RJNMSR
Review Journal of Neurological & Medical Sciences Review

Volume 4, Issue 3, 2026

EFFECTIVENESS OF NUTRITION EDUCATION INTERVENTIONS ON ENHANCING NUTRITION KNOWLEDGE AND PRACTICE AMONG HEALTHCARE PROVIDERS: A SYSTEMATIC LITERATURE REVIEW

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DOI: https://doi.org/

Keywords:
Nutrition, Nutrition Intervention, Healthcare Providers, Nutrition Knowledge, Education Module

Article History
Received on 21 Feb, 2026
Accepted on 12 March, 2026
Published on 14 March, 2026

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Abstract

Nutrition is very important in the prevention, treatment and recovery of diseases. Nevertheless, most medical practitioners are poorly trained in clinical nutrition and this limits their effectiveness in offering effective dietary advice and nutrition services. The proposed systematic literature review (SLR) examines the available evidence regarding the effectiveness of nutrition education interventions in enhancing the knowledge, attitudes, and practices of healthcare providers regarding nutrition care. Electronic databases, such as Google Scholar, PubMed, Cochrane Library, CINAHL, and Science Direct, were searched systematically. The PRISMA (Preferred Reporting Items to Systematic Reviews and Meta-Analyses) guidelines were used to conduct the review and identify the relevant studies. Four hundred and one studies were first identified, and 28 full-text articles were evaluated in terms of eligibility and 10 studies were included in the final review. These were quantitative studies, qualitative research and systematic reviews on nutrition training among healthcare professionals. The results indicate that the interventions of structured nutrition education have a significant positive impact on the knowledge, confidence, and capacity of healthcare providers to deliver dietary counseling. Nevertheless, there are various obstacles that prevent the successful application of nutrition care in clinical practice, including time constraints, inadequate training in the formal education, and institutional support. The conclusion of the review is that incorporating structured nutrition education modules into healthcare curricula and ongoing professional development programs have the potential to improve the competence of healthcare providers to provide quality nutrition care.

Introduction

Nutrition was identified as a basic determinant of health and was critical in growth, disease prevention and recovery. Proper nutrition assisted in physical growth, boosted immunity and minimized the incidence of chronic illnesses like diabetes, heart diseases and obesity (World Health Organization, 2024). Conversely, poor nutrition and malnutrition were still major global health issues that affected people of all ages. The concept of malnutrition embraces both the stunting, wasting, and micronutrient deficiencies forms of undernutrition and the overweight and obesity forms of overnutrition (World Health Organization, n.d.). These nutritional challenges are a significant contributor to morbidity, mortality and rising healthcare costs across the world.

Malnutrition remains a major issue of common health concern across the world. Malnutrition has been estimated as the cause of about 45 percent of deaths of children below the age of five (UNICEF, 2023). At the same time, the growing prevalence of non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes and obesity was strongly linked to unhealthy dietary patterns and poor nutritional practices (Knez et al., 2024). Healthcare systems began to realize that good nutrition care could help improve patient outcomes, reduce hospital stays and lower the cost of treatment. A study has shown that the adoption of early nutritional therapy in hospitalized patients resulted in a reduction of healthcare costs and the development of better recovery outcomes (Nielsen et al., 2024).

Considering these widespread issues, medical workers take a central stage in alleviating nutrition-related health issues. Physicians, nurses, and other healthcare professionals interacted with patients on a regular basis and were responsible for offering health education, nutritional counseling, and dietary guidance. Consequently, adequate nutrition knowledge among healthcare providers was critical to ensure quality patient care and effective disease management. However, nutrition education was often poorly incorporated into the training programs in healthcare. For example, empirical studies show that less than 36 per cent of medical students across the world have been taught comprehensive nutrition (Erickson et al., 2023). Pakistan was facing a double burden of malnutrition, where undernutrition was coupled with rising levels of obesity and diet-related non-communicable diseases. The National Nutrition Survey (2018) revealed that about 40 per cent of children below the age of five years in Pakistan were stunted (UNICEF Pakistan, 2018). In Karachi, socioeconomic inequalities, food insecurity, and lack of nutrition education increased the nutritional health issues (IFPRI, 2022).

As a result, many healthcare professionals were not trained in clinical nutrition and were not sure about their ability to provide effective nutritional counseling (Mao et al., 2023). In light of these gaps, nutrition education interventions were therefore identified as a successful strategy to enhance healthcare providers' knowledge and clinical practice (Laur et al., 2016).

