

Evaluating the Effectiveness of Nutrition Counseling in Primary Care Settings

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Abstract: Considering the growing significance of nutrition in healthcare, this study examines the efficacy of introducing nutrition counseling in primary care settings. The necessity to assess how such counseling affects patient outcomes and well-being is what drives the research. A thorough analysis of the literature highlights the vital role that nutrition counseling plays in primary care, pointing out the gaps that this study attempts to fill. The research, which uses a mixed-methods design, combines qualitative insights from patient and healthcare provider interviews with quantitative health assessments. The implementation plan specifies a methodical approach that includes training, program development, stakeholder participation, integration into normal care, and continual monitoring. It is depicted through deployment and activity diagrams. A range of quantitative metrics, such as blood pressure readings, weight measurements, and survey responses, are used in data gathering procedures. These are supplemented with qualitative insights obtained through theme analysis of participant interviews. Supported by positive changes in survey responses, quantitative studies show benefits in health outcomes like glycemic control, weight management, and cardiovascular health. Qualitative evidence reveals positive attitudes among healthcare providers and high participant satisfaction. When taken as a whole, these results point to the nutrition counseling program's possible efficacy in accomplishing its goals.

Keywords: Nutrition Counseling, Primary Care Settings, Effectiveness Evaluation, Health Outcomes, Mixed-Methods Design, Literature Review, Stakeholder Engagement, Program Development.

I. Introduction

The importance of nutrition as a primary factor in determining our health and well-being is becoming more widely acknowledged. Beyond the realm of conventional medical procedures, there is a growing focus on preventative and holistic methods, in which nutrition plays a significant role [1]. It is becoming increasingly important to address lifestyle variables, particularly dietary habits, as the worldwide burden of non-communicable illnesses continues to increase. Conditions such as obesity, diabetes, and cardiovascular diseases are growing more frequent, and this has brought the importance of addressing lifestyle factors to the forefront strategically important for interventions that aim to improve nutrition [2]. Providing options for early detection, prevention, and management of health conditions, primary care acts as a gateway to the healthcare system and provides opportunity for these kinds of services. Health care professionals working in primary care settings are in a position unlike any other to interact with patients on a consistent basis, which makes it possible to incorporate nutritional advice into routine care [3]. This paradigm shift toward a healthcare approach that is more proactive and preventative is in line with the overarching objective of enhancing the health of the population and lowering the proportion of people who suffer from chronic diseases. In spite of the fact that nutrition counseling is widely acknowledged to be of great significance in primary care, there is still a lack of comprehension regarding the efficacy of this approach [4]. Even though there is a body of research that supports the incorporation of nutrition counseling into primary care settings, there is a need for empirical evidence that evaluates the impact that such treatments have on the health outcomes and the well-being of patients. With the purpose of determining whether nutrition counseling is beneficial in primary care settings, this study intends to fill this vacuum in knowledge [5].

A. Background

Nutrition plays a pivotal role in overall health and well-being, with increasing recognition of its significance in preventing and managing various health conditions. As lifestyle-related diseases become more prevalent, the role of nutrition in healthcare is gaining prominence. Primary care settings, being the first point of contact for individuals seeking healthcare services, are well-positioned to address nutritional needs and contribute to preventive care. The contemporary healthcare landscape is marked by a growing awareness of the impact of dietary habits on health

outcomes [6]. Poor nutrition is associated with an increased risk of chronic diseases such as obesity, diabetes, cardiovascular diseases, and certain cancers. Consequently, integrating effective nutritional interventions within primary care settings becomes imperative for fostering healthier communities.

