

LIMITED AWARENESS ABOUT THE ROLE OF DIETITIANS AMONG MEDICAL STUDENTS: A QUALITATIVE STUDY

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SUMMARY

Objectives: Dietitians are well qualified to work as nutrition professionals on interprofessional healthcare teams and to provide education to health professionals at academic institutions. However, opportunities for the knowledge and utilization of dietitians in health care are different around the world. With rising global rates of nutrition-related diseases and the availability of university-based dietetic programmes, it is important to consider factors that may impact opportunities for dietitians in different countries. Thus, this study aimed to explore perceptions about the role of dietitians in medical care and medical education in the Czech Republic.

Methods: Thirty-six students and faculty members from a Czech medical school participated in semi-structured interviews focusing on the role of dietitians. Interviews were transcribed, coded, and analysed using thematic analysis.

Results: From the central theme regarding the perceived role of dietitians in medical care and education, three sub-themes emerged: limited awareness and interaction in the clinical setting; importance in interprofessional care; and essential member of the medical school faculty.

Conclusions: Participants expressed support for dietitians in interprofessional collaboration and medical education but identified that they had limited interaction clinically and a lack of awareness about their role as nutrition experts in medical care. To support dietitians' involvement in interprofessional collaboration and to combat and improve outcomes for nutrition-related diseases, additional research is needed to recognize possible barriers along with identifying and assessing strategies to increase awareness and recognition among medical students and faculty about the role of dietitians in medical care.

Key words: role of dietitians, medical school, nutrition education, qualitative research, interprofessional collaboration

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<https://doi.org/10.21101/cejph.a8605>

INTRODUCTION

With worldwide support, the 2022 International Declaration on the Human Right to Nutritional Care identifies that access to nutritional care is a human right and healthcare professionals have the ethical duty to ensure optimal and timely nutritional care (1). There is abundant evidence supporting the inclusion of nutrition recommendations in the clinical guidelines for the prevention and management of many diseases (2, 3), and research confirms the benefits of dietitians providing evidence-based nutrition care (4, 5) to improve health outcomes. For example, the Academy of Nutrition and Dietetics states that the medical nutrition therapy (MNT) provided by registered dietitian nutritionists (dietitians) for adults with prediabetes or type 2 diabetes is effective in improving their medical outcomes, quality of life and is cost-effective (4). A systematic review by Mitchell et al. shows the effectiveness of dietary consultations for adults in primary care settings, specifically on improving diet quality, diabetes outcomes (including blood glucose and HbA1c), weight loss outcomes (weight and waist circumference) and limiting gestational weight gain (5). Following their specialized education and supervised clinical

practice in nutrition and dietetics, dietitians are qualified to work as nutrition professionals on interdisciplinary healthcare teams and to deliver nutrition education to healthcare professionals at academic institutions (6–8). In a report on Interprofessional Education and Collaborative Practice, the World Health Organization (WHO) identified that interprofessional collaborative practice occurs when multiple health workers from different professional backgrounds work together to deliver high quality care which ultimately strengthens health systems and improves health outcomes (9). With varied systems for healthcare practice and medical education around the world, the professional opportunities for dietitians may be different. Their participation in interprofessional collaborative practice may be limited by a variety of factors including a traditional association with food service and a lack of respect and understanding for dietitian's education and training (10–13). Moreover, research indicates that in certain countries, doctors' perspectives on nutrition and dietitians may be shaped during their medical education and training. This influence could affect their support for involving dietitians in collaborative practice and for incorporating nutrition education into medical students' curricula (14, 15). Interprofessional collaboration is

critical, especially since many practicing physicians recognize the risks of poor diet and lifestyle but often lack the training, skills, and time to effectively advise patients on changing these behaviours. Demonstrating clear evidence, such as improved haemoglobin A1c control following MNT, can encourage physicians to refer patients to dietitians. The more future doctors learn about the benefits of nutrition, the more likely they are to consult with dietitians and refer patients for nutrition counselling (7).

