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Exploring Nurses' competency in the care of Patients with Ischemic Heart Disease: A Descriptive Study

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Abstract: Ischemia is a condition in which the flow of blood and therefore, oxygen to a part of the body is restricted or decreased. Cardiac ischemia is the decreased flow of blood and oxygen to the heart muscle. The two patients have an important role through the management of interventions (pharmacologic or non-pharmacologic) by monitoring the patient's condition in terms of pulses, ECG, the patient's heart condition and monitoring the activities of these interventions. The study started from March 12, 2023, until April 29, 2023. A suitable sample was taken from 60 nurses in the current study. Samples are collected in the intensive care unit and the cardiac center. The current study's results indicated that most samples (88.33%) of the nurses had poor knowledge of heart disease. It was found that most of the nurses were females (53.3%), whose ages ranged between (20-28), and the highest percentage of nurses were graduates of the Institute of Nursing (46.7%), and the nurses lived in urban areas (80%) and those who did not have experience in an open-heart unit and who have not been trained in cardiology (60%). Encouraging nurses to study about heart diseases to increase and update their knowledge by reading books or research or attending conferences or training courses outside Iraq to improve and develop knowledge regarding heart diseases.

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1. Introduction

Ischemic Heart Disease (IHD) is the result of a limited blood supply to the heart muscle. In more than 95% of cases, the cause of IHD is coronary blood flow reduction caused by coronary artery atherosclerosis, therefore the term "coronary heart disease" is often used to describe this syndrome. Ischemic heart disease in assessment of the World Health Organization is still the most common causes of the world (Kasprzkw,etal.,2018). Imbalance between myocardial oxygen supply and demand.Cause dmainly by Atherosclerosis of Coronary Artery (Joshi,2020). Coronary artery disease which accounts for nearly one-third to one-half of all the cases of CVDs is reported to be one of the major causes of death in developing and middle east countries (Mansouri, 2016).

Ischemic heart disease is a dynamic process of atherosclerosis of the coronary arteries or functional alterations of coronary circulation that can be modified by lifestyle, pharmacological therapies, and revascularization.New terminology describes clinical presentations of Ischemic heart disease categorized as either acute coronary syndrome or chronic coronary syndrome. (Jensenmd and Hjortbak,etal.,2016). Coronary artery diseases (CAD), also known as coronary heart disease(CHD) or heart disease (HD) (Wilson and

Douglas, 2015) and ischemic heart disease (IHD) [1]. CAD is the most common type of cardiovascular disease (CVD), contributed approximately half of all CVD deaths worldwide. CAD is an important public health problem, among adults with a high morbidity and mortality, and it causes a substantial economic burden to societies (Huang,2017).

Ischemic angina is a clinical syndrome reflecting inadequate myocardial perfusion. this is typically, but not always, caused by atherosclerotic coronary artery disease. A detailed history is important to establish the diagnosis and the presence of risk factors and unstable symptoms. a range of tests is available to investigate patients with stable angina including ct coronary angiography and invasive coronary angiography, aim to assess the presence and extent of atheroma or structural coronary abnormalities. ct coronary angiography/coronary angiography with fractional flow reserve assessment, aims to detect the presence and extent of coronary flow insufficiency (Gabara,etal.,2018).

Ischemic heart disease (IHD) is a condition characterized by inadequate myocardial perfusion caused by reduced blood supply or increased myocardial oxygen demand, or both. Coronary artery disease (CAD), by compromising the blood supply, is by far the most frequent cause of myocardial ischemia, which is why IHD is also called coronary heart disease (CHD). CAD is often present without limiting the flow of blood (subclinical CAD), but when it does, preclinical CAD has usually existed and progressed over decades before CHD/IHD ultimately develops, CAD, CHD, and IHD share a nearly uniform underlying cause, coronary atherosclerosis, with or without superimposed thrombosis

Cardiovascular disease (CVD), of which IHD and stroke are the two most important components, contributed to nearly one-third of all deaths in 2001 worldwide. Death rates for CVD and the contributions of IHD and stroke differ markedly among populations and nations . Regarding IHD, the highest (Russia and other eastern European countries) and lowest (Japan, South Korea, and France) death rates differ by more than 10-fold (Falk,etal,2007).

