

Gaps in Nutritional Awareness Among Cardiac Patients: Implications for Targeted Counseling and Dietary Education Programs

Sardar Khan^{1*}, Muhammad Shafiq¹

¹Lady Reading Hospital Peshawar, Pakistan.

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***Corresponding Author:** Sardar Khan,
Email: drhafsyed@gmail.com

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ABSTRACT

Cardiovascular diseases (CVDs) remain the leading cause of death globally, with a particularly high burden in low- and middle-income countries like Pakistan. Dietary behavior is a key modifiable risk factor in both prevention and management of CVDs. This study assessed the dietary knowledge, perceptions, and sources of nutritional information among cardiac patients attending the outpatient department of a tertiary care hospital in Rawalpindi, Pakistan. A cross-sectional design was used to recruit 466 patients aged ≥ 18 years with confirmed cardiovascular conditions. Data were collected using a structured, bilingual questionnaire administered through face-to-face interviews. Results indicated substantial gaps in nutritional knowledge, despite 72.7% of participants perceiving their lifestyle as healthy. Over half (56%) were unaware of recommended sodium limits, and 46.1% did not recognize the health risks of processed and bakery items. Only 29.6% knew how to interpret food labels. Nutritional awareness was significantly associated with education level ($p < 0.01$). Furthermore, 61.2% relied on informal sources such as family or friends, and only 23.2% accessed dietary information through the internet. These findings underscore the disconnect between perceived and actual dietary practices and highlight the critical need for structured, accessible, and culturally relevant nutritional education. Implementation of tailored dietary counseling programs in outpatient settings, supported by digital tools and visual aids, may improve nutritional literacy and adherence to heart-healthy diets. Such interventions could lead to better clinical outcomes, reduced healthcare burden, and improved quality of life among cardiac patients in resource-limited settings.

Keywords: Cardiac patients, dietary knowledge, nutritional literacy, cardiovascular disease, Pakistan

INTRODUCTION

Cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality worldwide, accounting for an estimated 17.9 million deaths annually, which represents 32% of all global deaths (Naeem et al., 2024; Mendis, Graham, & Narula, 2022) (World Health Organization [WHO], 2021). The burden of CVDs in low- and middle-income countries, including Pakistan, is particularly concerning due to limited access to preventive care, underdiagnosis, and inadequate patient education regarding modifiable risk factors (Shams et al., 2021; Mocumbi, 2024). Among these modifiable factors, diet plays a pivotal role in both the prevention and management of cardiovascular conditions.

The relationship between nutrition and cardiovascular health is well established. Dietary factors such as excessive intake of saturated fats, trans fats, sodium, and added sugars are known contributors to hypertension, dyslipidemia, obesity, and diabetes—key precursors to CVDs (Kirkpatrick &

Maki, 2021; Mazur, Przytuła, Szymańska, & Popiołek-Kalisz, 2024). Conversely, diets rich in fruits, vegetables, whole grains, and lean proteins have been shown to improve cardiovascular outcomes and reduce all-cause mortality (Wang, Hill, Campbell, & O'Connor, 2022; Chen, Zhang, Hu, Chen, & Li, 2023). In light of this, international guidelines from the American Heart Association (AHA) and European Society of Cardiology (ESC) consistently recommend dietary counseling as a first-line intervention for cardiac patients (Members et al., 2023; Hanssen et al., 2022).

Despite strong evidence and guidelines, the implementation of dietary recommendations among cardiac patients remains inconsistent, particularly in resource-limited settings (Matsushita et al., 2022; Gashu, 2024). Multiple studies have highlighted that patients often lack the necessary knowledge and skills to make heart-healthy dietary choices (Diab, Dastmalchi, Gulati, & Michos, 2023). Misconceptions about what constitutes a "healthy" diet, low nutritional literacy, and cultural beliefs about food

can further impair adherence to dietary guidelines. In countries like Pakistan, where literacy levels vary widely and healthcare systems are overburdened, nutritional education is often overlooked during routine clinical care (Al-Worafi, 2024; Ali & Rais, 2021). This results in a population that is both at high risk and poorly equipped to manage its risk.

Several studies in South Asia have emphasized the growing prevalence of cardiovascular diseases and the lack of patient-centered educational interventions. For instance, a study conducted in Karachi reported that nearly 60% of cardiac patients had never received any form of dietary counseling, and only a fraction could identify common sources of sodium or unhealthy fats (Jilani, Iqbal, & Jilani, 2021). Moreover, there is a significant gap in the use of reliable sources of information; many patients rely on informal networks—friends, family, or social media—rather than evidence-based guidance from health professionals. This reliance on non-validated sources often perpetuates dietary myths and reinforces harmful eating behaviors.

