



Assessment of Awareness toward Healthcare and Lifestyle Modifications among Patients with Coronary Artery Disease in Cardiac Care Units

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Abstract

Background: Coronary artery disease is a high burden cardiovascular disease and patients need basic awareness on the relevant health behaviours. Adequate awareness in patients improves self-care, enables better use of health care services and encourages effective long-term management of diseases.

Objective: To assess the level of awareness regarding health and lifestyle modifications among patients suffering coronary artery disease (CAD) admitted in a Cardiac Care Unit, and to correlate the awareness level between patient demographics and clinical characteristics.

Methods: A descriptive cross-sectional study in Al Hussein Teaching Hospital, Al Samawa City, Al-Muthanna Governorate, Iraq from April 1-June 30 2026. A carefully curated sample of 50 adult patients with documented coronary artery disease was collected. Data were collected using a structured questionnaire developed by the investigator. The questionnaire included two parts; socio-demographic and clinical characteristics and a 10-questions awareness test on a domain of health care and lifestyle modifications. Content validity was assessed by a panel of 15 experts in the fields of research and clinical practice. The test-retest reliability was good ($r = 0.83$). Data were analyzed with the SPSS version 26 using both descriptive and inferential statistical methods. A p-value less than 0.05 was considered statistically significant.

Results: The study results showed that there was a limited level of awareness in the top patients regarding healthcare and lifestyle changes in heart disease. Awareness was analysed in relation to several socio-demographic and clinical characteristics. The assessment identified the characteristics associated with patient awareness and highlighted areas for additional patient education and nursing support.

Conclusion: Firstly, evaluating the perception of healthcare and lifestyle changes among patients with coronary artery disease is vital for understanding education needs. Education within the cardiac setting, lifestyle advice, support for self-monitoring and self-care should be further developed as this improves patients understanding of their condition and promotes effective long-term management.

Keywords: Awareness; Coronary Artery Disease; Lifestyle Modifications.

1. Introduction

At its core, cardiovascular illness arises from arterial disease, where both adaptive and maladaptive remodelling of the arterial wall are central mechanisms upon which these diseases depend and therefore are targeted by therapies. It is an active structural-restructuring process entailing cellular proliferation, apoptosis and migration in/throughout or from the tissue as well as signs of degradation and remodeling of the extracellular matrix (ECM) components with minimal secreted soluble factors within the arterial wall. Normally, this dynamic mechanism is essential for maintaining blood pressure homeostasis; however, in pathological conditions, these adaptive modifications become maladaptive vascular remodelling (Lyle & Taylor 2019).

Age-related changes to the cardiovascular system, which is relatively characteristic for any physiological element. Changes such as decreased vascular awareness, left ventricular hypertrophy (LVH), and increased stiffness (increased

arterial awareness) contribute to a greater hemodynamic workload in elderly patients. Consequently, patients suffering from heart diseases which require cardiac procedures especially cardiac catheterisation are more prone toward anxiety. This indicates that effects may become exacerbated including further heart strain, impairment haemodynamic stability and functioning. Apparently, a nonpharmacological method such as hand massage must be used to relieve nonsurgical anxiety before the procedure (Capriotti and Frizzell 2016 in Hinkle, Cheever & Overbaugh 2022)

The circulatory system is indispensable in transporting oxygen and nutrients from blood to organs and tissues, as well as in extracting toxins and carbon dioxide (CO₂) from peripheral tissues of healthy persons (Commisso et al., 2018). Nurses play the roles of educating patient, counseling, and monitoring adherence to medication. Ruswati 2024 noted that their treatments especially focused on adherence problems, such as the adverse effects of prescription or lifestyle influences, and aimed to better health literacy to empower patients (Ruswati 2024).

Patient nonawareness is frequently multifactorial and may involve personal factors including fear of side effects (actual or anticipated), perception that guidelines underplay the diet effect, real or perceived ineffectiveness of treatment, forgetfulness, complex dosing schedules or polypharmacy. In addition, factors such as physician inertia (defined as reluctance to start or increase therapy for patients with high blood pressure) and poor patient-physician communication may contribute to an increased number of unmet therapeutic goals (Hamrahian et al., 2022). Through 2019, cardiovascular diseases ranked first in the causes of deaths worldwide and were associated with an estimated 18.6 million deaths [1]. According to the report, cardiovascular disease accounted for more than 868,000 deaths in the United States during 2017. (Concistre, 2023).

