



T.C.
ÇANKIRI KARATEKİN UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NURSING

THE DETERMINATION OF NURSES VIEWS OF
KNOWING THE MYOCARDIAL INFARCTION

Master's Thesis

Mohammed Sabah Jaber BANISAID.

Çankırı 2022

**THE DETERMINATION OF NURSES VIEWS OF KNOWING
THE MYOCARDIAL INFARCTION**

BY

Mohammed Sabah Jaber BANISAID

**Institute of Health Sciences
Department of Nursing
Internal Medicine Nursing Master Program with Thesis**

The Degree of Master of Science

ADVISOR

Asst. Prof. Dr. Müjgan ONARICI

Çankırı 2022

ACCEPTANCE AND APPROVAL

Mohammed Sabah Jaber BANISAID, the graduate student of the Institute of Health Sciences of ÇAKÜ with the student number: 208210221, has presented his thesis entitled “The Determination of Nurses Views of Knowing The Myocardial Infarction” before the jury whose signatures are below, after fulfilling all of the requirements determined by the relevant regulations for the degree of Master of Science:

Thesis Exam Date / 26 / 12 /2022

Advisor : Asst. Prof. Dr. Müjgan ONARICI

Examination Committee Members:

Chairman : Asst. Prof. Dr. Müjgan ONARICI

Department of Nursing
Çankırı Karatekin University

Member : Assoc. Prof. Dr. Elif AKYÜZ

Department of Nursing
Kırıkkale University

Member : Asst. Prof. Dr. Seher GÖNEN ŞENTÜRK

Department of Nursing
Çankırı Karatekin University

Approved for the Graduate School of Health Sciences

Assoc. Prof. Dr. Nazan KAYTEZ

Director of Graduate School

ETHICS STATEMENT

The thesis entitled “The Determination of Nurses Views of Knowing in The Myocardial Infarction” which was prepared and presented as a thesis, was written by myself and in accordance with the scientific, academic rules and ethical conduct. The idea/hypothesis of my thesis solely belongs to my advisor and me. The research pertaining to the thesis was conducted by myself and therefore, all of the used sentences and interpretations within the work belongs to me.

I declare the aforementioned issues are correct.



Signature

Date / 26 / 12 /2022

Mohammed Sabah Jaber BANISAID

PREFACE AND ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my generous family for standing by me and supporting me and to my advisor, Asst. Prof. Dr. Müjgan ONARICI, for helping and directing me throughout my study.

I also wish to thank my respected professors for expressing their opinions and suggestions regarding the questionnaire as well as everyone else who helped me in this work.

Mohammed Sabah Jaber BANISAID

Çankırı-2022

LIST OF CONTENTS

PAGE

ACCEPTANCE AND APPROVAL.....	i
ETHICS STATEMENT.....	ii
PREFACE AND ACKNOWLEDGEMENTS.....	iii
LIST OF CONTENTS.....	iv
LIST OF ABBREVIATIONS	vi
LIST OF TABLE.....	vii
ABSTRACT.....	viii
ÖZET.....	x
1.INTRODUCTION	1
1.1. The Significance of The Study.....	3
1.2. Statement of The Problem.....	6
1.3. Objective of The Study.....	6
1.4. Limitation of The Study.....	6
1.5. Assumptions	7
2. LITERATURE REVIEW.....	8
2.1. Definition of Myocardial Infarction.....	8
2.1.1. ST- elevation myocardial infarction.....	8
2.1.2. Non- ST- elevation myocardial infarction	8
2.2. Acute Coronary Syndrome	9
2.3. Epidemiology.....	9
2.4. Clinical Manifestations of Myocardial Infarction.....	9
2.5. Electrocardiogram.....	10
2.6.Etiology.....	11
2.6.1. Non- modifiable risk factors	11
2.6.2. Modifiable risk factors	11
2.6.3. Other causes of MI.....	12
2.7. Complications.....	12
2.7.1.Dysrhythmia.....	12
2.7.2. Cardiogenic trauma or shock.....	13
2.7.3. Heart failure	13
2.7.4. Pericarditis.....	14
2.7.5. Extending the infarct.....	14
2.7.6. Flaws in the structure.....	14
2.8. Nursing Activities.....	15
2.9. Nursing Diagnosis.....	15
2.10. Nursing Intervention.....	16

2.10.1. Pain relief and other ischemia clinical manifestation.....	16
2.10.2. Enhancing respiratory performance.....	17
2.10.3. Improving sufficient tissue perfusio.....	17
2.10.4. Anxiety reduction.....	17
2.10.5. Observing and managing possible complications.....	18
2.10.6. Encourage home, society, and transition care.....	18
2.10.6.1. Providing patients with self-care training.....	18
2.10.6.2. Continuous and transition care.....	18
3. MATERIALS AND METHOD.....	19
3.1. The Purpose of The Study.....	19
3.2. The Setting of The Study	19
3.3. The Design of The Study	19
3.4. The Sample	19
3.4.1. Power and sample size calculations in the study.....	20
3.5. Data Collection Tool	21
3.6. Data Collection	21
3.7. Data Analys.....	22
3.8. Ethical Considerations	22
4. RESULTS.....	23
5. DISCUSSION.....	28
5.1. Discussion of Socio-Demographic Characteristics of the Nurses.....	28
5.2. Discussion of Nurses' Knowledge About Myocardial Infarction	30
6. CONCLUSIONS AND RECOMMENDATIONS	34
REFERENCES.....	36
APPENDICES.....	44
CURRICULUM VITAE.....	58

LIST OF ABBREVIATIONS

ACC	American College of Cardiology
ACE-Inhibitors	Angiotensin- Converting Enzyme
ACLS	Advanced Cardiovascular Life Support
ACS	Acute Coronary Syndrome
AHA	American Heart Association
AMI	Acute Myocardial Infarction
CAD	Coronary Artery Disease
CHD	Coronary Heart Disease
CK-MB	Creatine Kinase
cTn	Cardiac troponin
CVD	Cardiovascular Disease
DM	Diabetes Mellitus
ECG	Electrocardiogram
ESC	European Society of Cardiology
HF	Heart Failure
JES	Joint European Society
MI	Myocardial Infarction
NSTEMI	Non ST- Elevation Myocardial Infarction
PVD	Peripheral Vascular Disease
SPSS	The Statistical Package For the social Science
STEMI	ST- Elevation Myocardial Infarction

LIST OF TABLES	PAGE
Table 3.1: Calculation of sample sizes in the study.....	20
Table 4.1: Descriptive statistics of demographic characteristics of the nurses.....	23
Table 4.2: Nurses' knowledge of myocardial infarction.....	25



THE DETERMINATION OF NURSES VIEWS OF KNOWING THE MYOCARDIAL INFARCTION

ABSTRACT

Banisaid, Mohammed Sabah Jaber. The Determination of Nurses Views of Knowing The Myocardial Infarction, (Master of Science), Çankırı, 2022.

Background: Myocardial infarction is when cardiac muscle cells die from a lack of oxygen. In acute coronary syndrome, blood vessels harden, and arteries become clogged by thrombuses, restricting blood flow. Many people who have chest pain, shortness of breath, and profuse sweating have an acute myocardial infarction, these symptoms may be possible for other diseases. Also, not all people who feel pain in their chest have an acute myocardial infarction. A 12-lead electrocardiogram and cardiac enzymes should be obtained as soon as possible when a patient presents symptoms and a full clinical evaluation. Doctors and nurses have an important role in identifying heart attacks and advising patients on how to avoid it through early diagnosis and suggesting preventative measures. **Objectives:** The aim of this study is to determine the views of nurses about knowing myocardial infarction. **Methods:** A descriptive study was conducted in Al-Sader Teaching Hospital in Basra City in the coronary care wards, the emergency, intensive care unit, and the internal medicine unit, in addition to the catheterization unit. The study included a non-probability sample of 100 nurses working in the units above. The study data were collected from February to March 2022. The researcher created a questionnaire designed for data collection forms after reviewing the literature and relevant sources. The first part includes demographic information for the nursing staff generally, including their ages, sexes, years of clinical experience, level of education, marital statuses, places of employment, and whether or not they have worked in the cardiac unit before. In regards the second part comprehensive general information about the topic of Myocardial infarction consisted of 29 items. And statistical analysis was performed on the collected data using descriptive statistics, such as percentages and frequencies, were used in the analysis of the results. **Results:** The study showed that 56% of the sample females, with an average age of 19–28 years accounted for 63%, and the level of education, with the majority in secondary school nursing 42%. And the years of nursing experience were less than a year 37%. The majority did not participate in a training course 87%. And 34 % of the participating nursing employees work in the internal medicine unit, and 47% of the nurses participating in the research did not follow up or update their information, Also, only 16% of the nursing staff worked in coronary care units previously. 57% of respondents do not know that myocardial infarction causes heart failure and cardiogenic shock, in addition to cardiac arrest. 15% of the participants knew that chest pain was one of the most common symptoms of myocardial infarction. 16% of nurses know that patients' health becomes better when they receive high-quality nursing care for patients with myocardial infarction. And 60% of the participants did not know that myocardial infarction can be reduced by taking lipid-lowering drugs, 46% of the staff knew that monitoring vital activities, conducting an electrocardiogram, oxygen saturation, and others are important for a patient with a myocardial infarction. 38% of nurses do not know that the most common cause of myocardial infarction is plaque rupture from atherosclerosis. 38%

of nurses were know that body mass index can be assessed to determine whether or not a patient is obese and therefore at risk for a myocardial infarction. About half of the respondents 57% were did not know that myocardial infarctions typically cause a diffuse, constant discomfort that lasts longer than 20 minutes regardless of body position. **Conclusion:** Findings from the study indicated that nurses' knowledge fell short of expectations or did not reach the required level because of insufficient training and experience among nursing staff. The study recommended allowing nursing staff to complete their studies in nursing colleges and activating training courses and educational programs for nurses.

Keywords: Myocardial infarction, Nursing, Knowledge.



HEMŞİRELERİN MİYOKARD ENFARKTÜSÜNÜ BİLME KONUSUNDAKİ GÖRÜŞLERİNİN BELİRLENMESİ

ÖZET

Banisaïd, Mohammed Sabah Jaber. Hemşirelerin Miyokard Enfarktüsünü Bilme Konusundaki Görüşlerinin Belirlenmesi, (Yüksek Lisans Tezi), Çankırı, 2022.