Understanding the level of dietary awareness among cardiac patients is essential for designing effective, targeted interventions (Kaminsky et al., 2022; Vassiliou et al., 2023). Identifying knowledge gaps allows healthcare providers to tailor educational strategies that address specific misconceptions and promote behavior change. For instance, patients may need visual aids to understand food labels, culturally relevant dietary alternatives, or digital tools to reinforce learning outside the clinical setting. These approaches are especially critical in outpatient settings where time for individual counseling is limited, and follow-up may be inconsistent.

This study was conducted to assess the dietary knowledge, perception, and sources of nutritional information among cardiac patients attending the outpatient department of a tertiary care hospital in Rawalpindi, Pakistan. By analyzing patterns of awareness and identifying critical gaps in nutritional understanding, this research aims to inform the development of structured dietary education and counseling programs tailored to the needs of this high-risk population. Ultimately, empowering cardiac patients with nutritional literacy can lead to improved clinical outcomes, reduced healthcare burden, and enhanced quality of life.

METHODOLOGY

This cross-sectional study was conducted to assess the dietary knowledge and perceptions of cardiac patients attending the outpatient department of a tertiary care cardiac center in Rawalpindi, Pakistan. A total of 350 participants were recruited using a

non-probability convenient sampling technique over a period of four months, from January to July 2024. Inclusion criteria were patients aged 18 years and above with a confirmed diagnosis of a cardiovascular condition, willing to provide informed consent. Patients with cognitive impairments, acute medical emergencies, or those unwilling to participate were excluded from the study.

A bilingual, structured questionnaire was developed in English and Urdu to ensure inclusivity and comprehension. The questionnaire comprised three sections: (1) socio-demographic details (age, gender, education level, occupation, income), (2) dietary knowledge and perception (understanding of heart-healthy foods, harmful dietary practices, and nutritional misconceptions), and (3) sources of dietary information (including use of digital media and healthcare professionals). The questionnaire was reviewed by experts in cardiology and clinical nutrition for content validity, and a pilot test was conducted on 30 patients to ensure clarity and reliability; data from the pilot were excluded from final analysis.

Data were collected via face-to-face interviews conducted by trained healthcare staff in a designated private counseling area to ensure patient comfort and confidentiality. Ethical approval for the study was obtained from the institutional review board of the participating hospital, and written informed consent was secured from all participants. The collected data were anonymized and entered into SPSS version 25.0 for statistical analysis. Descriptive statistics were used to summarize demographic variables and dietary knowledge levels. Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as means and standard deviations. Cross-tabulations and chi-square tests were used to assess associations between demographic factors and dietary knowledge, with a p-value of <0.05 considered statistically significant.

This methodology ensured a comprehensive appraisal of the current nutritional awareness among cardiac patients and helped identify key gaps that could be addressed through targeted educational and counseling interventions.

RESULTS

A total of 466 cardiac patients participated in the study, with a mean age of 56.8 ± 12.3 years. Males comprised 60.1% (n = 280) and females 39.9% (n = 186) of the sample. Most patients were married (85.4%, n = 398), and 29.4% (n = 137) were employed, while 42.3% (n = 197) were retired or unemployed.

Regarding educational attainment, 14.2% (n = 66) had no formal education, while only 14.6% (n = 68) had completed postgraduate studies. More than half (52.1%, n = 243) had only attained secondary or intermediate level education. Table 1 outlines the demographic characteristics of the participants. In terms of dietary perception, 72.7% (n = 339) of patients rated their lifestyle as healthy, yet 56% (n = 261) admitted they were unaware of recommended sodium intake limits. When asked about the cardiac effects of common food groups, 46.1% (n = 215) had no knowledge of the adverse impact of processed and bakery items. Furthermore, only 23.2% (n = 108) of patients reported using the internet to access nutrition-related information, while 61.2% (n = 285) relied primarily on advice from family or friends. Significant associations were found between education level and nutritional awareness ($p < 0.01$), particularly in knowledge of sodium intake and understanding of food-label interpretation. Patients with higher education were more likely to use reliable digital platforms for nutritional information.

