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Mind the Heart: Evaluating Adult Awareness on Coronary Artery Disease Prevention

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Abstract

Background: Coronary artery disease, the leading cause of death and disability-adjusted life years globally, results from atherosclerotic plaque build-up in the coronary arteries, leading to impaired myocardial perfusion. Coronary artery disease is responsible for approximately 8.9 million deaths annually and disproportionately affects low and middle-income countries. Despite being largely preventable, Coronary artery disease continues to account for significant morbidity and mortality due to modifiable and non-modifiable risk factors. Age, sex, ethnicity, and family history are major non-modifiable contributors, while hypertension, dyslipidemia, diabetes, smoking and sedentary lifestyle are modifiable factors. Effective control of these modifiable risks has shown a considerable reduction in Coronary artery disease events, underscoring the importance of preventive strategies.

Aim: This study aims to assess the knowledge regarding prevention of coronary artery disease among the adult population.

Methodology: A quantitative research approach and Descriptive research design was adapted for this study. The sampling technique was non-probability convenient sampling and sample size was 150 adults. The data collection tool contained set of socio-demographic data and

structured knowledge questionnaire for assessing the knowledge of preventing coronary artery disease among the adults.

Results: The study assessed the knowledge regarding prevention of coronary artery disease among 150 adults from Limda village. Statistical analysis revealed a significant association between knowledge scores and family history of heart disease ($\chi^2 = 4.85$, $p<0.05$), indicating higher awareness among those with affected relatives.

Conclusion: The study concluded that while overall knowledge about coronary artery disease prevention was not significantly influenced by most demographic factors, individuals with a family history of heart disease demonstrated greater awareness. This highlights the need for targeted health education and preventive interventions, especially in rural communities, to promote awareness and reduce the risk of CAD.

INTRODUCTION

Coronary artery disease (CAD) is characterized by the development of atherosclerosis in the coronary arteries, which can sometimes be asymptomatic. Coronary artery disease (CAD), also known as ischemic heart disease (IHD), encompasses conditions such as stable angina, acute coronary syndrome (ACS), and silent myocardial ischemia. Acute coronary syndrome (ACS) is typically symptomatic and includes conditions like unstable angina and myocardial infarction.

Coronary artery disease (CAD) is marked by an inadequate supply of blood and oxygen to the myocardium. The condition arises from occlusion of the coronary arteries and results in a demand-

supply mismatch of oxygen. Coronary artery disease (CAD) typically involves the formation of plaques in the lumen of coronary arteries that impede blood flow.

Coronary artery disease (CAD) is the major cause of death in the US and worldwide. It was an uncommon cause of death at the beginning of the 20th century. Deaths due to this condition peaked in the mid-1960s and then decreased. However, this disease is still the leading cause of death worldwide. [2] The likelihood of death from coronary artery disease increases substantially with age. Among the modifiable risk factors, systolic blood pressure plays a crucial role, accounting for a portion of the heightened coronary artery disease risk associated with aging.[3]

METHODOLOGY

This study adopted a descriptive approach to explain each component of the research process used to evaluate the knowledge of adult population for prevention of coronary artery diseases.

Data collection commenced after obtaining written permission from the Principals of Parul Institute of Nursing, Parul University, Vadodara. Ethical approval was obtained from the institutional ethics committee (Approval no-PUIECHR/PIMSR/00/081734/8230). Clinical trial number is not applicable.

Samples were selected through Non-Probability Sampling Technique. A total of 150 adults completed the Socio- demographic and structured knowledge questionnaire.

Informed written consent was obtained following an introductory session explaining the study's purpose, duration, procedures and participant's rights. To meet the objectives of the present study, the following tools were used which consists of 2 sections:

Section - A: Socio-Demographic Variables Section - B: Structured Knowledge Questionnaire **Inclusion Criteria**:

The study will include adults who:

- were between 30 to above 50 years of age.
- could understand Hindi/Gujarati language.
- were willing to provide their data related to questionnaire.

Exclusion Criteria:

The study will exclude adults who:

- were below 30 years of age.
- have any difficulty in comprehending information/neurological impairments.
- were not willing to participate in the study.

RESULT

The data findings based on the objectives have been organized and finalized according to the plan for data analysis and are presented under the following sections:

1. Demographic profile of sample.
2. Level of Knowledge regarding coronary artery disease.
3. Association between knowledge scores of adults with selected demographic variables.