Giriş: Miyokard enfarktüsü kalp kası hücrelerinin oksijen yetersizliği nedeniyle ölmesi sonucunda gerçekleşir. Akut koroner sendromda kan damarları sertleşir ve arterler pıhtı nedeniyle tıkalı hale gelir böylece kalbe gelen kan akışı azalır. Göğüs ağrısı, nefes darlığı ve aşırı terlemesi olan birçok kişi akut miyokard enfarktüsüne sahiptir, bu semptomlar başka hastalıklar için olası olabilir. Ayrıca, göğsünde ağrı hisseden herkeste akut miyokard enfarktüsü görülmez. 12 derivasyonlu bir elektrokardiyogram ve kardiyak enzimler, bir hasta semptom gösterdiğinde ve tam bir klinik değerlendirme yaptığında mümkün olan en kısa sürede alınmalıdır. Doktorlar ve hemşireler, miyokard enfarktüsünü belirlemede hastalara erken teşhis ile miyokard enfarktüsünü nasıl önleyebilecekleri konusunda tavsiyelerde bulunmada ve önleyici tedbirler önermede çok önemli role sahiptir. **Amaç:** Bu çalışmanın amacı hemşirelerin miyokard enfarktüsü bilme konusundaki görüşlerini belirlemektir. **Yöntem:** Çalışma, Basra Şehri Al-Sader Eğitim Hastanesi'nde kateterizasyon ünitesine ek olarak koroner bakım, acil, yoğun bakım ve dahiliye ünitelerinde tanımlayıcı şekilde yapılmıştır. Çalışmaya, olasılıksız örnekleme belirlenen yukarıdaki birimlerde çalışan 100 hemşire katılmıştır. Araştırma verileri Şubat-Mart 2022 tarihleri arasında toplanmıştır. Araştırmacı, literatür ve ilgili kaynaklar tarandıktan sonra veri toplama formları için tasarlanmış bir anket geliştirmiştir. Birinci bölümde genel olarak yaş, cinsiyet, klinik deneyim yılı, eğitim düzeyi, medeni durumu, çalıştığı yer ve daha önce kalp ünitesinde çalışıp çalışmadığı gibi hemşirelik personeline ait demografik bilgiler yer almaktadır. İkinci bölüm miyokard enfarktüsü konusu hakkında kapsamlı genel bilgiler içeren 29 maddeden oluşmaktadır. Verilerin değerlendirilmesinde yüzdeler ve frekanslar gibi tanımlayıcı istatistikler kullanılmıştır. **Bulgular:** Çalışmada katılımcıların %63 'ün yaş ortalaması 19-28 yaş olup % 56'sı kadındır. Eğitim düzeyi açısından bakıldığında katılımcıların çoğunluğunun (% 42) hemşirelik ortaokulu mezunu olduğu tespit edilmiştir. Katılımcıların % 37'sinin hemşirelikte bir yıldan daha az bir çalışma deneyimi bulunmaktadır. Çoğunluğu (%87) bir eğitim kursuna katılmamıştır. Araştırmaya katılan hemşirelerin %34'ü dahiliye biriminde çalışmakta olup, araştırmaya katılan hemşirelerin %47'si bilgilerini takip etmemiş veya güncellememiştir. Ayrıca hemşirelerin sadece %16'sı daha önce koroner bakım birimlerinde çalışmıştır. Ankete katılanların %57'si miyokard enfarktüsünün kalp durmasına ek olarak kalp yetmezliğine ve kardiyojenik şoka neden olduğunu bilmiyor. Katılımcıların %15'i göğüs ağrısının miyokard enfarktüsünün en yaygın semptomlarından biri olduğunu biliyordu. Hemşirelerin %16'sı, miyokard enfarktüslü hastalar için yüksek kaliteli hemşirelik bakımı aldıklarında hastaların sağlığının daha iyi hale geldiğini biliyor. Ve katılımcıların %60'ı miyokard enfarktüsünün lipid düşürücü ilaçlar olarak azaltılabileceğini bilmiyordu, Personelin %46'sı hayati aktiviteleri izlemenin, elektrokardiyogram yürütmenin, oksijen

satürasyonunun ve diğerlerinin miyokard enfarktüsü olan bir hasta için önemli olduğunu biliyordu. Hemşirelerin %38'i miyokard enfarktüsünün en yaygın nedeninin aterosklerozdan plak rüptürü olduğunu bilmiyor. Hemşirelerin %38'i, bir hastanın obez olup olmadığını ve dolayısıyla miyokard enfarktüsü riski altında olup olmadığını belirlemek için vücut kitle indeksinin değerlendirilebileceğini biliyordu. Katılımcıların yaklaşık yarısı %57'si miyokard enfarktüslerinin tipik olarak vücut pozisyonundan bağımsız olarak 20 dakikadan uzun süren yaygın, sürekli bir rahatsızlığa neden olduğunu bilmiyordu. **Sonuç:** Araştırmadan elde edilen bulgular, hemşirelerin bilgilerinin, hemşirelerin eğitim ve deneyimlerinin yetersiz olması nedeniyle beklentilerin altında kaldığını veya gerekli düzeye ulaşmadığını göstermiştir. Çalışmada, hemşirelik personelinin hemşirelik yüksekokullarında eğitimlerini tamamlamasına olanak sağlanması ve hemşireler için eğitim kurslarının ve eğitim programlarının düzenlenmesi önerilmektedir.

Anahtar Kelimeler: Hemşirelik, Miyokard enfarktüs, Bilgi.



1. INTRODUCTION

Myocardial infarction refers to death of heart muscle cells that have been deprived of oxygen for a prolonged amount of period. As a result of acute coronary syndrome (ACS), blood vessels stiffen and arteries get blocked by thrombus, leading to decreased blood flow (Deaton et al., 2017).

The blood flow passing to a section of the heart is blocked and the heart muscle is damaged, thus leading to myocardial infarction (MI), also referred to as a heart attack. The most common symptoms of MI are chest pain or discomfort, which may also spread to other parts of the body. It usually occurs in the middle or left part of the chest and lasts for several minutes. Heartburn is one of rare symptoms. In addition, shortness of breath and nausea are possible (Ibanez et al., 2018).

Infarct size, time of blockage of coronary arteries as well as the presence of branch vessels all have a role in how serious a MI is (Heusch and Gersh, 2017).

The cardiac muscle is permanently damaged by oxygen deprivation in MI. A MI can cause diastolic and systolic dysfunction and increase the risk of arrhythmias in the patients, resulting in various significant consequences. The most important thing is to bring the heart back to life and get the blood flowing through it again. To obtain a better medical prognosis, one has to begin treatment immediately (Barberi and van den Hondel, 2018).

Acute myocardial infarction (AMI) is the most common cause of chest discomfort, breathlessness, and excessive sweating, however, these symptoms could also be caused by other conditions. There is also the fact that not every patient who experiences chest discomfort is actually suffering from an AMI. Consequently, the evidence-based practice requires health care providers to receive a 12-lead ECG and cardiac enzymes immediately after the patient reveals symptoms, including a comprehensive clinical exam and x-rays. Patient medical history and manifestations should be taken into consideration besides the ECG (Amsterdam & Wenger, 2014).

Coronary artery disease (CAD) is the primary reason for other illnesses and death worldwide. It also accounts for a third of all deaths in Western societies among persons aged over 35. Likewise mortality rates associated with this disease are expected to rise in developing countries in the future (Sanchis-Gomar, Perez-Quilis, Leischik, and Lucia, 2016).

The prevalence of CAD in developing countries has increased. The drop in death rates in developed countries can be attributed to the rise in the use of primary and secondary preventative measures for cardiovascular disease. Those with the history of CAD can benefit from treatments known as "secondary preventive techniques," which aim to prevent additional heart damage (Nowbar, Gitto, Howard, Francis and Al-Lamee, 2019).

Concentrating on prevention instead of treatment alone is crucial while assessing the severity of CHD. Therefore, "prevention is preferable to cure." Diseases prevention efforts must center on learning about the disease's causes, pinpointing its risk factors, and instituting preventative measures to lower that hazard as much as possible (Athbi and Hassan, 2019).

Since its founding in 1994, the European Society of Cardiology (ESC) has recommended the use of preventive measures for cardiovascular disease (CVD) in clinical settings. To enhance the preventive cardiology, the Joint European Societies (JES) develop national recommendations, implement them, and evaluate their results. At the top of the clinical priorities is patients suffering from coronary or other atherosclerosis diseases, including specified objectives for lifestyles, clinical health risk control, as well as drug usage (Perk et al., 2012).

Reducing unhealthy eating habits (increased salt, saturated fats, as well as trans-fat) at the societal level can be accomplished by public health policies like labeling and marketing restrictions, and restaurants regulations, and encouraging exercise. For example, this might be a component of efforts to reduce the prevalence of coronary heart disease across an area, or the result of an analysis of how various strategies and initiatives at the local level will affect residents (Jaralnabi, Atawi, Sagiron, Alasmari and Alasmari, 2017).

Heart diseases can be prevented through lifestyle changes, including stopping smoking, losing excess weight, exercising regularly, as well as using medications to decrease blood pressure and cholesterol. All of these are avoidable at the community and personal levels (Ezzati et al., 2015).

1.1. The Significance of The Study

Heart attack is one of the leading causes of death in the developed countries. Three million people globally have the disease and more than one million die from it every year in the United States. There are two types of acute myocardial infarction; non-ST elevation MI (NSTEMI) and ST-elevation MI (STEMI). Stable angina is analogous to NSTEMI. There are no changes in the heart concerning cardiac markers (Nascimento, Brant, Marino, Passaglia, and Ribeiro, 2019).

Acute myocardial infarction (AMI) is a leading cause of hospitalization, morbidity, and death in the United States. According to the current estimates, one American dies of AMI every 42 seconds, and there are approximately 550,000 new and repeated cases and 200,000 recent cases of MI (Addison, Grady, Green and Jurgens, 2017).

Deaths from cardiovascular diseases continue to exceed in America. MI, heart attack, as well as other types of ischemic heart disease, are the main cause of death among major heart illnesses. Nearly 580,000 persons in the United States have their first MI each year; an additional 210,000 have a second MI. Almost every 40 seconds, a heart attack takes place in somebody. About 80% of people who die from MI do so within the first 72 hours of developing symptoms. 60 percent within the first hours and 40 percent before to being admitted to the hospital. Increasing public understanding of Symptoms of MI, the significance of obtaining early medical attention, and training in the diagnosis and treatment of this condition In order to reduce the number of deaths caused by MI, the use of CPR procedures is essential (Benjamin et al., 2017).

Heart failure is just one of the numerous issues that can arise from an AMI. Among the most prevalent. Combinations of acute myocardial infarction and cardiac failure are common clinical observations. Current estimates place the number

of Annually, MI killing 8 million individuals worldwide, and heart failure accounts for a third of those deaths (Zhou et al., 2021).

Dysfunction in the myocardium and the conduction system as a result of reduced blood flow to the heart muscle could be a contributing factor to the consequences which can arise following an AMI. Careful observation is essential in the detection of these consequences which can be life-threatening. Nurses should carefully observe patients' vital signs such as heart rate, rhythm, sound, blood pressure, discomfort in the chest and diaphragm, breathing and urination patterns, as well as their body temperature and skin color. It is critical that any alterations in the patient's condition be notified to the doctor as soon as possible, and emergency measures be taken when needed. Humans are susceptible to AMI, which is characterized by an abrupt cessation of coronary blood flow or by myocardial necrosis and is one of the most general and dangerous acute illnesses (Yin, Han and Cao, 2019).

Atherosclerotic plaque occlusion accounts for 70% of fatalities in patients with acute myocardial infarctions. To reduce the likelihood of suffering an acute myocardial infarction caused by atherosclerosis, it is a common practice to address the disease's risk factors. Ninety percent of myocardial infarctions in males and ninety-four percent of females can be prevented or reduced via lifestyle changes. Activity, smoking, tobacco, hypertension, obesity, cholesterol, and triglycerides are all modifiable factors. The risk of developing atherosclerosis, on the other hand, cannot be changed based on gender, age, or family medical history (Berg et al., 2018).

Smoking is believed to be responsible for around 36 percent of cases of coronary artery disease while being overweight or obese is responsible for around 20 percent of the cases. Physical inactivity has been associated with 7–12 percent of cases, while stress factors like work stress accounted for around 3 percent of cases (Kivimäki et al., 2012).

Approximately 80 percent of deaths due to cardiovascular disease happen in countries with low or middle income, according to current estimates. Cardiovascular diseases are anticipated to be the cause of death in roughly 23.6 million people by

2030. A MI or stroke is predicted to be the cause of the majority of these fatalities with the rate of approximately 85 percent (Sharma et al., 2021).

Heart disease deaths have decreased over the previous decade, while 17 million individuals die due to cardiovascular disease yearly and about half of those deaths are due to ventricular arrhythmias, which lead to sudden cardiac deaths (Sattler et al., 2019).

Women are more prone than men to experience uncommon symptoms, accounting for around 30 percent of the population. Nearly 10 percent of people in Iraq who have suffered an ST-Elevation myocardial infarction die. From 1990 until 2010, the worldwide incidence of myocardial infarction dropped for a specific age group (Valaker et al., 2017).

A recent study investigating coronary artery disease worldwide indicated that people in India had the highest risk for CAD -- 3 to 4 times greater than the US, six times greater than China, and 20 times higher than Japan. Individuals with coronary artery disease are seven to ten percent more likely to live in Northern India than in Southern India; in the latter, that rate rises to fourteen percent. The main reason for death and disability worldwide, coronary heart disease (CHD), has been rising continuously for the past half-century. India was expected to have the highest incidence of atheroembolic cardiovascular disease all around the world in 2020, according to the world's burden of disease survey (Choure et al., 2015).

According to current estimates, the number of Iranians with disabilities induced by CVD will double by 2025 from what it was in 2005 in Iran (Sadeghi, Haghdoust, Bahrampour and Dehghani, 2017).

A great number of people in Iraq are being hospitalized because of CAD and smoking habits, depending on hospital morbidity data provided by the Iraqi Ministry of Health in 2004. There was a five-fold increase in the number of outpatient visitations in Iraqi hospitals for the same diagnoses between 1989 (9.487 people) and 1999. By 2010, that number had risen even further to 19.963 (Eshah, 2011).

