

**THE IMPACT OF HEART ATTACK DISEASE ON
INDIVIDUAL IN IRAQ: STATISTICAL ANALYSIS
STUDY**

**A THESIS SUBMITTED TO THE INSTITUTE
OF GRADUATE STUDIES**

**OF
NEAR EAST UNIVERSITY**

**By
HELEEN QASIM MOHAMMED**

**In Partial Fulfillment of the Requirements for
the Degree of Master of Science
in
Mathematics**

NICOSIA, 2021

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Approval of Institute of Graduate Studies

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To those who supported in me

Abstract

Generally heart disease is one of the common problems facing human health and takes many lives every day. The most common type of heart disease is heart attack. Recently, become a dangerous disease afflicting the world today. The purpose of this research is how to use statistics to analyze data and information related to heart attack and its impact on mortality in Iraq. The main research question is how does a heart attack affect an individual's life. The main objective of the research is to find out the risk factors of cardiac disease among the Iraq population. To study the association between age and gender on risk factors of cardiac disease among the Iraq population. The data has been collected from primary sources, where data has been generated originally. The region chosen for the examination is Baghdad, Basrah, Erbil and Dohuk. These four regions are found practically in the primary piece of the country. The survey has been performed on the sampling method. The sampling method has been used to collect the data from 450 respondents. The tools used for Data analysis are Descriptive statistics and Chi square. To analyse the data collected researcher used the software SPSS 19.0 software. The occurrence of cardiovascular disease is increments from early middle age to older. An individual risk of a heart assault steadily increments as the person gets more established. Additionally the more seasoned an individual is, the more probable the heart assault and it will be lethal. It tends to be seen that 54.7 percent of the respondent from Iraq areas were during a time 51 to 65 group. It is found that there is no significant association between age and Iraq provinces, based on age and Iraq provinces and gender and Heart Rate type in the above results. It reveals that the three hypotheses are accepted. Remaining fifteen hypotheses are rejected and hence it reveals that there is a significant association between age, gender and cardiovascular disease risk elements.

Keywords: Statistical analysis, Heart Attack, Blood Pressure, Cardiovascular, Iraq provinces.

ÖZET

Genellikle kalp hastalığı, insan sağlığının rastladığı yaygın sorunlardan biridir ve her gün birçok can kaybına neden olur. En yaygın kalp hastalığı türü kalp krizidir. Son zamanlarda, bugün dünyayı sarsan tehlikeli bir hastalık haline geldi. Bu araştırmanın amacı, Irak'ta kalp krizi ve ölüm oranı üzerindeki etkisi ile ilgili veri ve bilgileri analiz etmek için istatistiklerin nasıl kullanılacağıdır. Temel araştırma sorusu, kalp krizinin bireyin yaşamını nasıl etkilediğidir. Araştırmanın temel amacı, Irak halkı arasında kalp hastalığı risk faktörlerini ortaya çıkarmaktır. Irak nüfusu arasında kalp hastalığı risk faktörleri üzerine yaş ve cinsiyet arasındaki ilişkiyi incelemektir. Temel veriler, temel kaynaklarından, yani verilerin oluşturulduğu kaynaktan toplanmıştır. İnceleme için seçilen bölge Bağdat, Basra, Erbil ve Dohuk'tur. Bu dört bölge, pratik olarak ülkenin temel kısmında bulunur. Araştırma, örnekleme yöntemine göre yapılacaktır. 450 katılımcıdan veri toplamak için amaçlı örnekleme yöntemi kullanılmıştır. Veri analizi için kullanılan araçlar Tanımlayıcı istatistikler ve Ki kare'dir. Araştırmacı toplanan verileri analiz etmek için SPSS 19.0 yazılımını kullanmıştır. Kardiyovasküler hastalık oluşumu, erken orta yaştan daha ileri yaşlara kadar olan artışlardır. Birey daha yerleşik hale geldikçe, bireysel bir kalp krizi riski giderek artar. Ayrıca, bir kişi ne kadar olgunlaşmış olursa, kalp krizi olasılığı o kadar yüksek ve ölümcül olacaktır. Irak bölgelerinden yanıt verenlerin yüzde 54,7'sinin 51 ila 65 arasındaki bir grupta olduğu görülmeye eğilimindedir. Yukarıdaki sonuçlarda yaş ve Irak vilayetleri ile cinsiyet ve Kalp Atış Hızı türüne göre yaş ile Irak vilayetleri arasında önemli bir ilişki olmadığı görülmüştür. Üç hipotezin kabul edildiği ortaya koyulmuştur. Geriye kalan on beş hipotez reddedilmiş ve dolayısıyla yaş, cinsiyet ve kardiyovasküler hastalık risk unsurları arasında önemli bir ilişki olduğunu ortaya koymuştur.

Anahtar kelimeler: İstatistiksel analiz, Tansiyon, Kardiyovasküler, Kalp Krizi, Irak vilayetleri.

LIST OF CONTENTS

ACKNOWLEDGMENT	i
ABSTRACT	iii
ÖZET	iv
LIST OF CONTENTS	v
TABLES LIST	viii
FIGURES LIST	x
CHAPTER 1: INTRODUCTION	
1.1 Human Development.....	2
1.2 Nature of the Reseach Problem.....	4
1.4 Need for the Study.....	5
1.5 Objective of the Study.....	5
1.6 Hypothesis of the Study.....	6
CHAPTER 2: LITERATURE REVIEW	
2.1 Introduction.....	8
2.2 Difinition Health.....	8
2.3 Def. of Cardiovascular.....	9
2.4 Medicinenet Defines.....	10
2.5 Cardiovasular Disease Rirs.....	10
2.6 Risk facter of Cardiova.....	12
2.6.1 Socio Economic Components.....	13
2.6.2 Age/Gender.....	13
2.6.3 Heredity and family History.....	15
2.6.4 Life style pattern.....	16

2.6.5 Smoking.....	17
2.6.6 Obesity.....	18
2.6.7 High blood Pressure	20
2.6.8 Stress and strain.....	21
2.6.9 High blood Cholestrol.....	23
2.6.10 Diabetes.....	23

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction.....	25
3.2 Research Design.....	26
3.3 Primary Data.....	26
3.4 Duration of Data collection.....	26
3.5 Study pupolation.....	26
3.6 Selection of area.....	26
3.7 Sampling Technique.....	26
3.8 Statistical Tool used.....	26

CHAPTER 4: RESULTS AND DATA ANALYSIS

4.1 Demographic Classification.....	27
4.1.1 Iraq Provinces.....	28
4.1.2 Gender wise Classification.....	28
4.1.3 Age- wise Classification.....	29
4.1.4 Sugar status wise Classification.....	30
4.1.5 Chest Pain Type wise Classification.....	31
4.1.6 Heart Rate type wise Classification.....	32
4.1.7 Smoking wise Classification.....	33
4.1.8 Family history of coronary.....	34
4.1.9 Blood Pressure wise Classification.....	35

4.2 Assoc. between age and risk factors.....	36
4.2.1 Assoc. between Age of Respondents and Gender.....	36
4.2.2 Assoc. between Age of Respondents and Blood Pressure.....	37
4.2.3 Assoc. between Age of respondents and Sugar status.....	38
4.2.4 Assoc. between Age of respondents and Chest Pain Type.....	38
4.2.5 Assoc. between Age of respondents and Heart Rate typ.....	39
4.2.6 Assoc. between Age of respondents and Smoking.....	40
4.2.7 Assoc. between Age of Respondents and Family history.....	41
4.2.8 Assoc. between Age of respondents and Iraq Provinces.....	41
4.3 Assoc. between Gender and risk factors.....	42
4.3.1 Assoc. between Gender of respondents and Blood Pressure.....	42
4.3.2 Assoc. between Age of respondents and Sugar status.....	42
4.3.3 Assoc. between Gender of respondents and Chest Pain Type.....	43
4.3.4 Assoc. between Gender of Respondents and Heart Rate type.....	44
4.3.5 Assoc. between Gender and Smoking.....	44
4.3.6 Assoc. between Gender of Respondents and Family history of coronary.....	45
4.3.7 Assoc. between Gender of respondents and Iraq Provinces.....	45
4.4 Assoc. between Blood Pressure and risk factors of cardiac disease.....	46
4.4.1 Assoc. between Blood Pressure and Smoking.....	46
4.4.2 Assoc. between Blood Pressure and Family history of coronary.....	47
4.4.3 Assoc. between Blood Pressure and Sugar Status.....	47
CHAPTER 5: CONCLUSION	
5.1 Introduction.....	49
5.2 Recommendations to prevent cardiovascular disease in Iraq.....	51
5.3 Limitations of this Research.....	52
REFERENCES.....	53

LIST OF TABLES

Table 4.1: Iraq Provinces	27
Table 4.2: Gender.....	28
Table 4.3: Age.....	29
Table 4.4: Sugar Status	30
Table 4.5: Chest Pain Type	31
Table 4.6: Heart Rate type	32
Table 4.7: Smoking.....	33
Table 4.8: Family History	34
Table 4.9: Blood Pressure	35
Table 4.10: Age and Gender Crosstabulation	36
Table 4.11: χ^2 values of the Age of respondents and Gender.....	37
Table 4.12: Age and Blood Pressure Crosstabulation.....	37
Table 4.13: χ^2 values of the Age of respondents and Blood Pressure.....	37
Table 4.14: Age and Sugar status Crosstabulation	38
Table 4.15: χ^2 values for Age of respondents and Sugar status	38
Table 4.16: Age and Chest Pain Type Crosstabulation	39
Table 4.17: χ^2 values of the Age of respondents and Chest Pain Type.....	39
Table 4.18: Age and Heart Rate type Crosstabulation.....	39
Table 4.19: χ^2 values of the Age of respondents and Heart Rate type.....	40
Table 4.20: Age and Smoking Crosstabulation	40
Table 4.21: χ^2 values of the Age of respondents and Smoking.....	40
Table 4.22: Age and Family history of coronary artery disease Crosstabulation	41
Table 4.23: χ^2 values of the Age of respondents and Family history.....	41
Table 4.24: χ^2 values of the Age and Iraq Provinces	41
Table 4.25: χ^2 values of the Gender and Blood Pressure.....	42
Table 4.26: Gender and Sugar status Crosstabulation	42
Table 4.27: χ^2 values of the Gender of respondents and Sugar.....	43
Table 4.28: Gender and Chest Pain Type Crosstabulation	43
Table 4.29: χ^2 values for Gender of respondents and Chest Pain Type.....	43
Table 4.30: χ^2 values for Gender of respondents and Heart Rate type	44
Table 4.31: Gender and Smoking Crosstabulation	44
Table 4.32: χ^2 values for Gender of respondents and Smoking.....	44

Table 4.33: Gender and Family history of coronary artery disease Crosstabulation.....	45
Table 4.34: χ^2 values for Gender of respondents and Family history	45
Table 4.35: Gender and Iraq Provinces Crosstabulation.....	45
Table 4.36: χ^2 values for Gender and Iraq Provinces.....	46
Table 4.37: Blood Pressure and Smoking Crosstabulation.....	46
Table 4.38: χ^2 values for Blood Pressure of respondents and Smoking	46
Table 4.39: Blood Pressure and Family history of coronary	47
Table 4.40: χ^2 values for Blood Pressure of respondents.....	47
Table 4.41: Blood Pressure and Sugar status Crosstabulation.....	47
Table 4.42: χ^2 values for Blood Pressure and Sugar Status	48
Table 5.1: Research hypothesis Results.....	51

LIST OF FIGURES

Figure 1.1: Top 10 global causes of death in the year 2016.....	2
Figure 4.1: Iraq Provinces.....	28
Figure 4.2: Gender.....	29
Figure 4.3: Age.....	30
Figure 4.4: Sugar status.....	31
Figure 4.5: Chest Pain Type.....	32
Figure 4.6: Heart Rate type.....	33
Figure 4.7: Smoking.....	34
Figure 4.8: Family history.....	35
Figure 4.9: Blood Pressure.....	36

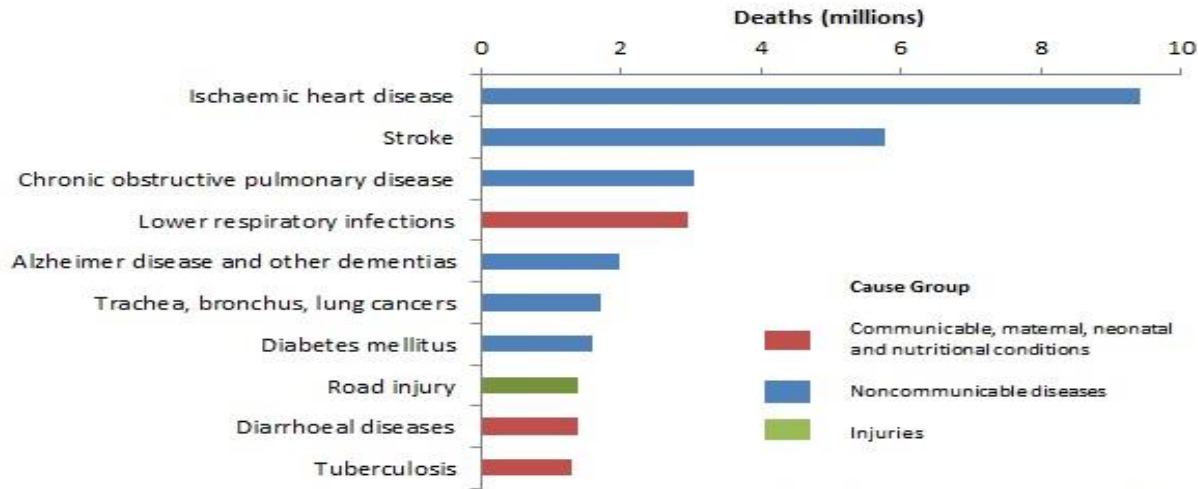
CHAPTER 1

1. INTRODUCTION

Generally, heart disease is one of the common diseases that facing human health and takes many lives wordily. The most common type of heart disease is a heart attack. Recently, become a dangerous disease afflicting the world today (Newman, 2017). So, in essence, a Heart attack is the blockage of blood supply that feeds the muscles of the Heart itself. Typically, the blockage might be the accumulation of excess fat, or cholesterol, or other substances, which in turn forms a plate-like shape called a “plaque”, eventually it blocks the “coronary arteries” from feeding the nutritious blood to the walls of the heart (Mayo Clinic Staff, 2019). When the plaque hardens, the outer shell of it ruptures causing harm to the artery, so the blood platelets come to the area. The muscle cells soon die due to oxygen depletion, causing permanent damage (WebMD Medical, 2019).

