

Knowledge, Attitudes, and Practices in Nutrition Counselling: A Survey Analysis among Health Consultants

Research Article

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Abstract

Chronic respiratory conditions (asthma, COPD), cancer, diabetes, and cardiovascular conditions (stroke, respiratory failures) are all included in the broad category of diseases known as non-communicable diseases (NCDs), which represent a risk of increasing the burden of disease in adults and the elderly. The majority of NCDs worldwide are primarily caused by unhealthy diets and the malnutrition that results from them. A healthy diet is crucial for preventing noncommunicable diseases (NCDs). On the other hand, unhealthy lifestyle choices, such as smoking, drinking, sleeping poorly, not exercising, experiencing stress, being around pollutants, and not eating enough, can lead to metabolic changes that might cause noncommunicable diseases. Patients frequently receive health information from primary care physicians (PCPs) and health experts. As a result, general practitioners can positively impact their patient's behavior and lifestyle choices. An overview of the current state of nutritional care and nutritional counselling in health, as well as obstacles to nutritional counselling, are intended to be given through this study. The study examined health consultants' knowledge, attitudes, and practice of nutrition advice using a standardized survey. The survey's findings emphasize the need for a more standardized and reliable approach to nutrition counselling in healthcare settings. In order to make sound nutrition recommendations, primary care physicians and other healthcare professionals must possess the necessary training, resources, and expertise. Primary care physicians (PCPs) can prevent the onset of lifestyle-related illnesses by including nutrition into patient treatment, which will ultimately improve public health outcomes and reduce healthcare expenditures.

Introduction

Globally, the prevalence of diseases linked to poor nutrition, especially its consequences, is rising for people of all ages and socioeconomic backgrounds.[1]non-communicable diseases (NCDs) are a huge group of illnesses that comprise chronic respiratory illnesses (asthma, COPD), malignant growth, diabetes, and cardiovascular ailments (including stroke and respiratory failures).[2] There was a possible risk of an increase in the burden of diseases among adults and the elderly due to the epidemiological transition from communicable to NCD.[3,4,5]

A major concern regarding the double expansion of chronic diseases (living with a chronic condition from early life till death) in India has also been raised by the reduction of healthy years brought on by the early onset of diseases, particularly among middle-aged adults. Chronic diseases are more common in low- and middle-income nations, where they cause both health and financial losses as individuals age. Though there is little data in the Indian context, estimates of the age at which chronic disease first manifests offer support for policy action.[6] Diet, sometimes considered a lifestyle factor, is associated with obesity, cardiovascular disease, hypertension, stroke, type 2 diabetes, metabolic syndrome, several cancers, and possibly some

neurological conditions. Additionally, the presence of one disease often contributes to the emergence of another. For example, obesity or excess body weight/fat is a risk factor for conditions like type 2 diabetes, hypertension, metabolic syndrome, and a number of cancers, among others.[7]

Furthermore, when a medical disease does exist, it frequently plays a role in the development of additional medical conditions. For example, obesity or excess body weight/fat is a risk factor for a number of conditions, including metabolic syndrome, type 2 diabetes, hypertension, and some types of cancer. The impact of nutrition on disease risk and/or on certain disease risk factors may at times be assessed by studies that incorporate changes to “usual” eating practices. More recently, the focus of dietary guidelines in many nations has shifted from specific nutrient intake and disease risk to overall dietary patterns. However, it is commonly known that a lack of certain nutrients or a state of inadequate nutrition can lead to the onset of diseases and/or health issues.[8]

The majority of NCDs worldwide are caused by unhealthy diets and the malnutrition that results from them. Research that uses changes to “usual” dietary practices is occasionally utilized to assess how food affects disease risk and/or particular disease risk variables. Many chronic diseases can be prevented with dietary changes, but once a problem has set in, it is frequently necessary to alter a person’s regular diet to help manage the illness or its symptoms. More recently, the focus of dietary guidelines in many nations has shifted from specific nutrient intake and disease risk to overall dietary patterns. Disease management must involve the use of dietary supplements in addition to the function that dietary changes play in treating illness or its symptoms.[8,9]