Ischemic heart disease (IHD) is the main global cause of death, accounting for 9 million deaths in 2016 according to the World Health Organization (WHO) estimates.1 Mortality from IHD in Western countries has dramatically decreased throughout the last decades with greater focus on primary prevention and improved diagnosis and treatment of IHD. However, developing countries pose new challenges for public health. While globalization often improves health care systems, the adoption of Western lifestyles can lead to higher prevalence of cardiovascular risk factors (Gitto,etal,2019).

Signs and symptoms of coronary artery disease incorporate sudden fatigue, shortness of breath, dizziness, and palpitations. The narrowing of coronary arteries reduces the supply of oxygen-rich blood flowing to the heart, which becomes more pronounced during strenuous activities during which the heart beats faster. For some, this causes severe symptoms while others experience no symptoms at all (Polampelli,2020).

Several risk factors have been empirically linked to an increased risk of cardiovascular disease. Some of them are therapeutically amenable to modification; while others are not. Modifiable risk factors include physical inactivity, tobacco use, diet, "bad fats" in the blood, hypertension, and being overweight; while non-modifiable risk factors include the patient's family history, the presence versus absence of diabetes mellitus, and demographic characteristics like age, gender, ethnicity, and socio-economic status (Bisciglia,etal. . 2019).

The first of these are non-modifiable factors which in- cludes individual factors: male gender, age (risk of dis- ease increases with age), family history incidents and co-morbidities (kidney disease, thyroid disease, hormonal therapy, hypercholestreolemia, type I and II diabetes and chronic conditions inflammatory) The second group is modifiable factors, which accumulate as the most common factors that can be eliminated or minimized by changing the lifestyle. These include stress, alcohol, smoking and so-

called metabolic syndrome including: elevated glucose, hypertension, inflammation of various origins, visceral obesity, lipid disorders and thrombotic conditions (Wesslee,etal.,2013).

We studied 60 608 individuals from the Copenhagen General Population Study, the Copenhagen City Heart Study, and the Copenhagen Ischemic Heart Disease study, of whom 10 668 had IHD diagnosed between 1977 and 2011. We genotyped for variants affecting levels of nonfasting remnant cholesterol, LDL cholesterol, C-reactive protein by CRP alleles, and C-reactive protein by IL6R alleles. Using a multidirectional mendelian randomization design, we investigated possible causal associations between the lipoproteins and C-reactive protein and between the lipoproteins and IHD (Varbo,etal,2013).

Patients benefit from early diagnosis, close monitoring, and management by experienced heart failure teams, which include a heart failure nurse specialist and cardiology ward nurses who have received adequate training to support safe practise. As a member of the team, the heart failure nurse specialist is well positioned to provide outreach to patients throughout the acute heart failure pathway, which necessitates close collaboration with nurses in non-cardiology specialist areas such as the emergency department and general medical/care-of-the-elderly wards.(Tiwari ,et al,2021).

A range of tests are performed, including an electrocardiogram (ECG). Commercial electrodes in your skin measure the electrical activity of your heart. Certain changes to the electrical activity of your heart are a sign of heart damage. Riding a stationary bike, aching as you overgrow. Exercising makes your blood pump harder and faster than usual. An exercise (endurance) test can detect heart problems that may not have been noticeable one way or the other. An echocardiogram. (Translator) hanging on your chest, showing video images of your heart.(Myocardial ischemia journal,2019).

The chart helps improve the cardiogram to work. Exercise. A small amount of radioactive material is injected into your bloodstream. Exchange of email dye is injected into your heart's blood vessels. Then a series of X-ray pictures (angiograms) are taken to follow the path of the dye. This imaging gives a detailed visualization during continuous imaging in the image. The possibility of this is in the percentage of calcium in your coronary arteries - a sign of coronary atherosclerosis. Also shown are images, shapes, and frames in which coronary tissue can be dotted by imaging.(Myocardial ischemia journal,2019).