Objectives

General Objective

The objective of the study was to conduct a systematic literature review of the literature that addresses the efficacy of nutrition education interventions in the improvement of the knowledge and clinical practices of healthcare providers with regards to nutrition care.

Specific Objectives

1. To determine the baseline of nutrition knowledge of healthcare providers.
2. To assess the efficacy of the interventions in nutrition education.
3. To determine the determinants that affect nutrition knowledge.
4. To explore impediments and enabling factors to nutrition care implementation in clinical practice.

Research Questions

1. What is the nutrition knowledge level among the healthcare providers?
2. What is the level of effectiveness of nutrition education interventions on healthcare provider knowledge and practice?

3. What is the effect of factors on the nutrition knowledge of healthcare providers?
4. Which obstacles and enablers influence healthcare nutrition care implementation?

Methodology

Study Design

This research adopted a systematic literature review (SLR) design to perform a synthesis and analysis of available literature on nutrition knowledge and education interventions to healthcare providers. The systematic review method was chosen since it allows finding, analyzing, and synthesizing the evidence of various studies in a transparent and systematic way. Systematic reviews are widely applied in medical research to provide a full picture of what is already known and a clear picture of what should be explored further.

The review process was carried out based on Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) to make the work methodologically rigorous, transparent and replicable. The PRISMA model provides a systematic content screening procedure and methodology for identifying, eliminating, examining, and choosing the pertinent studies in a systematic review. By following this structure, selection bias is reduced, and the review is a well-structured and well-documented process.

The main objective of this review of the literature was to review past studies on the field of nutrition knowledge among health care providers and study the quality of interventions (nutrition education) in improving their knowledge, attitude, and clinical practice. The review also aimed at establishing the factors that determine nutrition knowledge, the barriers and facilitators that influence the adoption of nutrition care in the healthcare environment.

Search Strategy

The literature review has been conducted, where relevant studies analyzing nutrition education and nutrition knowledge among healthcare providers have been identified. The search strategy was developed in line with the study's research questions and objectives. They used a set of electronic databases to ensure that a large amount of literature was covered. The databases used were:

- Google Scholar
- PubMed
- Cochrane Library
- Cumulative Index to Nursing and Allied Health Literature (CINAHL).
- Science Direct

Such databases were chosen because they provide peer-reviewed articles of research in the areas of healthcare, nursing, and nutrition science. The decision to use several databases increased the chances of identifying the good studies and minimized the chances of missing some valuable literature.

An effective mix of keywords and search terms was put in place during the retrieval process. The keyword set comprised:

- Nutrition education
- Nutrition intervention
- Nutrition knowledge
- Healthcare providers
- Nurses and medical specialists
- Clinical nutrition education
- Nutrition counseling

Search terms were combined using Boolean operators AND and OR to narrow down the results. As an example, the search with such combinations as nutrition education AND healthcare providers and nutrition intervention AND clinical practice was used to retrieve relevant articles. The search has attempted to find studies that explored nutrition knowledge in healthcare practitioners and nutrition-related interventions that target competency improvement.

The first search in the chosen databases revealed 410 entries, including research articles, systematic reviews, and studies on nutrition education and clinical nutrition practices of the healthcare providers.

Study Selection Process

The screening process followed the PRISMA flow diagram, which outlines the four-step process that includes identification, screening, eligibility check and final inclusion. The PRISMA flow chart (Figure 1)

graphically illustrates the steps that were undertaken sequentially to ensure that the studies were identified, screened, assessed for eligibility, and included in the systematic literature review.