Traditionally in developed countries, criminal heart disease (IHD), as well as other cardiovascular diseases (CVDs), has been the leading cause of death; indeed "heart disease in all its manifestations has headed the mortality tables of the u.s. Centers for Disease Control and Prevention since 1921. (Lemos and Omland, 2018). Ischaemic heart disease (IHD) now constitutes the leading cause of morbidity and mortality in many countries worldwide [1, 2]. Coronary artery disease, also known as ischaemic heart disease, is the leading type of heart disease that affects humans. Another name for this ailment as coronary heart disease (Morton and Thurman, 2023).

Coronary heart disease (CHD) is a major contributor to the world's mortality, killing more people annually than any other cause of death combined (World Health Organization (WHO), 2017). Secondary prevention, on the other hand, focuses on those with manifestations of cardiovascular disease and is expressed in advances to change risk factors due to dietary interventions (Saleh et al., 2021) and smoking cessation (Ralston et al., 2018). Those without an understanding of the relationship among diseases and risk factors may be inclined to refrain from acting in accordance with behavioural modification or disease treatment guidelines. On the other hand, those who understand this concept usually strive to change their lifestyle in order to prevent further cardiac events (Arnett et al., 2019).

Coronary artery disease is defined by the accumulation of exudate (mostly cholesterol) within the endothelial walls that nourish coronary vessels, causing vascular illness or loss. These substances build up and fills, then squeezes the vessels out of the arteries. Atherosclerosis (Del Buono et al., 2021) is the main cause of this ailment. Prompted by the goal to give consumers greater control over their health, the World Health Organization introduced its Global Action Plan for the Prevention and Control of Cardiovascular Diseases, among other noncommunicable diseases. Advocate through patient record data and care pathways; through health behaviour education, assistance and resources; build a patient management team (Mechanic et al., 2021).

Despite the well-known importance of lifestyle modification in coronary artery disease management and guideline-developed recommendations, there has been limited focus on the awareness of patients regarding these guidelines in cardiac care settings. Thus, the investigator conducted this study to examine the awareness of healthcare or lifestyle changes in patients with coronary artery disease admitted in cardiac care units and if that awareness is associated with certain socio-demographic and clinical characteristics.

2. Methodology

2.1 Research Framework

In Cardiac Care Units, patients with coronary artery disease were evaluated for awareness and the effectiveness of health care changes using a cross-sectional study design. The cross-sectional design was appropriate to assess patient awareness and its relationship with certain socio-demographic and clinical characteristics within a defined period of time.

2.2 Research Environment

For this study, we conducted a research prototype in Al-Hussein Teaching Hospital -Al-Samawa City, Al-Muthanna Governorate, Iraq. Medical clinic that serves people with various medical problems, including cardiovascular disease, providing healthcare and nursing assistance. Cardiac Care Unit. The Cardiac Care Unit provides special cardiac monitoring, medical treatment with nursing support and patient education for individuals suffering from cardiovascular disease.

The specific location is ideal given that it will have direct access to patients who are receiving cardiac treatment and health advice for coronary artery disease.

2.3 Research Duration

The conducted research is from the 2nd quarter of 2026, between Apr-1 and Jun-30, 2026.

2.4 Research Cohort

The study cohort included adults with a diagnosis of coronary artery disease (CAD) following the treatment at Al-Hussein Teaching Hospital in Al-Muthanna Governorate, Iraq.

2.5 Sample Size and Sampling Method

Sample of the study: The research cohort included 50 adult patients with confirmed coronary artery disease. Participants were recruited using a purposeful non-probability sampling approach by selecting individuals who met the defined eligibility criteria. Sample size calculator using Raosoft Sample Size Calculator Module based on expected population size, chosen confidence level and margin of error as well as response distribution.

2.6 Standards for Sample Selection

Eligibility Requirements

Individuals were incorporated if they:

- People aged 18 and over.
- Diagnosed with coronary artery disease.
- Patients were being treated in the Cardiac Care Unit.
- The patients were receiving some form of medical treatment and health state advice for coronary artery disease.
- Understood the survey and solved it exactly.
- Voluntarily agreed to take part in the research.