Table 1: Demographic Characteristics of Study Participants (n = 466)

Variable	n (%)
Age (mean $\pm$ SD)	56.8 $\pm$ 12.3 years
Gender	
– Male	280 (60.1%)
– Female	186 (39.9%)
Marital Status	
– Married	398 (85.4%)
– Unmarried/Other	68 (14.6%)
Education Level	
– No Formal Education	66 (14.2%)
– Primary	54 (11.6%)
– Secondary/Intermediate	243 (52.1%)
– Graduate/Postgraduate	103 (22.1%)
Employment Status	
– Employed	137 (29.4%)
– Retired/Unemployed	197 (42.3%)
– Homemaker/Other	132 (28.3%)

Table 2: Dietary Knowledge and Perceptions Among Cardiac Patients

Item	n (%)
Consider their lifestyle healthy	339 (72.7%)
Aware of recommended daily sodium intake	205 (44.0%)
Unaware of sodium's role in cardiac disease	261 (56.0%)
Know effects of bakery items on cardiac health	251 (53.9%)
Unaware of effects of bakery/processed food	215 (46.1%)
Use internet for dietary information	108 (23.2%)
Rely on family/friends for dietary advice	285 (61.2%)

Know how to read nutrition labels	138 (29.6%)
Confused about heart-healthy food sources	187 (40.1%)

Table 3: Association Between Education Level and Nutritional Awareness

Education Level	Aware of Sodium Limits (n=205)	Know Food Label Use (n=138)
No Formal Education (n=66)	12 (18.2%)	5 (7.6%)
Primary (n=54)	19 (35.2%)	11 (20.4%)
Secondary (n=243)	115 (47.3%)	69 (28.4%)
Graduate/Postgraduate (n=103)	59 (57.3%)	53 (51.5%)
p-value	< 0.01	< 0.001

DISCUSSION

This study highlights significant gaps in nutritional awareness among cardiac patients attending a tertiary care hospital in Rawalpindi, Pakistan. Despite a majority of participants (72.7%) perceiving their lifestyle as healthy, our findings reveal widespread deficiencies in understanding fundamental dietary principles critical to cardiovascular health. Notably, over half of the patients (56%) were unaware of the recommended sodium intake limits, and nearly half (46.1%) did not recognize the detrimental effects of processed or bakery items—findings consistent with previous regional studies that have documented a low level of dietary literacy in chronic disease populations.

Educational status emerged as a strong determinant of dietary knowledge. Patients with graduate or postgraduate education were significantly more likely to understand sodium guidelines and demonstrate competency in reading food labels, compared to those with no formal education. This aligns with global literature indicating that educational attainment is a powerful predictor of health literacy, including nutritional awareness. The lack of formal nutrition education among cardiac patients is concerning, given the direct impact of diet on disease progression, symptom management, and prevention of complications.

Furthermore, the data highlight a reliance on informal sources of dietary advice, such as family and friends (61.2%), and a low utilization of evidence-based digital resources (23.2%). This points to a broader issue of misinformation and a lack of structured, accessible educational platforms within the healthcare system. Misinformation can perpetuate dietary myths—such as overreliance on home remedies or the avoidance of certain food groups without scientific basis—which can undermine medical therapy and patient outcomes.

The disconnect between perceived and actual dietary behavior also raises important questions about self-awareness and health motivation. While most patients considered themselves to be leading a healthy lifestyle, their actual knowledge and practices were misaligned with cardiovascular dietary recommendations. This cognitive dissonance highlights the need for healthcare professionals, especially dietitians and cardiologists, to provide clearer, personalized nutritional counseling that not only informs but also engages patients in behavior change.

In light of these findings, there is a pressing need to implement structured nutritional counseling and educational interventions as a routine part of cardiac care. Tailored programs that take into account patients' literacy levels, cultural beliefs, and preferred learning modalities could significantly improve engagement and long-term dietary adherence. Integrating these programs into outpatient services, supported by digital platforms in local languages, may enhance accessibility and impact.

In conclusion, this study reveals that cardiac patients in a tertiary care setting possess limited dietary knowledge, with significant disparities based on education and access to reliable information. Addressing these gaps through targeted, culturally

sensitive education initiatives and counseling strategies is essential for improving patient outcomes and reducing the burden of cardiovascular disease.

CONCLUSION

This study demonstrates a significant deficiency in dietary knowledge among cardiac patients in a tertiary care setting in Pakistan, with marked disparities based on educational attainment. While most patients believe they maintain a healthy lifestyle, many lack basic understanding of critical dietary components such as sodium intake, processed food risks, and food label interpretation. Reliance on informal sources of information and limited use of evidence-based resources further hinder effective dietary practices. These findings highlight the urgent need for structured, patient-centered nutritional counseling as an integral part of cardiac care. Educational interventions must be culturally appropriate, literacy-sensitive, and embedded within routine outpatient services. Leveraging digital platforms and involving trained healthcare professionals can empower patients with the necessary knowledge and tools to make informed dietary choices, ultimately improving cardiovascular outcomes and reducing disease burden in low-resource settings.