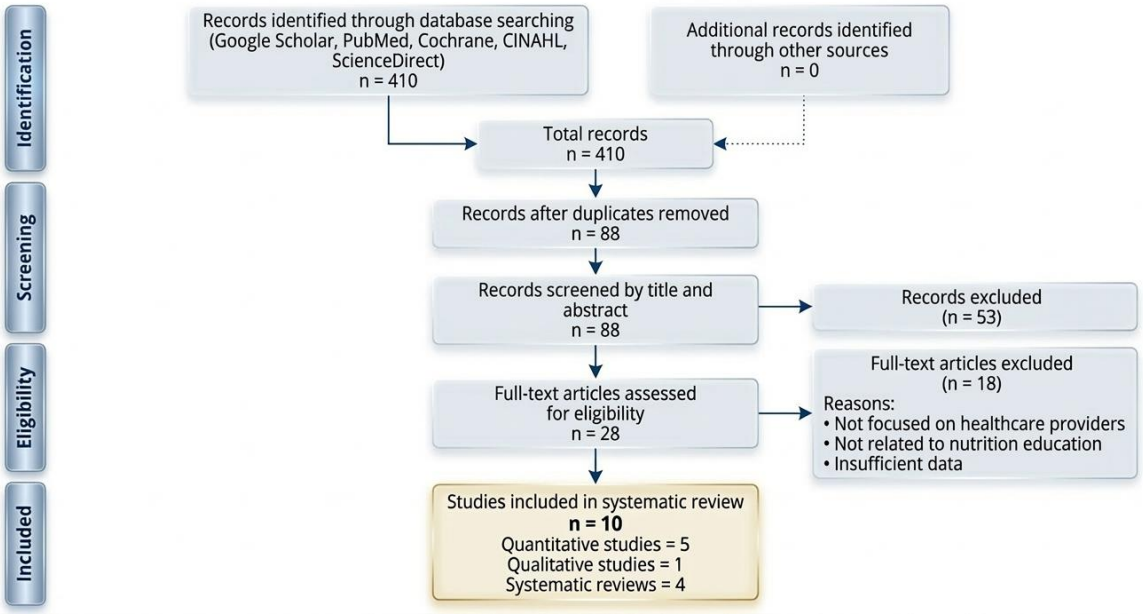

Figure 1. PRISMA flow diagram of the study selection process.

Identification

The Identification stage included a preliminary search of the chosen databases, providing 410 records. These records included the studies related to nutrition education, nutrition knowledge, and nutrition care practices among healthcare professionals.

Screening

After the preliminary search, redundant articles and irrelevant records were removed, and 88 records were kept to be screened. Titles and abstracts of these articles were analyzed to find out their relevancy to the research objectives. In the screening step, articles that were not relevant in terms of nutrition education or those that did not entail the use of healthcare providers were removed, and 53 articles were eliminated because of failure to conform to relevance requirements.

Eligibility

After the process of screening, 28 full-text articles were evaluated in terms of eligibility. At this stage, the full content of both articles was reviewed to establish them as complying with the set inclusion criteria. In the eligibility evaluation of some articles, some of them were eliminated due to various reasons, including:

- Focusing on healthcare providers is insufficient.
- Non-nutrition education intervention studies.
- Lack of methodological information.
- Inadequate access to full-text information.
- As a result, 18 articles were excluded from the review.

Inclusion

Finally, 10 articles were included in the systematic literature review. These articles form the best and most pertinent evidence to answer the research questions related to nutrition education and nutrition knowledge among medical practitioners. The included studies consisted of different research designs:

- Quantitative studies (n = 5)
- Qualitative studies (n = 1)
- Systematic reviews (n = 4)

The inclusion of studies with diverse methodological approaches provided a comprehensive understanding of the topic.

Inclusion Criteria

The inclusion criteria were specific to make sure that only relevant studies were included

in the review. Research articles had to satisfy the following inclusion criteria:

1. The research focused on nutrition knowledge or nutrition education among healthcare providers.
2. The interventions or training programs evaluated in the study focused on nutrition education.
3. The respondents were chosen among the healthcare professionals: nurses, physicians, or healthcare students.
4. The study was published in a peer-reviewed journal.
5. The article contained sufficient methodological data and an accessible full text.

The criteria were used to provide assurance that the chosen studies were relevant to the objectives of the research review.

Exclusion Criteria

The studies were not included in the review when they satisfied any of the following conditions:

1. The identification of such studies that only involved patient nutrition interventions and not the healthcare providers.
2. The studies that failed to test nutrition knowledge or education interventions.
3. Opinion papers, commentaries, conference abstracts and editorials.
4. Articles that lack access to the full-text or lack methodological details.

The utilization of these exclusion criteria assisted in the presence of quality and relevancy of the included studies.

Data Extraction

A systematic data-extraction method was used to extract data in the selected studies. The main information was gathered in every study, and it included:

- Author and publication year
- Study design
- Sample size
- Study population
- Purpose of the study
- Extraction included key results specifically related to nutrition education and knowledge, ensuring these data points were systematically documented.

This information was presented in a literature review summary table, and this gave the opportunity to compare the studies easily. The table contributed towards common findings, patterns, and differences across the included studies.

Data Analysis

The chosen articles were reviewed with the help of a thematic synthesis. This approach involves the identification of shared topics and trends in a variety of studies with the aim of coming up with substantive conclusions. This study focused on some major themes based on the aims of the research, such as the nutrition knowledge level among medical professionals, the efficacy of nutrition education intervention, the impact of factors on nutrition knowledge, and obstacles to the implementation of nutrition care and facilitators. The review had the capacity to provide a detailed picture of the existing evidence base on nutrition education among health care providers due to the ability to synthesize the results of various studies.

