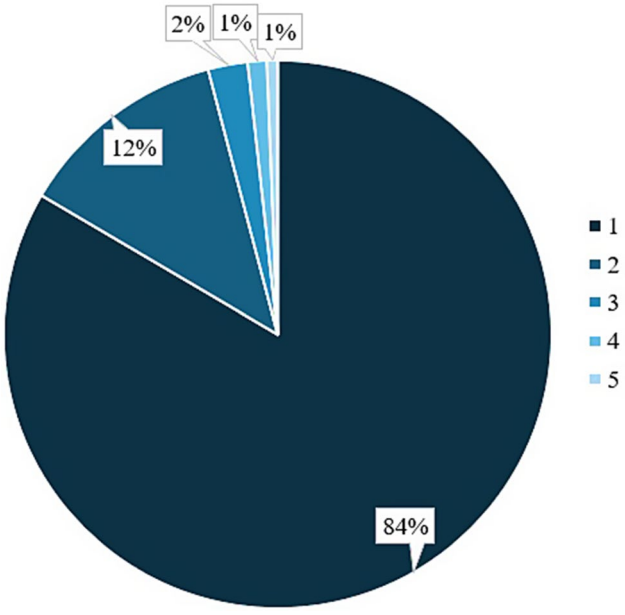

Fig. 5 Distribution of HRQ scores across all individual participant stimulus responses. Within the HRQ, each participant ($n = 506$) responded to six fictitious patient statements, providing a total of 3,036 unique participant statements for evaluation with the HRQ. The scores here represent the individual HRQ scores (range: 1–5) across all 3,036 statements

> *A healthy diet is associated with a lower risk of cancer. Fruits, vegetables, and whole grains (which actually do contain some sugars!) are beneficial. They contain so many nutrients that can help prevent cancer, the small amount of sugars in them is not a problem. It's the refined sugars, like that candy which may be problematic.*

The highest scoring participant on this stimulus (HRQ = 5), stated: *"It feels like no matter what changes you make to your diet, cancer is inevitable. Still, you're doing everything you can to reduce the chances."* Other participants employed MI-specific skills (e.g., asking for permission), but remained focus on information delivery: *"I appreciate that you are taking such an interest and genuine concern in your health, and I know that cancer can be a scary thing to talk about. Would you mind if I shared some information on sugar and how it plays a role in the body?"*

Age was significantly associated with a total HRQ score > 1 (B = 0.099, $P < 0.001$), but not length of time in program. A previous psychology or social work degree were not associated with HRQ scores > 1, though these individuals did have higher HRQ scores: total HRQ score = 1.6 versus 1.3, or 1.2 for those with no previous degree. Post-hoc analyses indicate those who were married ($P < 0.001$), had a previous non-nutrition-related career ($P < 0.001$), or were enrolled in a standalone internship ($P = 0.001$) were more likely to have a total HRQ > 1, while those in an undergraduate program ($P < 0.001$), with no previous career ($P = 0.001$), or having never being married ($P = 0.001$) were less likely to have a total HRQ > 1 (Table 2). Results of ordinal regression indicate the only factor that remained significant was being in an undergraduate program ($P = 0.003$). Lastly, previous MI training was not associated with a total HRQ score > 1 ($P = 0.34$).