In addition, heart related diseases such as Coronary Artery Disease (CAD), Heart Failure, Arrhythmia, Valvular heart disease, Heart Infections are the leading cause of death in most countries around the world, and according to reports published by the WHO (2016), both Ischemic heart disease and stroke were on the lead of the world’s biggest killers that are classified by non-communicable diseases (NCD), which were responsible for 15.2 million deaths worldwide in 2016 combined in both high- income countries and low- income countries with discrepancies in fatality rates, low-income countries according to WHO (2018) made up three-quarters of deaths pertaining this disease, the most common reason for the high fatality rate is lack of abundance of proper health care services and initiatives for detection and treatment of the illness. Although there is no denial for the role of genetics to make headway for heart diseases, lifestyle and diet are also the leading causes for developing heart related diseases, lifestyle activities and health conditions such as high blood pressure, Smoking, Excessive use of alcohol or caffeine or tobacco, physical inactivity, Diabetes, Drug abuse, and stress, have a great impact on an individual's overall health and his\her heart and cardiovascular system.

Top 10 global causes of deaths, 2016



Source: Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization, 2018.

Figure 1: Top 10 global causes of death in the year 2016 (WHO, 2016).

From the bar charts presented by WHO (2016) about the top 10 global causes of death, we can definitely that Ischemic heart disease also known as coronary heart disease which will be illustrated later on, is the leading cause of death globally. It is also noticeable that the disease has an upward trend, from around 7 million deaths in 2000 to almost 10 million deaths in 2016, See Fig. 1.

1.1 Human Development

Great health is a pre-imperative to human productivity and to the improvement interaction. Health isn't just a fundamental component to have an upbeat existence for an individual however it is likewise important for all beneficial exercises in the general public. Health status is one of the significant markers of the government assistance of individuals. Somewhat recently heart disease was the commonest reason for death on this planet. It has been anticipated that over the course of the following not many a very long time there will be a multiplying in the pace of heart disease.

Coronary heart disease was first revealed in the US by Harrick in 1912 and quite a while later in the UK. The disease was depicted in course readings of medication during the third decade of this century. The worldwide weight of the cardiovascular disease influences all part of the general public. As grown-ups age, the pervasiveness of cardiovascular disease increment, with a

multiplying of rates between ages 35-44 years and 44-54 years old enough and a contingent increment from there on. Progress in mechanical turn of events, industrialization and monetary conditions have an expansion in expanding the way of life of individuals, made change in food propensities and way of life prompting health issues. Eating right every time is the astute venture for a healthy life. In the new thousand years, the health care idea started by Florence Nightingale during the Crimean war was created by a whole industry. The health status of populace bunch is chosen by the nourishing ampleness at different phases of the existence cycle. Despite the fact that apparently we are winning the conflict against healthful insufficiencies and lopsided characteristics is containing the pervasiveness of wholesome issue, we will have far to go. The greatest test in the 21st century will be the manner by which best diseases can be forestalled and deferred and health status of people be looked after attractively.

Human advancement is the pith of all improvement whether social or practical. Man is the maker of all riches and without humankind any remaining assets stay inactive. In late decade's significance ,of human resources in financial advancement has been broadly perceived. All round improvement of country relies upon human riches. Among the different push spaces of human improvement health positions first. Interest in health is a significant segment of interest in human resources since a healthy local area is the framework whereupon a monetarily practical society can be assembled. Interest in health improves personal satisfaction as well as velocities up human asset advancement. A wide scope of movement are related with health care, for example, populace control, family government assistance, counteraction of corruption of food, drug control, inoculation and destruction of major transferable and non transmittable diseases.

Chronic diseases cause inability for quite a long time of an individual's life. The most generally utilized synopsis proportion of the which consolidates the quantity of years of healthy life lost to sudden passing. One DALY can be considered as one healthy year of life lost. The most well-known meaning of chronic disease is 'a disease that is progressing or repeating yet isn't brought about by contamination and isn't passed on by contact'. Numerous chronic diseases are likewise regularly connected with way of life or natural elements, in contrast to irresistible diseases. Chronic diseases contribute impressively to the disease trouble in all pay gatherings. Among the chronic diseases cardiovascular diseases are the main supporter of the worldwide weight of disease. Cardiovascular diseases are significant parts of chronic diseases around the world. Chronic disease demise rates are higher in low and center pay nations than in big time salary

nations where 45% of chronic disease passings and 86 percent of the weight of chronic diseases happen in individuals under 70 years old enough. The age normalized rates are most reduced in big league salary nations. Chronic diseases are the main source of death and disease trouble around the world, in all WHO areas aside from Africa, and in the entirety of the chose countries with the exception of Nigeria and the United Republic of Tanzania. Chronic diseases are the main source of death in all World Bank pay gatherings. The passing and weight of disease rates are comparative in people and increment with age. Iraq will confront immense difficulties later on in regard to furnish its residents with vital essential offices and health care.

Iraq Epidemiologists and World Health Organization have been cautioning about the quickly expanding weight of CVD lately. The nation is encountering a fast progress in its health industry, with an expanding weight of chronic. The most striking component of health care for patients with CVD in Iraq is its heterogeneity, going from patients treated at hospitals, who get the most ideal proof based consideration, to the patients who have restricted or even no admittance to clinical consideration. Youthful Iraqis, who are at present the country's financial spine, are influenced by CVD in enormous as of late. The monetary ramifications of cardiovascular diseases are huge. In created nations, heart disease has truly influenced the more instructed and higher financial gatherings, yet as of late this has been changed (Karthikeyan et al., 2007).

1.2 Nature of the Research Problem

As indicated by WHO, chronic diseases are presently the significant reason for death and handicap worldwide. The new report on non communicable diseases shows deaths from irresistible diseases, maternal conditions and dietary inadequacies joined are projected to decrease by 3% in the following ten years, where the deaths because of chronic diseases are projected to increment by 17%. This implies that of the projected 64 million individuals who will bite the dust in 2015, 41 million will kick the bucket of a chronic disease. The assessment of World Health Organization uncovers that the low and lower-center pay nations offered more than 70% to the worldwide dispersion of chronic disease deaths. It is additionally upsetting to take note of that as opposed to the prevalent view, chronic diseases like CVD are probably going to influence moderately aged grown-ups more than the old, influences both the sexual orientation similarly, yet can be forestalled by activity on the significant essential danger factors like unhealthy eating routine, actual idleness, and smoking.

1.3 Need for the Study

Cardiovascular disease is the commonest reason for death around the world. During the most recent 20 years an enormous decrease in mortality from cardiovascular disease has been seen in evolved country however a generous increment has been capable by Iraq. It is assessed that Iraq has the biggest weight of cardiovascular disease in the world and it is more in more youthful populace. It is projected that, on the off chance that it isn't controlled now, it will increment in a pestilence of heart attacks in more youthful populace bringing about expanded expense of assessment, treatment and loss of working days which thus influences the family, society and country in general. All in all clinical and monetary outcomes will be considerable for our country. It is thusly fundamental to create methodologies for counteraction of heart attacks and its pandemic in future.

Analyzing and comprehending any statistical data, is crucial for acquiring a suitable and a satisfactory solution for a given issue in the society. Hence this study has its own importance in solving these cases, through providing a clearer point of view for perceiving and focusing on this disease and its trends in the society. Also, it might apply a convenient solution to reduce the number of cases, or at least to lessen the severity of the cases. The acquired data will be focusing primarily on the mortality rate among all patients including their gender, age, geographical position, and past records of the disease. The study would eventually become a reference among many other studies, to aid researchers by acquiring a clearer point of view, through analyzing and sorting out the main causes of the disease, which would classify this research as a statistical and medical study. This research also hopes to bring into the spotlight the dangers of this disease and the importance of prior detection, and the importance of avoiding the consumption and activities that would lead to such a debilitating disease.

1.4 Objectives of the Study

The purpose of this research is going to statistical analyses of the recent figures in the whole country, since this disease is widely speared in Iraq, this study. In addition, it will investigate its impact on individuals and the community as well. Also, heart problems were found to be associated with a significant increase in the death rate for all age groups and gender. The main research question is how does a heart attack affect an individual s life, so it will be focusing:

1. To study the risk factors of cardiac disease among the Iraq population.

2. To study the association between age and risk factors of cardiac disease among the Iraq population.
3. To study the association between Gender and risk factors of cardiac disease among the Iraq population.
4. To study the association between Blood Pressure and risk factors of cardiac disease among the Iraq population.

1.5 Hypothesis of the Study

Using the primary data collected from the cardiac patients in Iraq, the study tests the following hypothesis.

1. There is no significant association between age and Gender.
2. There is no significant association between age and Blood Pressure.
3. There is no significant association between age and Sugar status.
4. There is no significant association between age and Chest Pain Type.
5. There is no significant association between age and Heart Rate type.
6. There is no significant association between age and Smoking.
7. There is no significant association between age and Family history of coronary artery disease.
8. There is no significant association between age and Iraq Provinces.
9. There is no significant association between gender and Blood Pressure.
10. There is no significant association between gender and Sugar status.
11. There is no significant association between gender and Chest Pain Type.
12. There is no significant association between gender and Heart Rate type.
13. There is no significant association between gender and Smoking.
14. There is no significant association between gender and Family history of coronary artery disease.
15. There is no significant association between gender and Iraq Provinces.
16. There is no significant association between Blood Pressure and Smoking.
17. There is no significant association between Blood Pressure and Family history of coronary artery disease.
18. There is no significant association between Blood Pressure and Sugar Status.

The research will be divided into five chapters. The first chapter, provides an introduction and background information to topics, and focusing on the importance of research and its goals, as well as the limits of the research domain. The second chapter is to review the literature, including the of the literature of other researchers in the same subject. Also, gives a general introduction to the medical definition of the heart attack with an explanation of similar terms and other heart diseases, the main causes, the treatments, and how to avoid it, and some definition of the can and its types. In addition to some statistics of cardiac invasiveness in the world with a focus on Iraq.

The third chapter is a methodology which is mainly used for data collection, then demographics of the research sample. The research is going to be a qualitative research design. The research population and sampling will be Iraq. Data Collection will be collected from the Iraqi federal Ministry of Health. The collected data will be analyzed using statistical methods. Data analysis and results will be discussion in the following chapter which is about statistical analysis with a focus on the statistical methods. The last chapter will be devoted for the recommendations, limitations, and future works.

CHAPTER 2

2. REVIEW OF LITERATURE

It can be seen that the hard attack is a very serious health problem that might cause death in some extreme cases. Karunathilake and Ganegoda (2018) state that Cardiovascular diseases bring about many thousands of deaths around the world yearly and many of these cases can be avoided if they have the change of being diagnosed in an early stage of the case. Also, Lin et al. (2019) claim that there is an association between shoulder pain and cardiovascular disease, which has a significant negative impact on an individual's health.

2.1 Introduction

Human capital assumes a predominant part in monetary improvement of a country. Human capital arrangement implies human asset advancement through interest in health and schooling to develop a supply of healthy and gifted labor. Health is a significant segment of human capital. Health is a worth in itself. Great health is a significant asset for social, monetary and human turn of events and a significant element of personal satisfaction (Kryscynski et al., 2021) .

Great health is both the methods and end of improvement. A healthy populace is an essential for financial development; thusly this pay development can be directed to improve human lives through the arrangement of nice schooling, great healthcare offices, expanded open positions, improved employer stability, great administration and any remaining prerequisites for human prosperity. In this way improvement in health is a significant motor of monetary development. On the off chance that monetary development of a nation is to be maintained, the arrangement of healthcare has be more available and subjectively better (Boateng et al., 2018).

2.2 Definition- 'Health'

The World Health Organisation (WHO) defines, “Health as a state of complete mental, physical and social well-being, and not merely the absence of disease or infirmity” .

Grossman (1972) defined, “Health as a good desire to enhance well being and utility, and emphasized its function in improving individual labour productivity and production in the economy”.

Able Smith et al. (1978) has said “Health also enhances learning, increases productivity, prompts growth and reduce poverty”.

2.3 Definition of Cardiovascular Disease and its Related Terms

Cardiovascular disease alludes to the class of disease that includes the heart or blood vessels (conduits and veins). The term in fact alludes to any disease that influences the cardiovascular framework and it is normally used to allude to those identified with atherosclerosis (Motwani & Topol, 1998; Kumar et al., 2020). Cardiovascular disease is the name given to a few issues which can stop the heart and cause demise. Cardiovascular disease is a condition wherein blood vessels become harmed and limited by greasy stores.