The nurse plays an effective and great role in different types of care for the patients. there is no doubt that the nurse who works in the critical care units must be qualified enough for these tasks in addition to his general duties, therefore, nurses must have a good scientific background about the profession and details related to coronary artery disease and critical care to detect patients' problems, to which make the appropriate decision for and proper medication administration (Hanson & Haddad, 2021).

Nurses provide health promotion efforts that are directed toward controlling the modifiable risk factors for CAD. Patient education about the disease process, progression, and necessary lifestyle changes is important in preventing CAD. For patients who present with symptoms such as chest pain or dyspnea, medications or surgical interventions may be indicated. Medications like aspirin or cholesterol-lowering agents are prescribed to prevent blood clots and heart attacks and reduce plaque buildup in the arteries. Surgical interventions like coronary angioplasty and stent placement may be indicated to remove blockages(wagner,2023).

Important of study

Of patients with ischemic heart disease about 2.4 million (8.5%) Canadian adults aged 20 years and older live with diagnosed ischemic disease, including 578,000 (2.1%) with a history of a heart attack. 40 years and older live with diagnosed heart failure. adults

aged 20 years and older received a new diagnosis of ischemic heart disease. The prevalence of diagnosed ischemic heart disease increases as people age and is higher among men than women in all age groups. Similar patterns are observed for acute myocardial infarction and heart failure (public health of canada,2017).

About 1 million people, of whom 100,000. She has a heart attack every year. Over the last two decades in Poland, mortality from ischemic heart disease has increased in people under 65 years of age. In spite of wide prevention, there is a problem between the current guidelines and the patient's continuing of recommendations. Good communication between medical staff and patients with ischemic heart disease and increasing the pressure on education guarantees therapeutic success, which will be reflected in the health, social and economic sphere (Kasprzkw,etal.,2018).

Cardiovascular diseases, principally ischemic heart disease (IHD), are the most important cause of death and disability in the majority of low-and lower-middle-income countries (LLMICs). In these countries, IHD mortality rates are significantly greater in individuals of a low socioeconomic status (SES) (Rajeey,2019).

Ischemic heart disease (IHD) is the leading cause of death worldwide Little is known about the epidemiology of IHD in sub-Saharan Africa (SSA), although the incidence of the disease is presumed to be increasing given the rapid rise in cardiovascular risk factors and metabolic changes such as hypertension and obesity (Campbell, et al., 2015)

Coronary artery disease or ischemic disease a is the most common type of cardiovascular diseases & it is the major causes of death approximately 4 million deaths resulting from MI occur around the world annually. Every year about 1.25 million infarctions occur in the United States, 50,000 of which culminate in death . Coronary Artery Disease could lead to heart attacks . The hospitalization rate of the patients with CAD(coronary artery disease) has also increased in the recent years, indicating the increasing incidence and recurrence rates of this disease. Despite hopes in reduction of mortality, the sharp increase in patients' admission is becoming a growing concern (Cheng,et al.,2005).

For instance, the prevalence and incidence of acute myocardial infarction among men 25–44 years of age are on average about four times higher than those of women in the same age group. Nonetheless, as women and men get older than 65 years old, the gap in prevalence and incidence lessens. In fact, in 2012/13, there is almost twice as many women aged 85 years and older newly diagnosed with ischemic heart disease than men of the same age. As women live longer than men, they are more likely to be diagnosed with a heart condition in old age (Public health agency of canada,2017).

Nurses' knowledge of ischemic heart a lack of awareness of some fundamental aspects of stroke including common symptoms, complications, risk factors and long-term treatment. Reassuringly, nurses decisively expressed the importance of being equipped with a sound foundation of ischemic heart knowledge for clinical practice (Mason,2013).

Studies have shown a decrease in the age at which risk factors for atherosclerosis begin to accumulate. In this context, the age at which the incidence and prevalence of IHD begin to increase has shifted to younger ages, causing the impact of the disease on public health to become even greater. Approximately 1.72% of the world's population is currently affected by IHD, and the prevalence is still rising. As the global distribution map of IHD demonstrates, Eastern European countries contribute by far the highest prevalence (Irina-Iuliana Costache,2022,p.1).