There is increasing recognition that medical students must acquire the skills to deliver basic nutritional advice, identify individuals at nutritional risk, and refer them to dietitians or other specialists when necessary. Unfortunately, medical courses worldwide, including those in the Czech Republic (CR), allocate limited curriculum time to nutrition education (14–16). Considering the rising rates of nutrition-related chronic diseases and the relatively recent start of university-based programmes to educate and train dietitians in the Czech Republic combined with a history that mainly associates dietitians with food service (11, 17, 18), now is an important time to consider factors that may impact professional opportunities for dietitians to improve health outcomes in this country. Thus, this study aimed to explore perceptions about the role of dietitians in medical care and medical education in the Czech Republic.

MATERIALS AND METHODS

Study Design

This qualitative study was conducted between 2019–2020 and is part of a larger research project, which aimed to assess the perceptions of nutrition education and the role of dietitians at a Czech medical school (16). Through an international collaboration between nutrition faculty members and dietitians from universities in the United States and the Czech Republic, qualitative research was carried out for the purpose of identifying and describing medical student and faculty member perceptions about the role of dietitians. Guided by methodology published by Harris et al. (19), a team of university educated dietitians (study staff) conducted a cross-sectional study of medical students and faculty members at Masaryk University (MU) medical school. The study staff used individual, semi-structured interviews with open-ended questions to gather information and improve understanding about the role of dietitians in patient care and medical school education. To minimize bias, the interviewers did not reveal their professional discipline during recruitment or the interviews. Using a constructivist, experiential approach we were informed by the reflexive thematic analysis (RTA) process outlined by Braun and Clarke (20, 21) and applied it to identify and describe perceptions mean-

ingful to the participants from the qualitative data gathered at the interviews (22). As the first study of this kind in CR, we chose an inductive, data-driven approach to best interpret the content of the participant interviews. MU provided an appropriate environment for exploring this issue because the medical school offers equivalent study programmes using the same curriculum in two languages, Czech and English (23). Thus, in addition to students from CR and Slovakia in the Czech language programme (CZ), there are others from Europe and around the world in the English programme (EN). This provided an opportunity to gather a wide variety of perspectives about the role of dietitians influenced by age, gender, education, and nationality. We interviewed students from all grades (like years in US medical schools) in the CZ and EN programmes as well as faculty members that teach students in one or both programmes.

Participants and Recruitment

We purposely recruited a convenience sample of MU medical school students and faculty using a variety of methods including printed flyers posted on the medical school campus, e-mail announcements, and study staff making in person visits to medical school classes to describe and promote the research. All students and faculty of the medical school were invited to volunteer for an individual interview with study staff and a voucher for a one-hour session with a dietitian was offered as an incentive to participate. To minimize bias, we aimed to collect a broad sample of viewpoints and thus recruited students from all grades in both programmes along with faculty members from different disciplines including physicians, other clinicians and non-clinicians.

Data Collection

Interview guides were developed in English by the study staff to collect demographic information and to explore the perceptions of the role of dietitians. The interview guides were reviewed by the faculty researchers experienced in qualitative research and then translated into Czech. Both the English and Czech versions were face and content validated in pilot testing with MU medical students and faculty members not participating in the study and resulted in minor wording changes. The demographic information collected varied between students and faculty but included nationality, gender, and age as well as specific information for the faculty regarding years of clinical practice and experience on the faculty. Three different interview guides were developed for students, faculty physicians and faculty non-physicians. The open-ended questions were modified based on differences in the clinical experience of the faculty. Table 1 shows the specific questions

Table 1. Interview guide questions for participants

Participant groups	Main Questions
Medical Students	How do you view the role of dietitians in patient care? In medical training? In other areas?
	How do you see nutrition being incorporated into your future medical practice?
Faculty clinicians	How do you view the role of dietitians in patient care? In medical training? In other areas?
	How do you incorporate nutrition into your medical practice?
Faculty non-clinicians	How do you view the role of dietitians in patient care? In medical training? In other areas?

relevant to the role of dietitians. After describing the purpose of the research, a written informed consent was obtained from each participant to record, transcribe, and analyse the interview and to present the de-identified results.