Criteria for Exclusion

Exclusion Criteria

Participants were omitted if they:

- Data gathering process was not able to communicate the information properly
 - Cognitive weaknesses that made it difficult for them to understand or answer to the questionnaire.
 - They were clinically unstable and unable to participate at the time of data collection.
- Declined to participate in this research.

Surveys returned with large omissions making it impossible to calculate the awareness score.

2.7 Research Tool

The study instrument was a systematic questionnaire designed by the researcher and supervised by the research supervisor, following a review of relevant literature on coronary artery disease, healthcare guidelines, disease management, lifestyle modifications, medication administration, follow-up treatment and self-care.

The survey included of two main sections.

Section 1: Socio-Demographic and Clinical Characteristics

This aspect included some socio-demographic and clinical features, including age, gender, level of education, income per month and the period of coronary artery disease.

The second section: Awareness of professional care and life changes

This part consisted of 10 awareness -based questions evaluating the patient's awareness about healthcare and life style changes that are relevant to coronary artery disease. The ten points together expressed one single, large area: awareness of Health and Lifestyle Changes. Topics among them were drug purchase, health surveillance, dietary change, exercise practice, no smoking request, controlling weight gain and its loss, lowering distress level/diminishing stress-related condition taking care of themselves; risk perception and detection of alarms requiring medical treatment.

Alternatives for Responses and Evaluation Framework

- Each was answered with a simple Yes, No.
- For each correct answer the score was 1 and for incorrect answers and "Don't Know" gave a score of 0.

The total awareness score was between 0–10, with higher scores representing an increased level of awareness.

Awareness level was classified into: • Low: 0–3 • Moderate: 4–6 • High: 7–10

Validity of the Tool

A panel of 15 academic and clinical experts in nursing, cardiovascular health and patient education and other health disciplines evaluated the content validity of the questionnaire. The scale items were rated by specialists in terms of applicability, clarity, consistency with study objectives, and comprehensiveness. As per the recommendations of experts, appropriate changes were made in selected items to increase their clarity, relevance and applicability.

Preliminary Investigation

A pilot study of 10 subjects demonstrating characteristics similar to the research population had been performed. The pilot study was conducted prior to the actual data collection to test the clarity, comprehensibility, feasibility and estimated time for completing the questionnaire. The original volunteers were excluded from the final study population.

Reliability of the Tool

The internal consistency and stability of the 10-item awareness questionnaire were assessed to check its reliability.

Test-retest reliability was analyzed by having the questionnaire administered to the same subjects on two different occasions, and the relationship between both assessments was evaluated using Pearson's correlation coefficient.

Validity was assessed against a comparable self-report measure and identified high concurrent validity ($r = 0.87$). The 10-item awareness questionnaire was tested for reliability measured by Cronbach's alpha coefficient. Finally, the observed Cronbach's alpha must be calculated from the research data acquired and reported in the final publication.

Data Collection

Data were collected from April 1 to June 30, 2026.

Patients were identified who met the inclusion and exclusion criteria. The investigator explained the purpose and procedures of the research to each participant.

The questionnaire was administered once signed informed consent was obtained. If they were able to complete the questionnaire alone, this was allowed. The questionnaire was conducted as structured interviews with standardized wording for participants who required assistance.

The survey took about 15 to 20 minutes to complete.

Analysis of Data

The collected data were coded, entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 26.

Statistical Analysis Techniques: Descriptive and Inferential

This analysis is descriptive in nature; it contains the occurrence and proportion for categorical variables. For continuous variables and awareness metrics, mean + s.d. Frequency, coverage and mean for awareness metrics. Statistical analyses were performed as appropriate:

An independent samples t-test to compare the means of two different groups on some awareness rating.

Awareness Scores: One-way ANOVA to compare mean awareness scores across three or more independent groups

Use Pearson's correlation coefficient to investigate relation between awareness scores and continuous variables like age, duration of coronary artery disease.

Chi-square analysis to explore associations between category awareness levels and selected socio-demographic/clinical characteristics where applicable.

All p-values less than 0.05 were defined as significant.

Moral Implications

The necessary official approvals were obtained prior to commencing data collection.