Coronary artery thrombosis is considered the most dangerous thing that a patient can be exposed to due to coronary artery failure, which means that there is a complete blockage in the coronary artery, which prevents the flow of any amount of artery blood and therefore this part of the muscle is subjected to a complete cessation of work and becomes like the earth that has been cut off from water Forget about it forever. And the

seriousness of this disease stems from the fact that about 25-30% of those who contract it for the first time will die before reaching the hospital! Likewise, about 15% die after reaching the hospital, but now, after using modern medicines (Abu AL-Majd,2008).

Study Objectives

To assess nurses' knowledge of patients with ischemic heart disease And To Find out The Relationship between nurses' knowledge and demographic characteristics of Age, gender, level of education, training Cession and Years of experience In the cardiac center.

2. Materials and Methods

This chapter offers the appropriate methodology of the study as the follow:

Study design: Descriptive Cross-Sectional Design is adopted in the current study to achieve the early stated objectives. The study started March 12, 2023 until April 29, 2023.

Setting of the Study: The study is conducted in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate / Al-Sadder Medical City (CCU,RCU,Open Heart Surgery),Medical wards department).

Study Sample: A Non-Probability (Convenience Sample) of (60) nurses were including in the present study. Sample collect from all medical department (CCU,RCU,Open Heart Surgery),Medical wards.

Criteria for Including the Sample:

- a. Nurses work at the teaching hospital.
- b. Male and female nurses.
- c. Nurses work at the morning and night shift
- d. Nurses work in the (CCU,RCU,Open Heart Surgery),Medical wards,)

Ethical Consideration; We obtained the approval of the College of Nursing, Adult Nursing Branch, to collect samples, then the approval of the Najaf Health Department to collect samples, and the book is attached in (AppendixB).

Study Instrument: The researcher adopted and developed an assessment tool to assess nurses' knowledge of Ischemic heart disease . The complete instrument of the study consists of (2) parts

Part 1: Demographic Data: This part consists of (60) items, which included age, gender, level of education, years of experience in medical ward and (CCU,RCU,Open Heart Surgery),Medical ward), training session, duration of session and training related to Ischemic heart disease.

Part 2: Nurses' knowledge toward patients with ischemic heart disease: This part of the questionnaire comprised of (30) items, definition, Pathophysiology of Ischemic heart disease, causes, signs and symptoms, classification , risk factors ,complications and general information about the Ischemic heart disease.

Data Collection: The data collection is done by utilization of the semi-structured questionnaire and by means of self – reported technique with the object and the researcher use Arabic version of the questionnaire. The data collection process started from March 12, 2023 until April 29, 2023.

Data Analysis: In this study the data are analyzed by using of (SPSS) program V 19 (Statistical Package for Science Service), and the Microsoft Excel (2010). Below are the statistical data analysis methods to analyze the study result:

Descriptive Data Analysis:

This approach includes the following measurements:

A-Frequencies and Percentages.

- a. 1- Tables (frequencies, percentages)
- b. 2 - (Statistical figures (pie chart).
- c. 3 - Statistical mean and standard deviation.

B- Measures of central tendency:

Mean, Mean of scores (MS) And the two points likert scales with two levels of assessment, poor (mean of score less than 1.5), good (mean of score more than 1.5) for Nurse's knowledge about management of Ischemic heart disease.

C- Pearson's Correlation Coefficients**Inferential Data Analysis:**

- a. Chi-Square test (X^2) to test independency distribution of observed frequencies, and for measuring the association between the studies variables according to its type.

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

3. Results

Table 1. Descriptive statistics (frequency and percentage) for the demographic data of nurses.

Demographic data		Frequency (N=60)	Percentage
Age / years	20-28	37	61.7
	29-37	22	36.7
	38-46	1	1.7
Gender	Male	28	46.7
	Female	32	53.3
Level of Education	Secondary school of nursing	14	23.3
	Nursing Institute	28	46.7
	Nursing College	18	30.0
Marital Status	Single	33	55.0
	Married	26	43.3
	Divorced	1	1.7
Residence	Rural	12	20.0
	Urban	48	80.0
Years of experience	1-4	41	68.3
	5-8	16	26.7
	9-12	3	5.0
Years of experience in cardiac center	0	30	50.0
	1	21	35.0
	> 1	9	15.0
Number of training courses in cardiac disease	0	36	60.0
	1	16	26.7
	> 1	8	13.3

A total of 60 nurses were included in the study sample ,their demographic data are presented in Table 1, this table shows that the most nurses were female (53.3 %) with ages ranging between 20-28 years (61.7%). Also, the result in this table above showed that the highest proportion of nurses were nursing institute graduate (46.7%). Moreover, the majority of nurses live in urban areas (80 %); those with experience between (1-4) years (68.3 %), those with no experience in cardiac unit (50%); those with no training about cardiac disease (60 %).