A comprehensive treatment continuum must take into account the impact of oral nutritional supplements on lowering the prevalence of sarcopenia and malnutrition in people with diabetes/prediabetes, obesity, recovering critical care patients, and cancer patients. People with chronic diseases or NCDs can benefit from a variety of oral nutritional products available on the market. Research on the efficacy of numerous nutraceuticals aimed at disease prevention and treatment is also booming in the scientific literature. This justifies the need to understand the “right choice” in order to advance our understanding of diet and nutrition support for these conditions. We also need to take appropriate steps to assist healthcare professionals in educating their patients and assisting them in adopting healthy eating habits.[10]

The prevention of NCDs is largely dependent on appropriate diet. An effective strategy to stop NCDs from starting is the Mediterranean diet, which is defined by a high intake of fruits, vegetables, grains, legumes, and fish; a moderate intake of dairy products and eggs; and a low intake of animal fats and red meat. Conversely, a poor lifestyle—which includes smoking, alcoholism, poor sleep, physical inactivity, psychological stress, environmental pollution, and inadequate nutrition—contributes to metabolic alterations that may initiate NCDs.[8] With the International Diabetes Federation (IDF) president, Prof. Peter Schwarz, recently introducing the METTA Dāna Foundation’s (MDF) slogan, “**screen for NCD by Twenty, Add Healthy years, a Plenty,**” to a global audience in front of the

renowned Prof. A K Azad Khan, the IDF SEA region chair, we take on the unique task of identifying the Knowledge, Attitude, and Practices (KAP) gap in “Diet and NCD” where we see a huge potential to change the environment of the most ill people in our nation and the entire world.[11] Any medical treatment intended to improve a patient’s eating habits and, consequently, health outcomes—especially in NCDs—is referred to as nutritional care. Nutritional care is defined as nutritional assessment, diagnosis, intervention, monitoring, and evaluation, according to the Nutrition Care Process Model, which is supported by the Academy of Nutrition and Dietetics. Using carefully gathered, comprehensive, and pertinent data regarding a patient’s diet, nutritional assessment determines the issue. The next step is to administer the proper nutritional therapy if malnutrition is found or diagnosed. “A supportive process, characterized by a collaborative counsellor-client relationship, to establish food, nutrition, and physical activity priorities, goals, and action plans that acknowledge and foster responsibility for self-care to treat” is how nutritional counselling is described as one facet of nutritional intervention characterized by a collaborative counsellor-client relationship, to establish food, nutrition, and physical activity priorities, goals, and action plans that acknowledge and foster responsibility for self-care to treat an existing condition and promote health.”[12]

Because they frequently interact with patients and are familiar with their social environments and medical histories, primary care physicians (PCPs) and health consultants are a popular source of health information. Because they think health consultants are the most qualified, trustworthy, and personable sources of nutritional information, patients look forward to receiving nutritional advice from them. Consequently, general practitioners have the opportunity to positively influence the behavior and lifestyle choices of their patients.[7,13,14] Thus, this study aims to provide an overview of the current state of knowledge, attitudes, and practices related to nutritional care and nutritional counselling in health, as well as barriers to nutritional counselling.

Methodology

Methodology: A structured survey was conducted to assess the practices, attitudes, and understanding of nutrition counselling among health consultants from a range of medical specialties, including Intensivists, Nephrologists, Neurosurgeons, Diabetologists, Dietitians, Gastroenterologists, and Oncologists. To collect both quantitative and qualitative data, the survey comprised both multiple-choice and open-ended questions. The questions were created to address a variety of nutrition-related subjects, such as attitudes towards public nutrition, knowledge of important nutrition concepts (such as dietary guidelines, malnutrition, and diseases linked to nutrition), and confidence in giving nutritional advice.

Data was collected and analyzed to identify trends and correlations between knowledge and attitudes, as well as to assess any gaps in nutrition education and the barriers to providing effective nutrition counseling. The responses were analyzed using both qualitative and quantitative methods to provide a comprehensive overview of how nutrition counseling is currently practiced among health consultants and to identify areas where additional support and education are needed.