The Council of the College of Nursing at the University of Al-Muthanna granted consent, while internal ethical approval from the Al-Muthanna Directorate of Health was also given to conduct research in Al-Hussein Teaching Hospital.

The study protocol was sanctioned by the ethical committee of the University of Al-Muthanna.

The research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Limitation of the Research

Limitations of this research were its method, singular institution, and relied on participant feedback. Such elements may limit the generalizability of the findings to patients with coronary artery disease in other clinical settings.

3. Results

The results of the data analysis are presented in tables organized directly according to the objectives of the study as follows:

Table (1): Disposition of Study Subjects by Socio-Demographic Characteristics

Socio-Demographic characteristics		Frequency	Percentage
Age	<= 29	6	12
	30-53	12	24
	54-76	21	42
	77-90	11	22
	Mean= 65.84	SD= 16.568	
Sex	Male	19	38
	Female	31	62
Educational Level	Primary	30	60
	Secondary	11	22
	Tertiary	6	12
	College	3	6
Monthly Income	Enough	12	24
	Somewhat enough	18	36
	Not enough	20	40

According to the table (1), most of patients were aged between 54 years up to 76 years with average age was 65.84 ± 16.568 years, which is the mean [42%]. The sample consisted of 62% females, with 60% having primary education, and an inadequate monthly income reported by 40%.

Table (2): Distribution of Patients according to Awareness Questions

NO	Questions	Yes		NO		Mean	Assessment
		F	%	F	%		
1	Did you know that you must stick to the recommended schedule for heart medications to prevent future cardiac arrests?	26	52	24	48	1.54	Good
2	Discontinuing cardiac medicine without the help of your cardiologist cold turkey could lead to major health problems, did you know?	30	60	20	40	1.42	Poor
3	Did you have any idea that regular heart follow-up appointments are important, even when you feel completely healthy and asymptomatic?	14	28	35	70	1.30	Poor
4	Did you know that before you're going to stop any medicine, it is a must to tell your healthcare staff particularly if having some new or unusual side effects?	7	14	42	84	1.13	Poor
5	This can be monitoring your blood pressure, and monitoring pulse rate at home.	4	8	45	90	1.08	Poor
6	Did know that reducing routine usage of sodium (salt) and harmful fats assists in lessening blood pressure and protecting coronary arteries from blocking.	27	54	22	44	1.53	Good
7	Are you aware that smoking and passive cigarette smoke also have an immediate influence on the narrowing and blockage of coronary arteries?	5	10	45	90	1.02	Poor
8	Did you know moderate exercise as prescribed by your doctor strengthens the heart muscle?	31	62	18	36	1.63	Good
9	Do you know that habitual mental stress and anxiety may negatively impact both your heartbeat as well as blood pressure?	16	32	34	68	1.32	Poor
10	Did you know that maintaining a healthy weight reduces the overall pressure on your heart?	27	54	23	46	1.55	Poor

F-frequency, % - percentage, Assessment: Good> 1.5, Poor less than or equal 1.5

According to table (2), it shows that patients' general awareness regarding health care and lifestyle changes was insufficient as most of the items under awareness categories were marked as poor.

Table (3): Overall awareness levels regarding Health care and Life style modifications in Patients of CAD

Variables	Classification	F	%
Overall awareness	Poor	42	88
	Good	8	16
	Total	50	100

As shown in Table (3), most of the patients (88%) had insufficient overall awareness: on the contrary, only 16% of them had good awareness regarding both healthcare and lifestyle changes.

Table (4): Association between Patients Awareness and Socio-Demographic Variables

Socio-Demographical Characteristics	Significance
Age	Chi-square=2.213 ^a df=3 P. value=0.563 Non-significant
Sex	Chi-square= 0.021 ^a df=1 P. value=0.900 Non-significant
Educational level	Chi-square= 1.410 ^a df=3 P. value=0.842 Non-significant
Monthly Income	Chi-square=1.542 ^a df=2 P. value=0.394 Non-significant

HS: Highly Significant at P<0.01; S: Significant at P<0.05; NS: Non-Significant at P>0.05; significant.

Results show no significant association between awareness and age, gender, education level and monthly income (P > 0.05).