Table 2. Assessment of nurses' knowledge about cardiac disease.

Knowledge Level	Mean Score Range	Number of Items	Item Numbers
Poor	1.00–1.66	25	1, 5, 7–9, 11–30
Moderate	1.67–2.33	5	2–4, 6, 10
Good	≥2.34	0	Non
Overall	1.21		Poor

MS : Mean of Scores ; SD : Standard Deviation ; Poor : MS = 1-1.66 ; Moderate : MS =1.67-2.33 ; Good : MS≥2.34

This table 2 shows about nurses' knowledge and descriptive statistics regarding about cardiac disease. This shows that the assessment was (good) for the most item, while the assessment of the nurses' knowledge was (poor) regarding other the items. The overall nurses' knowledge is also (moderate). This assessment is based on the statistical scoring system, in which the item is classified as (poor) if the mean of scores between (1-1.33); it is considered (moderate) if the mean of scores between (1.34-1.66); while it is considered (good) if the mean of scores is more than (1.67).

Table 3. Frequency and percentage of nurses according to their knowledge assessment about cardiac disease.

knowledge Levels	Poor	Moderate	Good
Frequency	53	7	0
Percentage	88.33	11.67	0.00

This table exhibited the descriptive statistics of nurses' knowledge assessment about cardiac disease, it shows that about (88.33 %) of the nurses have poor knowledge, (11.67 %) of them have moderate knowledge, while (0.0 %) have good knowledge, see Table 3.

Table 4. Association between the overall Assessment of nurses' knowledge about cardiac disease and their demographic data.

Demographic data	Chi Square	df	P value	Sig.
Age / years	4.22	4	0.66	NS
Gender	3.24	2	0.13	NS
Level of Education	22.27	4	0.001	HS
Marital Status	2.32	4	0.52	NS
Residence	2.42	2	0.76	NS
Years of experience	2.11	4	0.67	NS
Years of experience in cardiac unit	3.27	4	0.64	NS
Economic Status	1.23	2	0.61	NS
Training about Cardiac disease	12.85	2	0.000	HS

df= degree of freedom; NS : Non-significant at P value >0.05 ; HS : High Significant at P value <0.01

Concerning table 4, it shows the association between the overall Assessment of nurses' knowledge about cardiac disease and their demographic data, it shows that there is a non-significant association ($P>0.05$) between the overall assessment of nurses' knowledge about cardiac disease and their demographic data except level of education, and training.

4. Discussion

Part-I: Discussion of Demographic Data of the nurses in the study sample:

The results of the study showed that (61.7%) of the study sample is between (20-28) and this study is consistent with the study conducted by (Abbas and Jasim, 2019) and the results of the study were (71.4%) between (20-29) and this is consistent with the current study. The results showed that the highest percentage of participating nurses in the study sample was female (53.3%), while males were (46.7%). This study is consistent with a study conducted by (Mirza, 2021), which showed that the majority of study samples were female (55%).

In the current study, (46.7%) of the study sample graduated from the College of Nursing, while (30%) of the study sample graduated from the College of Nursing. This study agreed with the study conducted by (Hussen, Ganmi 2014). Which showed that the percentage (40%) of Nursing Institute graduates (34%). The study showed that the most years of experience that were taken from the samples are between (1-4) years, i.e. (68.3%). This is consistent with the study conducted by (Hussein, 2015), which showed that the years of experience are between (1-5) (64%).

In this study, (60%) did not participate in the training sessions, and (26.7%) participated once (13.3%) more than once, and this study is consistent with the study conducted by (Abbas, 2018), where it indicated that (55.7%) did not participate in the training sessions, and (25%) participated. From (1-5) session. In the current study, the years of experience in a cardiac unit were (50%), the percentage was (1-5), and this study is consistent with (Mirza, Ahmed, 2021) and the percentage was similar.

Part-II: Discussion of the Nurses' assessment of nurses knowledge toward patients with ischemic heart disease :

The results of the current study indicated that the majority of the samples had a lack of knowledge, and the percentage (88.33%) was low. This study is consistent with the study (Hussien, Azeez, 2021), and the percentage was (75%) low. The lack of knowledge may occur due to the frequent change of staff or because of the need in this department for an intensive staff, so the nurse must update his information continuously so as not to forget the old information, or the hospital must compel the staff to attend the training sessions held by the hospital to update or develop knowledge

Concerning levels of knowledge of nurses and as knowledge about coronary artery disease is crucial to nurses' previous studies have showed that nurse's knowledge about ischemic heart disease is not high it may be low or moderate as what has been found by this study (table 2 and 3). In fact, there are many factors that effect on nurse's knowledge it may related to some aspects of demographic data like residency, age, etc this study is supported with. (Antman, et al, 2015) and (Eskandari, et al., 2017).

The researcher point of views is supported by Taha and Ali (2013), who mentioned that nurses need to improve their knowledge especially nurses' knowledge before, during and health education as responsibility for care of patients lies in the hands of nurses. Therefore, for nurses to provide high quality care and function effectively, they must have an adequate knowledge that they have actually used in practice (Khedr, 2019). adequate knowledge that they have actually used in practice (Khedr, 2019).

The reasons for lack of nurses' knowledge regarding from the researchers' point of view "might be related to lack of continuing educational programs or sessions about knowledge, supervision, continuous evaluation of nurses' practice, and cooperation between multidisciplinary health care team members ,nurses- physicians another team which working in cardiac department.

Part-III: Discussion of Relationship between Nurses' Knowledge of Study and their Demographic Data:

The study indicated that there is a non-significant correlation ($p>0.05$) between the general assessment of the nurses' knowledge about heart disease and its demographic data, except for the level of education and training. There is also a non-statistically significant relationship between gender and the level of knowledge regarding the training sessions. The results showed that there is a significant relationship with the level of knowledge (AL-Ftlawy,2011).

5. Conclusion

According to the present study findings, the researcher can mention the following conclusions:

- a. Most of nurses in medical units had knowledge deficit concerning management of ischemic heart disease in center of cardiovascular disease and other medical department in hospital
- b. It is found that the most of nurses are middle age group within (20-28) years old. It concludes that the most of nurses are institute and college graduated, most of the nurses years' experience in medical wards (1-4 years). most of the sample have participating in the sessions training in medical wards but no related to ischemic heart disease in center of cardiovascular disease
- c. The nurses have inadequate knowledge in some aspects for management of patients with ischemic heart disease
- d. There is no relation between knowledge and demographical data (educational level, years of experience, number of training related to ischemic heart disease)

Recommendations

Based on the study results, discussions, and conclusions the study recommended:

- a. Encouraging nurses to update their information by participating in training sessions and conference inside and outside Iraq to improve their knowledge regarding mmanagement Ischemic heart disease.
- b. Nurses must have continuous reassessment and follow-up to identify how much they need reinforcement of knowledge or practice, to promote them.
- c. Ministry of health and Health directorate have to get befits from educational programs that result from researches and dissertations to improve nurses' knowledge ischemic heart disease in(CCU,RCU,Open Heart Surgery),Medical wards,) . And other department and make them affordable through booklets or apply educational courses activities.
- d. During the years of residency new graduated nurses who are appointed in the Open Heart Surgery, Medical ward(CCU,RCU,Open Heart Surgery),Medical wards,)should be involved in educational courses related to ischemic heart disease. to improve their information and skills
- e. The newly appointed nurses should be accompanied and evaluated by qualified old nurses in Open Heart Surgery, Medical ward(CCU,RCU,Open Heart Surgery),Medical wards,)and other medical wards for few months in order to improve and prepare them to provide the required nursing care.

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