Result and Discussions

Nutritional knowledge refers to the ability to understand essential information about diet, nutrients, and their influence on overall health and well-being.[15] It plays a crucial role in healthcare, as physicians with a strong foundation in nutrition are better equipped to identify dietary risk factors, provide effective nutritional counseling, and implement preventive strategies to reduce the incidence of nutrition-related diseases. Proper nutritional knowledge also allows healthcare professionals to guide patients in managing conditions such as obesity, diabetes, cardiovascular diseases, and malnutrition, ultimately improving patient outcomes.[16]

In this study, a structured questionnaire consisting of 28 items was developed (depicted in Table 1) to assess the level of nutritional knowledge among 16 medical consultants. Prior to distribution, the consultants were informed about the study's objectives and provided their consent to participate.

The questionnaire aimed to evaluate their understanding of dietary recommendations, nutrient functions, and the role of

Table 1: Questionnaire summary of responses on Nutrition Knowledge, Attitudes, and Practices among Health Consultants (N = 16)

Q. No.	Question Summary	Options	Corresponding number of Response
1	Who said "Leave your drugs..."?	a. Diocles b. Herodiscus c. Asclepius d. Hippocrates	16 / 16
2	Views on DTC health tech	a. Out of practice b. De-legitimise role c. Won't change views d. Will update self	16/16
3	Fruit/veg intake reduces risk	a. 100g b. 200g c. 400g d. 800g	15/16
4	Weight of 5 fruit/veg portions	a. 100g b. 200g c. 400g d. 800g	14/16
5	Test for sarcopenia	a. Gait speed b. SPPB c. TUG d. 400m walk	13/16
6	Opinion on differing diet results	"Genetics"	61/16
7	Interest in nutrition?	Yes/No	16/16
8	Is healthy eating expensive?	No	16/16
9	Gluten intolerance exception	a. Premade coffee b. Soy sauce c. Quinoa d. Sourdough	14/16
10	Cancer with no weight gain	a. Pancreatic b. Myeloma c. Prostate d. Brain tumor	14/16
11	Nutrient protective vs hypertension	a. Dairy b. Lean fish c. Fruits & vegetables d. Eggs	13/16

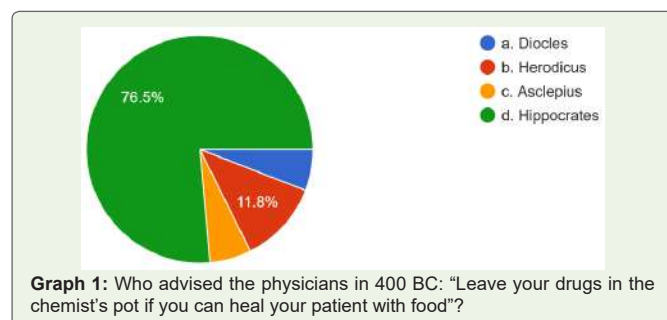
12	Calcium needs for women 51–70	a. 800 b. 1000 c. 1200 d. 1500	14/ 16
13	Nutrition education preference	a. Diet charts b. Appointment c. Nutritionist in clinic d. Refer6	14/ 16
14	Consequences of malnutrition	a. Low QOL b. Emotional/ Physical impact c. Psychosocial impact d. All of the above	15/ 16
15	Discussing nutrition = my responsibility	Yes	16/16
16	Nutrition assessment in routine appt	Yes	14/16
17	Nutrition counselling = routine care	Yes	15/16
18	HCP in clinic influences patient behavior	Yes	13/16
19	Nutritionist outside clinic helps	Yes	14/16
20	Severe acute malnutrition = emergency	Yes	16/16
21	Motivation needs psych support	Yes	14/ 16
22	Patients respond to my advice	Yes	15/16
23	I'm competent to give nutrition advice	Yes	15/ 16
24	One-time education has limited impact	Yes	15/16
25	Calculating BMI/WHR is a priority	Yes	13 / 16
26	Confident discussing fats, omega-3/6	Yes	13/16
27	Can give examples of serving sizes	Yes	14/16
28	Early nutrition shortens treatment	Yes	14/ 16

nutrition in disease prevention and management. The responses reflect a consistently high level of interest and a positive outlook toward nutrition among the participants, highlighting their recognition of its critical role in improving patient outcomes. A majority affirmed the inclusion of nutrition assessment and counselling as part of standard clinical practice and expressed confidence in their ability to provide basic nutrition advice. The significant questions and answers are summarized below.