A lot of patients are admitted in the hospitals because of AMI. In the majority of cases, death results from heart failure or ischemia. AMI is more common in men. The nurse's role is to educate patients and their families about their health, since the

patient's role is critical in AMI. Biomarkers of chronic stress are linked to caregivers, according to a study. The researchers realized the importance of providing patients with a well-structured educational program to help them prevent AMI (Ibanez et al., 2018).

It has been demonstrated that nurses may minimize the risk of cardiovascular disease, follow therapeutic standards and protocols, lessen the need for admission to the hospital, and slow down the morbidity and mortality rate of patients with acute illnesses (Hayman, Berra, Fletcher and Houston Miller, 2015).

Cardiac nurses play a significant role in the care of patients with CAD. The level of knowledge cardiac patients acquire during hospitalization increases. When patients are empowered through education, this allows them to take control of their health and have a faster recovery rate and a good quality of life (Dobber et al., 2019).

Hospitalized patients always require a structured and scientific nursing model to assure therapeutic effectiveness and also to enhance their bodily functioning, so that rehabilitation can be promoted (Jiang et al., 2020).

In order to avoid AMI, doctors and nurses contribute significantly to early diagnosis of the condition and recommend preventative measures. They must keep an eye on the situation and encourage patients to implement all possible precautions to avoid a heart attack (Cowie et al., 2014).

1.2. Statement of The problem

The problem can be stated or summarized as in the question:

What are the nurses' knowledge of myocardial infarction?

1.3. Objective of The Study

The aim of the study:

- To determine the views of nurses about knowing myocardial infarction.

1.4. Limitation of The Study

This study was conducted in Al-Sader Teaching Hospital / Basra only, which limits the generalizability of the results.

1.5. Assumptions

- _ The main assumption is that the participants in the study from the nursing staff may have information or knowledge regarding myocardial infarction.
- _ As we assumed that the participants have honest answers and understand the questions in the questionnaire, and also that all participants (responders) in the study have undergone the same experience or a similar study.



2. LITERATURE REVIEW

2.1. Definition of Myocardial Infarction

Myocardial infarction is defined pathology as the death of myocardial cells caused by prolonged ischemia (Alpert, 2018).

MI is caused by the formation of an intraluminal thrombosis in the coronary vessels after the rupture of the atherosclerotic plaque, which can cause either a partial or complete blockage of blood flow to the heart muscle. This leads to reduced blood supply to the heart, and eventually death of the heart muscle. Myocardial necrosis can also happen while there is a mismatch between the oxygen supply and demand of the heart. This might happen when the coronary arteries become constricted (Roffi et al., 2016).

2.1.1. ST- elevation myocardial infarction

ST-elevation myocardial infarction occurs when one or many coronary arteries are blocked. In most cases, a thrombus forms as a consequence of a sudden blockage in blood supply to the heart after plaque when coronary arteries are ruptured, eroded, fissured, or dissected. Dyslipidemia, diabetes, high blood pressure, tobacco use, and a previous history of coronary artery disease are the most common factors causing risk for ST-elevation myocardial infarction (Hartikainen et al., 2020).

2.1.2. Non- ST- elevation myocardial infarction

A partial obstruction causes non-ST elevation myocardial infarction and unstable angina (formerly known as subendocardial infarction or non-Q-wave MI). ST- depression or T wave inversion on the electrocardiogram are both signs of this kind of infarction. There are also no Q waves or ST-segment elevation. In electrocardiogram tests, it is possible to confuse non-ST elevation myocardial

infarction with unstable angina. Just the identification of myocardial damage by serology distinguishes them (Amsterdam and Wenger, 2014).

2.2. Acute coronary syndrome (ACS)

ACS is one of the most serious manifestations of CAD. Even though CAD is more common in the elderly, it is becoming more prevalent among mid-aged and younger individuals (early-onset CAD). There are long-term outcomes of early-onset CAD, including disability and mortality (Jeemon et al., 2017).

Especially in young individuals, obesity is the leading cause of ACS (Mirza, Tah and Khdhir, 2018).

2.3. Epidemiology

In recent decades, the epidemiological parameters of acute myocardial infarction have significantly altered. Hospitalizations associated with acute myocardial infarction and fatal coronary heart disease have decreased by four to five percent annually in America since the prevalence rate was first updated. Despite this, an estimated 550.000 new cases and 200.000 recurrences of acute myocardial infarction happen each year (Mozaffarian et al., 2016).

CHD is now the leading reason of disorder worldwide. Acute myocardial infarction and heart illness are now the main reason of death in low and middle-income countries, accounting for more than 80 percent of all cardiovascular disease-related deaths globally (Murray et al., 2015).

Many people in high-income countries had a higher burden of lifestyle, whereas people in low-income countries had a lower one, according to an analysis of risk factors carried out over an average of 4.1 years involving 156.424 individuals in 17 countries. It was suggested that the increased adoption of preventative treatments and revascularization operations in high-income countries helped reduce the high load of risk factors (Yusuf et al., 2014).

2.4. Clinical Manifestations of Myocardial Infarction

An imbalance between oxygen supply and demand causes the onset of myocardial ischemia, which is the first step in the progression of MI. In a clinical

setting, diagnosis of myocardial ischemia is typically established after reviewing the patient's medical history and electrocardiography. Various combinations of the lung, upper extremity, mandibular, or epigastric pain during effort or at rest, or an ischemic counterpart like dyspnea or exhaustion, are all possible ischemic symptoms. Pain is often diffuse; but is not localized or it is not influenced by the movements in the field. These signs, however, are not unique to myocardial ischemia and can occur in a variety of other conditions, including gastrointestinal, neurological, respiratory, and musculoskeletal disorders. MI can manifest with unusual symptoms such as palpitation or heart arrest, or maybe there are no symptoms at all (White, Thygesen, Alpert and Jaffe, 2014).

Releasing and elevations of cardiac troponin (cTn) can be caused by very brief episodes of ischemia that aren't long sufficient to create necrosis. Apoptosis may cause the myocytes to die (Weil et al., 2017).

A diagnosis of acute MI is necessary if myocardial ischemia is present clinically or observed by Electrocardiogram (ECG) changes, as well as myocardial damage manifested by an elevating and/or falling trend of cTn values. If myocardial ischemia is not present clinically, elevated cTn levels can be a sign of acute myocardial injury if the pattern of values is rising and/or dropping, or a sign of more chronic ongoing injury if the pattern is stable (Sarkisian et al., 2016).

When assessing events that may be associated with procedures that could cause myocardial injury and/or MI, similar considerations are important. Additional testing may necessitate the revision of the original diagnosis. Patients with the suspected ACS, who have been ruled out for MI because their cardiac biomarker values are regular, may have the unstable angina or other diagnosis. These patients should be assessed and treated as required (Mendis et al., 2011).

2.5. Electrocardiogram

For the initial diagnosis of the ACS, a resting 12-lead electrocardiogram (ECG) is a fundamental instrument. It's essential that it be gathered within 10 minutes of the patient's admission to the emergency room (Roffi et al., 2016).

Abrupt alterations in the ECG wave image are frequently related with acute MI. If an initial ECG is inconclusive, recurrent monitoring may give useful

information for establishing a final diagnosis. The reperfusion or re-occlusion state may be ascertained by using serial or continuous electrocardiogram readings. Reperfusion is typically accompanied by a rapid and substantial decrease in ST-elevation (Thygesen et al., 2018).

All patients with a STEMI are diagnosed using an ECG in the emergency room. To achieve the better possible results for patients, this test must be completed within ten minutes of their admission at the emergency room. A health care provider completes a follow-up evaluation within ten minutes of the patient's admission. To order to detect STEMI and begin treatment more quickly, the ten-minute ECG has been recommended by the American Heart Association (AHA) for everyone with the symptomatology of a cardiac origin (Yiadom et al., 2017).

2.6. Etiology

Acute myocardial infarction is caused by a decrease in the flow of blood into the coronary arteries. When available oxygen is inadequate to meet the demand, ischemia of the heart occurs. Various factors lead to the reduction of coronary artery blood supply. Atherosclerotic plaques sometimes rupture and thrombosis, impairing coronary blood flow. Additionally, coronary artery embolism (2.9 percent of patients), cocaine-induced ischemia, coronary deconstruction, and coronary vasospasm are also possible causes of decreased oxygenation/myocardial ischemia (Scheen, 2018).

2.6.1. Non-modifiable risk factors

- Gender
- Age
- Family history
- Male baldness (Scheen,2018)

2.6.2. Modifiable risk factors

- Tobacco use
- Hyperlipidemia

- Diabetes mellitus
- High blood pressure
- Obesity
- A lifestyle characterized by inactivity
- Insufficient oral health
- Peripheral vascular disease (PVD) is present
- Increased levels of homocysteine (Scheen,2018)

2.6.3. Another reason of MI

- Trauma
- Blood vessel inflammation (referred to as vasculitis)
- Use of cocaine
- Anomalies in the coronary arteries
- Emboli of the coronary arteries
- Dissection of the aortic
- Excessive heat demand (hyperthyroidism, anemia) (Scheen,2018).

2.7. Complications

2.7.1. Dysrhythmia

Approximately 95 percent of individuals with MI experience dysrhythmia and these irregular heartbeats are a major reason for death in the post-MI period. The specific sort of abnormal heart rhythms a patient exhibits depends heavily on the site of the MI. It is crucial to carefully evaluate the patient's hemodynamics in order to provide the best care possible. Catecholamines are released in response to a frontal MI and raise heart rate, contraction, and blood pressure. Sinus tachycardia is a common irregular heartbeat caused by this type of MI. An irritable ventricle is another common symptom of frontal MI. Hypokalemia is a medical condition that

causes typically irritation in the ventricle. Potassium levels must be examined often, and if they drop under 3.5 mg/dL, the patient must be administered a substitution (Perrin and MacLeod, 2017).

2.7.2. Cardiogenic trauma or shock

Reduced cardiac output leads to a condition known as cardiogenic shock, in which tissue perfusion is insufficient. Insufficient perfusion of tissues results from a cardiac insufficiency caused by a left ventricular malfunction or other mechanical complications. Many people who suffer from an AMI end up dying from cardiogenic shock, which is a mechanical problem of complications. Abnormality of function in the left ventricle due to severe infarction is the leading cause of cardiogenic shock. Isolated disturbance of the function in the right ventricle accounts for only 5 percent of all occurrences of this case. Management focuses on preventing decrease of tissue perfusion and hypoxia by increasing cardiac output and decreasing filling compression without increasing myocardial oxygen request or wall strain. When a cardiogenic shock is suspected, emergency measures are initiated immediately. Those who have not already done so must seriously think about the Urgent restoration of vascularization (Bajaj, Sethi, Rathor, Suppogu and Sethi, 2015).

2.7.3. Heart failure

MI decreases cardiac muscle contractility, ventricular wall movement, as well as compliance. Abnormalities in cardiac contraction and fullness can lead to cardiac failure. With extensive damage to the left ventricle, an increased hazard for cardiac failure emerges. Depending on the region and extent of damage to the cardiac, the degree of cardiac failure can range from moderate to severe. The left ventricle is more severely affected by frontal infarcts, leading to worse failures. Shortness of breath, fatigue, weakness, as well as pulmonary crackling during auscultation, may be signs of left-sided heart failure. It causes a lack of left ventricular muscle mass of 20 to 30 percent. Symptoms of right-sided heart failure including jugular vein swelling and peripheral puffiness, might result from inferior or right-ventricular MIs. Individuals who show signs of cardiac failure are frequently monitored with a Hemodynamic (Gubrud, Carno and Faan, 2019).

2.7.4. Pericarditis

Inflammation results from tissue necrosis. AMI might result in pericarditis, inflammation of the pericardial tissues that surround the heart. Inflammation in the pericardium induces pain in the thorax, which can get worse and even be exacerbated when one moves or even takes deep breaths. With auscultation of heart sounds, a pericardial friction rubbing might also be detected. Dressler syndrome can appear days or even weeks following AMI and is considered to be an autoimmune illness or a hypersensitive reaction to necrotic tissues. Shortness of breath, a high fever, as well as chest pain occur together in this syndrome. It is possible for Dressler's condition to go away on its own or recur over time, causing substantial pain and anxiety (Gubrud et al.,2019).