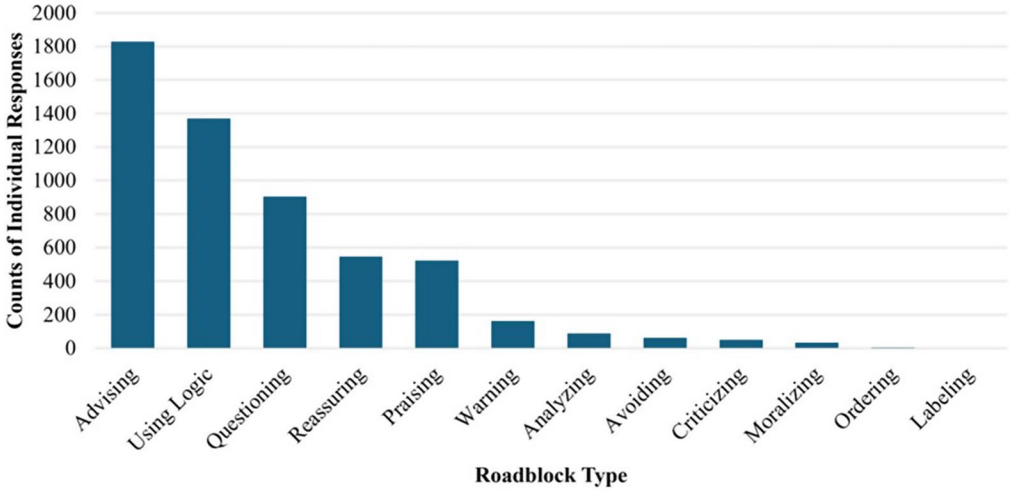

Fig. 6 Frequency of individual communication roadblocks. Frequency of communication roadblocks used across all participant responses within the Helpful Responses Questionnaire (HRQ) by US-based dietetics students participating in a survey-based study examining communication using the HRQ ($n = 506$)

Perceived skillfulness in and confidence in use of MI were significantly positively correlated with total HRQ scores ($\rho = 0.18$, $P < 0.001$ and $\rho = 0.15$, $P = 0.001$, respectively). However, when examining those with a total HRQ score of 1, there was variability: for confidence, $n = 30$ rated themselves as 0, and $n = 6$ as 10 (mode = 5). For skillfulness, $n = 28$ rated themselves as 0, and $n = 3$ as 10 (mode = 6). Lastly, missingness analysis indicated not having completed a previous non-nutrition degree ($P = 0.009$) and being an undergraduate student ($P < 0.001$) were associated with HRQ non-completion.

Discussion

This study is one of the first to employ the HRQ to evaluate communication among a national sample of US-based dietetics students. Dietitians are a key licensed provider supporting diet change, and their ability to engage in empathetic communication is critical [1, 4, 6, 7, 9]. This can be achieved in part via empirically-supported therapies, such as patient-centered counseling or MI, given sufficient training is provided. Results of our study indicate that the average use of therapeutic empathy among US dietetics students is quite low, represented by a mean HRQ score of 1.21. This score is consistent with findings in other studies, where mean HRQ scores range from 1.17 to 1.36 among general healthcare students (e.g., nutrition or social work) before completing MI-specific training [39]. Other cohorts (e.g., crisis counselors) demonstrate higher scores (e.g., means varying from 1.52 to 2.15), however these scores likely reflect specialized training [15, 58]. In their study of healthcare students, Simper et al. documented a mean HRQ score of 1.26 that improved to 2.32 with MI training, thus the scores found in our study likely reflect an absence of widely implemented MI-specific training. The range of scores in our study was 1 to 4.5, suggesting that in some dietetics programs, more robust training may exist [13, 59, 60], however these are not the standard as they are not required by US-based entities that govern dietetics practice (e.g., ACEND) [7].

Participants in this study were more apt to use presumably well-intended forms of communication focused on problem solving (e.g., advice-giving, using logic) than demonstration of empathy. This is not to say dietetics students are not proficient or skilled in other areas in which they receive more training, but they are not defaulting to communication that is noticeably supportive or empathetic. Further, the information/advice participants provided was not wrong per se, but as outlined in the HRQ, was not empathetic based on the survey stimuli. Interpretation of these observations is consistent with existing work that examines advice versus emotional support in dyadic interactions. When responses include emotional support, they are perceived more favorably and contribute to higher intention to act among recipients ($\beta = 0.79$, $P < 0.001$) [61], and without inclusion of high quality emotional support, advice alone is not likely to influence intention [45]. Indeed, in the HRQ, inclusion of problem-solving oriented strategies (e.g., advice giving) could have co-occurred with emotional support, but this could have resulted in a HRQ score of 2 if it was in the form of a reflection, and most responses were coded as a 1 (i.e., did not include emotional support). Per the original HRQ methodology, participants were instructed to respond in 1–2 sentences, and it is possible that if afforded more "time" to respond, empathetic or supportive statements could have emerged. However, quantity of advice does not translate to greater quality, and

Table 2 Results from chi-square analyzing personal, professional, and educational characteristics and their relationship with the binary outcome of achieving a total HRQ score > 1