Individual, one-time interviews were conducted on the medical school campus in Czech and in English by primary researchers (VH and ZK) in their native language. Both primary researchers were dietitians with experience conducting in-person interviews. In addition to the participant and the interviewer, most interviews were attended by the other primary researcher and the study research assistant (VZ) who prepared written interview notes. Lasting an average of 33 minutes, the conversations were audio recorded, transcribed verbatim, de-identified and pseudonymized. Interviews continued until theoretical saturation was achieved (22). The Czech transcripts were translated into English by a bilingual translator that was not involved in the study data collection, and each translation was reviewed by both primary researchers for accuracy and readability. Member checks were completed for 4 of the interviews (24) and one resulted in a minor adjustment to the transcript.

Data Analysis

All transcripts were reviewed and open-coded by two primary researchers (VH and ZK). To best represent the meaning communicated by the study participants and minimize bias, both researchers independently read and reviewed each transcript multiple times and then used an inductive approach to identify codes. The researchers compared the results and reached consensus to develop a final code book in English (21, 25). Then one primary researcher (VH) re-read and coded the transcripts using ATLAS.ti (qualitative data analysis computer software) version 9.0.23.0., Berlin, Germany:

Scientific Software Development GmbH; 2020. Subsequent analysis was conducted collaboratively by both researchers (VH and ZK) where codes were aggregated and refined to develop a theme and sub-themes that supported a meaningful interpretation of the central concepts in the data (20–22). As is consistent with formative qualitative research, this study was not designed to be comparative amongst the participant groups and thus all the interviews were analysed together.

RESULTS

Participants' Characteristics

Thirty-six participants completed interviews with the research team during the study period from April 2019 to February 2020, 30 students and 6 faculty members (16). The age of students ranged from 19 to 35 years, with over half (57%) in the clinical phase of their medical education (grades 3–6) (Table 2).

The six faculty member participants ranged in age from 35 to 68 years and reported working on the MU faculty between 1 ½ and 30 years. Most of the faculty participants were healthcare professionals (83%) and represented a variety of disciplines including internal medicine, paediatrics, oncology, nursing, biochemistry, and public health (Table 2).

Interview Findings

The central theme of the perceived role of dietitians in medical care and education led to three subthemes illustrated in Figure 1. Overall, while most participants supported the involvement of dietitians in interprofessional medical care and education, many

Table 2. Characteristics of participants that completed individual interviews (N=36)

Medical students n = 30 n (%)		Faculty n = 6 n (%)	
Gender		Gender	
Female	15 (50)	Female	4 (67)
Male	15 (50)	Male	2 (33)
Programme		Programme	
Czech language	15 (50)	Czech and English language	4 (67)
English language	15 (50)	Czech language only	2 (33)
		English language only	0 (0)
Nationality		Nationality	
Czech/Slovak	15 (50)	Czech/Slovak	5 (83)
Non-Czech/Slovak	15 (50)	Non-Czech/Slovak	1 (17)
Grade (year in medical school)		Clinical training and practice	
Grade 1	7 (23)	Medical doctor	3 (50)
Grade 2	6 (20)	Nurse	1 (17)
Grade 3	5 (17)	Dietitian	1 (17)
Grade 4	4 (13)	No clinical experience	1 (17)
Grade 5	2 (7)		
Grade 6	6 (20)		