Vigliani (2020) heart attacks happen when the coronary artery conveying oxygen-rich blood to the heart muscle is hindered. On the off chance that the blood supply is removed, a piece of the heart muscle passes on or infarcts. A heart attack is otherwise called a Myocardial Infarction (MI) or Coronary Thrombosis. Chest torment is the uneasiness or torment that is felt anyplace along the front of the body between the neck and upper midsection. Angina is a sort of heart related chest torment. This torment happens when the heart isn't getting sufficient blood and oxygen. Angina torment is like the agony of a heart attack. Heart disappointment happens when the heart can't siphon satisfactory blood to the remainder of the body. The two principle kinds of heart disappointment are 'systolic' where the heart muscle is debilitated and doesn't contract as expected, and 'heart disappointment with typical discharge part' where the heart muscle contracts ordinarily, yet can't unwind as expected, prompting windedness.

Heart attack and high blood pressure are the two most normal reasons for heart disappointment.

- High Blood Pressure (hypertension) regularly results from the overabundance fat or plaque develop.
- High blood pressure is known as (The Silent Killer) on the grounds that the primary admonition sign is an angina attack or a lethal heart attack or a stroke.

Strokes an additionally be brought about by seeping from a blood vessel in the mind or from blood clumps (Clubb, 2020).

Today Non-Communicable Diseases (NCDs), diabetes mellitus, particularly cardiovascular diseases, cancer, diabetes mellitus, stroke and chronic lung diseases have arisen as significant general health issues, because of maturing populace and ecologically determined changes in conduct (Babashahi et al., 2021).

According to World Bank, cardiovascular diseases are important components of chronic diseases worldwide. The most common definition of chronic disease is 'a disease that is on going or recurring but is not caused by infection and is not passed on by contact'.

World Health Organization (WHO) (1990) defines “a heart attack may also be called a Myocardial Infarction (MI) or Coronary Thrombosis, Coronary Heart Disease, Ischemic Heart Disease, Coronary Artery Disease or Angina Pectoris”.

2.4 Medicinenet Defines

“Congenital Heart Defects are problems with the heart's structure that are present at birth. These defects can involve the interior walls of the heart, valves inside the heart, or the arteries and veins that carry blood to the heart or out to the body. Congenital heart defects change the normal flow of blood through the heart”.

High Blood Pressure is otherwise called hypertension. High blood pressure by definition is “a more than once raised blood pressure surpassing 140 more than 90 mm Hg—a systolic pressure over 140 with a diastolic pressure over 90” .

World Health Organization Report (2005), says that in congenital heart disease, an individual is brought into the world with some strange design or capacity of the heart (a heart imperfection). The most well-known heart deformity is an opening in the divider that isolates the privilege and left sides of the heart. The bigger and more mind boggling the imperfection, the more genuine would be the heart disease.

2.5 Cardiovascular Disease Risk Factors

Cardiovascular disease can be considered as a continuum that starts with the presence of cardiovascular risk factors and continues through reformist vascular disease to target organ damage, end-organ disappointment, and death (Dzau et al., 2006). This idea has prompted 2 significant proposition: first, that mediation anyplace along the chain of occasions can disturb the pathophysiologic cycle and consequently give cardiovascular security; and second, in light of the fact that numerous cardiovascular occasions share a similar etiology, it is fundamental to survey and treat a patient's all out cardiovascular risk as opposed to consider risk factors in seclusion. Modifiable risk factors for CVD—which incorporate hypertension, smoking, stomach heftiness, unusual lipids, and diabetes mellitus, just as stress, low utilization of products of the soil, and absence of ordinary actual work—are the significant supporters of cardiovascular dreariness and mortality and record for >90% of every single myocardial localized necrosis (MI) (Yusuf et al., 2004). All the more as of late, too little (<6 hours) or to an extreme (>9 hours) rest has been distinguished as another free risk factor for hypertension and metabolic condition(Gottlieb et al.,

2006; Gangwisch et al., 2006; Wolk and Somers, 2007). Cardiovascular risk factors show a constant association with generally cardiovascular risk with no base edge for disease (Kannel, 2007; Stamler, 1986) 6,7 Risk factors infrequently happen in separation and rather will in general group in individuals (Meigs et al., 1997). Roughly 70% of all people at risk have different risk factors, which collaborate synergistically to expand a person's all out risk of CVD; from 4-overlap with 1 risk factor to 60-overlap within the sight of 5 risk factors (Kannel, 1986) Most cardiovascular occasions happen in individuals with unobtrusive and thusly frequently undetected rises in various risk factors, instead of a huge expansion in a solitary factor, and subsequently for some people, death is the primary indication of CVD.

Smoking is a significant CVD hazard factor in the two people. As per World Health Report, 2003, the quantity of smokers in the world, assessed at 1.3 billion and may increment to 1.7 billion by 2025, if the worldwide commonness of tobacco use stays unaltered.

Hanania (2020) likewise assesses that by 2020, tobacco is relied upon to be the single most noteworthy reason for death and inability worldwide, representing around 10 million deaths each year. The effect of tobacco related diseases and death up to this point has been an issue primarily for created nations, however the World Health Organization currently gauges that constantly 2020, 7 of each 10 tobacco-related deaths will be in the creating world. (A Race Against Time, "The Challenge of Cardiovascular Disease in Developing Economies," 2004 Columbia University, New York)

Rekha (2017) has announced that smoking as a coronary danger factor has been noted to be on the ascent in India and other adjoining agricultural countries. As indicated by Adeyi et al. (2007) populace in agricultural nations represent roughly 85% of the 1.15 billion smokers worldwide. It is assessed that yearly deaths because of smoking will increment from around 1 million worldwide in 1995 to more than 7 million of every 2025. US Department of Health and Human Services has "pointed that logical proof of disease brought about by tobacco use has been accumulating consistently since the mid 1960s. Smoking is a significant reason for cancer, particularly of the lung, just as of cardiovascular diseases and chronic obstructive pneumonic diseases. Chard et al. (2017) has said that the expanding proof of type 2 diabetes inside the South Asians emphatically connects with expanding focal weight and high coronary artery disease pervasiveness.

Abir and Kabir (2018) in his article distinguishes that the predominance of diabetes in grown-ups universally was assessed to be 4.0 percent in 1995 and was projected to ascend to 5.4 percent constantly 2025. He additionally revealed that it has been projected that the quantity of individuals with diabetes in created nations will rise 42% from 51 million of every 1995 to 72 million out of 2025. This figure is required to twofold by 2025.

World Heart Federation Fact-Sheet, 2002, gauges around 18% of the Chinese populace is overweight. More than 50% of those matured 35 to 59 years are overweight. These figures are relied upon to twofold inside 10 years. (A test of skill and endurance "The test of cardiovascular disease in creating economies" 2004; Columbia University, Newyork) Larsson et al. (2004) have called attention to in their article that stoutness is notable as an inclining hazard factor for traditional danger elements of CHD, Barker (2004) in their recent studies from India confirmed that individual with lower levels of income or education is at hyper risk of coronary heart disease.

2.6 Risk Factors of Cardiac Disease

A risk factor is a condition that increases your chance of getting a disease. As many as 281 risk factors contributing to heart disease have been suggested in published reports. The highest risk factors are cigarette smoking, serum cholesterol over 240 mg/100 ml and diastolic blood pressure over 105 mm Hg. Together, these risk factors cause nine times more heart events than in those without them (Antia and Philip 2005; Zheng et al., 2018).

According to Simon et al (2004), the major well establishes factors are:

- Sex
- Age
- Blood pressure
- Serum (plasma) Cholesterol
- Cigarette smoking
- Type ofthe diet

According to Patrick and Fetcher (2001), the risk variables of cardio vascular disease are:

- Diet
- Blood pressure
- Diabetes
- Obesity

- Exercise
- Smoking
- Stress
- Socio Economic Status

Coronary heart disease is the main source of death for the two people in the US and is a significant objective of general health destinations of grown-ups. Modifiable, diet-related danger factors, for example, hyperlipidemia and heftiness are related with coronary heart disease (Barman & Barman, 2018).

2.6.1 Socio Economic components

Nayga, in his examination broke down the financial and segment components and urbanization, religion, race nationality, sex, business status, food stamp interest, house hold size, weight stature age and pay. It was tracked down that, few of these components, altogether influence utilization of specific supplements (Nayga, 1994). Helgadóttir et al. (2014) in their examination found that food decisions and admission were identified with financial status and action of every day living status in the homogenous populace.

2.6.2 Age/Gender

Heart attacks are uncommon in early stages and youth. The rate expands structure early middle age onwards to arrive at its top among old. Men are more inclined to heart attacks than ladies in pre-menopausal stage. Post menopausal, in any case, the occurrences are equivalent (Tuomilehto et al., 2001; Pierpont et al., 2018). As age expands, the absolute cholesterol and LDL cholesterol increment. Plasma levels of HDL cholesterol are contrarily connected with age (Krause and Mohan, 2000). Around one-fourth of CVD underneath the age of 45 years. Given today, expanded life expectancy death underneath age of 45 years are untimely making pain families and wards. Atherosclerosis seems, by all accounts, to be unavoidable outcomes of maturing and this expansion the danger of CVD.

Men more established than 45 years old enough and ladies more seasoned than 55 years old enough (or who have gone through menopause) are at more serious danger for heart disease. Likewise, the paces of heart attack throughout the most recent 20 years have been expanding for ladies 35 to 54 years old enough (Mozaffarian et al., 2009). The danger of CVD develops with age. It is essentially higher in men more than 45 years old enough and ladies more than 55 years old enough. Everywhere on the world, CVD are presently perceived as one of the primary driver

of death in grown-ups (Ortega et al., 2019). Blood cholesterol among ladies will in general ascent pointedly at around 40 years old enough and keeps on expanding till she contacts her 60 years (Ravnskov, 2004). Among ladies, the existence time hazard of the death from coronary Artery Disease (CAD) is more than ten times more prominent than that structure bosom cancer. Douglas (2015), shows in his examination that the degree of Coronary Artery Disease have been more prominent in ladies than in men and offers an expansive window to world for the approaching pestilence of CAD among ladies. The examinations done by Gupta (2001) demonstrate that the pervasiveness of cardiovascular diseases in grown-ups expanded from three percent in rustic, with lady having like men.

A new report by the Saffola Health Heart Foundation uncovers that the age gathering of 30-39 years are multiple times more inclined to getting a heart attack than Caucasians in a similar age bunch. Cardiologists say that this is on the grounds that there has been a steady move in the way of life (Vahanian et al., 2007).

Dancy and Chandler (2000), concentrated on lady's cardiovascular (20-50 years old enough) issues and the outcome shows that the pervasiveness of CVD hazard factors, for example, deaths happen in individuals heftiness and high blood pressure reported as higher than in African American ladies than in whites.

Exploration on Americans proposes upwards of one out of three men and one out of seven ladies have qualities that incline them to LDL design B - they're extra liable to create a heart attack (Reader's Digest, 2002). Young ladies in the third world spend just about three-fourth of their ideal season of life in practically persistent phase of pregnancy and lactation. They work extended periods of time than men. They burned through a large portion of their pay on kids and family government assistance needs and give less significance to their own dietary necessities (Schlenker & Gilbert, 2018).

The frequency of Cardio-Vascular disease is more prominent among guys than the females and the event increment with age. This discovering brings up the requirement for customary health registration beginning at an early age of 35 years as has been suggested by the American Heart Association (Hu et al., 1999). The occurrence of CVD increments with age having top at middle age around 50-55 years. Examination on Americans propose upwards of one of every three men and one out of seven ladies have qualities that pre arrange them to LDL design B-they're extra prone to create a heart attack (Reader's Digest, 2002).Total cholesterol (TC) ascends with age,

particularly in post-menopausal ladies. Low thickness lipoprotein (LDL) levels increment dynamically in ladies, surpassing the levels observed in men at a mature age. Conjunction of diabetes with raised lipid levels adds to the weight of coronary heart disease. Type II diabetes is more every now and again found in ladies than men. Ladies more than 45 years old enough are twice as liable to create diabetes as men. Half of all deaths in ladies are inferable from CAD, yet Women's familiarity with the danger of CAD gives off an impression of being extremely poor. Just 8 per penny to 20 per penny of ladies know that CAD is the significant reason for death for ladies. The Nurses' Health study showed a 3-fold higher CAD hazard in Women with BMI of 29 or higher. In the AIIMS study, the overall predominance of hypertension alongside hyperlipidemia in people is 43.7 and 44.9 percent individually.

In spite of the fact that atherosclerosis happens in the two people, the previous are more inclined to CHD. It is conceivable that the female sex hormones inhibitorily affect CHD. Be that as it may, rather than sex hormones, the manly love for rich food, liquor and tobacco could likewise be answerable for the higher frequency in the male (Nunoo, 2018).

Numerous researchers accept that estrogen, a chemical delivered in a lady's body, many ensure against stroke and the deficiency of regular estrogen as ladies age many add to a higher danger of heart disease, If menopause is brought about by medical procedure by eliminating the uterus and ovaries, the danger rises pointedly (Ashish, 2020). Men have a higher danger of CVD than ladies of a similar age. Pre menopause ladies are ensured against creating CVD in light of the fact that the estrogen made in their ovaries secures their hearts. The danger of CVD expansions in ladies after the menopause in light of the fact that the defensive impact of estrogen is lost.