4. Discussion of Results

Results Analysis of the Demographics Related Outcomes:

Patient's Age

A total of 42% were classified in the age range between 54–76 years, with an average age of 65.84 ± 16.568 years.. As indicated by Tengiz Verulava and Giorgi Mikiashvili (2021), more than 50% of the patients were aged ≥ 50 years, but only 27% was younger than 39 years old.

This is attributed to the increased risk of coronary artery disease due to aging, an outcome related to a lifetime accumulation of cardiovascular risk factors and/or age-related vascular changes.

Sex

Results indicated females were a larger portion of the study at 62% compared to males=38%.

Sex analysis by Liza et al. (2023) observed that 67.5% of the participants were female, indicating that a large proportion of the study sample consisted of this sex.

This result is in conflict with the results of Samer Alwey et al 2018, who reported a female proportion of 40% and male proportion of our paper.

These could be linked to differences in etiopathogenesis and clinical expression of cardiovascular disease in men versus women, especially among the elderly.

Educational Attainment

Results revealed simple training for many participants (60%), secondary schooling was retained by 22%. Kelli et al, support this conclusion. in patients with coronary artery disease, (2019) reported a relationship between lower educational achievement and poorer cardiovascular outcomes and increased rates of adverse events. It might be attributed to differences in human levels of health literacy and the ability to define, comprehend (eg. using medical terminologies) and perform recommended behaviour changes related to disease management.

Monthly Income

Regarding monthly incomes, most patients (40%) rated their income as insufficient. This conclusion matches the findings of Ahmad Homoud et al. (2025). Around eighty-two point eight % earned above seven thousand SAR and a bulk assured from 81.4% on their responses. A reason behind this may be the financial stress associated with long-term treatment, medications, medical care and several health prices.

Analysis Finding Awareness levels related to the Healthcare and Lifestyle

Health consciousness is an important factor in the effective management of coronary artery disease. The findings showed that the majority of patients had general ignorance most likely due to a lack of health education and inadequate understanding of appropriate recommendations for healthcare and lifestyle changes.

Tengiz and Giorgi (2021) Research result indicated that some areas in understanding have been improved. This finding contradicts the findings of Ahmad Homoud et al. (2025). The outcome presented moderate awareness of patients 66.5%.

The researchers argue that the lower awareness levels stem from how long patients have been sick and the medical mechanisms of the treatment, but they add that it is important to examine patients' mindsets as these may potentially affect adherence to the therapy.

Study of the association of general Patient Awareness with Demographic Variables

It shows that the Analysis of association between awareness and socio-demography helps to find out factors associated with health consciousness among patients. Results showed that awareness was not significantly associated with the patients' socio-demographic characteristics ($P > 0.05$). This may indicate that the improvement of patients' awareness was not solely due to demographic characteristics such as age and sex, but also by other factors including quality and consistency of health education.

The results contradict the conclusions of Badr and Ahmed (2014) regarding patient awareness and age, $P = 0.020$), however are consistent with respect to gender ($P = 0.165$) and monthly income ($P = 0.217$).

Kaur and Aggarwal (2022) backed this study and showed that age P . Value=16.92, sex P . value 7.82, educational status P . value 16.92 and occupations P . value=16.92 is equal to the awareness levels of coronary artery disease which was not statistically significant compared to socio-demographic variables but were found to be significant at 0.05 level of confidence.

The limited level of awareness may be due to inadequate health education, limited access to organized and continuous advice, and insufficient support for adherence to recommended management and lifestyle change in patients at high risk for coronary artery disease.

5. Conclusion

The results showed that people with coronary artery disease had an inadequate general awareness of health, especially on topics related to lifestyle change. Patients did not perform significantly better in expected domains; however, major gaps were present in many aspects of cardiac care and healthy living habits. No significant relationship was established between the overall awareness and socio-demographic characteristics of the study subjects. These findings highlight the need for continuous and structured health education to improve patient awareness and self-management of coronary artery disease.

6. Recommendations

- Implement structured and continuous health education programmes targeting coronary artery disease patients on aspects of medications adherence, heart surveillance, as well as lifestyle modifications.
- Improve the role of nurses in teaching clients through appropriate diet, activities such as exercise, quitting smoking, reducing stress and home monitoring of BP/pulse rate.
- Provide customized and simple educational materials grounded on patients' information needs for their understanding of coronary artery disease and self-management.

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