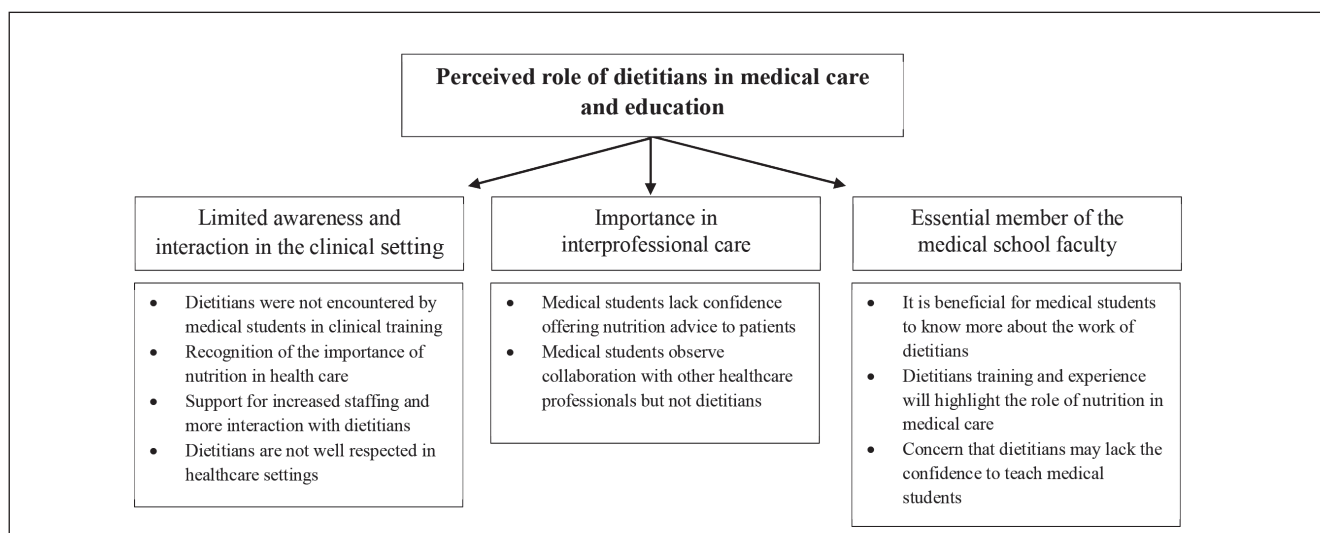


Fig. 1. Theme and sub-themes identified from data analysis.

shared that they had limited interaction with dietitians in clinical training and lacked awareness about their role.

Sub-theme 1 – Limited Awareness and Interaction in the Clinical Setting

There were varying responses about the role of dietitians in patient care, with some students reporting little to no knowledge about their scope of practice. This is likely due in part because the students reported that they had no interaction with dietitians during their clinical training. This included a student in the last year of the programme that said: *“I do not know exactly how the dietitian works.”* (student, grade 6, CZ programme).

A similar view was offered by other students in their clinical years that acknowledged they have never seen a dietitian in the hospital, with one stating: *“We haven’t had any interactions with them, (dietitians), on a clinical basis.”* (student, grade 4, EN programme).

Despite reporting a lack of interaction with dietitians during their clinical experience, students acknowledged the important role of nutrition in the care of patients with chronic diseases such as hypertension and diabetes. Participants expressed awareness and support for the beneficial and important role of nutrition and dietitians in medical care, with one student stating: *“If you have hypertension, maybe if you have diabetes . . . then your nutrition is your medicine. For these cases, I think the dietitian is more important than the doctor.”* (student, grade 5, EN programme).

The awareness about the important role of nutrition in disease management was further supported by the discussion about staffing levels and involvement of dietitians in clinical training. This is evidenced by a student that expressed support for increased staffing levels and interaction with dietitians: *“I think a higher number of them in hospitals would be beneficial . . . to tell the truth about food, both in everyday life and in different diseases. But I haven’t experienced that anywhere, a dietitian being systematically used in hospital wards.”* (student, grade 6, CZ programme).

Like the medical students, faculty expressed support for dietitians’ role in medical care, but some shared frustration that dietitians are not well respected and not treated as part of the healthcare team in the Czech health system. One faculty member

perceived that some doctors “look down on them,” but acknowledged that they are important contributors to patient care: *“You see first of all here in (the) Czech Republic we have to eliminate that conception, (because) the dietitian (and) the nurse are part of the team, (an) essential part of the team.”* (faculty).

Sub-theme 2 – Importance in Interprofessional Care

Many participants supported doctors and dietitians working together to provide patients with nutrition care. When considering opportunities for future practice, they endorsed the benefit of having access to dietitians to support good patient care: *“As a doctor, I definitely can imagine that in every hospital that there will be a dietitian, and we can work together.”* (student, grade 3, CZ programme).

More specifically, in cases when they may not have adequate nutrition knowledge, both students and faculty doctors recognized the benefits of consulting with or making referrals to dietitians. This was due in part to medical students expressing a lack of confidence offering nutrition advice to patients: *“If they (doctors) do not feel competent to give the patient that kind of advice, they should contact the dietitian.”* (student, grade 4, CZ programme). *“I mean the doctor would handle the medicine but then the diet, maybe the doctor is not so well educated or informed about diets that diabetic patients should have. So, in this case he would contact the dietitian.”* (student, grade 6, EN programme).

Yet, despite the awareness and evidence to support the benefits of nutrition for chronic disease management, participants stated that nutrition care was not incorporated in their clinical training. They reported recognition and interprofessional collaboration with other health professionals in clinical training including pharmacists and physical therapists reporting that: *“We certainly did somehow deal with the patient’s (treatment regarding) pharmacology, surgically and rehabilitation, but I do not remember that we discussed nutrition treatment for a patient.”* (student, grade 6, CZ programme).

In addition, other participants expressed hesitancy to collaborate with dietitians. They identified reasons including their own ability to learn about nutrition topics related to medical care and due to a perceived high cost to consult dietitians. Thus, some

participants reported that: *"I can learn about diets and those facts that they know we are – more or less – learning too. So, in that case, I don't understand the cooperation (between dietitians and doctors) much."* (student, grade 3, CZ programme). *"In the hospital they told me that you shouldn't refer (to dietitians) too much, this is too expensive."* (faculty).

Sub-theme 3 – Essential Member of the Medical School Faculty

Most participants were supportive and enthusiastic about dietitians teaching nutrition to medical students, recognizing that as nutrition professionals they have the necessary education and training. Additionally, some noted the benefits of increasing awareness about the role of dietitians in medical care: *"It is important . . . that the medical student knows that he is taught by a dietitian and that someone like that actually exists. And maybe someone like that can have a deeper knowledge of nutrition than the doctor."* (faculty).

While others shared that it would enhance their knowledge about nutrition and be beneficial for students to know more about the work of dietitians: *"These things should be taught by (a) professional that has studied (nutrition)."* (faculty).

Furthermore, participants identified the benefit of dietitians using their professional experience and training to emphasize the critical importance of nutrition in medical care. A student in their final year highlighted an awareness about *"the important role of nutrition... as a reminder that (nutrition) is an integral part of taking care of the patient."* (student, grade 6, CZ programme).

Despite support from most participants, it was not universal. A faculty doctor proposed possible barriers for dietitians educating future doctors, declaring that dietitians may lack the confidence and education to teach medical students: *"Nutrition specialists are not very happy to teach medical students. They feel they are not responsible, and ... not sufficiently educated for that ... so it's not easy to teach medical students despite being a nutrition specialist."* (faculty).

DISCUSSION

This qualitative study explored the perceptions of medical students and faculty of various disciplines about the role of dietitians in patient care and the education of medical students. Despite the perceived importance of nutrition in medical care (16), these findings identified that students in all grades and both programmes have limited exposure to and awareness of the role of dietitians, including some students in their final year of medical school. Students in their clinical years of study perceived that faculty teaching clinical courses did not discuss or demonstrate the application or offering of nutrition care to patients, which has been reported in other medical schools (14, 26, 27). A final-year student identified a focus on interprofessional collaboration with other disciplines in clinical practice, such as pharmacy and physical therapy, but noted the absence of nutrition. This observation aligns with findings from a study by Mogre et al., which highlighted concerns about insufficient nutrition education, including inadequate collaboration with nutrition professionals (14). In line with findings from other research, these results indicate that

students' lack of awareness about the role of dietitians may partly stem from low staffing levels in clinical facilities and the limited emphasis on nutrition care by faculty during clinical training (13, 28), along with perceptions that dietitians are not well respected by doctors in CR like in other countries (11, 12). In a 2021 review article of trends in the dietary workforce, Blair et al. (13) report inadequate staffing was common, while Devine et al. (12) report that co-workers did not respect the work of dietitians.

With a perceived awareness about the importance of nutrition in medical care, many participants supported doctors and dietitians working together to provide nutrition care for patients. While one student expressed a preference for relying on his own nutrition knowledge, most others supported the opportunity to collaborate with dietitians and perceived that it is in the patient's best interest. This is consistent with research that interprofessional collaboration with dietitians improves patient outcomes (7, 9). For example, in a position paper for the Academy of Nutrition and Dietetics, Hark and Deen state that the "more physicians learn about the effectiveness of nutrition for the prevention and treatment of diseases, the more likely they are to consult with (dietitians) and refer patients for medical nutrition therapy, which will improve medical care and has the potential to reduce healthcare costs" (7). Faculty members in our study shared their support and positive experiences about referring patients to dietitians to improve patient care despite the perceived barrier of additional cost. This endorses the benefits of interprofessional collaboration that are documented and supported by global organizations including the WHO, the European Society for Clinical Nutrition and Metabolism (ESPEN), and the Academy of Nutrition and Dietetics (AND) (7, 9, 29). With evidence to support nutrition's critical role in the management, treatment and prevention of many health conditions (2–5), as the nutrition experts, dietitians are recognized as valued members of the interprofessional teams in healthcare facilities around the world (7), with ESPEN supporting the inclusion of dietitians in multidisciplinary teams to support nutrition in daily healthcare practice (30). While participants in our study expressed support for interprofessional care that includes dietitians, the lack of awareness and contact with dietitians in clinical care suggested that this may not be fully realized in CR.

Despite the lack of awareness about the role of dietitians and limited interactions, most students and faculty supported their role on the medical school faculty. This is consistent with research demonstrating the important role and benefits of dietitians planning and delivering nutrition education to medical students (8, 26). Burch et al. highlight that dietitians, as educators, possess the knowledge and ability to provide medical students with the necessary information and skills to identify nutrition resources (8). This is consistent with the responses from students in our study, likely influenced by the role of dietitians at MU in planning and delivering the public health nutrition training to medical students. Consequently, some students may have encountered dietitians in classroom settings, and most expressed support for opportunities to learn from professionals with nutrition knowledge, practical experience, and enthusiasm for the subject. Furthermore, this could lead to interprofessional education opportunities between nutrition and medicine students, potentially enhancing collaboration and improving patient health outcomes (9, 10).

A notable strength of this study is its presentation of novel findings regarding perceptions of the role of dietitians at a

Czech medical school. The study included diverse participants comprising Czech and international students across all grades and faculty members with varied expertise. However, due to no prior research on this topic in the Czech Republic, a purposive convenience sampling approach was used, resulting in limited faculty recruitment. Additional medical faculty participants from different disciplines may have contributed different perspectives about dietitians' role in MU's nutrition education. Our convenience sample may have been biased by student availability, with overrepresentation of early-grade students with less experience. The qualitative approach was not designed for comparative analysis, limiting ability to compare EN and CZ programme results. While these findings contribute to existing literature, they are not generalizable to other medical schools.

CONCLUSIONS

Participants in this study identified that dietitians are not adequately recognized by medical students at Masaryk University for their role as experts in nutrition within medical care. Nonetheless, many participants expressed support for collaborating with dietitians to provide interprofessional care and advocated for their inclusion on the medical school faculty. This finding highlights a specific gap in medical education and potential areas for enhancing nutrition education for students at Masaryk University Medical School. This includes opportunities to increase medical students' awareness of dietitians' work, clearly identifying and demonstrating their clinical competencies, professional responsibilities, and role in medical education. Additionally, medical education can be improved by revealing and emphasizing the benefits of interprofessional collaboration between doctors and dietitians to address and effectively manage nutrition-related diseases and improve patient outcomes. Organizational priority should be given to assessing staffing levels of dietitians in the hospital to promote adequate nutritional care for patients and participation in the clinical training of medical students. Further research is necessary to recognize possible barriers and to identify and assess strategies to increase awareness among medical students and faculty members about the important role of dietitians as nutrition professionals in medical care and medical education. In addition, future research should investigate the impact of enhanced nutrition education in medical school on clinical outcomes.

Acknowledgements

The authors would like to thank the students and faculty at Masaryk University medical school for their time and assistance throughout this study. We are grateful to Eliška Lagová and Michaela Podborská for their assistance with data transcription and Ailsa Randall for her contribution to the transcript translation.

Conflicts of Interest

None declared

Adherence to Ethical Standards

This study was approved by the institutional Review Board of the University of North Carolina at Greensboro (approval number: 19-0379) and the Ethics Committee of the Faculty of Medicine at Masaryk University (approval number: 3/2019)

Funding

Funding for this project was provided by Masaryk University MUNI/A/1402/2021 and the University of North Carolina at Greensboro.

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Received March 27, 2025

Accepted in revised form July 28, 2025