Results

The literature review was systematic, revealing ten available studies that examined the subject of nutritional knowledge among healthcare professionals and determined the effectiveness of nutrition education interventions. Table 1. Characteristics of the studies considered in the systematic literature review that assessed nutrition education intervention among healthcare providers.

Table 1: ***Characteristics of Included Studies***

Author	Year	Study Design	Sample Size	Population	Key Findings
Sunguya et al.	2013	Systematic Review	10 studies	Healthcare workers	Nutrition training improved feeding practices and

					caregiver counseling
Inayati et al.	2012	Quasi-experimental	210 caregivers	Mothers/caregivers	Intensive nutrition education improved nutrition knowledge and feeding practices
Bauer et al.	2023	Cross-sectional	2056 nurses	Nursing staff	Higher education level improved knowledge of malnutrition screening
Hussein, N. A. A., & Ali, S. A.	2025	Cross-sectional study	120 nurses	Nurses working with cancer patients	The study highlighted that nurses play a key role in nutritional assessment and monitoring for cancer patients. Results showed that nurses are often the first to identify malnutrition risks and collaborate with dietitians, but their effectiveness is sometimes limited by insufficient training and workload pressures.
Shakhshir & Alkaiyat	2023	Cross-sectional	405 healthcare providers	Healthcare professionals	Identified gaps in nutrition knowledge despite positive attitudes
Hazzard, Walton, McMahon, Milosavljevic, & Tapsell	2021	Qualitative multi-site study	39 healthcare professionals	Healthcare professionals working in multidisciplinary head and neck cancer teams	The study found that dietitians play a crucial role in multidisciplinary head and neck cancer teams by providing specialized nutritional care, improving treatment outcomes, and

					supporting patient recovery. Healthcare professionals recognized dietitians as essential members for managing malnutrition and treatment-related nutrition issues.
Chin, S., Wong, R., Hirani, V., & O'Leary, F.	2021	Scoping review	Not applicable	Older adults and their caregivers	The review identified and evaluated existing nutrition knowledge assessment tools for older adults and their carers. Findings highlighted that while multiple tools exist, many lack validation for reliability and cultural appropriateness. Emphasized the need for standardized, evidence-based tools to improve nutritional care in older populations.
Kurnik-Łucka et al.	2024	Cross-sectional	634 students	Healthcare students	Dietetics students showed higher nutrition awareness
Shakhshir, M., & Alkaiyat, A.	2023	Cross-sectional multicenter study	405 healthcare providers	Healthcare providers (physicians, nurses, and dietitians) working in hospitals in a developing country	The study assessed healthcare providers' knowledge, attitudes, and practices regarding the quality of nutrition care in hospitals. Findings indicated moderate knowledge and positive attitudes

					toward nutrition care, but actual practices were limited due to barriers such as lack of training, time constraints, and insufficient institutional support.
Rajalakshmi, M., & Abiharini, S.	2023	Exploratory mixed-methods study	60 caregivers	Caregivers of children aged 6 months to 2 years	The study found that caregivers had limited knowledge regarding the nutritional requirements of young children. While attitudes toward proper nutrition were generally positive, actual practices were inconsistent. Highlights the need for targeted educational interventions to improve child nutrition outcomes.

These studies included quantitative, qualitative and systematic review methods, which included healthcare professionals, including nurses, physicians, the health-care students and caregivers. A thematic investigation of the results was conducted to address the review's research questions. There were four major themes: baseline nutrition knowledge of healthcare providers, effectiveness of nutrition education interventions, factors that shape nutrition knowledge, and barriers and facilitators of implementing nutrition care in clinical practice.

Baseline Nutrition Knowledge Among Healthcare Providers

Several studies in this review indicate that many healthcare providers start with limited knowledge of nutrition, which restricts their ability to provide effective nutrition care. Although practitioners recognize nutrition's role in disease prevention and patient recovery, many have inadequate training and lack confidence in dietary counseling.

The empirical evidence demonstrates that nutrition education is limited and poorly covered in medical and nursing curricula. As a result, medical practitioners might be unable to receive the appropriate training regarding the use of the principles of nutrition in the clinical environment. Knowledge level analysis of professionals shows that a significant percentage of them have moderate to low expertise in the areas of nutritional assessment, dietary guidance, and the integrative nature of nutrition in managing diseases (Crowley et al., 2020; Shakhshir and Alkaiyat, 2023).