2.6.3 Heredity and Family History

Family background of permeative vascular disease is one of the elements known to build the danger of heart disease however not really irregularities perse and not amiable to preventive mediation (Clayton and Mckeigue, 2001). Heredity is very applicable in coronary heart disease. The heritability of raised serum cholesterol levels has been determined at 34-45 percent. Overweight individuals often have raised degrees of both cholesterol and fatty substance. Added to this the raised blood pressure they regularly create makes them likelier contender for coronary heart disease. Family background of untimely ischemic heart disease is an amazing indicator of Ischemic heart disease (Rani, 2020).

Heredity assumes a part in CHD. Short, stocky and short - necked subjects are bound to create CHD than tall, dainty individuals (Antia and Philip, 2005). It has been discovered that death rates from CHD are significantly higher among those with brief guardians than among people with seemingly perpetual guardians and grandparents, in any event, when other danger factors like hypertension, diabetes mellitus and cigarette smoking are absent. Explores educated that in the event that you have a family background of cardiovascular disease or high cholesterol, it is much more essential to diminish your other danger factors (Lind et al., 2021) The report likewise called attention to that your danger of cardiovascular disease increment if your folks, sibling, sisters or youngsters have the disease, particularly if male relative were not as much as age 55 when analyzed, or female family members were not as much as age 65 when analyzed.

2.6.4 Life style Pattern

Way of life changes truly have a significant effect in the nature of individuals lives, particularly on the off chance that they have heart disease and numerous more established individuals have undiscovered heart disease (Health and Nutrition, 1995) It is viewed as because of the maladapted way of life, de-perceiving the estimation of more normal and customary methods of living, stationary propensities, eating more than what the body needs, enjoying smoking and unnecessary liquor utilization and investing insufficient energy for unwinding of our brain and body. Panda (2004) thinks that with proper way of life alteration, heart diseases brought about by hypertension, diabetes, high cholesterol and smoking could be well changed, subsequently fundamentally decreasing one's danger of future ailments. Likewise, transforms one requirements to make to accomplish these health benefits are not uncommon. An every day thirty moment lively walk, eating an eating regimen low in soaked fats and basic sugars, and stopping smoking will yield critical health benefits. Actual inertia copies the danger of coronary heart disease, which is a significant danger factor for stroke and adds to the expanded recurrence of overweight and heftiness (Zinman et al., 2017). Coronary heart disease is the main executioner. It is a disease of way of life, and hazard factors incorporate cigarette smoking, corpulence, and raised serum cholesterol, low degree of actual work, chronic pressure and aggression (Qasim et al., 2018). A new report shows that more seasoned men with a more hopeful mentality have not exactly a large portion of the danger of coronary heart disease of worriers. The vast majority have heart disease from helpless way of life decisions, not hereditary qualities. In the event that they change to a heart-healthy way of life, their danger will decrease. Coronary artery disease

hazard decrease incorporates: working out, smoking end, dietary, stress and family advising, and assisting individuals with dealing with their danger factors, for example, getting their cholesterol and blood pressure leveled out. Different investigations have shown that the individuals who are actually dynamic have up to a 50per penny lower hazard of heart disease than habitual slouches (Reader's Digest, 2003) Ischemic heart disease is the biggest reasons for the death worldwide, in low and center pay nations (Nowbar, 2019) because of segment movements and way of life changes impelled by urbanization, industrialization and globalization.

2.6.5 Smoking

Numerous examinations have shown that smokers have a higher rate of mortality from, Coronary heart disease than non-smokers. The danger gives off an impression of being portion subordinate with the danger being multiple times more noteworthy for hefty smokers than among nonsmokers (Kaplan, 2000). Coronary Heart disease happens multiple times more as often as possible in cigarettes smokers than in non-smokers. This presumably is the main danger factors for, if the person with set up atherosclerosis quits smoking his danger of movement of disease is diminished (Gardine, 2002). Nicotine makes the blood vessels harder and smaller, there by limiting the blood supply to the heart. Nicotine additionally builds cholesterol levels in the blood. This lead to atherosclerosis. These hard and thin blood vessels cause high blood pressure (Hypertension). Cigarettes smokers have more than twice the danger of heart attack and 2-4 times the danger of abrupt cardiovascular death as non-smokers. Youthful smokers have a higher danger for early death from stroke (Falkstedt et al., 2017). Smoking records for 20% of every cardiovascular death. In any case, If you quit your smoking danger of CHD drops by an incredible 50 percent inside a year. In 15 years, hazard of passing on from CHD drops to close equivalent to non - smokers (Reader's Digest, 2004). Smoking is particularly hazardous for individuals in whom other danger factors like expanded blood cholesterol, high blood pressure are available and they ought to be cautioned. Cigarette smoking is a significant danger factor in the advancement of atherosclerosis and in the causation of coronary heart disease. Cigarette smokers are more than twice as liable to create coronary heart disease and multiple times bound to create myocardial infraction than non-smokers. The connection between cigarette smoking and cardio vascular disease (stroke) is to a great extent bound to the more youthful age gatherings (Bassuk and Manson, 2018). As per Heart and Stroke Foundation ,Canada, heart - disease rates are 70% higher for smokers than non - smokers, that smoking in excess of 40

cigarettes daily expands the opportunity of passing on by 200 to 300 percent (Reader's Digest, 2003) According to Reader's Digest (2003) is really upsetting that, there is a pattern toward expanded tobacco utilization in most agricultural nations, which is interestingly with the pattern toward diminished smoking rates saw in most created countries.

At the point when an individual smokes endures heart attack in his 30's or 40's there is a 80per penny chance it was brought about by tobacco. The quantity of avoidable instances of chronic heart disease and chronic obstructive lung disease because of smoking has been assessed at 12 million for each year (Soriano et al., 2017). Lower occurrence of heart disease, stroke and cancer might be related with the tobacco free, vegan way of life. Smoking is the main avoidable reason for CAD. Smokers(> 20 cig/day) have a 2-3 overlap higher occurrence of CAD. Smoking related danger increment with the quantity of cigarettes smoked. Smoking expands CAD mortality by 50per penny (Thomas, 2003). Krause and Mohan (2000) express that smoking reductions HDL cholesterol and expands VLDL cholesterol. Almost one billion man smoke worldwide. In USA 65per penny of men in the age gathering of 25-30 years smoked in 1945. In 1997 just 27per penny of men > 18years smoked. In the non-industrial nations pace of smoking keeps on gambling. WHO predicts that if the current examples proceed, by 2050 smoking will cause ten million deaths yearly, with more noteworthy than 70per penny of these deaths happening in agricultural nations like India (Indranil Basu Ray, 2001).

2.6.6 Obesity

The WHO characterizes obesity as "a state of unusual or over the top fat amassing in fat tissue to the degree that health might be weakened". People evaluated for overweight created cardiovascular disease more habitually than the non-fat. Individuals who are hefty might be at a more serious danger than those with ideal body weight. The danger rises on the grounds that the hefty individual is bound to create diabetes, show high degrees of blood cholesterol and get high blood pressure than are ordinary people of typical weight (Anand et al., 2001) Obesity at an early age is thought to affect cardiovascular diseases than late beginning obesity. The abundance muscle to fat ratio related with obesity is viewed as a danger factor for some chronic diseases and inclines to untimely cardiovascular disease (Nandini et al., 2005). Correlation of WHR and other obesity files as indicators of CVD hazard in individuals with type - 2-diabetes-An imminent accomplice study-uncovered that WHR was the best indicator of CVD occasions and mortality in patients with type-2 diabetes and BMI the most exceedingly terrible (Sebastian C

zemichow et al., 2011). The unfavorable impact of overabundance of weight is more articulated when the fat is gathered fundamentally in the mid-region (Central obesity), as happens normally in men. WHR is fundamentally connected with the danger of episode CVD occasions. 0.01 expansions in WHR are related with a 5per penny expansion in hazard. Obesity surveyed by WHR is a superior indicator of CVD and CHD mortality than abdomen outline, which thus, is a preferable indicator over BMI. The acknowledgment of focal obesity is clinically significant, as way of life intercession is probably going to give critical health benefits. Understudies of WHR as a prevailing CV danger factor were accounted for Swedish people (De Ferranti et al., 2019). Calcium was bound to be found in the conduits of patients with the best abdomen to hip proportion. Individuals with the biggest midsection to hip proportion had a two crease expansion in the occurrence of calcium stores a more grounded sign of future cardiovascular afflictions including heart attack. Fat that amasses around your midsection is by all accounts all the more organically dynamic as it secretes provocative proteins that add to atherosclerotic plaque development, where as fat around your hips doesn't seem to build hazard for cardiovascular disease at all. WHR has appeared to freely foresee death from cardiovascular disease and coronary heart diseases in Australian people (Welburn, 2003). Body weight mirrors the nourishing status of an individual. Overweight individual is having hazard of different degenerative diseases like obesity, cardiovascular disease and so on High blood pressure and stroke is regular among these individuals. Obesity will get anomalies lipoprotein divisions. Obesity instigated an expansion in hepatic lipase in ladies (Marzullo et al., 2020). Over weight young people have an expanded danger of additionally turning out to be overweight grown-up in this manner expanding their dangers for coronary heart disease, certain cancers, diabetes and other chronic degenerative disease (Rasmussen, 2019). Obesity influences the heart, which needs to accomplish extra mechanical work via plumping sufficient blood to move the additional load of body. Fat people experience the ill effects of hypertension more frequently than those with typical body weight. This is a result of expanded fringe opposition due to generally to narrowing of blood vessels.

2.6.7 High blood pressure

Raised blood pressure is a significant general health issue. It expansions in the danger of a few significant CVD and unexpected losses. Raised blood pressure has demonstrated to be a solid

marker of cardio vascular mortality. Both hereditary and natural components are related with the degree of blood pressure.

Hypertension presumably addresses the most constitution hazard factor and stroke is basically brought about by lacking control of this old style hazard factor (Willet, 2001). Agreeing, to Dr. Mehmet OZ, cardiovascular foundation, Coloumbia University, individuals with the least blood pressure have the least heart attacks, According to him, in the event that you have heart - disease hazard factors and your blood pressure is 130/80 or higher, see your PCP (Reader's Digest, 2005).

Under treatment of hypertension has been distinguished as one of the main source overabundance stroke mortality and bleakness in hypertension subjects (Stampfer et al., 2000) High blood pressure accelerate the way toward solidifying and narrowing of the blood vessels. Hypertension accelerates atherosclerosis. Hypertension can be an admonition indication of diabetes and extreme disease.

Blood pressure is another significant danger factor for CVD. Some proof reports that blood pressure related danger for CVD increments ceaselessly from most minimal to highest qualities for either systolic or diastolic blood pressure. Elevated blood pressure is frequently connected with other notable danger factors, including dietary admissions, raised blood lipids levels, obesity, smoking, diabetes mellitus, and genuinely inertia (Joubert et al., 2020).

Blood pressure is the pressure applied by blood against the dividers of courses through which it streams. The blood pressure perusing during the constriction of the heart is called systolic blood pressure and blood pressure during unwinding is diastolic pressure.

Typical blood pressure esteem is 120/80 mm when the systolic and diastolic pressure builds; the individual is named as hypertensive patient (Chobanian et al., 2003) High blood pressure accelerate the way toward solidifying and narrowing of blood vessels. This may affect the coronary veins which supply blood to heart and results in angina or heart attack or in stroke (Korkmaz, 2021). The danger of cardiovascular occasions in Asian is higher at generally lower levels of blood pressure.

Hypertension is turning into a significant supporter of CVD and mortality and by 2000 AD, almost five crore individuals would be influenced by hypertension and the occurrence has especially expanded in huge. Ladies create hypertension more habitually than in men yet are less significantly influenced by a supported height of blood pressure. Meta-Analysis announced that

7mm expansion in diastolic BP prompted 27per penny expansion in CAD. Decrease of diastolic BP by 5-6 mm lessens CAD by 15per penny (Radaelli et al., 2017). Hypertension would represent the greatest number of (29 million) trailed by coronary heart disease.

High blood pressure is known to exasperate endothelial brokenness and driving scientists have recognized the endothelium as an (end organ) for harm brought about by high blood pressure. Life expansion proposes an objective ideal blood pressure of 115/75 mm/Hg as lower (Olsen et al., 2017) Pickles contain high measure of fat and sodium. Sodium expands the blood pressure estimation of an individual which is high danger factor of CVD. High fat and sodium content in the eating routine from pickle, salt fish, chips and prepared food varieties builds the danger of CVD (Louzada et al., 2015). Too little sodium in the body can bring about lack of hydration in light of the fact that the phones can't hold water. A lot of sodium in one's eating routine from salt may build the danger of high blood pressure (hypertension).

2.6.8 Stress and Strain

Stress is just the body's non-explicit reaction to any request made on it. Essentially put pressure is something that occurs in your body at whatever point you are confronted with a ceration (Smith, 2017). It has been proposed that specific individuals are inclined to having a coronary heart disease in view of their standards of conduct. Composed characters as design as endeavoring forceful fretful and aspiration and their lives are greatly directed by time pressure and cutoff times. Studies have announced that such individuals have double the danger of creating coronary heart disease of Type B characters who show a more assuaged personal conduct standard (Moser, 2002). Mounting proof proposes that work related pressure is a danger factor for heart disease. Figure out how to unwind, attempt yoga and reflection says Dr. Ramakanta Panda (Peruser Digest, 2004).