A) Nutrition Knowledge

- **Question: Who advised the physicians in 400 BC: "Leave your drugs in the chemist's pot if you can heal your patient with food"?**

Analysis: Most respondents (76.5%)(Graph 1) accurately credited Hippocrates with this viewpoint, demonstrating a keen understanding of his impact on early medical theory. There may be a knowledge gap, nevertheless, as the remaining percentage of participants were unfamiliar with this historical background. This implies that including historical perspectives on nutrition into medical education could



improve doctors' comprehension of the established link between diet and health, highlighting the significance of nutrition in contemporary clinical practice.

• **Question: How much daily intake of vegetables/fruits is associated with a reduced risk of cardiovascular diseases?**

Analysis: 47.1% of participants in this survey chose 400g correctly, (Graph 2) indicating a modest level of knowledge about evidence-based dietary recommendations. Although this suggests that most participants are aware of global health guidelines, 53% of them either overestimated or underestimated the necessary intake, suggesting a possible knowledge gap. Enhancing nutritional education could raise awareness and promote adherence to the recommended intake of fruits and vegetables for cardiovascular health benefits.

• **Question: Does early nutrition intervention reduce treatment recovery time and hospital stays?**

Analysis: There is broad agreement regarding the significance of early nutrition care in patient recovery, as seen by the majority (92.3%) of respondents' "Yes" responses. (Graph 3) This shows that the clinical advantages of prompt nutritional intervention are understood. But it's crucial to make sure that this knowledge is applied to regular clinical practice. Additional patient outcomes and cost savings can be achieved by ongoing education and hospital policies that place a high priority on nutrition assessment and intervention.

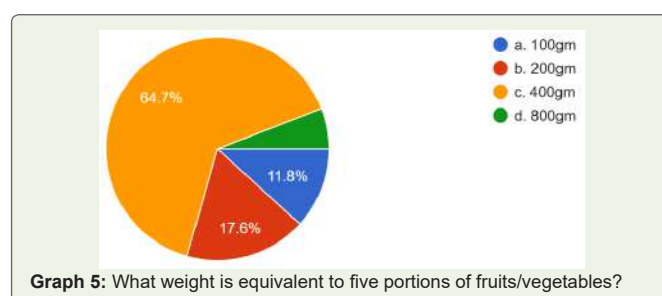
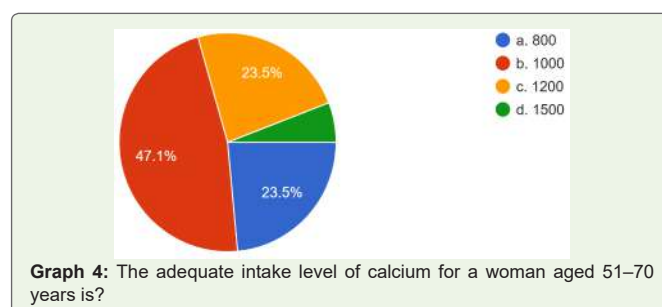
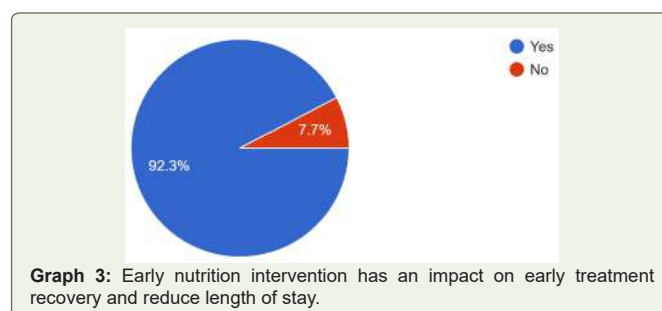
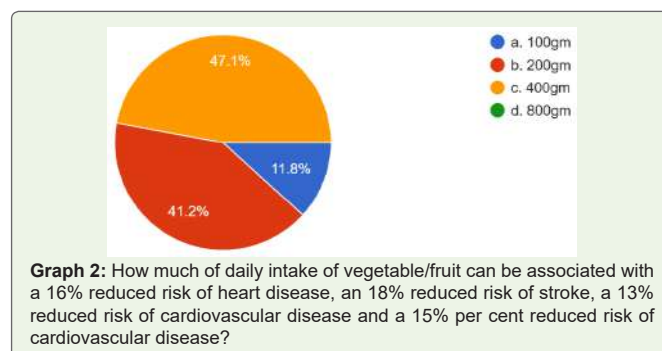
• **Question: What is the recommended calcium intake for women aged 51–70 years?**

Analysis: 47.1% of respondents correctly selected 1,000 mg, which is lower than the recommended amount. (Graph 4) This suggests a need for clearer communication and reinforcement of official calcium recommendations, particularly for postmenopausal women, who require higher calcium intake to mitigate the risk of osteoporosis and fractures. Providing targeted educational resources can help improve adherence to evidence-based dietary guidelines in both clinical practice and public health messaging

Portion Size Equivalence

• **Question: What weight is equivalent to five portions of fruits/vegetables?**

• **Analysis:** The majority of respondents (64.7%) (Graph 5) correctly selected 400 grams, reflecting a reasonable level of awareness regarding portion recommendations. However, some responses indicated 100 grams or 200 grams, suggesting misconceptions about



portion sizes or daily intake recommendations. This variability highlights the need for clearer nutrition education on portion sizes and the importance of consuming a diverse range of fruits and vegetables to meet dietary guidelines. Standardizing portion size education can help individuals make more informed dietary choices and improve adherence to health recommendations

Sarcopenia Evaluation

• **Question: Most convenient test to predict sarcopenia-related outcomes?**

Analysis: Responses were divided between SPPB, TUG and Gait speed reflecting a familiarity with both assessment tools among respondents. However, majority of the respondent (35.3%) (Graph 6) selected SPPB, which is often considered more clinically comprehensive for predicting sarcopenia-related outcomes. The presence of mixed responses highlights the need for further clarification on the most appropriate tests for different clinical scenarios. Educating healthcare professionals on the strengths and applications of various sarcopenia assessment tools can enhance early detection and management strategies.

Cancer and Weight Gain

- **Question:** Which type of cancer is linked with no weight gain in patients?

Analysis: The majority of responses (58.8%) (Graph 7) identified pancreatic cancer, aligning with its well-documented link to cachexia and weight loss. However, the mention of prostate cancer suggests some variability in understanding the weight-related effects of different cancers. This indicates a potential need for further education on the metabolic impact of various cancers to ensure accurate clinical assessments and patient counseling.

Nutrients Protective Against Hypertension

- **Question:** Which nutrient helps in hypertension prevention?

Analysis: Most common answer by majority participants (52.9%) (Graph 8) was Fruits and Vegetables. Some answers mention Lean Fish or Dairy Products. Fruits and vegetables are rich in potassium, which is beneficial for hypertension management, making this the correct response.

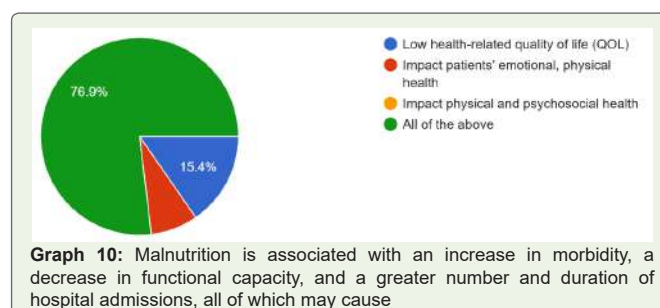
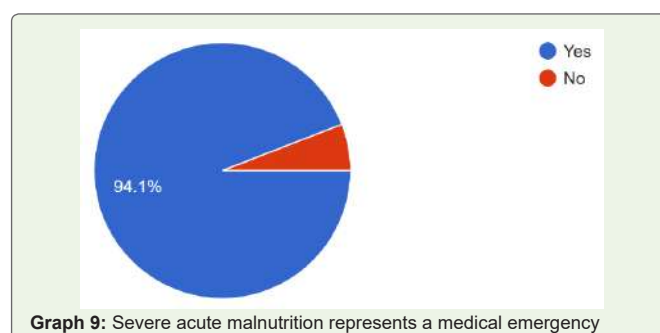
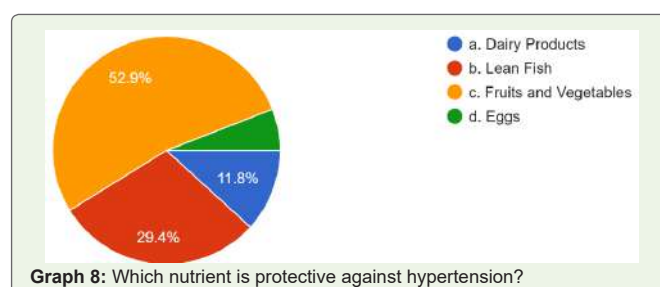
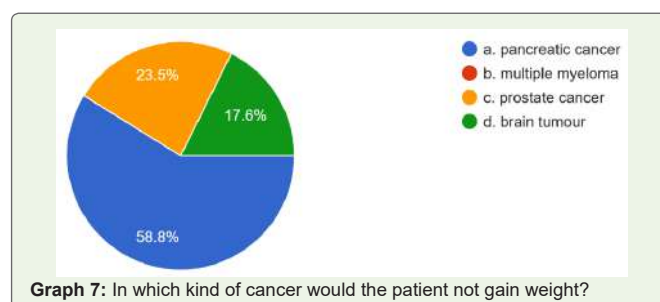
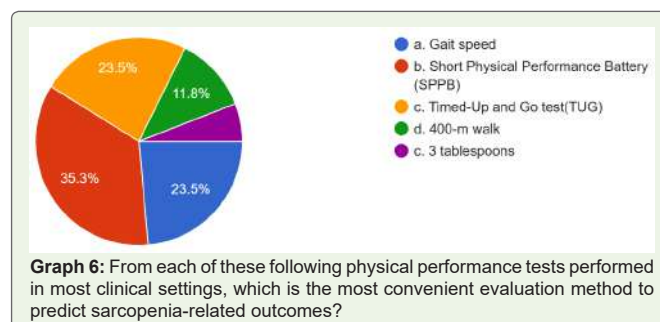
Malnutrition

- **Question:** Is severe acute malnutrition a medical emergency?

Analysis: The Majority response (94.1 %) of "Yes" (Graph 9) highlights a strong understanding of the critical nature of malnutrition in healthcare. Recognizing SAM as a medical emergency ensures timely intervention, appropriate refeeding strategies, and supportive care, ultimately improving patient survival and recovery outcomes. Continued education and awareness on early detection, proper management, and long-term nutritional support can further strengthen healthcare responses to SAM.

- **Question:** How does malnutrition impact morbidity, hospital stays, and functional capacity?

Analysis: The majority of respondents (76.9%) (Graph 10) correctly identified all of the above as impacts of malnutrition, demonstrating a strong awareness of its comprehensive effects on health outcomes. This aligns with established clinical evidence showing that malnutrition is a major contributor to increased morbidity, longer hospital stays, and reduced functional capacity. Continued education on nutritional screening, early intervention, and personalized care plans can help mitigate these adverse effects and improve patient outcomes.



B) Attitudes and Practices

- Question: Are respondents confident in providing nutrition advice?**

- Analysis:** Of the respondents, 76.5% (Graph 11) think they are competent enough to advise patients on diet. This suggests that the majority of responders are assured of their knowledge and ability to counsel patients on issues concerning diet. This implies that some of the respondents could need more instruction, training, or assistance in order to feel confident in their dietary advice.

- Question: Patient motivation is the most essential component to achieving dietary change and needs a psychologically powered intervention**

- Analysis:** As seen in Graph 12, all the respondents emphasized the importance of patient motivation, reflecting a strong recognition of the role psychological factors play in dietary counseling. This view underscores the need for patient-centered approaches that go beyond simply providing nutritional information and instead focus on fostering the patient's intrinsic motivation to make meaningful changes. Such approaches, tailored to the patient's unique situation, are more likely to lead to sustained dietary change and improved health outcomes. This aligns with best practices in behavioral nutrition and emphasizes the importance of integrating psychological and emotional support into clinical nutrition care.

- Question: Do you have special interest in nutrition for your kind of practice? If yes, how much time does the patient get for nutrition counselling? In how many sessions, the first/ only a few/ all visits to your clinic? If no, why not? lack of time / lack of confidence / lack of resources with adequate nutrition knowledge**

- Analysis:** Practices regarding nutrition counseling vary significantly across consultants, with many citing time constraints

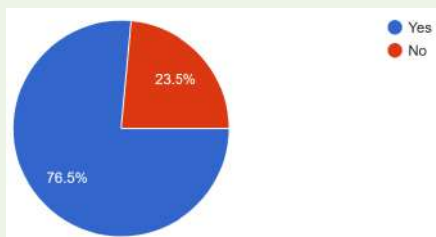
as the primary barrier to effective nutrition intervention. This underscores the need for more structured time allocation in clinical practice to facilitate comprehensive nutrition counseling. Additionally, there may be a gap in nutrition education for healthcare providers, which could hinder their confidence in delivering detailed dietary advice. Addressing these challenges could involve integrating nutrition training into medical education and enhancing resource availability for practitioners, ensuring that nutrition counseling is an integral part of patient care

- Question: Is healthy eating expensive and only for the wealthy?**

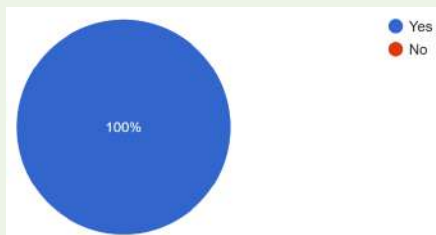
- Analysis:** The responses as depicted in (Graph 13), reflect an optimistic outlook, indicating a belief that healthy eating can be accessible to all, regardless of socioeconomic status. However, in practice, the affordability of healthy eating can vary significantly based on factors such as location, access to food stores, and personal financial resources. Addressing these disparities may require community-based initiatives that promote access to healthy food and support education on budget-friendly nutrition. Ensuring that healthy eating is accessible to all is critical to improving public health outcomes.

The survey's findings provide insightful information about the state of nutrition counselling in medical settings today. The findings reveals a notable lack of standardization and trust on some practical aspects of nutrition therapy, such as clinical nutrition tools and serving sizes, even though the majority of health consultants acknowledge the significance of evidence-based dietary advice. This variation implies that although most consultants understand the value of nutrition, they apply this understanding inconsistently, which could affect the standard and efficacy of patient care. All patients could receive high-quality, evidence-based nutritional guidance if nutrition counselling procedures are streamlined throughout the healthcare system with the support of standardized training that fills in these gaps.[17]

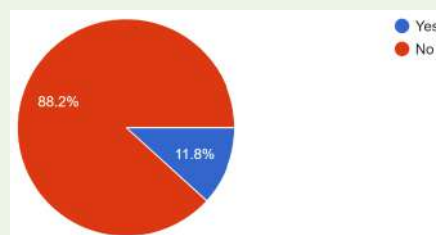
The survey's findings also show a definite proactive attitude to treating malnutrition and teaching patients about healthy eating, despite the difficulties. Everyone agrees that nutrition is important for patient health, especially when it comes to treating or avoiding malnutrition, which is strongly associated with negative health outcomes.[18] Although consultants show a great commitment to inspiring patients, there were noticeable inconsistencies in their counselling techniques and confidence gaps. A need for more thorough and specialized training is evident from the fact that many



Graph 11: I believe I have adequate competence to provide nutrition advice to patients