Variable	Category	HRQ score > 1% (*n*)[a]	*P*
Sex	Female	34.10 (164)	0.31
	Male	44.00 (11)	
Gender	Cisgender female	34.33 (160)	0.89
	Cisgender male	43.48 (10)	
	Non-binary/third gender	60.00 (3)	
	Transgender male	100 (1)	
Race	White	35.25 (141)	0.76
	Asian	36.84 (14)	
	Other	34.49 (10)	
	Black/African American	21.05 (4)	
	American Indian/Alaska Native	25.00 (2)	
	Pacific Islander	100 (1)	
Ethnicity (Hispanic)	Yes	39.39 (26)	0.68
	No	33.87 (148)	
Marital Status	Married	50.48 (53)	**< 0.001**
	Never married	29.57 (97)	
	Member of an unmarried couple	30.65 (19)	
	Divorced	75.00 (6)	
	Separated	0.00 (0)	
Employment Status	Employed full-time	46.15 (12)	0.74
	Employed part-time	33.07 (84)	
	Not currently working for wages	34.43 (63)	
	Self-employed	27.27 (3)	
	Other	39.29 (11)	
Previous Non-Nutrition Career	Yes	44.57 (82)	**0.004**
	No	29.03 (90)	
	Don't know/Not sure (10)	30.00 (3)	
	Prefer not to say	0.00 (0)	
Previous Non-Nutrition Degree	Yes	42.75 (56)	**0.023**
	No	31.73 (119)	
Current Degree Type	Undergraduate	22.55 (46)	**< 0.001**
	Masters	38.71 (84)	
	PhD	50.00 (1)	
	Other	53.09 (43)	
	Prefer not to say	50.00 (1)	
Program Type	Coordinated Graduate Program in Nutrition and Dietetics	43.96 (40)	**< 0.001**
	Dietetic Internship with Advanced Degree Available	35.44 (28)	
	Other	36.36 (4)	
	Dietetic Internship (Standalone)	50.00 (41)	
	Undergraduate Didactic Program in Dietetics	21.66 (34)	
	Coordinated Undergraduate Program in Nutrition and Dietetics	25.81 (8)	
	Graduate Didactic Program in Dietetics	31.43 (11)	
	Graduate Program (Not Coordinated and Not Didactic)	0.00 (0)	
	Don't know/Not sure	0.00 (0)	
	Distance Internship	75.00 (9)	
	Individualized Supervised Practice Pathways (ISPPs)	0.00 (0)	

[a]Percent of participants within that classification that achieved a total HRQ score > 1

can actually contribute to a deterioration of perceptions of the advice that is given [62]. This also consistent with foundational recommendations in MI, which emphasizes clinicians speaking less than patients, prioritizing quality of support versus quantity [14, 30].

Other types of problem-solving oriented behaviors, such as using logic, were also common in our study.

However, the effects of this type of communication could be counterproductive, contributing to lower intention to act if perceived as an attempt to change one's mind [14, 46]. In our study, we intentionally created stimuli in which the fictious patient shared information that would likely provoke a desire to correct with logic (i.e., sugar feeds cancer) to examine how participants responded. Again, while the responses provided by participants were not factually wrong, they may not have been the most helpful. These types of scenarios are commonly encountered given the omnipresence of information on diet, and careful response is important to honor patient autonomy and show respect [63]. Indeed, such forms of communication focused on using logic and changing one's mind are deemed persuasion per the MITI, an MI-inconsistent counselling behavior [14].

In our findings, participants who were married, had older age, or had a previous career were more likely to have a total HRQ score > 1. Rather than these variables being uniquely associated with improved communication, they may suggest the impact of more life experiences in connecting with patients/clients. However, previous research has suggested that family status as a parent or as a partner may be associated with higher empathy [64]. This observation may reflect a greater appreciation for empathy when it is experienced in a reciprocal nature [65]. Research in dietitians and other professionals have not consistently found age to be either positively or negatively correlated with empathy, however many of these studies again rely on self-report [8, 64]. Some of these differences may be related to the type of empathy (e.g., affective versus cognitive components) [66], though may also reflect differences in training over time, or compassion fatigue [29, 67, 68].