Another conceivable connect to pressure and coronary heart disease is some person's response to stretch by delivering adrenaline and non-adrenaline in the blood stream which in tum adds to the increment of unsaturated fat in the blood. The continuous presence of unsaturated fat in the blood stream can add to the greasy store in the courses which will at last prompt less blood and oxygen being conveyed to and from the heart. This can likewise prompt blockage of the corridors bringing about a stroke or a heart attack (AbuAbdou, 2018).

Stress has been discovered to be a significant danger calculate prompting hypertension moderately aged heads. People can be named Type An or Type B. Type A people are forceful,

overwhelmed by timetables and cutoff times and serious. Type B individuals are laid back. Type A-group are purportedly more inclined to coronary heart disease (Rodgers et al., 2021).

As indicated by America's Duke University Medical Center, exercise and stress the body both improved blood stream, however stress the executives likewise assisted the body with bettering handle hazardous stages in blood pressure. (Peruser's Digest, 2005).

Truth be told the most widely recognized explanation ascribed for the expanding frequency of heart disease is the taking off feelings of anxiety in Asian nations. Asia is in a tearing and fanatical rush to find the west and this all - devouring aspiration pastes them to pressure cooker sorts of occupations where the wellbeing valves to unwind or to be cheerful are missing. This makes them easily affected and imminent customers of the executioner heart disease. (Rani et al., 2015) Sleep is an ideal path for lessening pressure. Stress is considered as hazard factor in the etiology of CVD and Stroke (Backé et al., 2012). There is extraordinary trouble in characterizing pressure and evaluating it. Nonetheless, there is an overall arrangement that mental and enthusiastic pressure is regularly a significant factor in setting off attacks of angina or even a myocardial infraction. Stress shapes a significant reason for heart disease, blood pressure, misery and exhaustion among other finding. On the off chance that you are discouraged, your possibility of getting heart attacks and coronary artery disease seems, by all accounts, to be a lot higher. Studies have shown that discouraged heart patients can endure future cardiovascular issues particularly when their psychological state influences their direction for living. Adrenaline and nor adrenaline are delivered by adrenal medulla affected by nerve center during pressure conditions and these chemicals influence fat just as CHO digestion expanding the circulatory degrees of free unsaturated fats and glucose and in this manner prompting raised hypertension and CVD (Mozaffarian, 2016). It is recommended that pressure and absence of social help might be connected to CHO. Social help has been related with upgraded endurance and less danger of intermittent myocardial infraction (Ades et al., 2013). Enthusiastic pressure causes actual pressure. Unwinding procedures keep the heart healthy. Yoga and reflection are incredible, yet even basic pressure decrease procedures can work. Have a go at tallying to 10 and taking yourself outside the circumstance, as though noticing it (Reader's Digest, 2005)

2.6.9 High Blood Cholesterol

Cholesterol in the correct amount isn't hannful for the body. Anyway the issue emerges when a lot of some unacceptable sort of fat is burned-through (Reader's Digest, 2002) Cholesterol in the

blood is conveyed about in lipoproteins of shifting thickness, exceptionally low (VLDL), low (LDL) and high (HDL) thickness lipoproteins. Raised blood cholesterol levels increment the danger of coronary heart disease. This rise in the danger is connected distinctly with LDL portion; nonetheless, HDL cholesterol is indeed defensive in that high levels are related with lower paces of coronary heart disease (Ness, 2001). Rich living prompts an inactive way of life and this may cause hypercholesterolemia. The higher your HDL-C, the more noteworthy your ability to eliminate cholesterol and forestall perilous blockages creating in your vessels. HDL-C assists with keeping your blood vessels extended (enlarged), subsequently advancing better blood stream. HDL-C additionally diminishes blood vessel injury through its cancer prevention agent and mitigating capacity among different impacts. HDL is gainful for various reasons. The most significance is its capacity to head to an interaction called invert cholesterol transport HDL is something of a mop in that it assists with removing abundance cholesterol stored in blood vessel divider and convey it back to the liver for disposal through the gastrointestinal plot (Peter 2005). Way of life change is consistently forefront treatment for people with low HDL-C. Obesity, cigarette smoking, and a stationary way of life all decrease blood levels of HDL-C. Conversely, weight reduction, smoking end, and exercise all advance ascending of HDL-C. (Ellison, et al., 2004).

2.6.10 Diabetes

As per National Cholesterol Education Program and Expert Panel (2001) diabetes is a significant danger factor for CVD, the relative danger for CHD for men with diabetes mellitus is 2 - 3 and that for ladies with diabetes mellitus is 3 to 4. In the Chennai Urban Population Study (CUPS) by Mohan (2003), CHD was recognized in 11% with a higher pervasiveness in people with Impaired Glucose Tolerance (IGT) (14.9 per penny) and diabetes (2.14 per penny). Asians are inclined to the Insulin obstruction Syndrome, which is brought about by stomach fat, dainty corridors and high blood pressure. One hypothesis says, Asians have 'frugal ' qualities which empowered to get by during starvation by putting away fat in the mid-region. Presently, this inclination to store can prompt diabetes Insulin opposition isn't the solitary hidden factor for the grouping of CVD hazard factors (Hafsa, 2018.). The rate of CHD is multiplied in diabetes and four overlay expanded in youthful female diabetes. Diabetes influences the blood vessels, the blood and the heart. Diabetes is at a more serious danger of creating atherosclerosis (Bhopal, 2019).

CHAPTER 3

METHODOLOGY

3.1 Introduction

By studying and analyzing all statistics given in this matter, we can assess the quality and effectiveness of the health care sector in a country. Statistics also help the country's authorities to determine the main causes of the disease under inspection, as an example if the statistics show that a country's population has a rising problem with heart attacks, it gives the authorities of the country a clearer view for potential causes of such a disease, identifying its characteristics, and revealing other hidden links and causes of the prevalence of the disease among the population, and it also helps to take the optimum course of action to counter offense the described disease and commencing the construction of national programs and schemes for combating heart attacks for the wellbeing of its people. As we have given an abstract illustration above, this research will tackle the statistics of one of the conditions of heart disease specifically (Heart Attack), which this research will be mainly concerned with, through pertaining the recorded cases of heart attacks in local government in Iraq. This chapter discusses the method that is used in this study. It's mainly discussed research design, Primary data, research techniques, duration of data collection, sampling size, and Statistical Tools Used.

3.2 Research Design

Research design tells how research is carried out toward the achievement of research goals and answering research questions. Research design outlines data collection, the measurement of data, and analysis data. In fact, it's a framework for guiding a researcher in choosing the relevant method to collect data and answering the research question.

In this study quantitative method has been used to provide a proper answer to the research problem. This research used quantitative research methods to better answer all research questions asked. This method is really important for this study because it simplifies finding as well as more population could be targeted and involved in this study. Instead, it's easier to collect data from a large number of populations through a qualitative method which depends on the survey. The research population and sampling will be Iraq. Data are Collected from the Iraqi federal Ministry of Health and hospitals located in Iraq.

3.3 Primary Data

The analyst utilized primary data in this exploration work it is otherwise called direct data from its primary sources, for example wellspring of its root, where the data is created. It is the first run through gathered by its an agent for statistical analysis. It is collected from respondents living in Iraq. The data includes the number of individuals diagnosed by having cardiovascular diseases, between both males and females, different age groups.

3.4 Duration of Data collection

The researcher spends three months in 2020 to collect the data.

3.5 Study Population

Cardiovascular disease patients were identified from different hospital located in four different provinces Baghdad, Basrah, Erbil and Dohuk for this research.

3.6 Selection of area

The region chose for the examination is Baghdad, Basrah, Erbil and Dohuk. These four regions are found practically in the primary piece of the country. Essential rules for determination of these regions were: - no logical examination has been so far directed to contemplate the cardiac issue; areas are receptive to lead the exploration study and the readiness of individuals to give all the important data during overview and further subsequent projects. For the choice of populace from the four district Baghdad, Basrah, Erbil and Dohuk for patients from every areas was chosen through clinical school and some private clinic through purposive sampling strategy. Purposive sampling is a sampling method wherein the analysts intentionally pick subjects who as they would see it are believed to be applicable to the examination theme.

3.7 Sampling technique / size

The survey will be conducted on the basis of the sampling method. The purposive sampling method have been used to collect the data from 450 respondents.

3.8 Statistical Tools Used

The tools used for Data analysis are Descriptive statistics and Chi square. The Chi-Square Test of Independence can just think about unmitigated factors. It can't make correlations between persistent factors or among downright and ceaseless factors. Also, the Chi-Square Test of Independence just evaluates associations between absolute factors, and can not give any deductions about causation. The Data collected are analysed using the software SPSS 19.0.

CHAPTER 4

Results and Data Analysis

4.1 Demographic Classification

This chapter shall present the results of the analysis conducted on the data collected from Iraq provinces hospitals. It contains profile characteristics and risk factors of cardiac disease among the Iraq population. The results are discussed in the forthcoming paragraphs.

4.1.1 Iraq Provinces wise Classification:

The respondents of Iraq provinces are considered for this research is Bagdad, Basrah, Erbil and Dohuk. Details about the Iraq Provinces with which the respondents are displayed in table 4.1 and figure 4.1.

Table 4.1: Iraq Provinces

Iraq Provinces	Frequency	Percent	Cumulative Percent
Baghdad	129	28.7	28.7
Basrah	73	16.2	44.9
Erbil	135	30.0	74.9
Dohuk	113	25.1	100.0
Total	450	100.0	

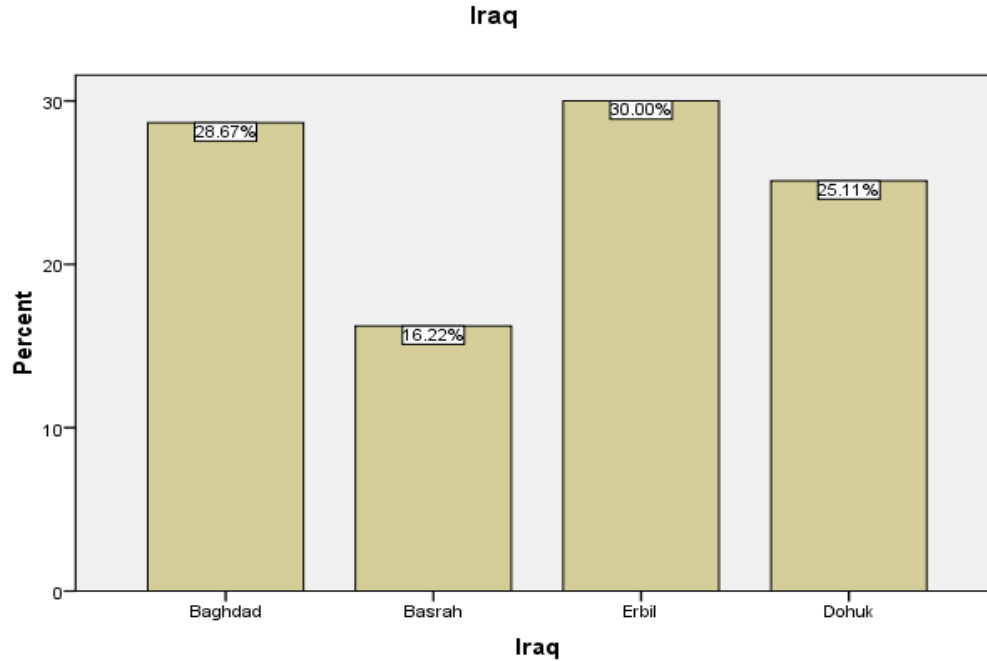


Figure 4.1: Iraq Provinces

Table 4.1 and figure 4.1 highlight that most of the respondent belong to the Erbil (30.00%) next to the Baghdad (28.67%). Little above one-third of the respondents belong to the Dohuk (25.11%) and Basrah (16.22%), respectively.

4.1.2 Gender wise Classification:

The distribution of respondents selected for this study among male and female is showcased in table 4.2 and figure 4.2.

Table 4.2: Gender

Gender	Frequency	Percent	Cumulative Percent
Female	183	40.7	40.7
Male	267	59.3	100.0
Total	450	100.0	

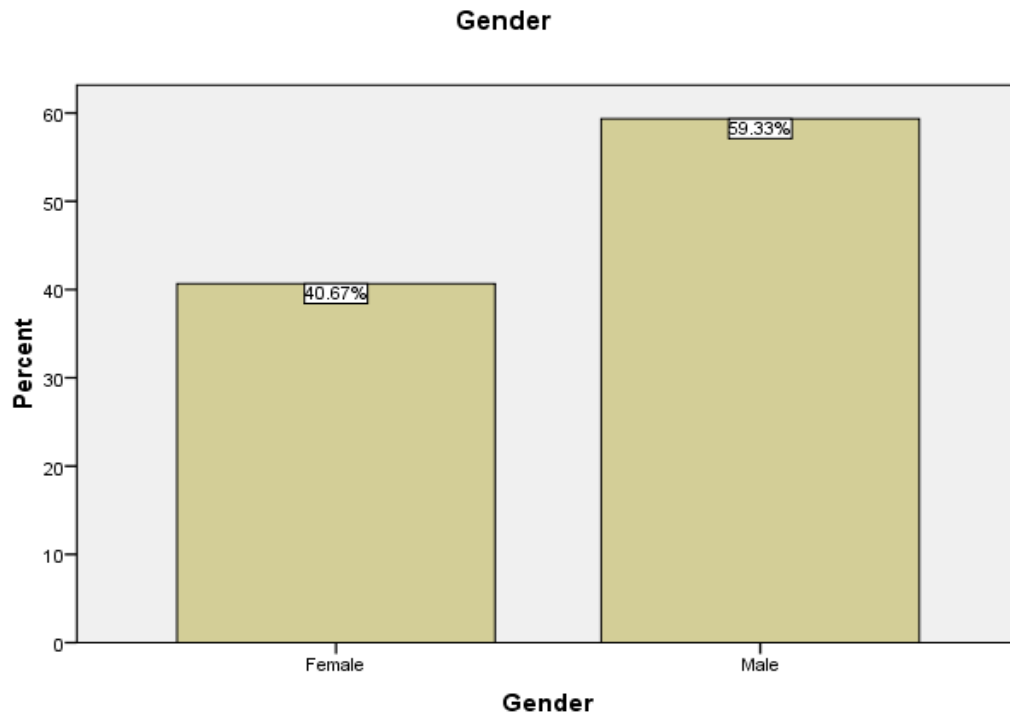


Figure 4.2: Gender

The majority of the respondents (59.33%) are males, while (40.67%) are female respondent.