A cross-sectional study conducted among nursing staff across various healthcare settings found that knowledge of screening and management of malnutrition was

relatively low among medical providers. However, the research has shown that people with higher academic qualifications or professional nutrition education scored much higher in knowledge (Bauer et al., 2023). Similarly, studies that investigated nutrition awareness in healthcare students indicated that students studying dietetics programs achieved significantly better knowledge of nutrition compared to students in other healthcare fields (Kurnik-Lucka et al., 2024). These findings highlight the importance of specialized education and training in increasing the knowledge level of healthcare providers on nutrition.

Studies on caregivers' nutrition knowledge suggest that limited knowledge can negatively affect patients' nutrition practices. For example, Rajalakshmi and Abiharini (2023) found that caregivers often lack understanding about healthy eating, leading to poor nutrition among vulnerable groups.

Effectiveness of Nutrition Education Interventions

One of the main objectives of this systematic literature review was the evaluation of food education intervention effectiveness in improving the knowledge and clinical practice of healthcare providers. There is strong evidence, based on the reviewed studies, that shows that structured educational interventions significantly enhance nutrition knowledge among healthcare professionals.

According to several studies, the implementation of nutrition training programs in specific areas provided tangible results in terms of the enhancement of the knowledge of healthcare providers regarding the nutrition concept and their ability to implement this knowledge into clinical practice. As an example, intervention trials of nutrition education programs have shown that scores in knowledge among the participants have increased significantly after the training sessions (Chin et al., 2021).

In one intervention study that focused on nutrition education among the caregivers, the groups that were highly trained on nutrition education based on weekly training had a significantly better improvement in nutrition knowledge and feeding practices than the groups that were less frequently trained (Inayati et al., 2012). Likewise, systematic reviews of nutrition training of health workers have established that nutrition training can enhance health worker knowledge and yield beneficial patient outcomes (Sunguya et al., 2013).

Nutrition education also helps healthcare providers in strengthening their confidence in providing nutrition care and enables skills acquisition necessary to perform a nutritional assessment and provide dietary recommendations (Laur et al., 2016).

Factors Influencing Nutrition Knowledge

The literature also revealed some factors that affect healthcare providers' nutrition knowledge and their ability to apply the knowledge gained in practice. These include education, occupation, accessibility to training programs and sources of nutrition-related information.

Education was noted as one of the most pronounced indicators of nutritional knowledge. Empirical research indicates that medical practitioners with advanced academic credentials are more likely to have excellent points of nutrition knowledge (Bauer et al., 2023). The role of a professional also plays one of the pivotal roles because dietitians and nutrition specialists usually acquire higher levels of knowledge as compared to physicians or nurses; this difference is also due to their training, which is specifically focused on nutrition (Kurnik -Lucka et al., 2024).

Nutrition knowledge is also influenced by the availability of continuing education. When healthcare providers participate in nutrition-related professional development programs, they have a higher tendency of maintaining the current knowledge and use the principles of nutrition in clinical practice (Laur et al., 2016).

Barriers and Facilitators to Implementing Nutrition Care

Although there is considerable awareness of the significance of nutrition in the healthcare setting, several challenges hinder the integration of nutrition care into the clinical routine. The first obstacle, noted in the

literature, is the lack of nutrition education and training among healthcare professionals (Crowley et al., 2020). Time limits during patient consultations and high workloads often lead to the prioritization of medical treatment over nutritional counselling (Shakhshir & Alkaiyat, 2023).

The institutional challenges also increase the lack of nutrition care implementation. Nutritional screening or dietary counselling protocols are not standardized in many clinical environments, and the accessibility of dietitians negatively affects the coordination of efforts (Hussein and Ali, 2025). Besides, part of the healthcare provider's still see nutrition care as something that is the preserve of dietitians (Hazzard et al., 2021).

On the other hand, there are several facilitators that can increase the adoption of nutrition care. The knowledge base and the confidence of healthcare professionals in delivering nutrition care can be supplemented with a structured nutrition education program and workshops (Laur et al., 2016). The combination of institutional support, inter-professional collaboration, and implementation of standardized nutrition screening tools enhances the introduction of nutrition care into clinical practice (Sunguya et al., 2013; Hazzard et al., 2021; Hussein and Ali, 2025).

Discussion

The aim of this systematic literature review was to identify the available evidence on the issues of nutrition knowledge among healthcare providers and the effectiveness of nutrition education interventions to improve their knowledge and clinical practices. The results of the ten studies included in the review shed light on some of the most relevant themes, namely, the lack of baseline nutrition education among medical professionals, the positive effects of nutrition education programs, situational factors that affect nutrition awareness, and the barriers to nutrition care implementation in the clinical setup.