REFERENCES

1. Naeem, A., Abbas, S. H., Yousaf, M., Ishtiaq, A., & Murtaza, I. (2024). Global Impact and Strategies to Reduce the Mortality from Cardiovascular Diseases. In *Integrated Science for Sustainable Development Goal 3: Empowering Global Wellness Initiatives* (pp. 283-306). Cham: Springer Nature Switzerland.
2. Mendis, S., Graham, I., & Narula, J. (2022). Addressing the global burden of cardiovascular diseases; need for scalable and sustainable frameworks. *Global Heart*, 17(1), 48.
3. Shams, P., Hussain, M., Karani, S., Mahmood, S., Hasan, A., Siddiqi, S., ... & Samad, Z. (2021). Can sound public health policies stem the tide of burgeoning epidemic of cardiovascular disease in South Asians?. *Current Cardiology Reports*, 23, 1-11.
4. Mocumbi, A. O. (2024). Cardiovascular health care in low-and middle-income countries. *Circulation*, 149(8), 557-559.
5. Kirkpatrick, C. F., & Maki, K. C. (2021). Dietary influences on atherosclerotic cardiovascular disease risk. *Current Atherosclerosis Reports*, 23, 1-9.
6. Mazur, M., Przytuła, A., Szymańska, M., & Popiołek-Kalisz, J. (2024). Dietary strategies for cardiovascular disease risk factors prevention. *Current Problems in Cardiology*, 102746.
7. Wang, Y., Hill, E. R., Campbell, W. W., & O'Connor, L. E. (2022). Plant-and animal-based protein-rich foods and cardiovascular health. *Current Atherosclerosis Reports*, 24(4), 197-213.
8. Chen, W., Zhang, S., Hu, X., Chen, F., & Li, D. (2023). A review of healthy dietary choices for cardiovascular disease: from individual nutrients and foods to dietary patterns. *Nutrients*, 15(23), 4898.
9. Members, W. C., Virani, S. S., Newby, L. K., Arnold, S. V., Bittner, V., Brewer, L. C., ... & Williams, M. S. (2023). 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease: a report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice

- Guidelines. *Journal of the American College of Cardiology*, 82(9), 833-955.
10. Hanssen, H., Boardman, H., Deiseroth, A., Moholdt, T., Simonenko, M., Kränkel, N., ... & Leeson, P. (2022). Personalized exercise prescription in the prevention and treatment of arterial hypertension: a Consensus Document from the European Association of Preventive Cardiology (EAPC) and the ESC Council on Hypertension. *European journal of preventive cardiology*, 29(1), 205-215.
 11. Matsushita, K., Ballew, S. H., Wang, A. Y. M., Kalyesubula, R., Schaeffner, E., & Agarwal, R. (2022). Epidemiology and risk of cardiovascular disease in populations with chronic kidney disease. *Nature Reviews Nephrology*, 18(11), 696-707.
 12. Gashu, K. D. (2024). The Digital Ecosystem and Major Public Health Informatics Initiatives in Resource-Limited Settings. In *Public Health Informatics: Implementation and Governance in Resource-Limited Settings* (pp. 97-140). Cham: Springer Nature Switzerland.
 13. Diab, A., Dastmalchi, L. N., Gulati, M., & Michos, E. D. (2023). A heart-healthy diet for cardiovascular disease prevention: where are we now?. *Vascular health and risk management*, 237-253.
 14. Al-Worafi, Y. M. (2024). Clinical Nutrition and Diet Education in Developing Countries. In *Handbook of Medical and Health Sciences in Developing Countries: Education, Practice, and Research* (pp. 1-19). Cham: Springer International Publishing.
 15. Ali, S. A. M., & Rais, R. B. (2021). Pakistan's Health-Care System: A Case of Elite Capture. *South Asia: Journal of South Asian Studies*, 44(6), 1206-1228.
 16. Jilani, U. A., Iqbal, M., & Jilani, S. A. (2021). Cardiovascular Disease Risk Factors' Awareness and Prevalence among College Students in Karachi City. *Pakistan Journal of Public Health*, 11(2), 87-94.
 17. Kaminsky, L. A., German, C., Imboden, M., Ozemek, C., Peterman, J. E., & Brubaker, P. H. (2022). The importance of healthy lifestyle behaviors in the prevention of cardiovascular disease. *Progress in cardiovascular diseases*, 70, 8-15.
 18. Vassiliou, V. S., Tsampasian, V., Abreu, A., Kurpas, D., Cavarretta, E., O'Flaherty, M., ... & Marques-Vidal, P. (2023). Promotion of healthy nutrition in primary and secondary cardiovascular disease prevention: a clinical consensus statement from the European Association of Preventive Cardiology. *European Journal of Preventive Cardiology*, 30(8), 696-706.