4.1.3 Age wise Classification:

The age group to which the respondent belongs in table 4.3 and figure 4.3.

Table 4.3: Age

Age	Frequency	Percent	Cumulative Percent
Up to 18	66	14.7	14.7
19 to 35	12	2.7	17.3
36 to 50	52	11.6	28.9
51 to 65	246	54.7	83.6
66 and Above	74	16.4	100.0
Total	450	100.0	

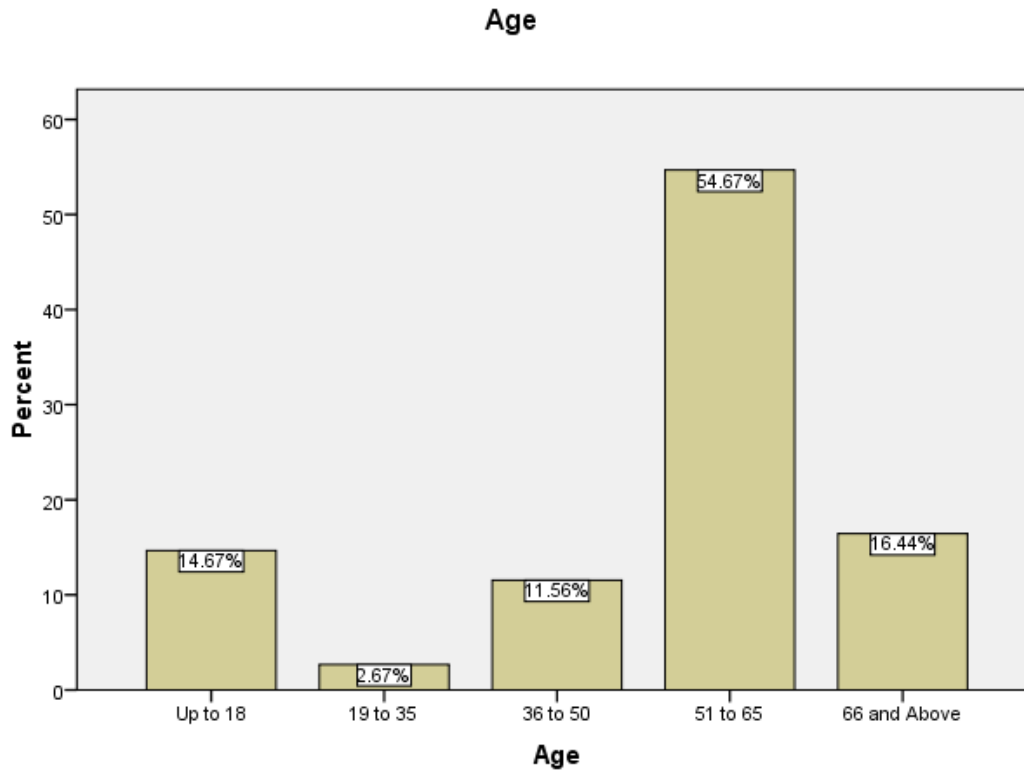


Figure 4.3: Age

Table 4.3 and figure 4.3 highlight that just little half of the respondents surveyed (54.67%) are aged 51-65 years while the respondent with the age group of 19 to 35 years surveyed 2.67%, the respondent with the other age group of 66 and above years, 36 to 35 and up to 18 years do not differ by much.

4.1.4 Sugar status wise Classification:

The Sugar status of respondent is displayed in table 4.4 and figure 4.4.

Table 4.4: Sugar status

Sugar status	Frequency	Percent	Cumulative Percent
Diabetic	252	56.0	56.0
No	198	44.0	100.0
Total	450	100.0	

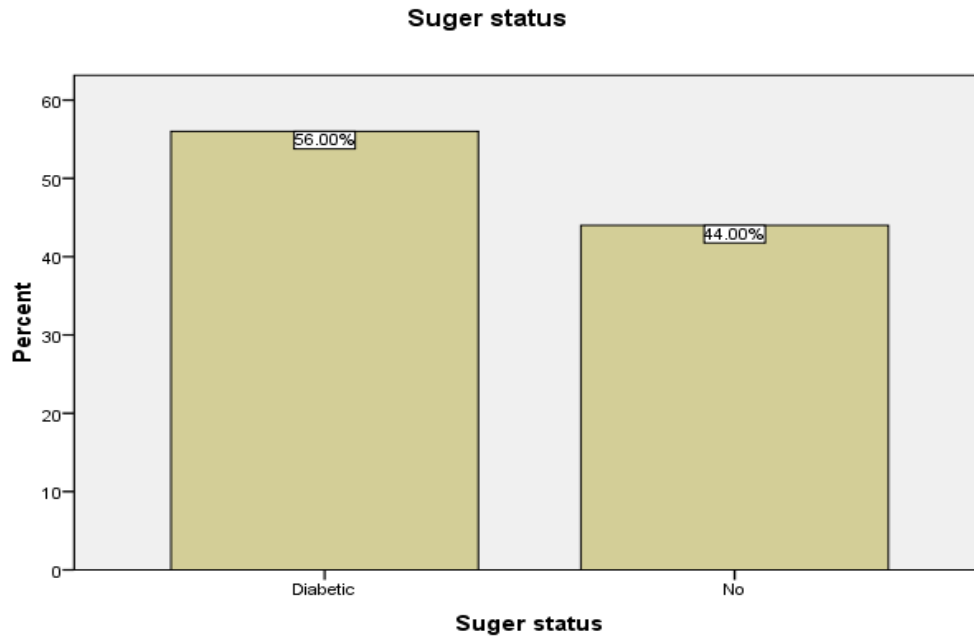


Figure 4.4: Suger status

Table 4.4 and figure 4.4 suggest that a clear majority of the respondent (56.00%) are diabetic, while a (44.00%) didn't have sugar complaint.

4.1.5 Chest Pain Type wise Classification:

The respondents are segregated based on the Chest Pain Type they faced are displayed in table 4.5 and figure 4.5.

Table 4.5: Chest Pain Type

Chest Pain Type	Frequency	Percent	Cumulative Percent
Null	69	15.3	15.3
Mild	235	52.2	67.6
Moderate	90	20.0	87.6
Severe	56	12.4	100.0
Total	450	100.0	

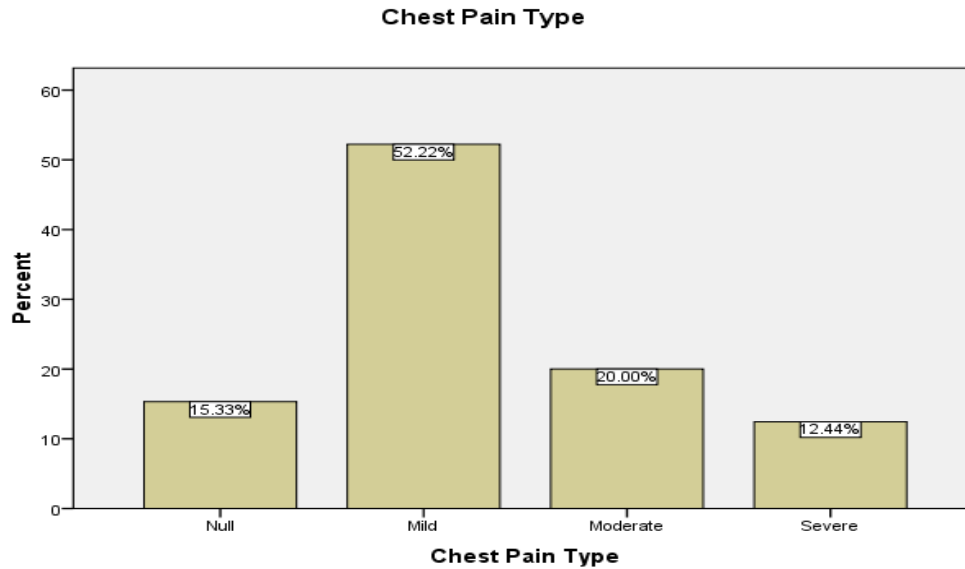


Figure 4.5: Chest Pain Type

Table 4.5 and figure 4.5 highlight that most of the respondent faced (52.22%) mild chest pain, while little more than (22.22%) are moderate chest pain. Very few of the respondent (12.44%) possess severe chest pain.

4.1.6 Heart Rate type wise Classification:

The Heart Rate type wise Classification of respondents is displayed in table 4.6 and figure 4.6.

Table 4.6: Heart Rate type

Heart Rate type	Frequency	Percent	Cumulative Percent
Tachycardia	195	43.3	43.3
Normal	255	56.7	100.0
Total	450	100.0	

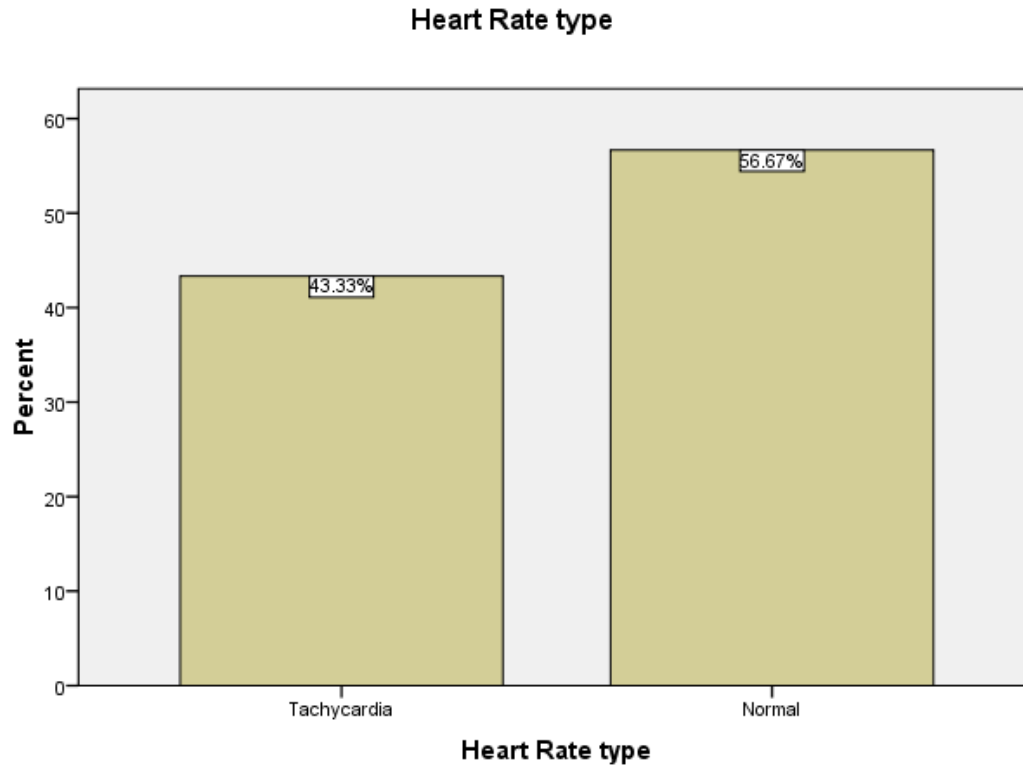


Figure 4.6: Heart Rate type

Table 4.6 and figure 4.6 showcase that most of the respondent (56.67%) are normal type of heart rate. In contrast, more than one-quarter of them (43.33%) are tachycardia heart rate type.

4.1.7 Smoking wise Classification:

The respondents are classified based on the smoking habits are portrayed in table 4.7 and figure 4.7.