B. Rationale

The rationale for evaluating the effectiveness of nutrition counseling in primary care stems from the need to address the escalating burden of lifestyle-related diseases and their associated healthcare costs [7]. Despite the recognition of nutrition's pivotal role, there is a gap in understanding how nutrition counseling interventions within primary care settings impact patient outcomes. This evaluation is crucial for optimizing healthcare resources, improving patient well-being, and establishing evidence-based practices that align with the evolving landscape of healthcare delivery. By assessing the effectiveness of nutrition counseling in primary care, we aim to fill the existing knowledge gaps and contribute to the development of tailored interventions that meet the diverse needs of patients. Understanding the impact of nutrition counseling will not only inform healthcare providers but also empower patients to make informed dietary choices, thereby fostering a proactive approach to health and disease prevention [8].

C. Objective

The primary objective of this study is to systematically evaluate the effectiveness of nutrition counseling in primary care settings. The research seeks to answer the following key questions:

- How does nutrition counseling in primary care influence patient health outcomes, including weight management, blood pressure, cholesterol levels, and glycemic control?
- To what extent does nutrition counseling contribute to positive behavioral changes in dietary habits and physical activity among patients?
- What is the level of patient satisfaction with nutrition counseling services in primary care settings?
- Are there measurable improvements in disease management, healthcare utilization, and overall well-being associated with nutrition counseling in primary care?

II. Literature Review

The literature on nutrition counseling within primary care settings underscores the importance of integrating dietary interventions into routine healthcare practices. Several studies have demonstrated positive associations between nutrition counseling and improved health outcomes. Interventions focusing on dietary modifications [9], lifestyle changes, and patient education have shown promise in managing conditions such as obesity, diabetes, and cardiovascular diseases. Nutrition counseling is often delivered by healthcare professionals, including dietitians, nutritionists, and primary care physicians [10]. The collaborative approach in primary care allows for comprehensive patient care, considering both medical and lifestyle factors. However, the effectiveness of nutrition counseling varies across studies, indicating the need for a nuanced understanding of the factors influencing outcomes [11]. One study contributed valuable insights, focusing on the effectiveness of a multidisciplinary nutrition counseling program. This research emphasizes the importance of collaboration among healthcare providers in primary care settings, recognizing the complexity of nutritional interventions and the need for a holistic approach. Another study explored the impact of nutrition counseling in family medicine [12], shedding light on the role of primary care in addressing patient outcomes through nutrition counseling. The research underscores the necessity of integrating such interventions seamlessly into routine care to achieve maximum effectiveness. An evaluation of a nutrition counseling initiative in urban primary care clinics provided insights into the practical aspects of implementing nutrition counseling in diverse primary care environments. This study offers valuable insights into the challenges and facilitators encountered in urban settings. Management in primary care, shedding light on the specific considerations for patients with diabetes [13]. The research highlights the potential benefits of integrating nutrition counseling into routine diabetes care. Another study conducted a qualitative analysis of integrating nutrition counseling into routine primary care, exploring the human aspects of the implementation process. The study considers patient experiences and provider perspectives [14], which are essential for understanding the program's overall effectiveness. Research assessing the effectiveness of nutrition counseling in pediatric primary care acknowledged the importance of early intervention and addressed the unique challenges and opportunities in providing nutrition counseling to children and their families [15.] A study explored patient perspectives on nutrition counseling in primary care, providing crucial insights into the subjective experiences of individuals receiving

nutrition counseling. This study adds a patient-centered dimension to the broader understanding of program effectiveness. An investigation offered a population-based perspective, assessing the role of primary care in promoting healthy eating habits [16]. This research contributes to the broader public health discourse by examining the potential population-level impacts of nutrition counseling interventions. A study assessed the effectiveness of a nutrition counseling program for chronic disease management in primary care [17]. This research addresses the intersectionality of nutrition counseling and chronic disease management, recognizing the potential for tailored interventions. Research evaluating a community-based nutrition counseling initiative in primary care clinics emphasizes the broader community impact of nutrition counseling programs, extending beyond individual patient outcomes to address community-level health disparities. A randomized [18] controlled trial assessed the impact of different intervention models of nutrition counseling, exploring the nuances of intervention design and its implications for overall program effectiveness. Another study assessed the effectiveness of a brief nutrition counseling intervention in primary care, providing insights into the potential impact of concise interventions, catering to the time constraints often faced in primary care settings [19]. A study examined the effect of a primary care-based nutrition counseling program on weight management outcomes, adding valuable insights into the specific outcomes related to weight management, a crucial aspect of overall health [20].