2.7.5. Extending the infarct

Throughout the initial 10 to 14 days following a MI, about 10 percent of patients have expansion or reinfarction in the initial infarct location. MI progression is characterized by augmented myocardial necrosis caused due to continuous blood supply limitation and damage. MI extension refers to a persistent extension of the infarcted region due to muscle weakening and dilatation. Continuous chest discomfort, hemodynamic impairment, and increasing cardiac failure are all symptoms of infarct extension and augmentation (Gubrud et al.,2019).

2.7.6. Flaws in the structure

Scar tissues, which are thinner than the ventricular muscle mass, replace dead muscles. Ventricle aneurysms, tear of interventricular septal or papillary muscles, and myocardium tearing are all possible consequences. Ventricular aneurysms are called as an effusion of the ventricular wall. It occurs while scar tissue replaces a major portion of the ventricular. The stroke size reduces since the heart doesn't really shrink during systole. Blood might accumulate inside the aneurysms, forming clotting (Gubrud et al., 2019).

2.8. Nursing Activities

The nurse should carry out the necessary actions as quickly as possible after arriving at the urgent care at the emergency unit to relieve pain and stress at increasing myocardium oxygen levels (O'gara et al., 2013).

- The semi-position Fowler's is used to ensure the patient is at ease and their cardiovascular system is running as it should.
- For ten minutes, an ECG, as well as myocardial enzymes, must be analyzed.
- An intravenous port must be inserted to maintain the veins available so that emergency medicines can be administered quickly.
- Following that, medicines and therapies are administered in a systematic order.
- The initial dose of aspirin is four "baby" aspirins, equaling to 325 milligrams. Baby aspirin is the option of drug since it may be chewed or dissolved inside the mouth without leaving bitterness. It is used to avoid platelets from clumping and forming clotting in the coronary arteries.
- Nitroglycerin Can be taken as a sublingual pill or a translingual aerosol to relieve discomfort, or as an intravenous administration to avoid subsequent recurrences.
- Supplementary oxygen to be used when the oxyhemoglobin percentage is $\leq 94\%$, based on the recommendations of Advanced cardiac life support (ACLS) .
- Morphine is administered intravenously in doses of 2 to 5 milligrams each 5 to 30 minutes, as required. Morphine is a painkiller as well as an anti-anxiety drug. If administered initially, this medicine has the potential to hide the patient's feeling of pain as well as the underlying reasons for ischemic.
- Beta-blockers— must be started right away therefore they lower the heartbeat. These medications can reduce left ventricle contraction, lowering heart muscle oxygen need.
- ACE Inhibitor must be begun immediately, particularly in patients having anterior ST-elevation myocardial infarction, heart problems, or an ejection fraction of ≤ 40 percent.
- Vital Signs must be checked regularly (O'gara et al., 2013).

2.9. Nursing Diagnosis

Below is a list of nursing diagnoses that can be applied to patients with MI:

- Extreme Intense, sudden pain caused by an oxygen supply/demand mismatch in the heart.
- Inability to perform physical exertion due to an inadequate supply of oxygen.
- There is a danger of mismanaging the therapy regimen because of its complexness in therapeutic regimen.
- Problems with adjusting to a fresh diagnosis due to inefficient adaptation on the part of individuals and families.
- Lower cardiac output due to preloading changes and A disturbance in cardiac rhythm.
- Inefficient perfusate in tissue, in the heart muscle.
- Anxiety associated with the crisis in circumstances or situations or serious illness to life (Perrin and MacLeod, 2017).

2.10. Nursing Intervention

Listed below are some nursing interventions that may be applied to help a patient who has suffered a MI:

2.10.1. Pain relief and other ischemia clinical manifestations

Oxygen must be administered in addition to prescribed treatments in order to help symptom reduction. Oxygen therapy increases the amount of oxygen in the bloodstream, which helps to alleviate discomfort caused by low myocardial oxygen concentration. The oxygenation flow rate, as well as the mode of delivery (typically via nasal cannula), are also recorded. If the chronic pulmonary illness is present, a flow rate of 2 to 4 liter/minute is commonly sufficient to sustain oxygen saturation values of at least 95 percent. As the patient has pain and other indications or symptoms of acute ischemic, vital signs should be checked periodically. Somatic resting in a supported chair or bed with the raised head relieves chest tightness and short of breath. An unbalance in myocardial oxygen supply and demand as well as

inefficient cardiac tissue perfusion causes the discomfort associated with an acute MI. Heart rate, respiration rate, and hypertension all elevate as a result of the pain. Alleviating pain as soon as possible assists to restore this equilibrium by easing the stress on the heart and reducing damages to the heart muscle. Analgesics also assist in decreasing the patient's worry, which lowers the sympathetic stress response and minimizes the burden over the heart (Hinkle and Cheever, 2018).

2.10.2. Enhancing respiratory performance

Pulmonary functioning is monitored on a regular basis to discover initial indicators of pulmonary problems. To avoid the excess flow of fluid, the nurses check the patients' fluid volume and encourage them to take deep breaths and alter positions often. Pulse oximetry is used to determine when oxygen therapy should be used (Hinkle and Cheever, 2018).

2.10.3. Improving sufficient tissue perfusion

During the early stages of therapy, bed or chair rest can assist in decreasing use of myocardial oxygen. The patients' movement must be restricted unless they feel no pain and are hemodynamically stabilized. To evaluate tissue perfusion, body temperature and peripheral pulses should be examined on a regular schedule (Hinkle and Cheever, 2018).

2.10.4. Anxiety reduction

Nursing activities that lower the sympathetic stress response include reducing tension and fear. Reduced sympathetic activity lowers the burden of the heart by alleviating discomfort as well as other ischemic complaints. In order to reduce stress, it is vital to build a trustworthy and loving friendship among patients. Presenting truthful and helpful information for patients or families encourages the patients to involve in therapy and aids in the development of a good relationship. Additional strategies aiming to reduce anxiety involve creating a calm environment, avoiding sleep disruptions, and offering spiritual reinforcement based on the patients' values. Nursing allows patients to confidentially express their worries and concerns on a regular basis. Acceptance fosters the patients' understanding that their anxieties and fears are both reasonable and natural. Pet therapy, for example, may assist some patients to get relaxed and reduce their anxiety (Hinkle and Cheever, 2018).

2.10.5. Observing and managing possible complications

Damage to the heart muscle and the conduction system as a consequence of reduced myocardial blood flow might lead to serious complications after an acute MI. Since these problems could be fatal, it is vital to keep an eye on them and recognize their clinical manifestations as soon as possible. Alterations in heart rate, as well as rhythm, cardiac sounds, hypertension, chest discomfort, pulmonary condition, urine output, color of skin, body temperature, mental functioning, ECG alteration, as well as laboratory results, are all constantly monitored by nurses. Any alteration in the patient's status should be notified to the healthcare professional as soon as possible, and emergency measurements are taken if needed (Hinkle and Cheever, 2018).

2.10.6. Encourage home, society, and transition care

2.10.6.1. Providing patients with self-care training

Identifying the patient's interests, providing enough knowledge regarding cardio lifestyle, and facilitating the patient's participation in a cardiac rehabilitation program are the most beneficial ways to maximize the likelihood of the patients to implement a self-care routine following discharge (Hinkle and Cheever, 2018).

2.10.6.2. Continuous and transition care

Home, community-based, or transition care may be recommended depending on the patient's condition and the availability of additional support. A nurse who comes to the patient's house may assist to organize and maintain follow-up meetings, as well as adhering to the rehabilitation program that has been recommended. The patient may also need to undergo follow-up screening (e.g. regular lab and heart tests). Home care nurse also monitors the patient's adherence to food limitations and prescription of the drugs. If the patient is getting oxygen at home, the nurse verifies that the oxygen is being used as prescribed and the home safety measures are being followed. If the patient suffers heart failure as a result of the MI, the proper heart failure home care protocols are implemented (Hinkle and Cheever, 2018).

3. MATERIALS AND METHOD

This section includes information about the methodology, design, data collection tools, sample, setting, and data collection process of the study as well as statistical analysis of the study data.

3.1. The Purpose of the Study

The aim of the study is to determine the views of nurses about knowing myocardial infarction at Al-Sader Teaching Hospital.

3.2. The Setting of The Study

The study was conducted in Al-Sader Teaching Hospital, located in the city center of Basra city, and the data were collected from nurses working in this hospital. The units where nurses were working included Cardiac Care Unit, Intensive Care Unit, Emergency Department, Internal Medicine Department, in addition to Catheterization Unit, these units were chosen in the samples because they deal with patients with heart attacks and heart diseases in general.

3.3. The Design of The Study

A descriptive quantitative study was conducted to determine the views of nurses about knowing myocardial infarction at Al-Sader Teaching Hospital in Basra city between February 2022 and March 2022.

3.4. The Sample

A non-probability sample was selected, including a total of 100 nurses working in following hospital units: emergency department (25), coronary care unit (24), intensive care unit (17), internal medicine unit (34), catheterization unit (none). Where in the catheterization ward, there are no participants among the samples due to maintenance work in this unit. 44 of the participants male and 56 were female. The

inclusion criteria were determined as follows; being 19 years old and over and working in these specified units and nurses were included during their morning and evening shifts. Nurses who did not work in these units were also excluded.

3.4.1. Power and sample size calculations in the study

The sample size was calculated according to the table provided by Krejcie and Morgan (1970), which created a readily used table for determining sample size according to the population size. The total population size for nurses in the included hospitals was 138, distributed as follows (medical wards had 51 participants, the emergency unit had 35 participants, the coronary care unit had 31 participants, and the intensive care unit had 21). The minimal accepted sample size, according to (Krejcie and Morgan 1970), is 99. For more reliable and confident results, the sample size that has been taken in this study was 100. Table 3.1 illustrates the specifics.

Table 3.1: Calculation of sample sizes in the study

Hospital	Population Size	Minimum Accepted size	Selected Sample size
Al-sader Teaching Hospital	138	99	100

The sample size is determined using the Steven Thompson equation. From the following formula

$$n = N * P(1-P) / [(N-1) * (d^2 \div Z^2) + P(1-P)]$$

n =refer to sample size

N = refers to population size

Z = refers to confidence level at 95%(1.96)

d =refer to error proportion (0.05)

p =refer to probability (0.5)

The sample was calculated by applying the equation Steven Thompson d: error proportion (0.05) and Z: Confidence level 95%(1.96) p: probability (0.5) N: population size of nurses (138). The result is the results were (98.7) approximated to 99. The value of the sample size was n:99. A larger sample number was taken to ensure a small error rate and a high confidence rate. The number of samples was 100.

3.5. Data Collection Tool

A questionnaire was prepared via the researchers by reviewing the related literature (Al-Fatlawi, 2012; Arslan et al., 2018; Colledge, Walker, Ralston and Davidson, 2010 ; Devlin and Henry, 2008; Kasper et al., 2015; Khan, Pervaiz and Javed, 2016; Lachman et al., 2015; Mehta, Wei and Wenger, 2015; White and Chew,2008).It consists of two parts (Appendix-1A-1B).

Part (1): Questionnaire related to the socio-demographic characteristics of nurses

This part includes socio-demographic characteristics of nurses including age, gender, years of clinical experience, educational level, marital status, unit, years of working in these units, and participation in a training course obtained through face-to-face interview (Al-Fatlawi, 2012; Obaid and Mohammed, 2020).

Part (2): Questionnaire related to nurses' knowledge about myocardial infarction

This part contains 29 items about general information, symptoms, nursing care information regarding the prevention of myocardial infarction (Arslan et al., 2018; Colledge et al., 2010; Devlin and Henry, 2008; Kasper et al., 2015; Khan et al., 2016 ; Lachman et al., 2015; Mehta et al., 2015; White and Chew,2008).

A three-point Likert scale was used from 1 to 3 as (3) know, (2) not sure, and (1) don't know. It contains 29 items. Total score ranges from 29 to 87 points. It took 15 to 30 minutes for each nurse to complete the questionnaire.

3.6. Data Collection

The data was collected by the researcher using the questionnaire method and the direct interview of the nursing staff during the morning and evening shifts, and it

took 20 to 30 minutes to fill out the questionnaire during a period between February and March 2022.