Graph 12: Patient motivation is the most essential component to achieving dietary change and needs a psychologically powered intervention



Graph 13: Do you believe that eating healthy is an expensive endeavor, reserved only for those with deep pockets?

health experts are uncertain of how to consistently provide dietary counselling. [19]

One of the study's main conclusions is that there are wide variations in the knowledge, attitudes, and practices of health consultants with relation to nutrition counselling. Attention is needed in the areas of resource allocation and self-esteem. Due to a lack of resources or training, many consultants may feel unprepared or unconfident when offering comprehensive nutritional advice.[20] This emphasises the necessity of funding professional development in order to increase consultants' sense of self-worth and make sure they feel prepared to manage the dietary components of patient care. Furthermore, increasing funding for things like support systems and nutritional tools could enhance the standard of care and boost the trust that medical professionals have in their dietary recommendations.[21]

Nutrition counselling needs to be encouraging, interesting, and tailored to each patient in order to be more successful. Health experts should have an open mind while discussing nutrition and adjust their recommendations based on each patient's unique needs. Because dietary requirements differ greatly from person to person and a one-size-fits-all strategy is frequently ineffective, this personalization is especially crucial. In particular, primary care doctors are crucial to the early prevention of diseases linked to food. Primary care physicians can serve as the first line of defence against conditions like diabetes, hypertension, and obesity, which are frequently preventable with dietary and lifestyle modifications, by offering fundamental nutrition advice and promoting healthy eating habits. It is equally crucial, though, that doctors understand the boundaries of their knowledge in nutrition and can, when needed, refer patients to dietitians or nutritionists. This guarantees that patients receive the most precise, focused dietary guidance in accordance with their unique medical requirements.[22]

Additionally, doctors need to be aware of how important diet is for both preventing and treating illness. Healthcare providers will be better able to offer their patients comprehensive care if they acknowledge the critical role that diet plays in controlling chronic illnesses. This entails treating the double burden of malnutrition, resolving patient food insecurity, and preventing noncommunicable diseases that result from unhealthy eating patterns.[23] Medical professionals need to be educated to identify the symptoms of lifestyle diseases and malnutrition and to include nutritional counselling in their treatment regimens.[24]

Personalized therapies are a key component in enhancing clinical nutrition results. Instead of following a general set of dietary recommendations, medical professionals need to be prepared to evaluate the particular needs of every patient. When establishing dietary recommendations, it is important to take into account several factors, including age, gender, socioeconomic situation, cultural preferences, and medical history. In addition to encouraging increased patient involvement, this tailored approach increases the probability that patients would follow the suggested dietary modifications, improving health outcomes.[22]

For example, individuals with long-term conditions like

diabetes might need more detailed dietary advice on controlling blood sugar, whereas those who are malnourished or losing weight might require more thorough nutritional rehabilitation. Patients who receive personalized nutrition counselling are more equipped to make decisions that support their own health objectives and have an understanding of how dietary modifications can be used to manage their unique medical problems. Healthcare practitioners may guarantee that patients receive individualized care that meets both short-term and long-term health needs by working with dietitians and other nutrition specialists.[20]

Conclusion

The results of this survey highlight the need for a more standardized and certain method of nutrition counselling in medical settings. To give good dietary recommendations, healthcare professionals—especially primary care physicians—need to have the requisite education, tools, and self-assurance. Specialized nutrition education is a clear chance for professional growth, enhancing knowledge, fostering self-worth, and guaranteeing consistency in counselling techniques.[21]

Personalized and proactive nutrition counselling must be integrated into clinical practice for the broader healthcare system to effectively address the rising prevalence of diet-related illnesses and malnutrition. In order to play a significant role in preventing chronic diseases and encouraging their patients to lead healthier lifestyles, doctors and health advisors must also understand the significance of nutrition in disease prevention. Health consultants can improve public health outcomes and eventually save healthcare costs by delaying the emergence of lifestyle-related disorders through the integration of nutrition into patient care.[23]

Investing in improved nutrition education, more funding, and interdisciplinary cooperation will give medical practitioners the groundwork they need to improve clinical nutrition results and patients' general health.[24]

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