Overall, the findings of this review suggest that despite the recognition of healthcare providers of the vital importance of nutrition in the prevention of diseases and recovery of patients, an impressive number do not possess the knowledge and confidence necessary to provide effective nutrition services. These findings agree with previous studies, which document inadequate nutrition education as a part of medical and nursing education (Crowley et al., 2020).

Limited Nutrition Knowledge among Healthcare Providers

The main finding of this review is that healthcare providers often demonstrate a lack of knowledge related to clinical nutrition, thus undermining their ability to provide the right nutritional care to patients. Various studies included in this review indicated average to low knowledge levels of health personnel with regard to nutritional assessment, dietary advice and management of malnutrition.

For example, Bauer et al. (2023) found that a significant number of nurses lacked proper knowledge of malnutrition screening and nutritional care. However, the same study revealed that nurses with greater educational levels or special training had significantly superior levels of knowledge. The results of this study indicate the paramount importance of educational and professional training programs in boosting the level of nutrition knowledge among healthcare staff.

Likewise, Kurnik-Lucka et al. (2024) found that students who were enrolled in dietetics courses demonstrated significantly superior nutrition knowledge compared to their counterparts in other medical fields. This observation indicates that nutritional education can be prioritized in the areas of specialized education like dietetics, but can be less comprehensively incorporated in the more generalized healthcare curricular.

The deficiency in nutrition knowledge that was found to exist in healthcare providers in this review has potentially significant implications for patient care. Healthcare providers are regularly assigned responsibilities of assessing the nutritional condition of patients, providing diet-related advice, and helping patients cope with diet-related diseases. Without the proper knowledge, such professionals can fail to be effective in such functions.

Crowley et al. (2020) stated that many medical workers are not prepared to deliver nutrition counseling due to weak academic preparation. This lack of confidence may prevent discussions about nutrition, even though dietary changes can greatly improve health outcomes.

Effectiveness of Nutrition Education Interventions

Another important conclusion of the systematic literature review is the positive effect of nutrition education interventions on healthcare provider knowledge and clinical practice, which can be proven. Some of the studies incorporated in this review showed that structured training programmes have the potential to enhance the knowledge level of the healthcare professionals with respect to the concepts of nutrition and their capacity to implement the concepts in patient care.

For example, Chin et al. (2021) developed a nutrition knowledge assessment tool, validated it, and reported that participants' knowledge scores significantly improved after the educational interventions. In the same way, Inayati et al. (2012) established that participating caregivers in the intensive nutrition education programs significantly increased in nutrition knowledge and feeding habits in comparison with the limited training.

Besides this, Sunguya et al. (2013) carried out a systematic review of the effect of nutrition training on healthcare workers and discovered that nutrition training helped healthcare workers to better foster appropriate feeding practices and help improve nutritional outcomes. These results prove that nutrition education programs may lead to improved practice of patient care as well as improved knowledge.

Educational interventions also seem to provide healthcare givers with confidence in nutrition care provision. As Laur et al. (2016) emphasized, healthcare professionals receiving organized nutrition training tend to incorporate nutrition assessment and dietary counselling into their daily clinical work. Higher confidence among healthcare providers might motivate them to discuss nutrition-related problems more often during consultations with patients.

In general, evidence indicates that nutrition education interventions are effective in building healthcare provider competencies. These interventions can take various forms, such as workshops, professional development programs, online modules, and curriculum integration.

Factors Influencing Nutrition Knowledge

This review has found that there are several determinants that affect the nutrition knowledge of healthcare providers. The education level, the occupation, and the access to the training opportunities, as well as the sources of information seem to have a strong impact on the nutrition knowledge of the healthcare professionals.

Educational achievement was found to be predictable nutrition knowledge. Medical workers with higher academic degrees demonstrate a high level of nutrition assessment and dietary control regularly (Bauer et al., 2023). Such association can be explained by improved exposure to scholarly training and research-based training in advanced education programs.

There is also the influence of professional specialization with regard to nutrition knowledge. An example of this is dietitians and nutrition specialists, who usually show more nutrition knowledge compared to physicians and nurses, presumably due to the fact that the specialization of these professionals specifically focuses on nutrition science (Kurnik- Lucka et al., 2024).

Another factor that is relevant to the development of nutrition knowledge is access to continuing education and professional growth programs. The process of participating in workshops, training programmes, or educational seminars related to nutrition helps healthcare professionals keep the knowledge up-to-date and implement the principles of nutrition in clinical practice (Laur et al., 2016).

In addition, the credibility of nutrition data that healthcare providers have access to may affect the quality and accuracy of their knowledge. According to Shakhshir and Alkaiyat (2023), although healthcare

professionals are typically considered reliable sources of nutrition information, a significant number of people seek online sources and social media to find information on nutrition. The growing access to information through online platforms highlights the need to achieve access to evidence-based educational tools by healthcare providers.

Barriers to Implementing Nutrition Care

Despite the advantages of nutrition education intervention, there are a number of challenges limiting the incorporation of nutrition care in clinical practice. The paucity of formal nutrition training among healthcare professionals is the most common barrier that was reported in this review.

According to Crowley et al. (2020), many medical or nursing professionals are provided with little to no nutrition education throughout medical or nursing education. As a result, such professionals tend to have low confidence when providing the dietary advice or conducting nutritional evaluation.

The other notable obstacle is lack of time that is set aside to meet the patients. Medics often have to deal with large workloads and limited consultation periods, which can lead to the emergence of the propensity to focus on medical care, as opposed to nutrition education (Shakhshir and Alkaiyat, 2023).

The institutional barriers also hinder use of nutrition care. As an example, Hussein and Ali (2025) noted that many medical facilities do not have standardized guidelines regarding nutritional screening and management. Without clear policies and institutional support, medical practitioners might not always be able to treat nutrition when providing care to their patients.

Additionally, some health practitioners view nutrition counselling as a prerogative of dieticians and not the physicians or nurses. As Hazzard et al. (2021) highlighted, such an attitude may decrease the engagement of healthcare providers in nutrition-related activities, which, in its turn, limits the integration of nutrition care into a regular clinical practice.

Implications for Healthcare Practice

The results of this systematic literature review have gross implications on healthcare education and practice. To start with, they emphasize the need to provide nutrition education as a more thoroughly integrated part of healthcare curricula. Allied health, medical, and nursing programs ought to provide holistic nutrition training in order to guarantee the healthcare providers with the knowledge and skills necessary to manage nutrition-related health issues.

Second, there should be the implementation of continuing professional development programs, which can provide healthcare providers with a chance to renew their knowledge about nutrition and clinical skills. Such programs will be able to fill existing gaps in knowledge and increase confidence of providers in nutrition care provision.

Lastly, healthcare organizations should develop policies and guidelines that will ease the implementation of nutrition care in the regular clinical practice. These can include the following measures, implementation of the standardized nutrition screening tools, encouraging the interdisciplinary cooperation between healthcare practitioners and dietitians, and access to evidence-based educational materials. With the correct mitigation of these determinants, healthcare systems may enhance the contribution of nutrition in patient care and improve health outcomes among patients.

Conclusion

The systematic literature review examined evidence on the role of nutrition knowledge in healthcare providers. It also assessed the effectiveness of nutrition education interventions in raising their knowledge and clinical practices. The results showed that many medical workers recognize nutrition's importance in patient care. However, a large percentage have low nutrition expertise and low confidence in providing dietary advice.

The review has highlighted that poor nutrition education in medical and nursing programs is a major contributor to these knowledge gaps. Many healthcare providers obtain little formal education in nutrition in their academic programs, and thus, limiting

their ability to do nutritional assessment and integrate nutrition care into mainstream clinical practice. Consequently, consultations with patients on nutrition issues are often not addressed.

Findings also indicated a positive effect of the nutrition education interventions. Improvements in knowledge, attitudes and practice of nutrition among the healthcare providers were linked to structured educational programs which included workshops, training modules and continuing professional development initiatives. These programs enhanced the confidence of providers to provide dietary counseling and also consider nutrition assessment in the management of patients.

However, several obstacles were also found to hinder nutrition care implementation in a healthcare environment, such as a lack of training, excessive workload, limited time of consultation, and a lack of institutional support.

Altogether, increasing nutrition education among healthcare providers has potential in relation to improving patient outcomes and ensuring the prevention and management of nutrition-related diseases.

References

Bauer, S., Pospichal, J., Huppertz, V., Blanar, V., Saka, B., & Eglseer, D. (2023). Malnutrition knowledge among nursing staff in four European countries: A cross-sectional study. *Nurse Education Today*, *128*, 105887. https://doi.org/10.1016/j.nedt.2023.105887

Hazzard, E., Walton, K., McMahon, A., Milosavljevic, M., & Tapsell, L. C. (2021). Healthcare professionals' perspectives on the role of dietitians within multidisciplinary head and neck cancer teams: A qualitative multi-site study. *Nutrition & Dietetics*, *78*(5), 506–515. https://doi.org/10.1111/1747-0080.12664

Crowley, J., Ball, L., & Hiddink, G. J. (2020). Nutrition care by primary-care physicians: advancing our understanding using the COM-B framework. *Public health nutrition*, *23*(1), 41-52.