Our results indicate previous MI training/exposure was not related to a total HRQ > 1. This finding likely relates to inconsistency in MI training across the field, which contributes to poor use and maintenance [7, 16, 69]. No specific standards exist in dietetics education regarding MI training [22], or in training on any other form of one-on-one interaction that could also facilitate greater demonstration of empathy [4]. Indeed, MI is a well-conceptualized approach that defines empathy, but other empathetic counseling approaches exist (e.g., person-centered counseling) [70]. Further, other forms of empathy training exist. For example, Harmon et al. tested a food insecurity exercise in which students were instructed to meet their food needs for five days with $15, and this experience improved measures of empathy towards food insecurity (using a Likert-scale assessment) [71]. However, as a whole, the process by which empathy is cultivated in dietetics is ill-defined and un-standardized. Many dietetics trainees express a desire for empathy training approaches that are embedded into curriculum and feature more than one training session [4]. Thus, whether via evidence-based training on specific counseling approaches (e.g., MI) or structured, intentional experiential learning, implementation of approaches that more explicitly address empathy is essential to fill this gap. This may include what empathy is, how to cultivate it, and how to effectively and accurately convey it [1, 4, 72].

This study is one of the first to employ the HRQ in dietetics. However, it is not without limitations. One, not all states were represented, thus there may be differences that are not captured. Two, it did not include comprehensive evaluation of program curricula, thus cannot draw any causal relationship between program specifics and educational outcomes. Three, it did not include use of the MITI or other practice-based evaluation of empathy. Four, our sample was not overly diverse, and levels of empathy could differ based on race or ethnicity of the students or clients, however our demographics are reflective of the dietetics profession at large [53]. Five, this study included a computer-based assessment, and while the HRQ is valid as a measure of empathy [41], in-person interactions may have differed. Lastly, we included all students (including undergraduate students) in our sample. While undergraduate students may have less time dedicated and exposure to MI, departments with didactic programs in dietetics may rely on undergraduate exposure to behavior change concepts, and thus graduate level coursework does not necessarily translate to more MI or behavior change training as illustrated by educational standards [22]. Further, if graduate-level training does not build on undergraduate education on MI with specific practice and feedback, one could surmise that skills would drift over time, and could actually be the strongest at the time MI is first taught (i.e., during undergraduate studies) [16, 69].

There are also strengths of this study. One, we utilized a tool that does not rely on self-report or self-rating, overcoming common methodological barriers in existing literature. Two, we had sufficient sample size to describe the population of interest with accuracy. Three, our nationwide distribution enhances the generalizability of the findings. Importantly, this work needs to be replicated and additional studies should seek to evaluate empathy in dietetics students using other practice-based tools (such as the MITI), including after completing training in MI, empathy, or other forms of communication.

Conclusion

US-based dietetics students do not appear to consistently use empathy as part of standard, default communication, rather prioritizing communication that focuses on problem-solving with a particular emphasis on giving advice and using logic. The effect of this attribute on patient

outcomes should be further investigated, and if empathy is desired for dietetics students, implementation of training with an explicit focus on empathy is warranted.

Abbreviations

ACEND	Accreditation Council for Education in Nutrition and Dietetics
HRQ	Helpful Responses Questionnaire
MI	Motivational interviewing
MITI	Motivational Interviewing Treatment Integrity
SD	Standard deviation
SPSS	Statistical Package for the Social Sciences
US	United States

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-025-07254-z.

Supplementary Material 1

Acknowledgements
We would like to thank all students and program directors who made this important work possible.

Author contributions
AB: Conceptualization, methodology, formal analysis, investigation, data curation, writing– original draft, writing– review & editing, supervision, project administration; SC: investigation, writing– review & editing; GW: investigation, writing– review & editing; KM: methodology, investigation, writing– review & editing; RL: investigation, writing– review & editing; MB: investigation, writing– review & editing; JJ: methodology, investigation, writing– review & editing.

Funding
This work was supported in part by start-up support from the Oklahoma State University Vice President for Research.

Data availability
Data available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participant
This study was conducted in accordance with the 1964 Helsinki Declaration and its subsequent amendments or similar ethical standards. This study was reviewed and deemed exempt by the Oklahoma State University Institutional Review Board: IRB-22-470-STW. All participants provided electronic informed consent.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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Received: 30 November 2024 / Accepted: 28 April 2025
Published online: 10 May 2025

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