Among 150 samples, the demographic data represents that the participants were evenly distributed across three age groups (30–39, 40–49, and 50 + years), with a near equal gender distribution. Most respondents were married and had education levels ranging from high school to post-graduate, though a significant number had only primary or middle school education. Employment varied, with the majority involved in clerical, farming, or semi-professional jobs, and nearly one-fifth were unemployed.

In terms of income, most belonged to the middle or lower-income brackets, with the majority living in rural areas. A large portion followed a vegetarian diet, and over half did not engage in regular aerobic exercise. Health-wise, 14.66% were diagnosed with heart disease (mostly hypertensive-related), and 27.33% had diabetes—primarily diagnosed within the last 3–5 years.

Risk behaviors showed that 32% smoked and 29.33% consumed alcohol, though regular use was less common. Notably, 17.33% had a family history of heart disease, highlighting a potential genetic risk in this population.

Level of Knowledge regarding coronary artery disease.

Out of a total of 150 participants, the assessment of knowledge levels revealed that the majority, 97 participants (64.67%), fell under the moderate knowledge category with scores ranging from 4 to 9. A smaller portion, 26 participants (17.33%), demonstrated low knowledge, scoring between 0 and 3. Meanwhile, 27 participants (18%) exhibited higher knowledge, scoring between 10 and 18.

Among the 14 variables assessed, only one variable family history of heart disease showed a statistically significant association with knowledge level ($\chi^2 = 4.85$, $p = 0.027$), indicating that participants with a family history of heart disease were more likely to have higher knowledge.

All other demographic variables, including age group, gender, marital status, education, employment status, income, area of residence, diet, exercise, smoking, alcohol use, diabetes, and personal history of heart disease, showed no significant association with knowledge level ($p > 0.05$), suggesting that these factors did not influence the knowledge scores in a statistically meaningful way in this study.

DISCUSSION

The present study was conducted to assess the knowledge of 150 adults from Limda village regarding the prevention of Coronary Artery Disease (CAD), a leading non-communicable disease and one of the primary causes of morbidity and mortality globally. The findings revealed that while a subset of participants possessed a basic awareness of CAD and its associated risk factors, the overall knowledge level was inadequate, particularly among those with no family history of heart disease.

The sample population was evenly distributed across three age groups: 30–39, 40–49, and above 50 years. Gender representation was nearly equal, with 50.67% males and 49.33% females. Most participants were married and resided in rural areas, consistent with the village- based setting of the study. Educational attainment among participants was generally low, with only a small percentage having completed higher education. Employment data indicated that the majority were engaged in informal or semi-professional work, and most reported low to moderate family incomes.

The study found a high prevalence of modifiable lifestyle-related risk factors. More than half (52%) of the participants reported not engaging in any form of aerobic exercise. Tobacco use was also notable, with 32% reporting a smoking habit and a considerable proportion being daily smokers. In addition, 29.33% consumed alcohol and 27.33% were diabetic. A further 14.66% had been diagnosed with heart disease, primarily related to hypertension. These findings highlight a substantial burden of cardiovascular risk factors within the community, exacerbated by limited preventive knowledge.

A statistically significant association was observed between knowledge levels and a family history of heart disease ($\chi^2 = 4.85$, $p = 0.027$). This suggests that individuals with a familial experience of CAD may have higher exposure to information and are more likely to seek knowledge regarding prevention and management.

The findings of this study are consistent with previous research. For instance, a study by Sharma et al. (2021), conducted in a rural area of Maharashtra, found that only 21% of adults had adequate knowledge of CAD, with lifestyle habits and low education contributing to poor awareness. Similar to the present findings, that study also found family history of CAD to be significantly associated with higher knowledge scores.

Another study by Kumar and Singh (2019) among urban slum dwellers in Delhi observed that while the prevalence of risk factors such as smoking and diabetes was high, knowledge regarding CAD was limited. However, in contrast to the current study, they reported education level and income as significant predictors of knowledge, possibly due to differing urban exposure and accessibility to health education.

CONCLUSION

In conclusion, the study underscores the urgent need for community-based awareness programs focused on CAD prevention, especially in rural populations with limited access to health education. The significant association between knowledge and family history of heart disease suggests that health education strategies can leverage personal narratives and peer education to enhance awareness.

Strengthening preventive education that targets lifestyle modification particularly physical activity, smoking cessation, and diabetes control can be a key step toward reducing the burden of CAD in similar populations.