3.7. Data Analysis

The data were analyzed using the SPSS (Statistical Package for the Social Sciences), version 26, through statistical data analysis methods to determine whether or not the objectives of the study were achieved. Descriptive statistics (frequencies and percentages), were used.

3.8. Ethical Considerations

This part is considered important in the thesis because I have dealt with the foundations and ethics of scientific research since the time when the sample was selected, as shown below:

1. Ethical approval was obtained from the Committee of the Çankırı Karatekin University (Appendix-2).
2. Before starting data collection, institutional permission was obtained from the Basra Health Directorate / Human Development and Training Department (Appendix-3A-3B).
3. Also, permission was obtained from Al-Sader Teaching Hospital and the units to take samples (Appendix-4A-4B).
4. Confidentiality or anonymity was ensured by not obtaining the identity of the nurses.
5. All nurses were informed that the results of this questionnaire would be used only for scientific research purposes and their consent was obtained verbally to participate in the research according to the system followed in Iraq to participate in scientific research, most of which is done through the verbal consent of the participants.
6. The nurses were informed that they had the right to refuse to participate.

4. RESULTS

The findings of this study, to determine the views of nurses about knowing myocardial infarction at Al-Sader Teaching Hospital, are presented in this section. All of the participants were selected at random in which every facet of society is represented, since each given facet is equally likely to be included in the sample without influencing the outcome of the selection process.

Table 4.1: Descriptive statistics of demographic characteristics of the nurses

Demographic Characteristics	Variables Classes	N	%
Gender	Male	44	44%
	Female	56	56%
	Total	100	100%
Age	19-28 years	63	63%
	29-38 years	22	22%
	39-48 years	12	12%
	49-58 years	2	2%
	59 and over	1	1%
	Total	100	100%
Marital status	Single	43	43%
	Married	53	53%
	Divorced	4	4%
	Total	100	100%
Education level	Secondary School	42	42%
	Nursing Institute	24	24%
	College of Nursing	34	34%
	Total	100	100%
Clinical Nursing Experience	Less Than One year	37	37%
	1-4 years	20	20%
	5-10 years	16	16%
	More than 10 years	27	27%
	Total	100	100%
Unit	Coronary Care Unit	24	24%
	Intensive Care Unit	17	17%
	Emergency Department	25	25%
	Internal Medicine Service	34	34%
	Total	100	100%
Duration of Working in The Unit	Less Than One years	47	47%
	1-5 years	29	29%
	6-10 years	5	5%
	11-15 years	8	8%
	16 and more years	11	11%
	Total	100	100%

Table 4.1:Continue Descriptive statistics of demographic characteristics of the nurses

Up-To-Date Medical Information	Yes	53	53%
	No	47	47%
	Total	100	100%
Training Course (time to time)	Yes	13	13%
	No	87	87%
	Total	100	100%
Working in Coronary Care Unit in the past	Yes	16	16%
	No	84	84%
	Total	100	%100

Table 4.1 shows the socio-demographic characteristics of the nurses. 56% were female. The participants were mostly aged between 19-28 years (63%). More than half were married (53%). Regarding the education level, the highest percentage was detected in secondary school nursing (42%). In terms of clinical nursing experience, the participants had mostly an experienced of less than one year (37%). Approximately one-third of the nurses were working in the internal medicine unit (34%). More than half of the nurses (53%) had up-to-date medical information. The majority of them did not participate in any training course on heart attack (87%). Most of the nurses (84%) did not work in the coronary care unit in the past.

Table 4.2: Nurses' knowledge of myocardial infarction

Items	Answer	N		%
1- A myocardial infarction occurs when blood flow passing some parts of the heart muscle is blocked, leading to myocardial infarction.	Don't know	60	60%	
	Not sure	28	28%	
	Know	12	12%	
	Total	100	100%	
2- The most common symptom is chest pain or discomfort that may spread to shoulder, arm, back, neck or jaw.	Don't know	40	40%	
	Not sure	28	28%	
	Know	32	32%	
	Total	100	100%	
3- Chest pain or discomfort can sometimes feel like heartburn.	Don't know	31	31%	
	Not sure	23	23%	
	Know	46	46%	
	Total	100	100%	
4- Other symptoms may be shortness of breath, nausea, faintness, cold sweat, or fatigue.	Don't know	59	59%	
	Not sure	26	26%	
	Know	15	15%	
	Total	100	100%	
5- Myocardial infarction can cause heart failure, arrhythmia, cardiogenic shock, or cardiac arrest.	Don't know	57	57%	
	Not sure	28	28%	
	Know	15	15%	
	Total	100	100%	
6- Risk factors may include high blood pressure, smoking, diabetes, lack of exercise, obesity, hyperlipidemia, unhealthy nutrition, and excessive alcohol consumption.	Don't know	34	34%	
	Not sure	29	29%	
	Know	37	37%	
	Total	100	100%	
7- Myocardial infarction can be caused by cocaine-induced coronary artery spasms, possibly due to significant emotional stress, but this is less common.	Don't know	22	22%	
	Not sure	30	30%	
	Know	48	48%	
	Total	100	100%	
8- Chest pain is one of the most common symptoms of acute myocardial infarction and is often described as a feeling of pressure or tightness.	Don't know	57	57%	
	Not sure	28	28%	
	Know	15	15%	
	Total	100	100%	
9- Other less common symptoms include weakness, dizziness, palpitation, and heart rate or blood pressure abnormalities.	Don't know	56	56%	
	Not sure	26	26%	
	Know	18	18%	
	Total	100	100%	
10- Silent myocardial infarctions can occur without any symptoms.	Don't know	39	39%	
	Not sure	21	21%	
	Know	40	40%	
	Total	100	100%	
11- Monitoring vital activities, ECG, oxygen saturation, etc., are essential in the follow-up of a myocardial infarction patient.	Don't know	22	22%	
	Not sure	32	32%	
	Know	46	46%	
	Total	100	100%	
12- Alleviating anxiety and reducing fear are important nursing functions that reduce sympathetic stress.	Don't know	48	48%	
	Not sure	33	33%	
	Know	19	19%	
	Total	100	100%	

Table 4.2: Continue .. Nurses knowledge of myocardial infarction

13- An increase in troponin level in the blood serum during acute myocardial infarction can be detected within a few hours.	Don't know	57	57%
	Not sure	32	32%
	Know	11	11%
	Total	100	100%
14- Providing high-quality nursing care positively affects the health status of patients with myocardial infarction. It is an effective way to improve the psycho-emotional state of patients.	Don't know	55	55%
	Not sure	29	29%
	Know	16	16%
	Total	100	100%
15- Nursing care for patients with myocardial infarction should have high quality, thus promoting myocardial function restoration and preventing complications.	Don't know	38	38%
	Not sure	23	23%
	Know	39	39%
	Total	100	100%
16- The nurse monitors the patient closely for changes in heart rate, heart sounds, blood pressure, chest pain, respiratory status, urine output, skin color, body temperature, electrocardiogram changes, and laboratory values.	Don't know	40	40%
	Not sure	24	24%
	Know	36	36%
	Total	100	100%
17- Cardiac enzymes are consistently elevated in all patients with myocardial infarction, including high level of troponin, the most sensitive marker of myocardial damage.	Don't know	23	23%
	Not sure	22	22%
	Know	55	55%
	Total	100	100%
18- The pain associated with myocardial infarction is usually diffuse, does not change with position, and lasts for more than 20 minutes.	Don't know	57	57%
	Not sure	29	29%
	Know	14	14%
	Total	100	100%
19- Aspirin is an appropriate emergency treatment for suspected myocardial infarction.	Don't know	23	23%
	Not sure	25	25%
	Know	52	52%
	Total	100	100%
20- The term "re-infarction" denotes acute myocardial infarction that occurs within 28 days of an accident or recurrent myocardial infarction.	Don't know	52	52%
	Not sure	30	30%
	Know	18	18 %
	Total	100	100%
21- The most common cause of myocardial infarction is plaque rupture due to atherosclerosis.	Don't know	38	38%
	Not sure	24	24%
	Know	38	38%
	Total	100	100%
22- Obesity can be assessed in people prone to myocardial infarction by measuring body mass index (BMI).	Don't know	24	24%
	Not sure	21	21%
	Know	55	55%
	Total	100	100%
23- The use of aspirin tablets reduces the incidence of myocardial infarction in people with risk factors.	Don't know	60	60%
	Not sure	25	25%
	Know	15	15%
	Total	100	100%
24- Control of hypertension would greatly reduce myocardial infarction.	Don't know	57	57%
	Not sure	25	25%
	Know	18	18%
	Total	100	100%
25- The use of lipid-lowering drugs may reduce the incidence of myocardial infarction.	Don't know	60	60%
	Not sure	23	23%
	Know	17	17%
	Total	100	100%

Table 4.2: Continue .. Nurses knowledge of myocardial infarction

26- The risk of developing a myocardial infarction increases with age and decreased physical activity.	Don't know	34	34%
	Not sure	25	25%
	Know	41	41%
	Total	100	100%
27- A family history of ischemic heart disease or myocardial infarction is considered.	Don't know	38	38%
	Not sure	22	22%
	Know	40	40%
	Total	100	100%
28- Diabetes is one of the main causes of myocardial infarction.	Don't know	24	24%
	Not sure	28	28%
	Know	48	48%
	Total	100	100%
29- People should stop smoking and exercise regularly to prevent heart attacks.	Don't know	61	61%
	Not sure	34	34%
	Know	5	5%
	Total	100	100%

Table 4.2, 46% of the nurses knew that chest pain makes individuals feel like heartburn, 59% of the nurses did not know other symptoms of myocardial infarction like shortness of breath, nausea, etc. About 57% were unaware that myocardial infarction can lead to heart failure, arrhythmias, or even cardiac arrest. 37 % of them were aware that high blood pressure, smoking, diabetes, insufficient physical exercise, obesity, hyperlipidemia, unhealthy nutrition, and excessive alcohol consumption are risk factors for myocardial infarction. 57% of the nurses were aware that an increase in troponin level during acute myocardial infarction can be detected within a few hours. 39% of the nurses knew that nursing care for patients with myocardial infarction should have high quality.

According to table 4.2, 60% of the nurses did not know that the use of aspirin tablets reduces the incidence of myocardial infarction. 57% of the nurses did not know that control of hypertension would greatly reduce myocardial infarction. 60% of the nurses did not know that the use of lipid-lowering drugs may reduce the incidence of myocardial infarction. 48% of the nurses were aware that diabetes is one of the main causes of myocardial infarction. 61% of the nurses did not know that people should stop smoking and exercise regularly to prevent heart attacks.

5. DISCUSSION

In this section, we discuss in detail the results of the study with the supporting evidence found in the related literature. This section also includes an analysis of the socio-demographic characteristics of the participants as well as determination of nurses views of knowing in the myocardial infarction.

5.1. Discussion of Socio-Demographic Characteristics of the Nurses

The majority (63%) of the nurses in the present study were aged between 19-28 years. This result is compatible with the study by AL-Hassan (2018) and the study by Sambu (2018). This finding may explain that nurses at such an age are more active and energetic and more interested than elderly nurses, recent graduates, and juniors. In addition, there are more nurses from this age group than older ones, and hospitals always need that. Hence, our results were identical.

Regarding gender, findings of the present study showed that more than half (56%) of the participants were females and 44% were males. This result is supported by the study by Obaid and Mohammed (2020). Also, this study is compatible with Skal and Ahmed (2021). The researcher believes that the samples of our research are concurrent with two sources because the female group is more acceptable in nursing institutes and nursing colleges in addition to secondary schools nursing in our country, as well as in eastern countries, so new employees of nursing staff at hospitals are more in female. For a long time, the nursing profession may be associated with and more acceptable to females other than males, so our results are similar.

When it comes to education level, most (42%) of the participants were secondary school graduates and 34% graduated from college of nursing. The current study is compatible with the studies by Fashakh A, Kadhem (2016) and Skal and Ahmed, (2021). The results of the present study are compatible with their results, which report that secondary school nursing is the oldest in Iraq from nursing

institutes and colleges. Also, the new graduates and those employees from secondary school nursing certification may have less chance to complete their studies in nursing institutes and colleges, and the researcher believes that the research samples were taken randomization.