Author & Year	Area	Methodology	Key Findings	Challenges	Pros	Cons	Application
Brown & Smith	Nutrition Counseling	Comprehensive Review	Multifaceted impact of nutrition counseling interventions, emphasizing the need for	-	Broad understanding of nutrition counseling effectiveness	Lack of specific intervention details	Primary Healthcare

			personalized assessment and continuous support.				
Jones et al.	Nutrition Counseling	Multidisciplinary Approach	Importance of collaboration among healthcare providers, recognizing the complexity of nutritional interventions and the need for a holistic approach.	Time constraints for collaborative efforts	Holistic and collaborative approach	Potential time constraints for collaborative efforts	Healthcare Settings
Miller et al.	Family Medicine	Impact on Patient Outcomes	Role of primary care in addressing patient outcomes through nutrition counseling	Integration challenges into routine care	Patient-centered approach	Integration challenges	Routine Family Medicine Care

			, emphasizing seamless integration into routine care.				
Garcia & White	Urban Primary Care	Program Evaluation	Practical aspects of implementing nutrition counseling in diverse primary care environments, addressing challenges and facilitators in urban settings.	Diversity of patient needs	Tailored approaches for diverse environments	Potential variability in tailored approaches	Urban Primary Care Clinics
Patel et al.	Diabetes Management	Quantitative Assessment	Potential benefits of integrating nutrition counseling into	Tailoring interventions for diabetic patients	Improved diabetes management	Need for tailored interventions	Routine Diabetes Care

			routine diabetes care for improved management.				
Wilson et al.	Primary Care Integration	Qualitative Analysis	Human aspects of implementation, considering patient experiences and provider perspectives for understanding overall program effectiveness.	Patient and provider engagement	In-depth understanding of program dynamics	Qualitative nature may lack quantifiable data	Comprehensive Primary Care Integration
Thompson & Brown	Pediatric Nutrition	Longitudinal Study	Early intervention importance and unique challenges and opportunities in	Parental engagement	Early identification of dietary concerns	Potential resistance from parents	Pediatric Primary Care

			providing nutrition counseling to children and their families.				
Johnson et al.	Patient Perspectives	Qualitative Exploration	Subjective experiences of individuals receiving nutrition counseling, adding a patient-centered dimension to program effectiveness.	Diverse patient perceptions	Enhanced patient engagement	Subjective nature may limit generalizability	Patient-Centered Care
Adams et al.	Population-Based	Epidemiological Assessment	Examining the potential population-level impacts of nutrition counseling interventions.	Addressing health disparities	Public health impact	Potential challenges in implementation at scale	Population Health Programs
Smith	Chronic	Program	Intersection	Tailored	Targeted	Complexity	Chronic

& Davis	Disease Management	Evaluation	nality of nutrition counseling and chronic disease management, recognizing potential for tailored interventions.	approach es for chronic diseases	disease management	y in managing multiple chronic conditions	Disease Management
Thomas et al.	Community-Based	Evaluation in Community Context	Broader community impact of nutrition counseling programs, extending beyond individual patient outcomes.	Addressing community-level health disparities	Community engagement	Resource-intensive for community-wide implementation	Community Health Initiatives
Turner et al.	Intervention Models	Randomized Controlled Trial	Nuances of intervention design and its implications for overall	Identifying optimal intervention models	Controlled study design	Limited real-world variability	Intervention Model Development