Declarations

Ethics approval and consent to participate: Ethical approval for this study was obtained from the Institutional Ethics Committee of Parul University (Approval No: PUIECHR/PIMSR/00/081734/8230). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2013). Informed written consent was obtained from all participants prior to data collection. Participants were assured of confidentiality, anonymity, and their right to withdraw from the study at any time without any consequences.

Consent for publication: Consent for publication was taken from all the authors.

Competing interest: The investigators of this study declare that there is no conflict of interest. This research was conducted purely for academic and scientific purposes, with no financial or personal gains influencing the study design, data collection, analysis, interpretation, or publication of results.

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Figures

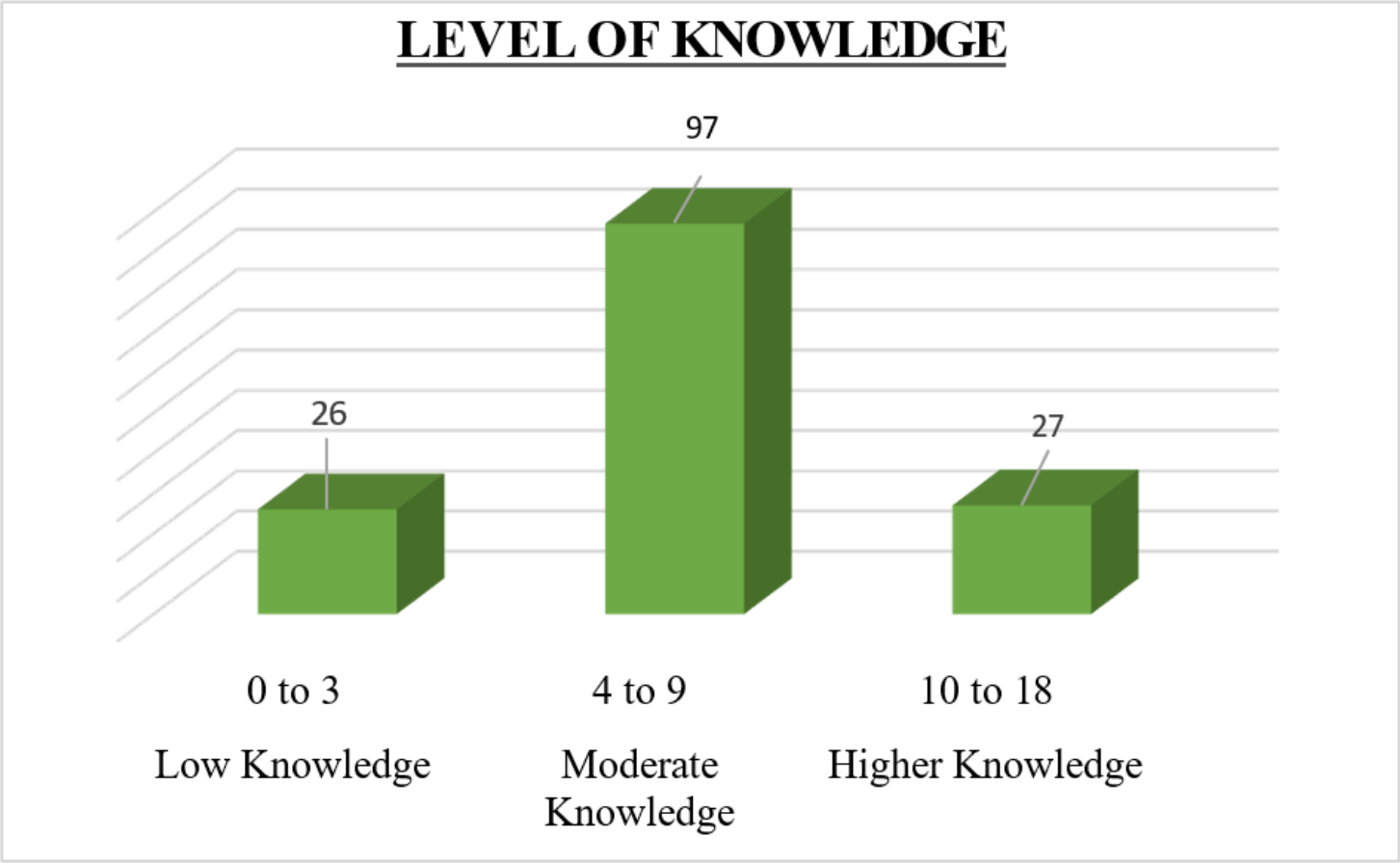


Figure 1

percentage distribution of samples according to their level of knowledge.