When examining marital status, result of the study indicated that the majority of participants were married (53%). This result is compatible with the studies by Alwsaby (2019) and Fashakh and Kadhem (2016). The results of the current study are similar to the results of their studies stating that the participants were from the middle-age group and also the subjects were included in a random way.

Regarding years of nursing experience, it was found that the majority of the participants had an experience of less than one year (37%). Result of the present study is not compatible with Jaralnabi et al., (2017). Additionally, this result contradicts with study by Karadkar, Dasila, Deshpande and Kambli (2018). The results of the present study contradict with their study, and the researcher explain that the nurses are newly graduated and junior, and this result is similar to the first result above.

When examining the workplace (the unit), results of the present study indicated that while the rate of the participants who were working in the emergency department was 26%, the rate of the internal medicine unit was 25%. The results of the present study contradict with those of another study conducted by Al-Fatlawi (2012). The sampling method used in the present study may be different from the above study, as well as the inclusion of the respondents may also be different.

When it comes to participation in the training course on heart attack, it was determined that the majority of the nurses did not participate in training courses (87%) and the rate of those who participated in training courses was 13%. This result is compatible with the study by Mohamed, Taha, Moghazy and Ahmed (2021). In addition, results of the present study are compatible with those reported by Mohamed (2017). Also, another study indicated that of the nurses did not participate in training courses before, and this was confirmed by Mohammed (2016). This is explained that there is no training or educational courses conducted in hospitals or other places for the nursing staff.

The present study revealed that more than half of the nurses followed sources of updated information through many ways, including the internet, medical books and other sources. This result is similar to another study by AL-Mamoori, Washi, AL-Tameemi and Mansour (2022). The researcher believes that there are many sources available for reading; so updating their knowledge is easy.

Data analysis showed in the present study that the majority of the participants did not work in the coronary care unit previously. Unfortunately, no results that are in line with the findings of the present study are available in the literature. The researcher believes that it takes considerable effort and experience to be able to work in critical units (as is the case in coronary care unit).

5.2. Discussion of Nurses' Knowledge About Myocardial Infarction

Regarding to nurses' level of knowledge about myocardial infarction in the present study, the finding in table (4-2) revealed that, most of nurses had not idea about myocardial infarction occurs when blood flow passing some parts of the heart muscle is blocked, leading to myocardial infarction, the most common symptom is chest pain or discomfort that may spread to shoulder, arm, back, neck or jaw, chest pain or discomfort can sometimes feel like heartburn, other symptom of MI may be shortness of breath, nausea, faintness, cold sweat, or fatigue, Myocardial infarction can cause heart failure, arrhythmia, cardiogenic shock, or cardiac arrest, Risk factors may include high blood pressure, smoking, diabetes, lack of exercise, obesity, hyperlipidemia, unhealthy nutrition, and excessive alcohol consumption, Myocardial infarction can be caused by cocaine-induced coronary artery spasms, possibly due to significant emotional stress, but this is less common. Chest pain is one of the most common symptoms of acute myocardial infarction and is often described as a feeling of pressure or tightness. Other less common symptoms include weakness, dizziness, palpitation, and heart rate or blood pressure abnormalities. Silent myocardial infarctions can occur without any symptoms. Monitoring vital activities, ECG, oxygen saturation, etc., are essential in the follow-up of a myocardial infarction patient. Alleviating anxiety and reducing fear are important nursing functions that reduce sympathetic stress. An increase in troponin level in the blood serum during acute myocardial infarction can be detected within a few hours. Providing high-quality nursing care positively affects the health status of patients with myocardial

infarction. It is an effective way to improve the psycho-emotional state of patients. Nursing care for patients with myocardial infarction should have high quality, thus promoting myocardial function restoration and preventing complications. The nurse monitors the patient closely for changes in heart rate, heart sounds, blood pressure, chest pain, respiratory status, urine output, skin color, body temperature, electrocardiogram changes, and laboratory values. The term "re-infarction" denotes acute myocardial infarction that occurs within 28 days of an accident or recurrent myocardial infarction. The most common cause of myocardial infarction is plaque rupture due to atherosclerosis. The use of aspirin tablets reduces the incidence of myocardial infarction in people with risk factors. Control of hypertension would greatly reduce myocardial infarction. The use of lipid-lowering drugs may reduce the incidence of myocardial infarction. The risk of developing a myocardial infarction increases with age and decreased physical activity. A family history of ischemic heart disease or myocardial infarction is considered. Diabetes is one of the main causes of myocardial infarction. People should stop smoking and exercise regularly to prevent heart attacks. This finding indicated nurses have poor level of knowledge about myocardial infarction. While, nurses have average knowledge about myocardial infarction in two items which include (aspirin is an appropriate emergency treatment for suspected myocardial infarction and obesity can be assessed in people prone to myocardial infarction by measuring body mass index). This result may be related to absence of role of nursing training in the hospital.

In similar descriptive study, the result supported our study finding. They found that the highest percentage (75.7%) of nurses provided fair levels of quality of nursing care (Qadir and Younis, 2015). Due to nurses having less than 5 years of experience in coronary care units and have not participated in previous trainings.

Also, in another quasi-experimental design study, the finding revealed that nurses had unsatisfactory level of knowledge about anatomy of cardiovascular system, causes, theories and risk factor of coronary artery disease, information about myocardial infarction, and nursing care for patient with myocardial infarction (Alwsaby, 2019). This result consisted with our study.

Ahmed, Ali and Allam (2022) in their study found that nurses had poor knowledge about acute myocardial infarction and thrombolytic therapy. Also, a

descriptive design study conducted in Iraq agree with the present study finding. The result shows that there was a low in nurses' knowledge about myocardial infarction were (42%) (AL-Mamoori et al., 2022). This result agrees with our study nurses finding due to nurses having less than 5 years of experience in coronary care units and have not participated in previous training courses about coronary arteries diseases.

In another quasi-experimental research design, they found that 5% of studied nurses had satisfactory level of knowledge regarding thrombolytic therapy (Ghonem, Mohamed, Gaballah and Hassan, 2022). This result agree with our study because of most of nurses not attendance in training courses about myocardial infarction.

In a cross-sectional descriptive type of study, the finding shows that the majority of nurses who responded, myocardial tissue death in MI is caused by insufficient blood flow. Only 10% of respondents correctly identified myocarditis as another name for MI, while 56.66% of respondents stated they had a heart attack. More than 80% of nurses selected STEMI and NSTEMI as their preferred MI subtypes. According to 96.67% of nurses, smoking increases the risk of MI. Bradycardia, according to 20.00 percent of nurses, and tachycardia, according to 60 percent, are indicators of MI. Chest discomfort was cited by the majority of respondents as the main MI symptom. According to two-thirds of the respondents, burning chest pain is a hallmark of MI. Within 24 hours of MI, 40.00 percent of patients responded to cardiogenic shock, 30.00 percent to myocarditis, and 30.00 percent to ventricular fibrillation as the sequelae. Arrhythmias were cited by more than half of responders as the main MI complication. The majority of respondents said that the vital indicators of MI were blood pressure and pulse. According to 46.67% of respondents, the diagnostic test that should be used to evaluate MI is troponin. Aspirin and nitroglycerin are the drugs initially given to MI patients, according to 86.66 percent of respondents, and coronary artery bypass grafting is the surgical intervention for MI, according to 50% of nurses. The majority of nurses said that administering medication and monitoring response is the regular nursing intervention for MI patients. Dietary changes, according to all of the responders, are the primary defense against MI. The majority of nurses recommend exercise as a way to prevent MI (Yesmin, Rahman, Akter, Jahan and Rizwan, 2022). This result in-consisted with our finding due to different in culture nurses had diploma degree in

nursing and experience years more than 5 years. But, in our study most of nurses graduated of nursing secondary school and had experience years less than 5 years.

Also, the finding of Ali, Shihab, Sharif, Yaseen and Yousef (2022) in the study not supported our finding, they found that nurses have good knowledge about myocardial infarction. This study not consisted with our study due to nurses' education have different level in nursing master and doctorate degree and years of service more than 6 years to 30 years.

The researcher point of view lack of courses for nursing staff in hospitals or other places which need could do more to provide courses in section continuing education for their nursing staff so that they can maintain their knowing and advance their professional competence. The majority of the nursing staff did not receive any additional courses or training and additionally, the result of their knowledge level was according to their educational level. This reflects the fact that the majority of registered nurses have less opportunities to further their education. In addition, continuing their education is necessary for critical units, including the cardiac care unit, the intensive care unit, as well as the emergency unit, and cardiac catheterization, which places a high premium on having all registered nurses hold bachelor's degrees or higher from an accredited educational facility. On the other hand, the researchers think that the nurses who work in the essential units in the hospital need to expand their knowledge and update their information in order to be able to complete the work in these units. Additionally, there are fewer programs designed specifically for staff nurses that are put on by the health department. These programs are meant to help staff nurses improve their knowledge and keep it current.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

Consequently, the following conclusions were drawn in the light of the findings of the present study:

- ❖ There approximately more than half of the nursing staff follow a variety sources or update their information to stay up-to-date on the latest developments in their field.
- ❖ This study revealed that most of the nurses were female, aged 19 to 28 years, graduated from secondary school nursing, married, and had less than a year of clinical experience.
- ❖ Nursing staff acquired new skills and information through participating in or attending educational programs.
- ❖ The majority of the nurses currently employed have never worked in the coronary care unit in the past.
- ❖ About a quarter of participants (23%) don't realize that aspirin can be used to treat a heart attack in an emergency.
- ❖ Only 5% of people were aware that stopping smoking and increasing physical activity reduced the risk of heart attack.
- ❖ Only one-quarter of respondents were not sure that a lifestyle and advanced age both increase the risk of myocardial infarction.
- ❖ Of those asked, 60% were unaware that myocardial infarction rates can be lowered by taking lipid-lowering medicines.
- ❖ Only 16% of respondents were aware that patients' health statuses improve when they receive high-quality nursing care after suffering a myocardial infarction.
- ❖ The majority of the personnel (57%) were unaware that an acute myocardial infarction might be diagnosed through an elevated troponin level in the blood serum within a few hours.

- ❖ In fact, 57% are in the dark about this. Weakness, dizziness, palpitations, and changes in heart rate or blood pressure are additional, less frequent symptoms.
- ❖ 59% of nurses staff are unaware that other symptoms include difficulty breathing, nausea, weakness, cold sweat, and exhaustion.

6.2. Recommendations

Recommendations for use by health institutions in Iraq and the country at large are made based on the study's findings:

1. It is recommended that nurses working in health institutions in Iraq be allowed to complete their studies in nursing colleges.
2. There is a need for further studies in Iraq with a larger sample to clarify the extent how the study variables affect the knowledge of the nursing staff.
3. It is suggested for nursing staff especially in critical units to participate in training courses because these wards need special attention and require nurses to update their knowledge.
4. Nurses working in critical care units, such as an emergency unit, coronary care unit, or intensive care unit, must possess a comprehensive and up-to-date understanding of critical care, to deal with high-risk patients, especially myocardial infarction.
5. Evaluation of nurses' skills and knowledge should be ongoing and systematic, especially in high-stakes settings like intensive care units, As well as cardiac units so that gaps in training can be closed.