Table 4.7: Smoking

Smoking	Frequency	Percent	Cumulative Percent
Yes	110	24.4	24.4
No	340	75.6	100.0
Total	450	100.0	

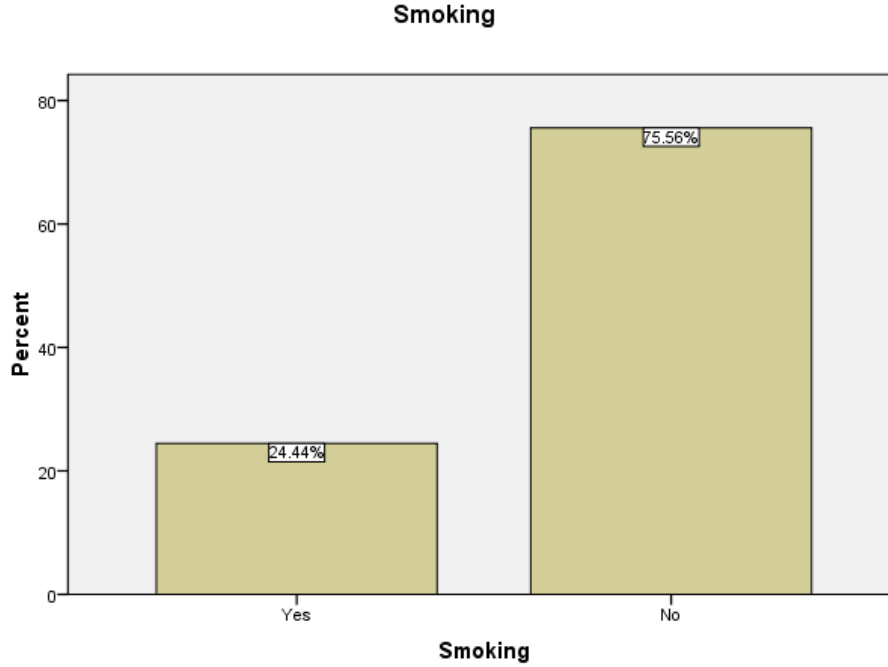


Figure 4.7: Smoking

Table 4.7 and figure 4.7 portrayed that a little more than one-fifth of the respondent (24.44%) have smoking habits and more than (75.56%) of the respondent didn't have smoking habit.

4.1.8 Family history of coronary artery disease wise Classification:

The respondents are classified based on the family history of coronary artery disease is depicted in table 4.8 and figure 4.8.

Table 4.8: Family history of coronary artery disease

Family history of coronary artery disease	Frequency	Percent	Cumulative Percent
Positive	213	47.3	47.3
Negative	167	37.1	84.4
Congenital	70	15.6	100.0
Total	450	100.0	

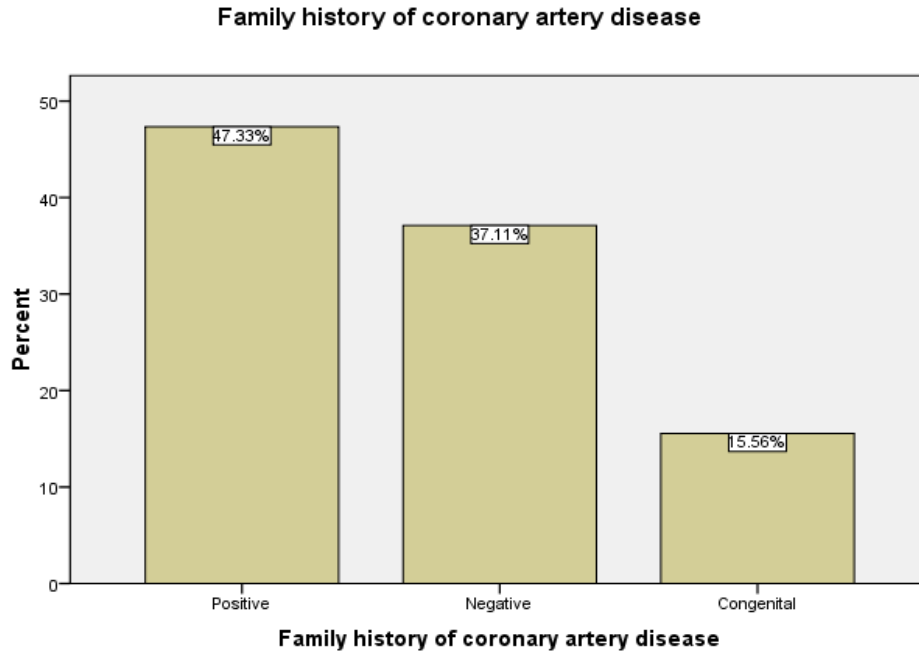


Figure 4.8: Family history of coronary artery disease

Table 4.8 and figure 4.8 suggest that a clear majority of the respondents (47.33%) are positive Family history of coronary artery disease, while more than them (37.11%) have negative family history of coronary artery disease.

4.1.9 Blood Pressure wise Classification:

The respondents are classified based on the Blood Pressure tupe is depicted in table 4.9 and figure 4.9.

Table 4.9: Blood Pressure

Blood Pressure	Frequency	Percent	Cumulative Percent
Hypertension	316	70.2	70.2
Normal	134	29.8	100.0
Total	450	100.0	

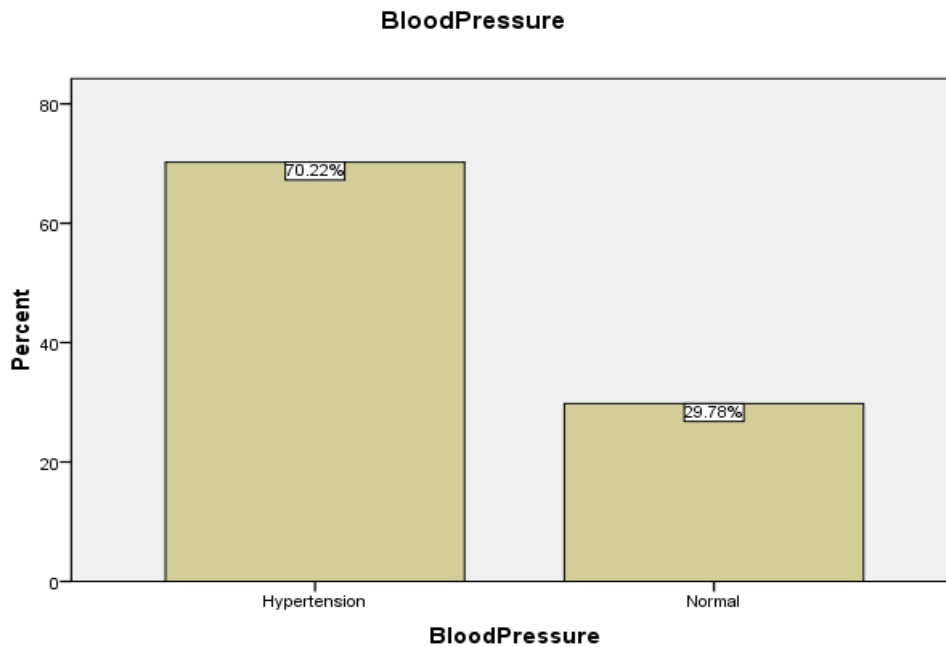


Figure 4.9: Blood Pressure

Table 4.9 and figure 4.9 suggest that a clear majority of the respondents (70.22%) are having hypertension and (29.76%) have normal blood pressure.

4.2 Associations between age and risk factors of cardiac disease among the Iraq population.

It is essential to study the age and risk factors of cardiac disease among the Iraq population. To study the association between age and risk factors of cardiac disease among the Iraq population. For that, the researcher applied chi-square in this chapter. Chi-square Analysis results are discussed in the forthcoming paragraphs.

4.2.1 Association between Age of Respondents and Gender

The nature of an association between the age of respondents and gender is displayed in table 4.10.

Table 4.10: Age and Gender Crosstabulation

Age	Female	Male	Total
Up to 18	36	30	66
19 to 35	6	6	12
36 to 50	21	31	52

51 to 65	83	163	246
66 and Above	37	37	74
Total	183	267	450

Table 4.11: Chi-square values of the Age of respondents and Gender

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.267	4	.010
Likelihood Ratio	13.204	4	.010
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with gender. The chi-square value shows 0.010 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and gender. This concludes to reject the hypothesis.

4.2.2 Association between Age of Respondents and Blood Pressure

The nature of an association between the age of respondents and blood pressure is displayed in table 4.12.

Table 4.12: Age and Blood Pressure Crosstabulation

Age	Hypertension	Normal	Total
Up to 18	6	60	66
19 to 35	4	8	12
36 to 50	30	22	52
51 to 65	208	38	246
66 and Above	68	6	74
Total	316	134	450

Table 4.13: Chi-square values of the Age of respondents and Blood Pressure

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.704E2 ^a	4	.000
Likelihood Ratio	168.335	4	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with blood pressure. The chi-square value shows 0.00 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and blood pressure. This concludes to rejected the hypothesis.

4.2.3 Association between Age of respondents and Sugar status

The nature of an association between the age of respondents and sugar status is displayed in table 4.14.

Table 4.14: Age and Sugar status Crosstabulation

Age	Diabetic	No	Total
Up to 18	0	66	66
19 to 35	4	8	12
36 to 50	14	38	52
51 to 65	184	62	246
66 and Above	50	24	74
Total	252	198	450

Table 4.15: Chi-square values for Age of respondents and Sugar status

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.436E2	4	.000
Likelihood Ratio	170.466	4	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with sugar status. The chi-square value shows 0.00 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and sugar status. This concludes to rejected the hypothesis.

4.2.4 Association between Age of respondents and Chest Pain Type

The nature of an association between the age of respondents and chest pain type is displayed in table 4.16.

Table 4.16: Age and Chest Pain Type Crosstabulation

Age	Null	Mild	Moderate	Severe	Total
Up to 18	65	1	0	0	66
19 to 35	0	12	0	0	12
36 to 50	4	30	6	12	52
51 to 65	0	146	60	40	246
66 and Above	0	46	24	4	74
Total	69	235	90	56	450

Table 4.17: Chi-square values of the Age of respondents and Chest Pain Type

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.381E2	12	.000
Likelihood Ratio	374.105	12	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with chest pain type. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and chest pain type. This concludes to rejected the hypothesis.

4.2.5 Association between Age of respondents and Heart Rate type

The nature of an association between the age of respondents and heart rate type is displayed in table 4.18.

Table 4.18: Age and Heart Rate type Crosstabulation

Age	Tachycardia	Normal	Total
Up to 18	4	62	66
19 to 35	8	4	12
36 to 50	32	20	52
51 to 65	117	129	246
66 and Above	34	40	74
Total	195	255	450

Tabl 4.19: Chi-square values of the Age of respondents and Heart Rate type

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	49.016	4	.000
Likelihood Ratio	58.518	4	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with heart rate type. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and heart rate type. This concludes to rejected the hypothesis.

4.2.6 Association between Age of respondents and Smoking

The nature of an association between the age of respondents and smoking is displayed in table 4.20.

Table 4.20: Age and Smoking Crosstabulation

Age	Yes	No	Total
Up to 18	4	62	66
19 to 35	4	8	12
36 to 50	8	44	52
51 to 65	64	182	246
66 and Above	30	44	74
Total	110	340	450

Table 4.2:1 Chi-square values of the Age of respondents and Smoking

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.611	4	.000
Likelihood Ratio	28.480	4	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with smoking. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it

reveals that there is a significant association between age of respondents and smoking. This concludes to rejected the hypothesis.

4.2.7 Association between Age of Respondents and Family history of coronary artery disease

The nature of an association between the age of respondents and family history of coronary artery disease is displayed in table 4.22.

Table 4.22: Age and Family history of coronary artery disease Crosstabulation

Age	Positive	Negative	Congenital	Total
Up to 18	4	0	62	66
19 to 35	4	4	4	12
36 to 50	38	14	0	52
51 to 65	139	107	0	246
66 and Above	28	42	4	74
Total	213	167	70	450

Table 4.23: Chi-square values of the Age of respondents and Family history of coronary artery disease

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.881E2	8	.000
Likelihood Ratio	330.890	8	.000
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with family history of coronary artery disease. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between age of respondents and family history of coronary artery disease. This concludes to rejected the hypothesis.

4.2.8 Association between Age of respondents and Iraq Provinces

The nature of an association between the age of respondents and Iraq provinces is displayed in table 4.24.

Table 4.24: Chi-square values of the Age and Iraq Provinces

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.642	12	.560
Likelihood Ratio	12.195	12	.430
N of Valid Cases	450		

From the above table, it is evident that age of respondents have significant association with Iraq provinces. The chi-square value shows 0.560 it is greater than the standard value of 0.05, and it reveals that there is no significant association between age of respondents and Iraq provinces. This concludes to accept the hypothesis.

4.3 Association between Gender and risk factors of cardiac disease among the Iraq population.

It is necessary to study the gender and risk factors of cardiac disease among the Iraq population. To study the association between gender and risk factors of cardiac disease among the Iraq population. For that, the researcher applied chi-square in this chapter. Chi-square Analysis results are discussed in the forthcoming paragraphs.

4.3.1 Association between Gender of respondents and Blood Pressure

The nature of an association between the gender and blood pressure is displayed in table 4.25.

Table 4.25: Chi-square values of the Gender and Blood Pressure

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.482	1	.115
Likelihood Ratio	2.466	1	.116
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with blood pressure. The chi-square value shows 0.115 it is greater than the standard value of 0.05,

and it reveals that there is no significant association between age of respondents and blood pressure. This concludes to accept the hypothesis.

4.3.2 Association between Age of respondents and Sugar status

The nature of an association between the gender and sugar status is displayed in table 4.26.

Table 4.26: Gender and Sugar status Crosstabulation

Gender	Diabetic	No	Total
Female	93	90	183
Male	159	108	267
Total	252	198	450

Table 4.27: Chi-square values of the Gender of respondents and Sugar

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.359	1	.067
Likelihood Ratio	3.355	1	.067
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with sugar status. The chi-square value shows 0.067 it is less than the standard value of 0.05, and it reveals that there is a significant association between gender of respondents and sugar status. This concludes to rejected the hypothesis.

4.3.3 Association between Gender of respondents and Chest Pain Type

The nature of an association between the gender and gender of respondents and chest pain type is displayed in table 4.28.

Table 4.28: Gender and Chest Pain Type Crosstabulation

Gender	Null	Mild	Moderate	Severe	Total
Female	39	106	18	20	183
Male	30	129	72	36	267
Total	69	235	90	56	450

Table 4.29: Chi-square values for Gender of respondents and Chest Pain Type

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.609	3	.000
Likelihood Ratio	26.989	3	.000
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with chest pain type. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between gender of respondents and chest pain type. This concludes to rejected the hypothesis.