Erickson, N., Sullivan, E. S., Kalliostra, M., Laviano, A., & Wesseling, J. (2023). Nutrition care is an integral part of patient-centred medical care: a European consensus. *Medical Oncology*, *40*(4), 112.

Inayati, D. A., Scherbaum, V., Purwestri, R. C., Wirawan, N. N., Suryantan, J., Hartono, S., ... & Bellows, A. C. (2012). Improved nutrition knowledge and practice through intensive nutrition education: a study among caregivers of mildly wasted children on Nias Island, Indonesia. *Food and nutrition bulletin*, *33*(2), 117-127.

Muna Shakhshir, & Abdulsalam Alkaiyat. (2023). Healthcare providers' knowledge, attitude, and practice on quality of nutrition care in hospitals from a developing country: a multicenter experience. *Journal of Health Population and Nutrition*, *42*(1). https://doi.org/10.1186/s41043-023-00355-9

Kurnik-Łucka, M., et al. (2024). Nutrition awareness and dietary habits among healthcare students. *Nutrients*, 16(3), 512.

Laur, C., Marcus, H., Ray, S., & Keller, H. (2016, October). Quality nutrition care: measuring hospital staff's knowledge, attitudes, and practices. In *Healthcare* (Vol. 4, No. 4, p. 79). MDPI.

Rajalakshmi, M., & Abiharini, S. (2023). An exploratory mixed methods study on caregiver's knowledge on nutritional requirement of children aged six months to two years. *Journal of Nepal Paediatric Society*, *43*(3), 126-132.

Chin, S., Wong, R., Hirani, V., & O'Leary, F. (2021). Nutrition knowledge assessment tools for older adults and their carers: a scoping review. *Nutrition Research Reviews*, *36*(2), 216–231. https://doi.org/10.1017/s0954422421000330

Shakhshir, M., & Alkaiyat, A. (2023). Healthcare providers' knowledge, attitude, and practice on quality of nutrition care in hospitals from a developing country: a multicenter experience. *Journal of Health, Population and Nutrition*, *42*(1), 15.

Sunguya, B. F., Poudel, K. C., Mlunde, L. B., Shakya, P., Urassa, D. P., Jimba, M., & Yasuoka, J. (2013). Effectiveness of nutrition training of health workers toward improving caregivers' feeding practices for children aged six months to two years: a systematic review. *Nutrition Journal*, *12*(1), 66. https://doi.org/10.1186/1475-2891-12-66

Hussein, N. a. A., & Ali, S. A. (2025). Role of Nurses in Nutritional Assessment of Patients with Cancer. Medical Forum Monthly, 36(8). https://doi.org/10.60110/medforum.360806.

Knez, M., Ranić, M., & Gurinović, M. (2024). Underutilized plants increase biodiversity, improve food and nutrition security, reduce malnutrition, and enhance human health and well-being. Let's put them back on the plate!. *Nutrition Reviews*, *82*(8), 1111-1124.

World Health Organization. (2024, March 1). *Malnutrition* (Fact sheet). https://www.who.int/news-room/fact-sheets/detail/malnutrition

World Health Organization. (n.d.). *Nutrition*. https://www.who.int/health-topics/nutrition#tab=tab_3

UNICEF (2023). Retrieved from https://www.unicef.org/nutrition

UNICEF Pakistan. (2018). *National Nutrition Survey 2018: Key findings report*. https://www.unicef.org/pakistan/media/1951/file/Final%20Key%20Findings%20Report%202019.pdf.

Nielsen, L. P., Thomsen, K. H., Alleslev, C., Mikkelsen, S., & Holst, M. (2024). Implementation of nutritional care in hospitals: A qualitative study of barriers and facilitators using implementation theory. *Scandinavian Journal of Caring Sciences*, *38*(3), 657-668.

IFPRI (2022). Retrieved from https://www.ifpri.org/blog/2022-state-food-security-and-nutrition-world-report-repurpose-agricultural-subsidies-make/

Mao, S., Xiao, K., Xu, H., & Xiujin, G. (2023). Postoperative Nutritional Strategies for Lung Cancer Patients: Enhancing Recovery and Well-Being. *J Surgery*, *3*(2), 1128.