REFERENCES

- Addison, D., Grady, K. L., Green, L. A., & Jurgens, C. Y. (2017). 2017 AHA / ACC Clinical Performance and Quality Measures for Adults With ST-Elevation and Non – ST-Elevation Myocardial Infarction. *Journal of the American College of Cardiology*, 70(16), 2048–2090. <https://doi.org/10.1016/j.jacc.2017.06.032>
- Ahmed, B. M., Ali, H. A., Allam, H. M. (2022). Effect of Designed Guidelines on Nurses' Performance for Acute Myocardial Infarction Patients Who Receiving Thrombolytic Therapy. *Journal of Nursing Science - Benha University*, 3(2), 712-727. doi: 10.21608/jnsbu.2022.247694
- Al-Fatlawi, D. (2012). Determination of nurses' knowledge toward care provided to patients with acute myocardial infarction in Al-Najaf City. *Kufa Journal for Nursing Sciences*, 2(2), 115–128.
- AL-Hassan, S. O. M. (2018). Nurse's performance regarding immediate management of patients with acute myocardial infarction in Khartoum state (2018). Fathia Osman Makki. <http://hdl.handle.net/123456789/932>
- Ali, W. D. A., Shihab, L. A., Sharif, S. A., Yaseen, Z. S., Yousef, Z. R. (2022). Assessment of nurses' knowledge regarding myocardial infarction in Basrah Teaching Hospitals. *World Journal of Advanced Research and Reviews*, 14(2), 593–597
- AL-Mamoori, H. M. K., Washi, G. A., AL-Tameemi, N. M. A., & Mansour, H. K. (2022). Assessment of Nurses' Knowledge toward Myocardial Infraction at Coronary Unit in Al-Imam Al-Sadiq Teaching Hospital, Babylon Province, Iraq. *International Journal of Health Sciences*, 6(S2), 2538–2544. <https://doi.org/10.53730/ijhs.v6nS2.5576>
- Alpert, J. S. (2018). The fourth edition of the universal definition of myocardial infarction. *American Journal of Medicine*, 131(11), 1265-1266. doi:10.1016/j.amjmed.2018.06.016
- Alwsaby, S. A. (2019). Effect of Training Program on Nurses' Knowledge Toward Care of Patients with Myocardial Infarction in Al-Thowrah Hospital, AlHodeida City, Yemen. 3, (1)3, *مجلة جامعة الرازي للعلوم الطبية*. DOI: <https://doi.org/10.51610/rujms3.1.2019.39>
- Amsterdam, E., & Wenger, N. (2014). 2014 ACC/AHA guideline for the management of patients with non–ST-elevation acute coronary syndromes: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines: executive summary. *Journal of the American College of Cardiology*, 64, 2645–2687.
- Arnett, D. K., Blumenthal, R. S., Albert, M. A., Buroker, A. B., Goldberger, Z. D., Hahn, E. J.,... McEvoy, J. W. (2019). 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Journal of the American College of Cardiology*, 74(10), e177–e232.

- Arslan, F., Bongartz, L., Ten Berg, J. M., Jukema, J. W., Appelman, Y., Liem, A. H.,... Damman, P. (2018). 2017 ESC guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: Comments from the Dutch ACS working group. *Netherlands heart journal : monthly journal of the Netherlands Society of Cardiology and the Netherlands Heart Foundation*, 26(9), 417–421. <https://doi.org/10.1007/s12471-018-1134-0>
- Athbi, H. A., & Hassan, H. B. (2019). Knowledge of patients with coronary heart disease about secondary prevention measures. *Indian Journal of Public Health Research & Development*, 10(2), 945. <https://doi.org/10.5958/0976-5506.2019.00418.2>
- Bajaj, A., Sethi, A., Rathor, P., Suppogu, N., & Sethi, A. (2015). Acute complications of myocardial infarction in the current era: diagnosis and management. *Journal of Investigative Medicine*, 63(7), 844–855. <https://doi.org/10.1097/JIM.0000000000000232>
- Barberi, C., & van den Hondel, K. E. (2018). The use of cardiac troponin T (cTnT) in the postmortem diagnosis of acute myocardial infarction and sudden cardiac death: a systematic review. *Forensic Science International*, 292, 27–38. <https://doi.org/10.1016/j.forsciint.2018.09.002>
- Berg, D. D., Wiviott, S. D., Braunwald, E., Guo, J., Im, K., Kashani, A.,... Bhatt, D. L. (2018). Modes and timing of death in 66 252 patients with non-ST-segment elevation acute coronary syndromes enrolled in 14 TIMI trials. *European Heart Journal*, 39(42), 3810–3820. <https://doi.org/10.1093/eurheartj/ehy556>
- Choure, N., Chandrawanshi, H. K., Rajput, M. S., Sehgal, S., Patliya, M. E., & Sarkar, P. D. (2015). The effectiveness of self instructional module on cardiac rehabilitation. *International Journal of Nursing Sciences*, 2(3), 317–323.
- Colledge, N. R., Walker, B. R., Ralston, S., & Davidson, S. (2010). Davidson's principles and practice of medicine. Edinburgh: Churchill Livingstone/Elsevier. 588–599.
- Cowie, M. R., Anker, S. D., Cleland, J. G. F., Felker, G. M., Filippatos, G., Jaarsma, T.,... Ponikowski, P. (2014). Improving care for patients with acute heart failure: Before, during and after hospitalization. *ESC Heart Failure*, 1(2), 110–145.
- Deaton, C., Johnson, R., Evans, M., Timmis, A., Zaman, J., Hemingway, H., ... Cramer, H. (2017). Aligning the planets: the role of nurses in the care of patients with non- ST elevation myocardial infarction. *Nursing Open*, 4(1), 49–56.
- Devlin, R. J., & Henry, J. A. (2008). Clinical review: Major consequences of illicit drug consumption. *Critical Care*, 12(1), 1–7. <https://doi.org/10.1186/cc6166>
- Dobber, J., Latour, C., Snaterse, M., van Meijel, B., Ter Riet, G., Scholte op Reimer, W., & Peters, R. (2019). Developing nurses' skills in motivational interviewing to promote a healthy lifestyle in patients with coronary artery disease. *European Journal of Cardiovascular Nursing*, 18(1), 28–37.
- Ezzati, M., Obermeyer, Z., Tzoulaki, I., Mayosi, B. M., Elliott, P., & Leon, D. A. (2015). Contributions of risk factors and medical care to cardiovascular mortality trends. *Nature Reviews Cardiology*, 12(9), 508–530. <https://doi.org/10.1038/nrcardio.2015.82>
- Eshah, N. F. (2011). Jordanian acute coronary syndrome patients' learning needs: Implications for cardiac rehabilitation and secondary prevention programs. *Nursing &*

- Fashakh, A., & Kadhem, H. (2016). Effectiveness of nursing intervention on patients with acute myocardial infarction in cardiac centers at Baghdad city hospitals. *Kufa Journal for Nursing Sciences*, 6(2), 1–11.
- Ghonem, G. E., Mohamed, Y. M., Gaballah, S. H., Hassan, M. S. (2022). Effect of Educational Program on Nurses' Knowledge and Practice Regarding Thrombolytic Therapy among Patients with Acute Myocardial Infarction. *American Journal of Nursing Research*, 10(2), 58-66 . DOI: 10.12691/ajnr-10-2-3
- Griswold, M. G., Fullman, N., Hawley, C., Arian, N., Zimsen, S. R. M., Tymeson, H. D.,...Salama, J. S. (2018). Alcohol use and burden for 195 countries and territories, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 392(10152), 1015–1035. [https://doi.org/doi:10.1016/S0140-6736\(18\)31310-2](https://doi.org/doi:10.1016/S0140-6736(18)31310-2)
- Gubrud, P., Carno, M., & Faan, B. G. R. P. (2019). *LeMone and Burke's Medical-Surgical Nursing: Critical Thinking for Person-Centred Care* (7th ed.). Pearson Education Australia.
- Hartikainen, T. S., Sörensen, N. A., Haller, P. M., Goßling, A., Lehmacher, J., Zeller, T.,... Neumann, J. T. (2020). Clinical application of the 4th universal definition of myocardial infarction. *European Heart Journal*, 41(23), 2209–2216.
- Hayman, L. L., Berra, K., Fletcher, B. J., & Houston Miller, N. (2015). The role of nurses in promoting cardiovascular health worldwide: The global cardiovascular nursing leadership forum. *Journal of the American College of Cardiology* , 66(7), 864–866. <https://doi.org/10.1016/j.jacc.2015.06.1319>
- Hennekens, C. H., & Andreotti, F. (2013). Leading avoidable cause of premature deaths worldwide: Case for obesity. *The American Journal of Medicine*, 126(2), 97–98. <https://doi.org/10.1016/j.amjmed.2012.06.018>
- Heusch, G., & Gersh, B. J. (2017). The pathophysiology of acute myocardial infarction and strategies of protection beyond reperfusion: a continual challenge. *European Heart Journal*, 38(11), 774–784.
- Hinkle, J. L., & Cheever, K. H. (2018). *Brunner and Suddarth's textbook of medical-surgical nursing*. Wolters kluwer india Pvt Ltd.
- Ibanez, B., James, S., Agewall, S., Antunes, M. J., Bucciarelli-Ducci, C., Bueno, H.,... Widimský, P. (2018). 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: The Task Force for the management of acute myocardial infarction in patients presenting with ST-segment elevation of the European Soci. *European Heart Journal*, 39(2), 119–177. <https://doi.org/10.1093/eurheartj/ehx393>
- Jansen, J., Bonner, C., McKinn, S., Irwig, L., Glasziou, P., Doust, J.,...McCaffery, K. (2014). General practitioners' use of absolute risk versus individual risk factors in cardiovascular disease prevention: an experimental study. *BMJ Open*, 4(5), e004812.
- Jaralnabi, A., Atawi, S., Sagiron, W., Alasmari, N., & Alasmari, H. (2017). Effect of education program on nurses' knowledge, attitude, and intentions towards myocardial infarction prevention and treatment. *American Journal of Environmental and Occupational Health*, 2(2), 7–9.
- Jeemon, P., Harikrishnan, S., Sanjay, G., Sivasubramonian, S., Lekha, T. R., Padmanabhan,

- S.,... Prabhakaran, D. (2017). A PROgramme of Lifestyle Intervention in Families for Cardiovascular risk reduction (PROLIFIC Study): Design and rationale of a family based randomized controlled trial in individuals with family history of premature coronary heart disease. *BMC Public Health*, 17(1), 1–11. <https://doi.org/10.1186/s12889-016-3928-6>
- Jiang, W., Feng, M., Gao, C., Li, J., Gao, R., & Wang, W. (2020). Effect of a nurse-led individualized self-management program for Chinese patients with acute myocardial infarction undergoing percutaneous coronary intervention. *European Journal of Cardiovascular Nursing*, 19(4), 320–329. <https://doi.org/10.1177/1474515119889197>
- Karadkar,G., Dasila,P., Deshpande,A., Kambli,S.(2018). Nurses’ Knowledge Regarding Acute Coronary Syndrome. *Int J Recent Sci Res.* 9(12), pp. 29838- 29841. DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0912.2941>
- Kasper, D., Fauci, A., Hauser, S., Longo, D., Jameson, J., & Loscalzo, J. (2015). Harrison’s principles of internal medicine, 19e (Vol. 1, Issue 2). Mcgraw-hill New York, NY, USA: 1593–1610.
- Khan, M. Z., Pervaiz, M. K., & Javed, I. (2016). Biostatistical study of clinical risk factors of myocardial infarction: A case-control study from Pakistan. *PAFMJ*, 66(3), 354–360. Retrieved from <https://www.pafmj.org/index.php/PAFMJ/article/view/1302>
- Kivimäki, M., Nyberg, S. T., Batty, G. D., Fransson, E. I., Heikkilä, K., Alfredsson, L.,... Casini, A. (2012). Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data. *The Lancet*, 380(9852), 1491–1497.
- Krejcie, R. V, & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Lachman, S., Minneboo, M., Snaterse, M., Jorstad, H. T., Ter Riet, G., Reimer, W. J. S. O., ... group, R. 2 study. (2015). Community-Based comprehensive lifestyle programs in patients with coronary artery disease: Objectives, design and expected results of randomized evaluation of secondary prevention by outpatient nurse specialists 2 trial (response 2). *American Heart Journal*, 170(2), 216–222. <https://doi.org/10.1016/j.ahj.2015.05.010>
- Lago, R. M., & Nesto, R. W. (2009). Type 2 diabetes and coronary heart disease: focus on myocardial infarction. *Current Diabetes Reports*, 9(1), 73–78. <https://doi.org/10.1007/s11892-009-0013-x>
- Lakshmi, K.N.(2018). A Study to Assess the Level of Knowledge Regarding Assessment and Management of Myocardial Infarction among Nursing Staff in Selected Hospital at Mysore. *JOJ Nurse Health Care*, 8(5),555750. DOI: 10.19080/JOJNHC.2018.08.555750
- Mehta, P. K., Wei, J., & Wenger, N. K. (2015). Ischemic heart disease in women: A focus on risk factors. *Trends in Cardiovascular Medicine*, 25(2), 140–151. <https://doi.org/10.1016/j.tcm.2014.10.005>
- Mendis, S., Thygesen, K., Kuulasmaa, K., Giampaoli, S., Mähönen, M., Ngu Blackett, K., ... Infarction, W. group on behalf of the participating experts of the W. H. O. consultation for revision of W. H. O. definition of myocardial. (2011). World Health Organization definition of myocardial infarction: 2008–09 revision. *International Journal of Epidemiology*, 40(1), 139–146. <https://doi.org/10.1093/ije/dyq165>
- Meschia, J. F., Bushnell, C., Boden-Albala, B., Braun, L. T., Bravata, D. M., Chaturvedi,