4.3.4 Association between Gender of Respondents and Heart Rate type

The nature of an association between the gender and gender of respondents and heart rate type is displayed in table 4.30.

Table 4.30: Chi-square values for Gender of respondents and Heart Rate type

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.003	1	.954
Likelihood Ratio	.003	1	.954
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with heart rate type. The chi-square value shows 0.954 it is less than the standard value of 0.05, and it reveals that there is no significant association between gender of respondents and heart rate type. This concludes to accept the hypothesis.

4.3.5 Association between Gender and Smoking

The nature of an association between the gender and smoking is displayed in table 4.31.

Table 4.31: Gender and Smoking Crosstabulation

Gender	Yes	No	Total
Female	10	173	183
Male	100	167	267
Total	110	340	450

Table 4.32: Chi-square values for Gender of respondents and Smoking

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	60.158	1	.000
Likelihood Ratio	69.806	1	.000
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with smoking. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between gender of respondents and smoking. This concludes to rejected the hypothesis.

4.3.6 Association between Gender of Respondents and Family history of coronary artery disease

The nature of an association between the gender and family history of coronary artery disease is displayed in table 4.33.

Table 4.33: Gender and Family history of coronary artery disease Crosstabulation

Gender	Positive	Negative	Congenital	Total
Female	72	72	39	183
Male	141	95	31	267
Total	213	167	70	450

Table 4.34: Chi-square values for Gender of respondents and Family history of coronary artery disease

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.142	2	.004
Likelihood Ratio	11.082	2	.004
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with family history of coronary artery disease. The chi-square value shows 0.004 it is less than the standard value of 0.05, and it reveals that there is a significant association between gender of

respondents and family history of coronary artery disease. This concludes to rejected the hypothesis.

4.3.7 Association between Gender of respondents and Iraq Provinces

The nature of an association between the gender and Iraq Provinces is displayed in table 4.35.

Table 4.35: Gender and Iraq Provinces Crosstabulation

Gender	Baghdad	Basrah	Erbil	Dohuk	Total
Female	50	31	55	47	183
Male	79	42	80	66	267
Total	129	73	135	113	450

Table 4.36: Chi-square values for Gender and Iraq Provinces

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.333	3	.954
Likelihood Ratio	.333	3	.954
N of Valid Cases	450		

From the above table, it is evident that gender of respondents have significant association with family history of coronary artery disease. The chi-square value shows 0.954 it is less than the standard value of 0.05, and it reveals that there is no significant association between gender of respondents and family history of coronary artery disease. This concludes to accept the hypothesis.

4.4 Association between Blood Pressure and risk factors of cardiac disease among the Iraq population.

It is necessary to study the blood pressure and risk factors of cardiac disease among the Iraq population. To study the association between blood pressure and risk factors of cardiac disease among the Iraq population. For that, the researcher applied chi-square in this chapter. Chi-square Analysis results are discussed in the forthcoming paragraphs.

4.4.1 Association between Blood Pressure and Smoking

The nature of an association between the blood pressure and smoking is displayed in table 4.37.

Table 4.37: Blood Pressure and Smoking Crosstabulation

Blood Pressure	Yes	No	Total
Hypertension	100	216	316
Normal	10	124	134
Total	110	340	450

Table 4.38: Chi-square values for Blood Pressure of respondents and Smoking

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.795	1	.000
Likelihood Ratio	28.500	1	.000
N of Valid Cases	450		

From the above table, it is evident that blood pressure of respondents have significant association with smoking. The chi-square value shows 0.000 it is less than the standard value of 0.05, and it reveals that there is a significant association between blood pressure of respondents and smoking. This concludes to rejected the hypothesis.

4.4.2 Association between Blood Pressure and Family history of coronary artery disease

The nature of an association between the blood pressure and family history of coronary artery disease is displayed in table 4.39.

Table 4.39: Blood Pressure and Family history of coronary artery disease Crosstabulation

Blood Pressure	Positive	Negative	Congenital	Total
Hypertension	171	135	10	316
Normal	42	32	60	134
Total	213	167	70	450

Table 4.40: Chi-square values for Blood Pressure of respondents and Family history of coronary artery disease

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.241E2	2	.000
Likelihood Ratio	115.980	2	.000

From the above table, it is evident that blood pressure of respondents have significant association with family history of coronary artery disease. The chi-square value shows 0.010 it is less than the standard value of 0.05, and it reveals that there is a significant association between blood pressure of respondents and family history of coronary artery disease. This concludes to rejected the hypothesis.

4.4.3 Association between Blood Pressure and Sugar Status

The nature of an association between the blood pressure and sugar status is displayed in table 4.41.

Table 4.41: Blood Pressure and Sugar status Crosstabulation

Blood Pressure	Diabetic	No	Total
Hypertension	224	92	316
Normal	28	106	134
Total	252	198	450

Table 4.42: Chi-square values for Blood Pressure and Sugar Status

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	95.437	1	.000
Likelihood Ratio	98.766	1	.000
N of Valid Cases	450		

From the above table, it is evident that blood pressure of respondents have significant association with sugar status. The chi-square value shows 0.010 it is less than the standard value of 0.05, and it reveals that there is a significant association between blood pressure of respondents and sugar status. This concludes to rejected the hypothesis.

CHAPTER 5

5. CONCLUSION

5.1 Introduction

This chapter shall take a look at the conclusion derived from the analysis of data collected in respect of cardiovascular disease risk elements of respondents. In addition, recommendation and limitations of this research shall be provided. It is found from the examination of the cardiac patients is enduring with at least one risk factors. More the quantity of risk factors more would be seriousness of the illness. Risk factors create as and when the age and gender of the cardiac patient increments. Chi-square test is applied by the scientist to discover the association of risk factor with the gender and age gathering of the cardiac patients.

The occurrence of cardiovascular disease is increments from early middle age to older. An individual risk of a heart assault steadily increments as the person gets more established. Additionally the more seasoned an individual is, the more probable the heart assault and it will be lethal. It tends to be seen that 54.7 percent of the populace from Iraq areas were during a time 51 to 65 group. The existence time risk of creating coronary vein diseases by 50 years old is around one out of two for men and one of every three for women (Mc Pherson, 2006).

It very well may be seen that significant part (59.3 percent) of the populace from Iraq territories were guys. Female subjects partook for the examination was 40.70 percent. Men are more cognizant about their wellbeing than ladies and information about the risk identified with cardiovascular disease in men was higher than ladies. Men are at high risk for heart disease at a prior age than ladies. The risk goes up consistently as he gets more seasoned. In spite of the fact that atherosclerosis happens in the two people, the previous are more inclined to cardiovascular disease. Preceding menopause the arrange is remarkable in ladies. Yet, further down the road the rate might be equivalent to in men. It is conceivable that female sex chemicals up to menopause have an inhibitory impact of cardiovascular disease. Anyway as opposed to sex chemicals, the manly love for rich food, liquor and tobacco could likewise be answerable for the higher frequency in the male (Antia and Philip, 2005).

Family ancestry is one of the risk factors for heart disease; anyway that relationship has been related with optional risk factors like elevated cholesterol, hypertension and diabetes. Family backgrounds for cardiac, diabetes, high and low circulatory strain of the subjects were broke down. High blood cholesterol can run in families. An acquired hereditary condition brings

about elevated Cholesterol level. It starts upon entering the world and results in a heart assault at an early age. Family ancestry for different NCO diseases among populace from Iraq uncovered that 47.33 percent populace have had the family background of just cardiac disease. Similarly diabetes was found among groups of 56% populace from Iraq.

Smoker's risk of creating coronary heart disease is 2 to multiple times than that of non-smokers. Cigarette smoking additionally acts with other risk variables to build the risk of coronary heart disease. Almost 40per penny of cardiovascular disease deaths are because of smoking. Smoking expansions in heart rate over 100 and ascend in BP of about 15mm Hg. systolic and 10mm Hg. diastolic (Reader's Digest, 2004).

Smoking propensity for populace partook in the examination shows that 24.44 percent populace Iraq territories had the propensity for smoking routinely. During the hour of rural work, in the wake of setting aside food they burn through some energy for rest and smoking, this is the regular act of rural works. The risk of cardiovascular disease death increments with expanding openness to tobacco smoke, as estimated by the quantity of cigarettes smoked every day, the length of smoking, the level of inward breath and the age of commencement. The general risk for cardiovascular disease is considerably more noteworthy is early grown-up life than in mature age, and is related more firmly with cigarettes than with different sorts of tobacco (Chen and Boreham, 2002). The risk of creating CHO increments with the length and power of openness to tobacco smoke. Generally, smokers have a 70per penny more noteworthy pace of mortality from CHO than non-smokers. Smokers devouring in excess of 40 cigarettes each day have death rates somewhere in the range of two and multiple times more prominent than non-smokers.

To study the association between age and gender on cardiovascular disease risk elements researcher framed this objective, to prove the objective the researcher has framed a hypothesis and results are presented below table.

Table 5: Research hypothesis

No	Hypothesis	Accepted /Rejected
1.	There is no significant association between age & Gender.	Rejected
2.	There is no sig. assoc. between age & Blood Pressure.	Rejected
3.	There is no sig. assoc. between age & Sugar status.	Rejected

4.	There is no sig. assoc. between age & Chest Pain Type.	Rejected
5.	There is no sig. assoc. between age & Heart Rate type.	Rejected
6.	There is no sig. assoc. between age & Smoking.	Rejected
7.	There is no sig. assoc. between age & Family history of coronary artery disease.	Rejected
8.	There is no sig. assoc. between age & Iraq Provinces.	Accepted
9.	There is no sig. assoc. between gender & Blood Pressure.	Rejected
10.	There is no sig. assoc. between gender & Sugar status.	Rejected
11.	There is no sig. assoc. between gender & Chest Pain Type.	Rejected
12.	There is no sig. assoc. between gender & Heart Rate type.	Accepted
13.	There is no sig. assoc. between gender & Smoking.	Rejected
14.	There is no significant association between gender & Family history of coronary artery disease.	Rejected
15.	There is no sig. assoc. between gender & Iraq Provinces.	Accepted
16.	There is no sig. assoc. between Blood Pressure & Smoking.	Rejected
17.	There is no sig. assoc. between Blood Pressure & Family history of coronary artery disease.	Rejected
18.	There is no sig. assoc. between Blood Pressure & Sugar Status.	Rejected

It is found that there is no significant association between age and Iraq provinces, based on age and Iraq provinces and gender and Heart Rate type in the above results. It reveals that the three hypotheses are accepted. Remaining fifteen hypotheses are rejected and hence it reveal that there is a significant association between age, gender and cardiovascular disease risk elements.

5.2 Recommendations to prevent cardiovascular disease in Iraq

1. Suitable coronary heart disease avoidance endeavors ought to be started in India at the populace level as cardiovascular disease is answerable for the main source of inability and death rates. More missions on cardiovascular disease risk elements ought to be directed to make mindfulness among individuals.

2. More new hospitals ought to be set up inside the span of cardiac patients in urban and rural regions specifically. The current hospitals ought to be up-evaluated with required framework alongside the necessary cardiac clinical group to help the cardiac patients.
3. Advanced clinical innovation ought to be imported from created nations to give quality treatment in both private and government hospitals to guarantee great personal satisfaction for the cardiac patients after cardiac medical procedure.
4. Sufficient restoration places to be presented in Iraq urban areas for cardiac patients which in tum help to diminish further event of heart disease.
5. Foreign help agencies should approach in subsidizing for cardiovascular disease counteraction standards.
6. Further broad exploration is required for cardiovascular disease which assists with controlling the monetary weight of cardiovascular disease in the general public all in all.

5.3 Limitations of this Research

- Data collected from respondents may be unable to capture more aspects of cardiovascular disease risk elements.
- In this study, the data have been collected from hospitals and only covered four provinces in Iraq.
- The data were collected from hospital only. The researcher did not collect data from other sources to cardiovascular disease risk elements.
- Mainly the research limitation will be the time since the Master theses lasts for one you 2020-2021. Also, the study will be mostly focusing Iraq.

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APPENDICES

APPENDIX 1

TURNITIN REPORT

The screenshot shows the Turnitin interface for an assignment titled 'HelenMsCThesis'. The page includes a navigation bar with options like 'Assignments', 'Students', and 'Grade Book'. Below the navigation, there is a section titled 'About this page' and a table of submitted files. The table has columns for 'Author', 'Title', 'Similarity', 'Grade', 'Response', 'File', 'Paper ID', and 'Date'. The similarity percentages range from 0% to 10%.

Author	Title	Similarity	Grade	Response	File	Paper ID	Date
Helen Helen	Abstract	0%	--	--	[icon]	1603993359	10-Jun-2021
Helen Helen	Chapter2	0%	--	--	[icon]	1603997215	10-Jun-2021
Helen Helen	Conclusion	0%	--	--	[icon]	1603996685	10-Jun-2021
Helen Mahmood	Whole Thesis	2%	--	--	[icon]	1604027838	10-Jun-2021
Helen Helen	Chapter1	3%	--	--	[icon]	1603996971	10-Jun-2021
Helen Helen	Chapter3	8%	--	--	[icon]	1604000003	10-Jun-2021
Helen Helen	Chapter4	10%	--	--	[icon]	1603996600	10-Jun-2021

Handwritten note: *all read w/06/21*