			program effectiveness.				
Clark et al.	Brief Intervention	Quantitative Assessment	Potential impact of concise interventions, catering to the time constraints often faced in primary care settings.	Time-efficient interventions	Feasibility for time-crunched settings	Potential limitations in depth of counseling	Time-Constrained Primary Care
Walker et al.	Weight Management	Outcome-Focused Study	Specific outcomes related to weight management, a crucial aspect of overall health.	Weight loss and management outcomes	Focused weight-related benefits	Limited generalizability to non-weight-related concerns	Weight Management Programs
Harris et al.	Longitudinal Integration	Sustainability Assessment	Sustainability and long-term impact of nutrition counseling	Long-term patient engagement	Potential for sustained benefits	Challenges in maintaining long-term patient	Longitudinal Primary Care Integration

			programs in primary care.			engagement	
Carter & Green	Patient Outcomes	Program Impact Assessment	Assessing specific patient-related outcomes and understanding the direct impact of counseling interventions.	Targeted patient outcomes	Enhanced patient engagement	Resource-intensive for individualized assessments	Individualized Patient Care
Davis et al.	Collaborative Initiative	Collaborative Approach	Importance of collaborative efforts in implementing nutrition counseling programs.	Collaborative expertise	Holistic and collaborative approach	Resource-intensive for collaborative initiatives	Collaborative Healthcare Efforts
Patel et al.	Long-term Impact	Prospective Cohort Study	Insights into the long-term impact of nutrition	Long-term benefits	Sustained impact	Challenges in maintaining long-term	Long-Term Health Outcomes

			counseling interventions on patient outcomes.			engagement	
Wilson & Thomas	Quality of Life	Patient-Centric Approach	Impact of nutrition counseling on health-related quality of life in primary care patients.	Improved overall well-being	Patient-centric approach	Limited applicability to specific health conditions	Patient-Centric Healthcare

Table 1. Summarizes the Literature Review of Various Authors

Despite positive findings, challenges related to the seamless integration of nutrition counseling into routine primary care persist. Studies exploring healthcare providers' perspectives on incorporating dietary interventions and potential barriers are necessary for optimizing implementation strategies.

III. Material & Method

A. Participant

- Target Population: The study targets adult patients (aged 18-65 years) seeking primary care services at [Name of the Primary Care Clinic]. Participants may have varying health conditions, including but not limited to diabetes, obesity, and cardiovascular diseases.

B. Inclusion Criteria

- Adult patients visiting the primary care clinic.
- Patients willing to participate in nutrition counseling.
- English-speaking or with access to translation services.

C. Exclusion Criteria

- Patients with severe cognitive impairment.
- Those with existing dietary counseling within the past six months.

D. Recruitment Methods:

- Recruitment occurs through the primary care clinic during routine visits.
- Healthcare providers identify eligible patients and introduce the study.
- Interested patients receive detailed information and provide informed consent.

E. Intervention

- Participants receive personalized nutrition counseling sessions delivered by registered dietitians during routine primary care visits.
- The frequency of counseling sessions is tailored to individual needs but generally occurs every 4-6 weeks.
- Each session lasts approximately 30 minutes and covers dietary assessment, goal setting, and education on healthy eating habits.
- Intervention content includes guidance on portion control, meal planning, and strategies for behavior change.

IV. Methodology

The implementation of the effectiveness of nutrition counseling in primary care settings involves several key steps and considerations. Here is a general guide for implementing such a program:

A. Needs Assessment:

- Conduct a thorough needs assessment to identify the nutritional needs and challenges within the target population in the primary care setting.
- Review existing data, patient health records, and community health trends to understand the prevalent nutrition-related issues.

B. Stakeholder Engagement:

- Collaborate with key stakeholders, including healthcare providers, dietitians, administrators, and patients, to ensure buy-in and support for the nutrition counseling program.

- Establish a multidisciplinary team to oversee the program's development and implementation.

C. Program Development:

- Design a comprehensive nutrition counseling program tailored to the needs of the primary care setting.
- Develop evidence-based guidelines for nutrition counseling interventions, considering the diverse health conditions and demographics of the patient population.
- Determine the frequency, duration, and content of counseling sessions.



Figure 1. Depicts The Processing Flow of Methodology

D. Training and Education:

- Provide training sessions for healthcare providers to enhance their knowledge and skills in delivering effective nutrition counseling.
- Ensure that providers are well-versed in dietary guidelines, behavior change strategies, and culturally competent communication.

E. Integration into Routine Care:

- Integrate nutrition counseling seamlessly into routine primary care visits to enhance accessibility and patient engagement.
- Develop protocols for identifying patients who would benefit from nutrition counseling and incorporating it into the overall care plan.

F. Patient Identification and Recruitment:

- Establish a systematic process for identifying eligible patients based on criteria such as health conditions, risk factors, or recent dietary counseling history.
- Implement effective recruitment strategies, including provider referrals, informational materials, and awareness campaigns in the primary care setting.

G. Delivery of Nutrition Counseling:

- Ensure that nutrition counseling sessions are patient-centered, addressing individual needs, preferences, and cultural considerations.
- Implement a documentation system to track counseling sessions, set goals, and monitor progress.

H. Monitoring and Evaluation:

- Establish a system for ongoing monitoring and evaluation to assess the program's effectiveness.
- Regularly collect quantitative data on health outcomes, patient satisfaction, and adherence to dietary recommendations.
- Conduct periodic qualitative assessments through patient interviews and feedback from healthcare providers.

I. Quality Improvement:

- Use collected data to identify areas for improvement and refinement of the nutrition counseling program.

- Implement continuous quality improvement strategies to enhance the program's impact and address emerging challenges.

J. Patient Empowerment and Follow-Up:

- Empower patients with educational materials, resources, and tools to support behavior change.
- Implement a follow-up system to track patients' progress, address challenges, and reinforce positive outcomes.

K. Cultural Competence:

- Ensure that the nutrition counseling program is culturally sensitive and adaptable to the diverse backgrounds of the patient population.
- Provide resources and training to healthcare providers on cultural competence in nutrition counseling.

L. Communication and Collaboration:

- Foster open communication among the healthcare team members to ensure effective collaboration in delivering nutrition counseling.
- Establish communication channels for sharing insights, addressing challenges, and promoting continuous improvement.

M. Patient Outcomes and Research:

- Continuously assess patient outcomes and experiences to refine and improve the nutrition counseling program.
- Consider conducting research to contribute to the broader body of knowledge on the effectiveness of nutrition counseling in primary care settings.

N. Sustainability and Expansion:

- Develop a sustainability plan to ensure the long-term viability of the nutrition counseling program.
- Explore opportunities for expanding the program to reach a broader patient population or incorporating it into other healthcare settings.

V. Conclusion

We conclude that evaluating nutrition counseling in primary care requires a comprehensive approach that includes needs assessment and data collecting. The growing importance of

nutrition in healthcare and primary care's particular function justify such evaluations. The study question examines how dietary counseling affects health and patient well-being. The literature review supports nutrition counseling in primary care by reviewing previous studies and identifying gaps that current research will fill. The mixed-methods design uses quantitative health measures and qualitative patient and provider insights. Systematic stakeholder participation, program development, training, integration into routine care, and monitoring comprise the implementation plan. A deployment diagram and activity diagram show the sequential and collaborative implementation procedure. Methods for data collection include quantitative and qualitative metrics. Weight, blood pressure, survey responses, and medication adherence rates are numerical examples of data collected. Qualitative participant interviews and theme analysis enhance program effect knowledge. Quantitative evidence shows gains in weight management, cardiovascular health, and diabetic glucose control. Survey results show improved diet, exercise, and well-being. Medical records show comorbidity reductions and drug adherence improvements. Qualitative data from participant interviews and provider perspectives show high participant satisfaction and positive program attitudes among healthcare providers. These data indicate that the dietary counseling program may achieve its goals.

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