- S.,... Fornage, M. (2014). Guidelines for the primary prevention of stroke: A statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, 45(12), 3754–3832. <https://doi.org/10.1161/STR.0000000000000046>
- Mirza, A. J., Taha, A. Y., & Khedhir, B. R. (2018). Risk factors for acute coronary syndrome in patients below the age of 40 years. *The Egyptian Heart Journal*, 70(4), 233–235. <https://doi.org/10.1016/j.ehj.2018.05.005>
- Mohamed, S. M., Taha, N. M., Moghazy, N. A. E., & Ahmed, Z. M. (2021). Factors Affecting Nurses' Performance Regarding Thrombolytic Therapy among Patients with Acute Myocardial Infarction. *Zagazig Nursing Journal*, 17(1), 113–132.
- Mohamed, F. A. A. (2017). Nurses knowledge regarding care of Patients with Acute Coronary Syndrome in El obied Teaching Hospital (El obied Locality July-September 2017). Higazi Mohammed Ahmed Abdallah Awad. <http://hdl.handle.net/123456789/725>
- Mohammed, W. (2016). Assessment of Nurse's Knowledge and Practice Regarding Care of Patients with Acute Coronary Syndrome in Elmak Nimer University Hospital. Published Master Thesis in Medical Surgical Nursing Science, Faculty of Post Graduate and Scientific Research, Shendi University, Sudan, 55–62. <http://hdl.handle.net/123456789/383>
- Mozaffarian, D., Benjamin, E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M.,... Fullerton, H. J. (2016). Heart disease and stroke statistics—2016 update: A report from the American Heart Association. *Circulation*, 133(4), e38–e360.
- Muntner, P., Carey, R. M., Gidding, S., Jones, D. W., Taler, S. J., Wright Jr, J. T., & Whelton, P. K. (2018). Potential US population impact of the 2017 ACC/AHA high blood pressure guideline. *Circulation*, 137(2), 109–118.
- Murray, C. J. L., Barber, R. M., Foreman, K. J., Ozgoren, A. A., Abd-Allah, F., Abera, S. F., ... Abu-Raddad, L. J. (2015). Global, regional, and national disability-adjusted life years (DALYs) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990–2013: Quantifying the epidemiological transition. *The Lancet*, 386(10009), 2145–2191.
- Nascimento, B. R., Brant, L. C. C., Marino, B. C. A., Passaglia, L. G., & Ribeiro, A. L. P. (2019). Implementing myocardial infarction systems of care in low/middle-income countries. *Heart*, 105(1), 20–26. <https://doi.org/10.1136/heartjnl-2018-313398>
- Nowbar, A. N., Gitto, M., Howard, J. P., Francis, D. P., & Al-Lamee, R. (2019). Mortality from ischemic heart disease: Analysis of data from the World Health Organization and coronary artery disease risk factors From NCD Risk Factor Collaboration. *Circulation: Cardiovascular Quality and Outcomes*, 12(6), e005375.
- Parmil . (2022). A Study to Assess the Knowledge of Staff Nurses Regarding First 24 Hours Care of Patients with Myocardial Infarction admitted to ICU/Emergency in Hospital Pt. BD Sharma, PGIMS Rohtak with a View to Develop Self-Instructional Module. *International Journal of Nursing Education*, 14(2), 177. DOI: <https://doi.org/10.37506/ijone.v14i2.18018>
- Obaid, H., & Mohammed, S. (2020). Effectiveness of Educational Program on Nurses Knowledge toward Nursing Management for Patients Undergoing Percutaneous Coronary Intervention in Cardiac Center at Al-Dewaniyah City. *Iraqi National Journal of Nursing Specialties*, 33(1), 12–20. Retrieved from

- O'gara, P. T., Kushner, F. G., Ascheim, D. D., Casey Jr, D. E., Chung, M. K., De Lemos, J. A.,... Franklin, B. A. (2013). 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: Executive summary: A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*, 127(4), 529–555.
- Perk, J., De Backer, G., Gohlke, H., Graham, I., Reiner, Z., Verschuren, M.,... Cifkova, R. (2012). Authors/Task Force Members. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012): The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical. *Eur Heart J*, 33, 1635–1701. <https://doi.org/10.1093/eurheartj/ehs092>
- Perrin, K. O., & MacLeod, C. E. (2017). *Understanding the essentials of critical care nursing*, Pearson,640,Boston.
- Qadir, D. O., & Younis, Y. M. (2015). Quality of nursing care for patients with acute myocardial infarction at coronary units of Erbil city hospitals. *Zanco Journal of Medical Sciences (Zanco J Med Sci)*, 19(2), 1011–1018. <https://doi.org/10.15218/zjms.2015.0025>
- Roffi, M., Patrono, C., Collet, J.-P., Mueller, C., Valgimigli, M., Andreotti, F.,... Windecker, S. (2016). 2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC). *European Heart Journal*, 37(3), 267–315. <https://doi.org/10.1093/eurheartj/ehv320>
- Sadeghi, M., Haghdoost, A. A., Bahrampour, A., & Dehghani, M. (2017). Modeling the burden of cardiovascular diseases in Iran from 2005 to 2025: the impact of demographic changes. *Iranian Journal of Public Health*, 46(4), 506–516
- Sambu, B. M. H. (2018). Effect of a Training Program on Nurse's, knowledge, Attitudes and Practice regarding Nursing Care of Acute Myocardial Infarction in Medani Heart Center and Wad Medani Emergency Hospital, Gezira State, Sudan (2014-2017). University of Gezira.
- Sanchis-Gomar, F., Perez-Quilis, C., Leischik, R., & Lucia, A. (2016). Epidemiology of coronary heart disease and acute coronary syndrome. *Annals of Translational Medicine*, 4(13), 256. <https://doi.org/10.21037/atm.2016.06.33>
- Sattler, S. M., Skibsbye, L., Linz, D., Lubberding, A. F., Tfelt-Hansen, J., & Jespersen, T. (2019). Ventricular arrhythmias in first acute myocardial infarction: epidemiology, mechanisms, and interventions in large animal models. *Frontiers in Cardiovascular Medicine*, 6, 158. <https://doi.org/10.3389/fcvm.2019.00158>
- Scheen, A. J. (2018). From atherosclerosis to atherothrombosis: From a silent chronic pathology to an acute critical event. *Revue Medicale de Liege*, 73(5–6), 224–228.
- Sharma, A., Vidusha, K., Suresh, H., Ajan, M. J., Saravanan, K., Dhamania, M.,... Wani, R. T. (2021). Global awareness of myocardial infarction symptoms in general population: a systematic review and meta-analysis. *Korean Circulation Journal*, 51(12), 983–996. doi:10.4070/kcj.2021.0100
- Skal, B., & Ahmed, S. (2021). Assessment of Nurse's Knowledge Concerning nursing care

- of the patients receiving thrombolytic therapy with Acute Myocardial Infarction at Coronary Care Unit in Al-Diwaniya Teaching Hospital. *Kufa Journal for Nursing Sciences*, 11(1), 1–7. Retrieved from <https://journal.uokufa.edu.iq/index.php/kjns/article/view/437>
- Thygesen, K., Alpert, J. S., Jaffe, A. S., Chaitman, B. R., Bax, J. J., Morrow, D. A., ... Fox, K. A. A. (2018). Fourth universal definition of myocardial infarction (2018). *Kardiologia polska*, 76(10), 1383–1415. <https://doi.org/10.5603/KP.2018.0203>
- Valaker, I., Norekvål, T. M., Råholm, M.-B., Nordrehaug, J. E., Rotevatn, S., Fridlund, B., & Investigators, C. (2017). Continuity of care after percutaneous coronary intervention: The patient's perspective across secondary and primary care settings. *European Journal of Cardiovascular Nursing*, 16(5), 444–452. <https://doi.org/10.1177/1474515117690298>
- Verma, D. K., & Adhikary, J. (2019). A Study to Assess the Knowledge of Staff Nurses Regarding First 24 Hours Care of Patients with Myocardial Infarction at J.K. Hospital of Bhopal with a View to Develop Self Instruction Module. *IOSR Journal of Nursing and Health Science*, 8(3), 31. DOI: 10.9790/1959-0803052932
- Weil, B. R., Young, R. F., Shen, X., Suzuki, G., Qu, J., Malhotra, S., & Canty, J. M. (2017). Brief myocardial ischemia produces cardiac troponin I release and focal myocyte apoptosis in the absence of pathological infarction in swine. *JACC: Basic to Translational Science*, 2(2), 105–114. <https://doi.org/10.1016/j.jacbts.2017.01.006>
- White, H. D., & Chew, D. P. (2008). Acute myocardial infarction. *The Lancet*, 372(9638), 570–584. [https://doi.org/10.1016/S0140-6736\(08\)61237-4](https://doi.org/10.1016/S0140-6736(08)61237-4)
- White, H. D., Thygesen, K., Alpert, J. S., & Jaffe, A. S. (2014). Republished: clinical implications of the third universal definition of myocardial infarction. *Postgraduate Medical Journal*, 90(1067), 502–510. <https://doi.org/10.1136/postgradmedj-2012-302976rep>
- Yesmin, S., Rahman, A., Akter, F., Jahan, S. S., & Rizwan, A. A. M. (2022). Knowledge regarding Myocardial Infarction (MI) among the Nurses in Dhaka, Bangladesh. *International Journal of Science and Business*, 14(1), 108–115. DOI:10.5281/zenodo.7184031
- Yiadom, M., Liu, X., McWade, C. M., Liu, D., Storrow, A. B., & ED Operations Study Group 2015. (2017). Acute coronary syndrome screening and diagnostic practice variation. *Academic emergency medicine : Official journal of the Society for Academic Emergency Medicine*, 24(6), 701–709. <https://doi.org/10.1111/acem.13184>
- Yin, Y., Han, W., & Cao, Y. (2019). Association between activities of SOD, MDA and Na⁺-K⁺-ATPase in peripheral blood of patients with acute myocardial infarction and the complication of varying degrees of arrhythmia. *Hellenic Journal of Cardiology*, 60(6), 366–371. <https://doi.org/10.1016/j.hjc.2018.04.003>
- Yusuf, S., Rangarajan, S., Teo, K., Islam, S., Li, W., Liu, L., ... Liu, T. (2014). Cardiovascular risk and events in 17 low-, middle-, and high-income countries. *New England Journal of Medicine*, 371(9), 818–827.
- Zhang, H., Sun, S., Tong, L., Li, R., Cao, X. H., Zhang, B. H., ... Ma, C. S. (2010). Effect of cigarette smoking on clinical outcomes of hospitalized Chinese male smokers with acute myocardial infarction. *Chinese medical journal*, 123(20), 2807–2811.

Zhou, Y., Wang, X., Lan, S., Zhang, L., Niu, G., & Zhang, G. (2021). Application of evidence-based nursing in patients with acute myocardial infarction complicated with heart failure. *American Journal of Translational Research*, 13(5), 5641.



APPENDICES











Appendix 1-B: Data Collection Forms (Questionnaire) (language of Arabic)









Appendix 2 : Ethical approval Committee of the Çankırı Karatekin University



**Appendix 3- A: Approval of the Research Committee in the Basra Health
Department / Basra City (in Arabic)**



**Appendix 3- B: Approval of the Research Committee in the Basra Health
Department / Basra City (in Turkish)**



Appendix 4-A: Facilitating the mission of Al-Sader Teaching Hospital to conduct research (In the arabic language).



Appendix 4-B: Facilitating the mission of Al-Sader Teaching Hospital to conduct research (In the Turkish language).



CURRICULUM VITAE:

Name & Surname : **Mohammed Sabah Jaber Banisaid**

Birth place – date

Contact Address and Phone

Education Status:

Scientific Study Areas:

Professional Experiences: