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The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention

A Dissertation

Submitted to Council of the College of Nursing, University of Babylon in Partial Fulfillment of the Requirements for the Degree of Philosophy Doctorate in Nursing

By

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Shaban 1443 A.H

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ وَنَزَّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَرَحْمَةٌ لِّلْمُؤْمِنِينَ وَلَا يَزِيدُ الظَّالِمِينَ إِلَّا

خَسَارًا (82) وَإِذَا أُنعَمْنَا عَلَى الْإِنسَانِ أَعْرَضَ وَنَا بِجَانِبِهِ وَإِذَا مَسَّهُ الشَّرُّ كَانَ

يُوسَى (83) قُلْ كُلُّ يَعْمَلُ عَلَى شَاكِلَتِهِ فَرَبُّكُمْ أَعْلَمُ بِمَنْ هُوَ أَهْدَى سَبِيلًا (84) ﴿

صَلَّى اللهُ عَلَيْهِ وَسَلَّمَ
سورة الاسراء

Supervisor certification

This is to certify that the dissertation entitled: (**The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention**), submitted by **Mohammad Mahdi Saeed Sahib** to the University of Babylon, College of Nursing in partial fulfillment of the requirements for the Degree of Doctorate of Philosophy in Nursing. The dissertation work was carried out by the student under my supervision and guidance.

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Dedication

*My God, I did not have a power to turn away from disobedience to you,
except at a time when you awakened me to love you
and as you want I was.*

[Ali ibn Abi-Talib]

For those in whom I saw your beauty

My "Mother"

My "Father"

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Abstract

Beliefs may push patients toward adherence to therapeutic recommendations or act to impede them. Therefore, knowing the locus of control (LoC) is important to improving patient adherence to therapeutic recommendations.

A cross sectional, quantitative correlational study was carried out at Al-Najaf Center for Cardiac Surgery and Cardiac Catheterization to find out the relationship between LoC and patients adherence to therapeutic recommendations after percutaneous coronary intervention (PCI).

The study started on October 1st, 2020 and lasted until April 28th, 2022 in order to meet the study objectives. A purposive sample of 120 coronary artery disease (CAD) patients after PCI was included.

The study findings indicates that 40.8% of participants were within 51-60 years old, 65.8% were male, 20.8% had intermediate school level, 59.2% were rural residence, 90% were married, 72.5% experienced CAD for less than 6 years, 98.3% received therapeutic recommendations, 38.3% admitted for the second time, and 70.8% had fair level of adherence. In turn Age, level of education, disease duration were significantly related to adherence variable, while Age, level of education, occupation, and number of admission were significantly associated to LoC. Finally the two main variable were significantly correlated and the prediction was possible.

Internal LoC orientation seems to be linked to controlling diseases, avoiding complications, and improving health, and patients with internal LoC orientation are predicted to have a good adherence level versus externally oriented ones.

Abstract III

Patients believe that medical follow-up through a specialist visit gives them insurance about their health status. So, providing more facilities and focus concerning specialist visits could be a power point to report patients' health status changes compared with previous visits (promoted or deteriorated) and renew the required therapeutic recommendations.

Table of contents

| N. | Subject | Page |
|---------------|--|--------------|
| | Acknowledgment | I |
| | Abstract | II-III |
| | Table of contents | IV-VI |
| | List of tables | VII- VIII |
| | List of figures | IX |
| | List of abbreviations, acronyms, symbols | X-XII |
| | List of Appendices | XIII |
| 1. | Chapter one, introduction | 1-14 |
| 1.1. | Introduction | 2-7 |
| 1.2. | The study's importance | 7-10 |
| 1.3. | Statement of problem | 10 |
| 1.4. | Objectives of the study are to | 10-11 |
| 1.5. | Study hypotheses | 11 |
| 1.6. | Definition of terms | 11-14 |
| 2. | Chapter two, review of literature | 15-59 |
| 2.1. | Cardiac catheterization in historical overview | 18-20 |
| 2.2. | Coronary artery circulation | 20-22 |
| 2.3. | Coronary artery disorder | 22-23 |
| 2.3.1. | Manifestations of coronary artery disorders | 23-24 |
| 2.3.2. | Coronary artery disease determinants | 24 |
| 2.4. | PCI through recent years | 25-27 |
| 2.4.1. | Intra procedural techniques | 27-28 |
| 2.4.2. | Posts PCI complications | 29-36 |
| 2.4.3. | Determinants leading to complications | 36-37 |
| 2.4.4. | Therapeutic recommendations (discharge plan) | 37-39 |
| 2.5. | Adherence to therapeutic recommendations | 39-40 |

| | | |
|-----------|---|----------------|
| 2.5.1. | Locus of control and adherence to therapeutic recommendations | 40-43 |
| 2.6. | Theoretical baselines of LOC | 43 |
| 2.6.1. | General overview through history | 43-44 |
| 2.6.2. | Theory dimensions | 44 |
| 2.6.3. | Theory concepts | 44-45 |
| 2.6.4. | Theory assumptions | 45 |
| 2.6.5. | Theory application | 45-47 |
| 2.7. | Previous studies | 47-59 |
| 2.8. | Summary | 59-60 |
| 3. | Chapter three, methods and research process | 61-77 |
| 3.1. | The study design | 63 |
| 3.2. | Administrative arrangements | 63 |
| 3.3. | Ethical considerations | 63-64 |
| 3.4. | The study setting | 64-65 |
| 3.5. | The study sample | 65-66 |
| 3.6. | The study questionnaire | 66-69 |
| 3.7. | Validity of the study questionnaire | 69 |
| 3.8. | Pilot study | 69-71 |
| 3.9. | Reliability of the study questionnaire | 71-72 |
| 3.10. | Data collection method | 72-73 |
| 3.11. | Rating and scoring | 73-75 |
| 3.12. | Data analysis | 75-76 |
| 3.13. | The study limitations | 77 |
| 4. | Chapter four, results of the study | 78-114 |
| 5. | Chapter five, discussion of the results | 115-144 |
| 5.1. | Discussion of demographic and clinical data of the study participants | 118-126 |
| 5.2. | Discussion of patients' adherence to therapeutic recommendations. | 126-131 |

| | | |
|-------------|---|---------------------|
| 5.3. | Discussion of patients' LoC orientation. | 131- 136 |
| 5.4. | Discussion of relationship between participants' adherence to therapeutic recommendations and their demographics and clinical data. | 137- 139 |
| 5.5. | Discussion of relationship between the patients' LoC orientation and their demographic and clinical data. | 139- 141 |
| 5.6. | Discussion of the association between the LoC orientation with participants' adherence along with therapeutic recommendations | 141- 142 |
| 5.7. | Discussion of patients adherence prediction according their LoC orientation through linear regression | 142- 144 |
| 6 | Chapter six, conclusion & recommendations | 145- 148 |
| 6.1 | Conclusions | 146- 147 |
| 6.2 | Recommendations | 148 |
| | References | 149- 178 |
| | Appendices | |
| | Arabic abstract | |

List of appendices

| Appendix | Title | Page |
|----------|-----------------------------------|------|
| [A] | Ethical approval letter | |
| [B] | Administrative arrangements | |
| [C] | Linguists certification | |
| [D] | Questionnaire in English language | |
| [E] | Questionnaire in Arabic language | |
| [F] | Panel of experts | |

List of tables

| No. | Tables | Page |
|--------------|--|--------------|
| 3.1. | The reliability coefficients concerning questionnaire under investigation. | 72 |
| 4.1. | The study participants categories according to socio-demographic factors | 79-80 |
| 4.2. | Study sample distributed according to clinical data | 81-82 |
| 4.3. | Adherence to therapeutic recommendations in patients following PCI. | 83 |
| 4.4. | Adherence to therapeutic recommendations as measured by patients' overall feedback to the nutritional domain | 84 |
| 4.5. | Adherence to therapeutic recommendations as measured by patients' overall feedback to the behavioral domain | 85 |
| 4.6. | Adherence to therapeutic recommendations as measured by patients' overall scores to the medication domain | 85 |
| 4.7. | Patients' adherence to therapeutic recommendations as measured by total responses to the medical follow-up topic | 86 |
| 4.8. | Assessment of nutrition domain items regarding patients' adherence to therapeutic recommendations. | 87-90 |
| 4.9. | Assessment of behavior domain items regarding patients' adherence to therapeutic recommendations. | 91-92 |
| 4.10. | Assessment of medication domain items regarding patients' adherence to therapeutic recommendations. | 92-93 |
| 4.11. | Assessment of medical follow up domain items regarding patients' adherence to therapeutic recommendations. | 93-95 |
| 4.12. | Assessment of overall patients' LoC orientation. | 95 |
| 4.13. | Assessment of overall patients' LoC by three level scale. | 96 |
| 4.14. | Assessment of patient's LoC according to self-domain responses | 97 |
| 4.15. | Assessment of patients LoC according to powerful others domain overall responses | 98 |

| | | |
|--------------|--|----------------|
| 4.16. | Assessment of patients LoC according to chance domain overall responses | 99 |
| 4.17. | Patients' LoC orientation by their responses according to the self domain items. | 99-101 |
| 4.18. | Patients' LoC orientation by their responses according to powerful others domain items. | 102-103 |
| 4.19. | Patients' LoC orientation by their responses according to chance\ fate domain items. | 104-105 |
| 4.20. | Relationship among both patients' adherence to therapeutic recommendations & their demographics | 106-107 |
| 4.21. | Relationship among both patients' adherence to therapeutic recommendations and patients' clinical characteristics | 108 |
| 4.22. | Link of the participants' LoC orientation and patients' demographic data | 109-110 |
| 4.23. | Association between the respondents' LoC orientation and their clinical data | 111 |
| 4.24. | Correlation between participants' LoC orientation and adherence with therapeutic recommendations by chi-square and correlation | 112 |
| 4.25. | Regression between the patients' LoC orientation and their adherence to therapeutic recommendations | 113 |

List of figures

| No. | Figures | Page |
|-------------|---|-------------|
| 2.1. | Coronary artery structure | 22 |
| 4.1. | Patient adherence to therapeutic recommendations following PCI: an overall assessment | 84 |
| 4.2. | Assessing patients' adherence with therapeutic recommendations based on their overall responses to the total evaluated domains. | 87 |
| 4.3. | Assessment of overall patients' LoC orientation. | 96 |
| 4.4. | Assessment of overall patients' LoC by three level scale. | 97 |

List of abbreviations, acronyms, and symbols

| Abbreviations | Meaning |
|---------------|---|
| ACE | Angiotensin converting enzyme |
| ACEI | Angiotensin converting enzyme inhibitor |
| AIDS | Acquired immune deficiency disease |
| AMI | Acute myocardial infarction |
| ANOVA | Analysis of variance |
| AV | Atrioventricular |
| BMI | Body mass index |
| CABG | Coronary artery bypass graft |
| CAD | Coronary artery disease |
| CBC | Complete blood count |
| CCU | Coronary care unit |
| CDC | Communicable disease committee |
| CHD | Chronic heart disease |
| CKMB | Creatine kinase-MB |
| COPD | Chronic obstructive pulmonary disease |
| COVID-19 | Coronavirus disease of 2019 |
| CVD | Cardiovascular disease |
| DM | Diabetes mellitus |
| ECG | Electrocardiography |
| FDA | Food and drug association |
| HIV | Human immunodeficiency virus |
| ICU | Intensive care unit |
| IHD | Ischemic heart disease |
| INR | International normalized ratio |
| IV | Intravenous |
| LAD | Left anterior descending |

| | |
|-----------------|---|
| LOC | Locus of control |
| LV | Left ventricle |
| MI | Myocardial infarction |
| MS | Multiple sclerosis |
| NCD | non-communicable illnesses |
| OCP | Oral contraceptive pills |
| PCI | Percutaneous coronary intervention |
| PDF | Portable document format |
| QOL | Quality of life |
| SPSS-22 | Statistical package of social sciences-version 22 |
| UK | United kingdom |
| USA | United states of America |
| WHO | World health organization |
| X Ray | Electromagnetic radiation of X waves |
| Acronyms | |
| AUD | Alcohol use disorder |
| AUP | avoid unplanned pregnancies |
| C.C. | Chronic condition |
| Cath. | Catheterization |
| CBSS | Child behavioral style scale |
| CC | Cardiac catheterization |
| DES | Drug eluting stent |
| DLOC | Diabetes locus of control |
| DSM | Diagnostic and statistical manual of mental disorders |
| ECST | exercise cardiac stress testing |
| GDS | Geriatric depression scale |
| HD | Heart disease |

| | |
|----------------|--|
| HLC | Health locus control |
| HRQL | Health related quality of life |
| i.e | That is |
| IHLC | Internal health locus of control |
| KPNC | Kaiser Permanente Northern California |
| MHLC | Multidimensional health locus of control |
| MMAS | Morisky medication adherence scale |
| P.P. | Page to page |
| PA | Patient activation |
| PED-Q | The perceived ethnic discrimination questionnaire |
| PHLCS | Parental health locus of control scale |
| PICARD | Program to improve care in acute renal disease |
| PTSD | Posttraumatic stress disorder |
| RHD-MIS | Readiness for hospital discharge after myocardial infarction scale |
| SOLID | Study of longevity in diabetes |
| T1D | Type 1 diabetes |
| T2D | Type 2 diabetes |
| Symbols | |
| X^2 | Chi- square |
| % | Percentage |
| R | Pearson correlation |
| S.D | Standard deviation |
| N | Number |
| P | Probability |
| M.S | Mean of score |
| KT | Kidney transplant |
| P-value | Probability of error (chance) |

List of abbreviations, acronyms, and symbols XIII

Chapter One

Introduction

Chapter one

Introduction

Coronary artery disease (CAD), which accounts for over 3 million cardiac catheterizations worldwide, is one of the leading causes of death (Alizadehsani et al., 2013). CAD, which also known as coronary heart disease (CHD), ischemic heart disease (IHD), and atherosclerotic heart disease, is the most common kind of heart disease (accounting for 43% of all cardiovascular illness) and the leading cause of mortality worldwide. This disorder is caused by plaque buildup on the inner walls of the heart's arteries, which narrows or closes the arteries, reducing blood flow to the heart and causing clinical symptoms such as angina, arrhythmia, myocardial infarction, congestive heart failure, and sudden cardiac death (Utami et al., 2018).

According to the Global Burden of Diseases research (2016), India's mortality rate from CHD was projected to be over 1.6 million in 2000. In 2015, over 64 million instances of cardiovascular diseases (CVD) are expected, with nearly 61 million of those being CHD cases (the remaining would include stroke, rheumatic heart disease and congenital heart diseases). It is estimated that 3.4 million people would die as a result of these diseases (Patel et al., 2016).

Within a coronary artery, atherosclerosis causes defined (confined) or dispersed patches of occlusion. When blockages get significant enough, they limit blood flow to the heart muscle, resulting in ischemia. The tests were used to diagnose CAD and the medical treatment for it have already been described. (Brunner et al., 2014). Surgery may be required in some patients with CAD. A "needle hole" or "percutaneous" (through the skin) technique is used in

cardiac Cath-lab for many patients complaining significant illness or who have failed medication therapy (Mishra et al., 2018).

Indeed, according to the World Health Organization (WHO, 2022), approximately 18 million people died from cardiovascular disorders in 2008, with this number expected to rise to 23 million by 2030.

One of the invasive interventional procedures used to diagnose CAD is cardiac catheterization (Mishra et al., 2018). It is a typical tool for assessing the anatomic severity of CAD and making treatment recommendations (Lavi et al., 2012, and Wilcoxson, 2012).

Cardiac catheterization (CC) is a technique in which a symptomatic patient with heart disease undergoes a routine that necessitates hospitalization. According to another study (Abhijeet and Shivanand, 2018), cardiac catheterization is an intrusive operation that can result in a variety of major and minor problems, all of which can increase morbidity and death. An arrhythmia, renal damage, blood clots, and heart attacks are all typical problems of the surgery, and early detection and good care are logically linked to taking action to obtain timely treatment and so minimize subsequent issues (Hoare et al., 2017).

Coronary angiography is a common types of cardiac procedures that are performed. Annually, more than 1,000,000 cardiac catheterization operations are conducted in the United States. As it is to be expected with any invasive treatment, there are occasional problems that are both patient and process related (Mozaffarian et al., 2016).

In chronic cases, patient adherence to the medication regimen is critical for optimal disease control. Poor adherence is widespread in chronic illnesses, and it leads to higher rates of morbidity. Patients' perceptions of their sickness, the kind of therapy or medicine, the quality of patient-provider

communication, and the social culture all influence adherence. Patients are more likely to stick to therapy if they feel it will help them manage or control their condition, or if they expect substantial repercussions if they do not. Providers are crucial in assisting patients in comprehending the nature of the condition, possible treatment advantages, addressing concerns about potential side effects and occurrences, and encouraging patients to acquire self-management skills. It is critical for doctors to investigate patients' views and worries regarding the treatment's safety and benefits, as many patients have silent misgivings. Inadequate adherence is also caused by complex regimens and polytherapy (Moussa, and Abd-Ali, 2020).

Patients must undoubtedly make several changes and adaptations to their everyday habits in order to fit into the treatment course. Non-adherence to the prescribed dietary changes and medications is prevalent among those given the needed dietary changes (restricted in salt, phosphorus, potassium, and fluid content of food) and the numerous drugs. Chronic disease management necessitates a lot of effort on the part of patients, their families, and caregivers. Non-adherence to diet and medicine can have substantial effects, including poor health outcomes and increased morbidity and death (Milazi et al., 2017).

Patient's educational status and health literacy, their socioeconomic status, the presence of multiple co-morbidities, the complexities of the medication regimen, and inadequate education about the prescribed lifestyle change or medicines have all been suggested as precipitating factors that affect medical advice adherence (Rifkin et al., 2010 & Zhianfar et al., 2020).

Several educational interventions have been created and implemented across the world to empower people with chronic conditions by improving their knowledge or psychological readiness to sustain advised adjustments or adherence to prescribed drugs (Shi et al., 2013). The patients with chronic

disorder views, health-related behaviors, and adherence to the suggested diet and drugs were all changed as a result of the experiences and time spend with new life style (Van Camp et al., 2013).

Patients must be actively engaged in their therapy, with non-adherence prevention techniques in place. The medical regimen should be adjusted as rarely as possible to avoid interfering with memorization, which leads to forgetting and, as a result, non-adherence. Medical or nursing appointments are used to inform or speak with the client and his or her family on the last stages of disease, its results, and of natural progression of disease (Mido et al., 2017).

Adherence is the degree to which a patient willingly participates in activity or is guided toward following health advice. Adherence is critical for patients in order for them to have the motivation and internal moral incentive to achieve their goals. The objective for them is to recover from their disease (Morowatisharifabad et al., 2010).

Among patients, non-adherence to pharmaceutical or non-pharmacological therapy (nutrition, behavioral, and medical follow-up) based on agreed-upon advice from healthcare professionals is prevalent. Non-adherence to maintenance medications, stopping smoking, maintaining physical activity and regular exercise, beginning rehabilitation, continuing the post-exercise, exercise recipe, and adhering to effective self-management patterns result in a variety of undesirable outcomes (Blackstock et al., 2016).

Patients' non-adherence to therapy, which the World Health Organization (WHO) has identified as a new medication problem, is the majority of the repercussions encountered by health-care professionals. Patients' non-adherence to therapy is mostly influenced by traditional treatment procedures. The drug's usage in this situation might be costly, and it

could endanger the lives of patients. In order to prevent possible hazards, an issue should be recognized and appropriate remedies implemented (Sanduzzi et al., 2014).

Adherence to therapy should be considered a health problem for individuals with chronic conditions, such as those with chronic obstructive pulmonary disease. Patients' life and other health issues may be jeopardized if they do not follow the treatment plan. Problems can also lead to an increase in costs and a waste of effort and time; for example, non-adherence to medicine is a genuine issue (AL-Bayati, 2014).

In certain research, the health LoC hypothesis is utilized to assess therapy regimen adherence. A person with a strong sense of control may have healthier life because they are more likely to adopt health-promoting measures. This suggests that increasing a person's sense of control on their health may lead to better personal health (Zaky, 2016).

Self-control is the focus of the LoC hypothesis. The patients' investigations revealed that they had the desire, control, and internal ability to conquer the disease's affliction on the inside, which aided them in healing via the power of making the proper judgments regarding adherence and altering their attitudes and behavior on the outside (Kretchy, et al., 2014).

Many scholars have looked at the LoC hypothesis and determined that it is based on self-control and is influenced by social learning theory. They improve the sensation of expectancy of occurrences and the pleasant stimulation of predicted future action, according to psychologists. Rotter believes that when a person offers a job, he or she knows exactly what to expect, whether he or she will succeed or fail, and that control is divided into two parts, one internal and one external, which helps him manage his life by drawing future strategy, whether at the level of the profession, thinking, or

changing one's lifestyle. In order, many individuals believe they can improve their sickness by exercising self-control over their activities, and many people have been successful, so they have a strong feeling of self-control (Clawson, 2008).

Although there are numerous health problems associated with a lack of adherence. The LoC point is an adult's ability to control both internally and externally orientation, as the results of this commitment to the sense of self-control can have negative consequences on the individual. A study was done on community groups, including young people, to determine their adherence to regulate their health status or their adherence to the pharmaceutical system, and the results were positive, allowing researchers to discover suitable health care for chronic illness patients (Nazareth, et al., 2016).

Perceptions of control, in other word, impact whether or not a person tries to avoid and treat their own health problems. As a result, when the LoC is internal, a person experiences more control over their health than when the LoC is external. This suggests that increasing a person's sense of control over his or her health may lead to better personal health. Individuals with diabetes, in instance, may adhere more rigorously to their regimen if their perceived or internal LoC increases. Indeed, research on the relationship between perceptions of control and adherence to the diabetic regimen has revealed evidence to support the link between these two factors (Morowatisharifabad, et al., 2010).

1.2. Importance of the study:

Despite significant breakthroughs in therapy over the last three decades, CAD continues to be a prominent factor of death around the world. As the disease spreads and more people are afflicted, the nurse plays an increasingly significant role in assisting individuals in living with and controlling the

condition through different preventative and therapeutic methods (Ruan et al., 2018).

This disease is related with a significant increase in mortality and morbidity. A significant sickness, especially if it is a sudden and life-threatening occurrence, is a crisis not just for the person who is ill, but also for his or her spouse and extended family. The patient's stability, security, adaptability, belief, and preconceptions are all jeopardized by these occurrences (Leahey and Wright, 2013).

Coronary artery disease is the top cause of mortality for both men and women, according to the National Institutes of Health (NIH, 2013). In 2010, it was estimated that 17.6 million Americans had the disease, also it killed approximately 425,000 individuals in the United States.

The British Heart Foundation Health Promotion Research Group (2007) found a "four-fold" rise in the number of cardiac catheterization cases in the UK in the ten years leading up to 2006, and a 12% jump between two thousand four to two thousand five (Benjamin et al., 2017).

When compared to noninvasive testing, coronary catheterization (CC) is a more accurate method of assessing hemodynamic state. This procedure is used to characterize the architecture of coronary arteries (spot, stiffness, morphology of lesions, coronary blood flow, and collateral vessels) and is a routine assessment for detecting CHD (Tyas, 2018). Coronary angiography is one of the most common and significant diagnostic procedures (Rezaei, 2009).

Cardiac catheterization is the only test that can accurately diagnose the existence or absence of CAD and gives a clear picture of the heart's structure and function (Wagner, 2007). In the United States, more than 2 million cardiac catheterization and cardiac angioplasty procedures are performed each year for diagnostic or therapeutic purposes, or both (Antman et al., 2008).The

number of persons who have diagnostic (CC) and/or PCI in the USA is near 3 million per year, according CDC in 2010 and according to Craig et al., (2019).

The number of patients undergoing (CC) in China has been growing at a rate of 30% to 40% yearly. Cardiac catheterization is usually regarded as a reliable and safe diagnostic tool. However, because it is an intrusive procedure and patients may be unfamiliar with it, it may raise the risk of preoperative stress. Several studies have looked into the psychological variables of (CC) patients (Gallagher et al., 2010, National Heart Foundation of Australia 2012, and Astin et al., 2015).

Failure to follow therapy instructions, often known as non-adherence, is the primary cause of poor treatment efficacy (Sabaté, et al., 2018). According to the most recent meta-analysis, a considerable percentage of hypertension patients (45.2%) and one-third (31.2%) of patients with comorbidities were non-adherent to treatment (Abegaz, et al., 2017). Non-adherence with medicine has human and economic implications; it is predicted that sticking to treatment recommendations might save around 8% of worldwide overall health expenses. This phenomenon is caused by a variety of variables, including psychological and physiological aspects of physical aging (cognitive impairment, polypharmacy, frailty syndrome, depressed mood, problems with sight and hearing). The quality of life (QOL) of older people with chronic illnesses is crucial. According to latest study, people with hypertension have a poorer quality of life than those who are not hypertensive (Uchmanowicz, et al., 2018).

Assessing the patient's surroundings, physical and psychological condition, evaluating the patient's adherence to a given prescription, and assessing the patient's capacity to cope with changes in lifestyle and physical status are all significant aspects of nursing. The nurse will assist the patient in

improving his or her ability to manage with his or her chronic disease and treatment regimen, as well as in instilling a feeling of value, hope, and welfare in the patient. In addition, the nurse emphasizes the necessity of participating in general health promotion activities and health screenings to the patient and family. In patients with CAD, it is critical to address quality of life and concerns around his interpersonal relationships with in the community, and restoring his occupation and normal life style (Hinkle & Cheever, 2014).

One of the attributes of a good personality is the LoC and the ability to control behaviors, which are very useful in cases of chronic diseases and contribute to the sense of control and health behavior, through learning and changing behavior toward positive results to reach the person to cross the disease threshold, that people's actions are dependent on internal and external control of their beliefs and attitudes to the participation of others. The purpose of this internal control is to ensure that the patient takes his or her medication as prescribed, allowing the patient to recover or decrease difficulties (West, et al., 2018).

1.3. The statement of problem:

The relationship between LoC orientation and patients' adherence to therapeutic recommendations after PCI.

1.4. Objectives of the study:

1.4.1. Assess patients' LoC orientation.

1.4.2. Assess patients' adherence to therapeutic recommendations.

1.4.3. Find out the correlation among both patients' LoC orientation & their adherence to therapeutic recommendations.

1.4.4. Find out the link among patients' LoC orientation, adherence levels; and their demographic and clinical data.

1.4.5. Find out the prediction of patients' adherence to therapeutic recommendations through their LoC orientation.

1.5. Study hypotheses:

It is hypothesized that the results may reveal:

1.5.1. Null hypothesis:

There is no significant relationship between LoC orientations and patients' adherence to therapeutic recommendations after PCI.

1.5.2. Alternative hypothesis:

There is a significant positive relationship between LoC orientations and patients' adherence to therapeutic recommendations after PCI.

1.6. Definition of terms:

1.6.1. Locus of control:

1.6.1.1. Theoretical definition:

People's perception of control over their lives is referred to as locus of control. (Zaky, 2016).

1.6.1.2. Operational definition:

Patients' beliefs about their health, which influence whether or not they follow therapeutic recommendations following PCI.

1.6.2. Orientation:

1.6.2.1. Theoretical definition:

Something's direction according to its surroundings (Cambridge University Press., 2022).

1.6.2.2. Operational definition:

Patients believe could be directed internally or externally according to himself. So patients divided into two categories, the internal LoC, and the external LoC.

1.6.3. Patient:

1.6.3.1. Theoretical definition:

A person who is seeking medical or surgical treatment, particularly in a hospital (Wisam , 2017).

1.6.3.2. Operational definition:

An individual who had PCI before at least six months.

1.6.4. Adherence:

1.6.4.1. Theoretical definition:

The degree to which a person's behavior—taking medication, adhering to a diet, and/or making lifestyle changes—conforms to a health-care provider's agreed-upon recommendations (Rowa, 2015).

Adherence refers to a patient's engagement to a treatment plan (Kronish, 2016).

1.6.4.2. Operational definition:

The degree to which a patient consented to maintain himself based on four categories of the study instrument (nutritional, behavioral, medication, and medical follow-up) was rated as poor, moderate, or good.

1.6.5. Therapeutic:

1.6.5.1. Theoretical definition:

Therapeutics is the field of medicine dealing with illness treatment (curatives) and health maintenance (Collins English Dictionary., 2022).

1.6.5.2. Operational definition:

Any activity prevents illness and promote wellness.

1.6.6. Recommendation:

1.6.6.1. Theoretical definition:

A thing or course of action suggested as proper or fit. (Merriam-Webster, 2022)

1.6.6.2. Operational definition:

Medical and nursing advice after PCI.

1.6.7. Percutaneous coronary intervention:

1.6.7.1. Theoretical definition:

Percutaneous coronary intervention, which is a group of minimally invasive techniques for clearing congested coronary arteries (those that deliver blood to the heart). The treatment improves symptoms of blocked arteries,

such as chest pain and shortness of breath, by restoring blood flow (UCSF Health., 2022).

1.6.7.2. Operational definition:

Insertion of a catheter from the femoral, brachial, or radial artery is intended to reach the arteries that nourish the cardiac muscle and finally remove occlusion or narrowing that act as a barrier against tissue perfusion.

Chapter Two

**Review
Of
Literature**

Chapter two

Review of literature

Throughout the whole of this chapter, the prior literature linked on three main subjects of PCI, adherence to therapeutic recommendations, and LoC theory will be reviewed.

An important aspect of the literature review is a summary of the most relevant and up-to-date research on the subject, including both empirical and theoretical sources and references, in order to gain a better understanding of what is known and what isn't about the subject and to point out any areas that haven't been adequately investigated.

According to the following sections, existing research was examined and written in the present study:

- 2.1.** Cardiac catheterization in historical overview
- 2.2.** Coronary artery circulation
- 2.3.** Coronary artery disorder
 - 2.3.1.** Manifestations of coronary artery disorders
 - 2.3.2.** Coronary artery disease determinants
- 2.4.** Percutaneous coronary intervention through recent years
 - 2.4.1.** Intra Procedural techniques
 - 2.4.2.** Posts PCI complications
 - 2.4.3.** Determinants leading to complications
 - 2.4.4.** Therapeutic recommendations (discharge plan)
- 2.5.** Adherence to therapeutic recommendations
 - 2.5.1.** Locus of control and adherence to therapeutic recommendations
- 2.6.** Theoretical baselines of LoC
 - 2.6.1.** General overview through history

Review of literature 17

2.6.2. Theory dimensions

2.6.3. Theory concepts

2.6.4. Theory assumptions

2.6.5. Theory application

2.7. Previous studies

2.8. Summary

2.1. Cardiac catheterization in historical overview:

Reverend Stephen Hales, an English scientist and clergyman, performed the world's first known cardiac catheterization on an animal in 1710, when he "bled a sheep to death and then guided a gun-barrel from the neck arteries into the still-beating heart" (Burchell, 1961; Forssmann, 1956).

Claude Bernard, a French scientist who worked with horses, invented the phrase cardiac catheterization in 1844 after inserting long glass thermometers into the right and left ventricles of the horses' right and left jugular veins and carotid arteries, respectively. It was proven by him that chemical processes (i.e., metabolism) took place in the body rather than the lungs by establishing that the right ventricle's blood temperature was greater than that of the left (Bernard, 1854; Mueller and Sanborn, 1995).

In 1861, Etienne Jules Marey, another French physiologist, in collaboration with Jean Baptiste Aguste Chauveau, a veterinarian, discovered the nature of the apex beat by simultaneously recording the movement of the horse's heart and the pressures of the right atrium and right ventricular chambers. The horse was conscious at the time (Luderitz and Etienne, 2005).

He is recognized for completing the world's first cardiac catheterization on a living human, which happened to be Werner Forssmann himself. While getting practical education in surgery in Germany at the age of 25, he placed a 65-centimeter catheter into one of his left antecubital veins, guiding it with fluoroscopy until it reached his right atrium, which was then removed. He then proceeded to the radiology department (which was on a separate level, necessitating him to climb a flight of stairs), where a chest roentgenogram was performed to confirm the catheter location. After that,

he continued to conduct catheterization research, which included six further attempts to catheterize himself (Forssmann, 1929; Forssmann, 1974).

According to Lanzer (2017), the technique of angiography was first invented in 1927 at the University of Lisbon by the Portuguese physician Egas Moniz for cerebral angiography, which involves visualizing the brain vasculature using X-ray radiation and a contrast liquid delivered by catheter.

The first cardiac catheterization was conducted in 1929 by Werner Forssman the German nationality physician, who placed a flexible piece of plastic tube like into his own cubital vessel and directed it to the appropriate chamber of his heart. To show his achievement, he took an x-ray, which he published on November 5, 1929 (Packy et al., 2019).

In the early 1940s, André Cournand, in collaboration with Dickinson Richards, began to make more scientific examinations of the heart's hemodynamics for the first time. Awarded the Nobel Prize in Physiology or Medicine in 1956, Richards, Cournand, and Forssmann were recognized for their contributions to cardiac catheterization and hemodynamic measurements. In 1953, Eduardo Pereira of Lisbon, Portugal, became the first person to cannulate the radial artery in order to perform a coronary angiography (Lanzer, 2017).

Interventional cardiology has positioned itself as a new profession in cardiovascular medicine during the last few decades, Because of new technology, the simultaneous introduction of innovative and powerful adjunct pharmaceutical treatments, and the expansion of indications, the field is becoming increasingly diverse. Andre Cournand, Dickinson Richards, and Werner Forssmann were awarded the Nobel Prize for Medicine and Physiology in 1956 for their pioneering discoveries in the discipline,

recognizing the clinical significance of cardiac catheterization (Forssmann, 1956).

Coronary angio was...the key in the door, Andre said at his Nobel Prize address in 1956. Cardiac catheterization, according to Cournand, had unlocked profound knowledge about the secrets of normal and abnormal heart function by turning this key. The whole first catheterization of an alive heart occurred, when Hales S. introduced brass pipes into the ventricles of a horse thru the jugular vein and carotid artery. He said that when he attempted to connect the brass pipes to a long glass tube, the fluid column in the glass tube surged to more than 9 ft. In one thousand eight hundred forty four, Claude Bernard, a distinguished French scientist, began a series of studies with cardiac catheterization in animals. (Malik, 2007).

Cardiac catheterization with in early 1960s often took several hours and resulted in serious problems in as many as 2–3% of patients. Simple cardiac catheterization tests are now regularly performed more quickly and with dramatically improved outcomes, thanks to multiple incremental advancements over time (Wang and Luo 2017, and Barton, 2014).

Finally Ulrich Sigwart, a Swiss scholar working in Toulouse, France, completed the first coronary stent insertion in a human body in 1987. Since then, human CVD detection and therapy have advanced to a new level. In one thousand nine hundred ninety four, Food & Drug Administration (FDA) permit the use of the Palmaz-Schatz stent in the United States, advancing the advancement of coronary intervention techniques (Barton, 2014).

2.2. The coronary arteries circulation:

Coronary arteries carry blood to the myocardium and other cardiac components. At the origin (root) of the aorta, shortly after the aorta leaves the

left ventricle, two coronary arteries emerge from the left side of the heart (figure 2.1). Three aortic sinuses are located right above the aortic semilunar valve in the aorta's wall. Right artery runs parallel to the coronary sulcus, supplying blood to the right atrium, sections of both ventricles, and the heart's conduction system. One or more marginal arteries usually emerge from the right coronary artery, which is located below the right atrium. The marginal arteries deliver blood to the right ventricle's superficial areas. The right coronary artery gives birth to the posterior inter-ventricular artery, also known as the posterior descending artery, on the heart's posterior side. It gives birth to branches that supply the inter-ventricular septum and sections of both ventricles as it proceeds along the posterior part of the inter-ventricular sulcus towards to the peak of the heart (Kelly et al., 2013).

The left posterior aortic sinus and the front aortic sinus, respectively, arise to the left and right coronary arteries. The right posterior aortic sinus, the third sinus, usually does not produce a vessel. Epicardial coronary arteries are coronary vascular branches that remain on the artery's surface and follow the heart's sulci. The left coronary artery supplies blood to the heart's left side, including the atrium and the ventricle, as well as the interventricular membrane (Kelly et al., 2013).

The circumflex artery emerges from the left coronary vessel and travels to the left via the coronary sulcus. It will eventually join with the right coronary artery's tiny branches. The left anterior descending artery (LAD), also known as the bigger anterior interventricular artery, is the second major branch of the left coronary artery. Around the pulmonary trunk, it follows the anterior interventricular sulcus. It gives rise to a number of minor branches along the route, which create anastomoses with the segments of the posterior interventricular artery. An anastomosis is a place where vessels link to establish interlinkages that allow blood to flow to a region even if another

branch is partially blocked. As a result, this ability is relatively limited in the heart, and a coronary artery blockage frequently causes myocardial infarction, which results in the death of the cells fed by that channel (Kelly et al., 2013).

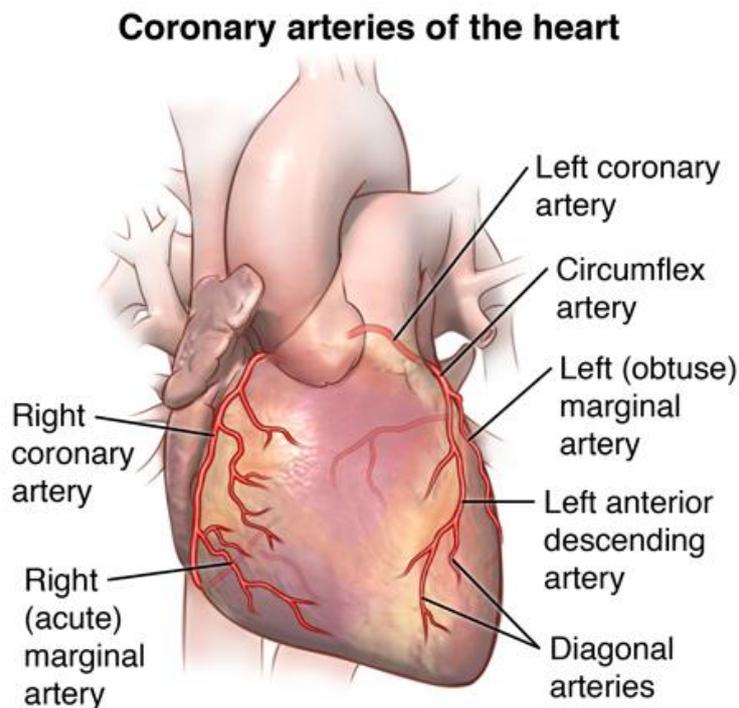


Figure (2.1) Coronary Artery Structure (Klabunde, 2012)

2.3. Coronary artery disorder:

Risk factors for CVD are heavily influenced by one's lifestyle. Not smoking, exercising, eating a nutritious diet, and keeping normal blood pressure, blood glucose, total cholesterol levels, and weight are all recommended by Craig et al., (2019).

Coronary artery disease is a complicated condition that involves decreased or nonexistent blood flow in one or more of the arteries that ring and nourish the heart, according to Pearlman and Coombs study. The illness might be localized or widespread. Apart from a few rare congenital abnormalities (birth defects), CAD is often a degenerative illness that

manifests as a clinical condition before the age of 30 and becomes frequent by the age of 60. A heart attack affects one out of every four people. Death may be the first symptom seen. The name coronary comes from the word crown, which refers to the position of these arteries on the heart (Pearlman and Coombs, 2016).

2.3.1. Manifestations of coronary artery disorders:

As reported by Williams and his colleagues study, chest discomfort is a common sign of angina (IHD). The pain starts quickly and does not go away despite rest or medication. Crushing, viselike, or as if an elephant is standing on the chest is how some describe the pain in the middle of the chest. Back discomfort, one or both arms and shoulders, neck, and jaw pain are all possibilities. With stomach discomfort and vomiting, the symptoms might mimic indigestion or a gallbladder attack (Williams et al., 2015).

Angina as a feeling of "strangling and worry" is still quite relevant. Viselike, confining, suffocating, crushing, weighty, and squeezing are some other words commonly used to characterize this agony. Other patients report the experience as a faint pressure-like pain, an unpleasant numbness, or a burning sensation. The soreness is often retrosternal, although radiation is prevalent and typically occurs down the ulnar surface of the left arm, the right arm, and the outside surfaces of both arms. It's not unusual to have epigastric discomfort alone or in combination with chest pressure. It is uncommon to experience anginal pain above the mandible or below the epigastrium (Kandaswamy 2018).

Dyspnea, dizziness, nausea, and sweating are some of the other basic symptoms of (IHD). Crackles or wheezing may be detected when listening to lung noises. A fast or irregular pulse may be present, as well as an additional

heart sound (referred to as S3 or S4). An additional heart sound may indicate that ventricular failure is approaching (Williams et al., 2015).

Coronary artery disease can present itself in a variety of ways, ranging from stable angina to acute coronary syndrome. Myocardial ischemia causes angina pectoris, which is a pain in the chest or surrounding regions. It is frequently triggered by physical effort and is accompanied by a change in myocardial function but no myocardial necrosis (Kandaswamy, 2018).

2.3.2. Coronary artery disease determinants:

There are various risk factors for CAD, some of which can be addressed and others which cannot. High blood pressure, high blood cholesterol levels, smoking, diabetes, overweight or obesity, lack of physical exercise, bad food, and stress are all risk factors that may be addressed (modifiable). Age (just becoming older raises risk); sex (men are typically at higher risk of CAD); family history; and race are all factors that cannot be controlled (conventional). Because many classic CAD risk factors are linked to one's lifestyle, preventive therapy can be personalized to address particular issues. It's critical to understand these risks in order to prevent disability and death from CHD, cerebrovascular illness, and peripheral vascular disease in persons who are at high risk but have not yet had a cardiovascular event. Recurrent episodes are quite common in those with established CVD (Rachel, 2017).

The Framingham heart study, which published its findings in 1957, was the first to coin the term "risk factors" in CHD. The epidemiologic links between cigarette smoking, blood pressure, and cholesterol levels and the development of CAD. The discoveries were genuinely groundbreaking since they contributed to a shift in how medicine is performed (Mahmood et al., 2014).

2.4. Percutaneous coronary intervention through recent years:

Cardiac catheterization is used to identify CAD, test coronary artery patency, establish the level of atherosclerosis, and see if revascularization operations such as PCI or coronary artery bypass surgery may be beneficial to the patient. The procedure is also used to identify pulmonary arterial hypertension and valvular heart disease (Gepner et al., 2015).

Constriction of luminal coronary artery limits the blood flow reserve O₂ saturated blood to the myocardium, resulting in sporadic angina. A heart attack is frequently the result of a very advanced luminal blockage. Since the late 1980s, however, it has been clearer that coronary angiography doesn't permit for the detection of the positive or negative coronary arteriosclerosis, just main luminal alterations that have occurred as a result due to last stage of arteriosclerotic problems. Cardiac catheterization (CC) is a technique that is widely regarded as the gold standard for determining, diagnosing, and treating cardiac problems. Cardiac catheterization is another crucial technique for testing and learning more about the anatomy and physiology of the heart, valves, and arteries which supplies the heart muscle with oxygen and nutrition. Both sides of heart, as well as the coronary arteries, are all examined during this operation (Ahmed, 2015, and Mohammed et al., 2013).

The radiopaque contrast agent is administered directly into each artery through a catheter inserted into the right and left coronary arteries. Another angiographic technique used to assess the size and function of the left ventricle is ventriculography. A significant volume of radiopaque contrast agent (30 mL) is immediately delivered into the ventricle after the catheter is in place (West, 2017).

In 1929, Werner Forssman, a resident surgeon at Eberswalde in Germany, placed a urologic catheter into his right atrium from a left

antecubital vein cut down he had conducted on himself using a mirror, according to Bobby et al., (2010). A roentgenogram was used to confirm the location of the catheter tip after heading downstairs to the radiology suite. The insertion and transit of tiny plastic catheters into arteries, veins, the heart, and other vascular structures to produce angiographic pictures of coronary arteries and cardiac chambers and to record hemodynamic data (pressure and flow) in the heart was the beginning of cardiac catheterization. Cardiac angiography pictures are used to evaluate anomalies of the aorta, as well as the pulmonary and peripheral arteries, in addition to diagnosing CAD (Kern, 2016).

Catheterization of the right heart is generally done first, followed by catheterization of the left heart. The catheter introduced in the right chambers to measure pulmonary arteries, atrium, and ventricle from an antecubital or femoral vein. Each of these locations' pressures and oxygen saturation levels are measured and recorded (Jorgensen, 2013).

A left heart catheterization is used to assess the aortic arch and its major branches, coronary artery patency, and the function of the left ventricle, as well as the mitral and aortic valves. The left ventricle is catheterized retrogradely during left cardiac catheterization. The catheter is commonly inserted to the right brachial, radial, or femoral artery then advanced into the left ventricle, and aorta in this method (Jorgensen, 2013).

Angiography is also performed during a left cardiac catheterization. Angiography is a diagnostic imaging procedure that includes injecting a radiopaque contrast chemical into an artery catheter. As the contrast agent moves through the heart chambers, aortic arch, and main arteries, it is filmed. The anatomy and function of the heart may be compared throughout time using these films. Coronary angiography is used to examine the

architecture of the coronary arteries and determine the degree of atherosclerosis (Rosendorff, 2015).

2.4.1. Intra procedural techniques concerning PCI:

The most common sites used for PCIs for arterial access are the common femoral artery and the radial artery. The midway of the common femoral artery between the origin of the inferior Epigastric artery and the bifurcation of the superficial and profunda branches, which is normally near the middle of the femoral head, is the target for femoral puncture. At its halfway, the femoral artery crosses the inguinal ligament, and the route of the inguinal ligament is defined by an imaginary line connecting pubic symphysis, to the iliac crest (Mozaffarian et al., 2016 and Williams et al., 2015)

The puncture site can be more precisely defined by putting a metal clip at the appropriate location and performing a brief fluoroscopic exam to establish the connection to the femoral head. Certain hospitals routinely get femoral access with ultrasound supervision. This was found to minimize the likelihood of issues by 49 percent in one published study. Because hemostasis can be achieved by manually compressing the artery against the femoral head, it is crucial to reach the femoral artery at the proper location. Reduced puncture sites increase the chance of developing pseudo-aneurysms, whereas more puncture sites enhance the risk of retroperitoneal bleeding (Sobolev et al., 2015).

The radial artery is the most often used site of access, however the lateral artery and the brachial are also used in select situations. Two centimeters proximal to the radial styloid, the radial artery should be accessible. Allen test (compressing the radial and ulnar arteries until the palm blanches and then releasing the ulnar artery. The blush reaction in the hand is documented, and if color returns to the palm within 10 seconds, blood flow to

the hand via the ulnar artery and palmar arch is regarded appropriate) or Barbeau test (a pulse oximeter is put on the Ipsi-lateral thumb similar to the Allen test, both arteries are compressed until the pulse oximetry trace is muted. If the pulse, oximetry readings back to the normal through ten sec. of releasing the pressing towards the ulnar artery, the test is considered normal.) need to be conducted to ensure sufficient collateral circulation to the palm (Rognoni et al., 2012).

During PCI, the patient is connected to one or more intravenous lines (IV), which are used to provide sedatives, fluids, heparin, and other drugs. Monitoring of blood pressure and electrocardiogram (ECG) is required to look for hemodynamic instability or dysrhythmias (Craig, et al., 2019).

The coronary arteries are seen using radiopaque contrast chemicals. Iodine is included in certain contrast agents, and the patient is tested for past responses to contrast agents or allergies to iodine-containing items before the treatment (e.g., seafood). Antihistamine or methylprednisolone may be given before the surgery in case of patient complaining allergy to some medications (Andreucci, 2014).

Percutaneous coronary intervention is usually done as an outpatient operation that needs two to six hrs. of bed rest previously to the patient is allowed to walk. The diameter and length of the catheter used during the treatment, the site of catheter placement (femoral or radial artery), the patient's anticoagulation status, and other variables all affect the time to ambulation (e.g., advanced age, obesity, bleeding disorder). Shorter recovery periods have been linked to utilize of no large size (four or six French) catheter (Craig, et al., 2019).

2.4.2. Post PCI complications :

After the catheter is removed, many approaches are employed to establish arterial hemostasis. The compression techniques, according to Haj-Hassan et al., (2013) and Schwartz et al., (2010), are:

1. Manual Compression
2. Femo-Stop
3. Vasoseal Collagen
4. Angio-Seal
5. Perclose
6. Marine Polymer Patch
7. Duett a device

According to Kaki et al., (2018), the femoral method can be utilized alone or in conjunction with mechanical compression devices like the Femo-Stop (at least thirty minutes place it on the insertion site). Devices that can be implanted via the skin are also available. The patch is covered with a dressing that stays in place for 24 hours if hemostasis is established. The type of closure device utilized is determined by a variety of criteria, including the patient's health, cost, institutional availability of these devices, and the physician's preference (Vora and Rao, 2018).

Major problems in cardiac catheterizations occur seldom. Among the complications there are death, acute myocardial infarction, emergency bypass surgery, and stroke. Vascular problems, arrhythmias (vasovagal reflex), transient ischemic stroke, renal insufficiency, urinary retention, back discomfort, and infection are also more common mild issues. The most common problems are vascular issues connected with the access site. Vascular problems include bleeding at the site, hematoma development, retro-

peritoneal hemorrhage, pseudo-aneurysm, and A-V formation, as previously mentioned (Shaun et al., 2011).

During diagnostic cardiac catheterization operations, the risk of serious complications is often less than 9%, and the risk of fatality is typically less than 1%. The complication rate for every patient interrelated with several features, such as the pts' demographics, vascular architecture, comorbid illness, clinical characteristics, operator's expertise, and surgery being performed. The predicted complications might range from small ones like soreness at the catheterization site to catastrophic ones like death (Tavakol et al., 2012).

Age, gender, health history, body mass index (BMI), and blood pressure are all patient-related characteristics that influence the complication rate. Female sex, age >70 years, presence of renal failure, and prior treatment with interventional coronary procedures were all linked to vascular problems (Cheng et al., 2013).

For a diagnostic angiogram, the risk of peri-procedural myocardial infarction is less than 17%. Patient's related causes such as CAD amount, severity, new acute coronary syndrome, technique-related factors, and diabetes of insulin dependent type, all have their impact (Maan & Mohannad, 2019).

The overall risk of stroke in recently published series is minimal, ranging from 0.05 to 0.1 percent in diagnostic procedures and rising to 0.18 to 0.4 percent in patients receiving intervention. This is a severe complication with a high risk of morbidity and death. Clients complaining significant arteriosclerotic plaque in the aortic arch, complicated structure, repeated change of tube like catheter, or the requirement for large size catheter and strong thick wire are at a higher risk (Werner et al., (2012).

Emergency coronary artery bypass graft (CABG) is linked with a higher likelihood of in-hospital death and complications. Despite the fact that ongoing ischemia is still the most common reason for emergency CABG, the rate of angiographic errors has skyrocketed. The rates of in-hospital death and adverse events are still high. When we look at emergency CABG cases that happened as a result of an angiographic mishap, we find that 14 (15%) of the 93 emergency CABG fatalities occurred in that category of patients. As a result, efforts to enhance outcomes should be concentrated on this high-risk population (Paparella et al., 2014, Schumer et al., 2016, and Mozaffarian et al., 2016).

Aortic dissection, cardiac chamber perforation, and coronary artery perforation are exceedingly unusual complications. Techniques involving intervention have a higher risk than diagnostic procedures alone. Clients who have a heart chamber or a coronary artery hole that causes blood to accumulate in the pericardial space require prompt pericardiocentesis to restore hemodynamic stability and surgical consultation. The risk of death from cardiac catheterization has steadily dropped and is now less than 0.05 percent for diagnostic procedures. Patients with a depressed left ventricular systolic function and those who present with shock after an acute myocardial infarction are more likely to die. The risk of death in some subgroups of patients might be as high as 1% (Manda and Baradhi, 2018).

2.4.2.1. Infection :

Cardiac Cath should be done in a sterile manner, and infection, whether local or systemic, is exceedingly unlikely. During cardiac catheterization operations, routine endocarditis prophylaxis is not indicated.

2.4.2.2. Contrast, dye or discoloration liquid reactions:

Contrast or dye media is a diagnostic iodinated substance used to improve the appearance of blood vessels. In people with normal kidney function, it is mostly excreted through the kidneys, with less than 1% being

removed via extra renal pathways. Contrast medium has a half-life of around 2 hours, with 75 percent eliminated by 4 hours and 98 percent excreted within 24 hours. Local anesthesia, contrast agents, heparin, and other drugs used during the procedure may cause allergic reactions. Contrast agent responses can occur in up to 1% of patients, and those who have had previous reactions are given corticosteroids and antihistamines (Nazar et al., 2013).

2.4.2.3. Complications in the arteries and veins:

The most frequent problems that occur during cardiac catheterization. Hematomas are most commonly caused by poorly regulated hemostasis after removal of sheath. Biggest portion of hematomas are harmless and absorbed spontaneously, but heavy quickly developing hematomas, can induce hemodynamic changer and abnormality and need fluid and blood resuscitation. A hematoma is caused by a localized bleeding from a damaged artery into the soft tissue around it. It appears as a non-pulsatile mass or ecchymosis at the puncture site in clinical terms (Manda and Baradhi 2018).

The most prevalent vascular complication associated with endovascular operations is bleeding, which accounts for 70% of all problems, followed by pseudo-aneurysm (20 percent). To minimize complications from vascular trauma, patients will be restricted to bed rest with complete immobilization of the foot and the application of a sandbag weighing 2.5-4 kilo gram on the affected area (Schwartz et al., 2010).

A strong clinical suspicion combined with immediate imaging, usually a CT scan, aids in the diagnosis of this problem. When a patient's hemodynamic condition worsens, it's critical to figure out where the bleeding is coming from. When the artery just above inguinal ligament is burst, these life-threatening heamorrhage are more common. The majority of patients are treated with anticoagulant reversal, manual compression, volume

resuscitation, and monitoring. For bleeding from bigger veins, patients with persistent worsening may require coagulation of the heamorrhage source artery, balloon angioplasty, or covered stent (Werner et al., (2012).

The rate of bleeding problems in studies with patients with ACS ranges, ranging from 2.0 percent to 17.6 percent. These disparities stem from trials that looked at diverse demographics, access locations, cardiac catheterization procedures, and medication regimens, as well as randomized studies that included certain defined groups of patients and did not represent real-world clinical practice (Doktorova and Motovska, 2013).

The creation of a pulsatile mass locally, defined as a pseudo-aneurysm, occurs when the hematoma maintains continuity with the lumen of the artery. On inspection, this will be linked to a bruit. Small pseudo-aneurysms of less than 2 to 3 cm in diameter may mend on their own, and serial Doppler exams can be used to monitor their progress. According to Chun (2018), the incidence of pseudo-aneurysms in all patients treated with diagnostic and therapeutic percutaneous arterial and coronary catheterizations is expected to be 0.05 percent to 0.50 percent (Manda and Baradhi 2018).

Fistulation is caused by direct connectivity between the artery and venous puncture sites, as well as ongoing hemorrhage out from vascular access site, and is accompanied by a thrill or continuous bruit on inspection. Fistulation is a medical emergency that requires immediate medical attention. Because they are unlikely to cure on their own and may expand over time, they will nearly always require surgical investigation. According to various estimates, the prevalence of AV fistulas ranges between 0.2 and 2.1 percent (Zezo, 2019).

Small and narrow vasculature, side effects of DM, gender, large introduced sheeth, are all predisposing factors for this issue with low profile

catheters. The occlusive sheath is removed, and percutaneous thrombectomy is performed in combination with vascular surgery consultation. Arterial thrombosis can happen in as little as 0.5 percent of cases (Tsetis, 2010).

2.4.2.4. Kidney damage:

The reported incidence of contrast nephropathy in patients having cardiac catheterization, which results in a transitory elevation in blood creatinine levels following exposure to contrast material, is highly diverse (range 3.3 percent to 16.5 percent). The frequency of contrast-induced acute renal damage among patients receiving elective and urgent coronary intervention was 7.1 percent in the National Cardiovascular Data Registry (Mitchell et al., 2015).

Patients with comorbid conditions such as diabetes, heart failure, preexisting renal disease, hypotension, dehydration, or advanced age who undergo cardiac catheterization are at risk for contrast agent-induced nephropathy (an increase in baseline serum creatinine of 25% or more within 2 days of the procedure) (Raingruber et al., 2011).

Although this kind of acute renal failure is typically reversible, dialysis may be required for a short period of time. Pre- and post-procedure hydration with IV saline or sodium bicarbonate, as well as the antioxidant acetyl cysteine (Mucomyst), are among the preventive interventions for high-risk patients (Levine et al., 2012).

2.4.2.5. The reflex of vasovagal stimulation:

A vasovagal response occurs when blood pressure, heart rate, and cardiac output all drop suddenly. The stimulation of the parasympathetic nervous system causes bodily reactions, which are reflected by vagus nerve activity. Outgoing (efferent) impulses pass from the brain stem to the heart through the vagal nerve when the vagus nerve is activated. The vagal nerve

fiber slows the heart rate via the sinus node, and activates cardiac and arterial baro-receptors, causing vasodilation of the systemic circulation. Other organs are impacted as well, causing nausea, pallor, diaphoresis, yawning, and other symptoms (Morton, 2012, and Kern, 2011).

During cardiac catheterization, a variety of cardiac arrhythmias can occur. During the operation, it is possible with a high percent, and due to several factors ventricular fibrillation or ventricular tachycardia predisposed. These arrhythmias are more common in persons who have an acute ST-elevation myocardial infarction, and therapy includes cardioversion as well as antiarrhythmic medications and reopening the occluded artery. The irritation of the right atrium during right cardiac catheterization might cause atrial tachycardias, which are normally self-limiting (Manda and Baradhi, 2018).

Transient bradycardia is one of the common occurrences that might occur during cardiac catheterization. It can cause asystole and, in the worst-case scenario, cardiovascular collapse, especially in individuals with significant CAD and stenosis valves. Both the femoral and radial artery access techniques are used to characterize bradycardia as a consequence of cardiac catheterization. In one research of radial coronary angiograms, the incidence rate of vagal responses resulting in hypotension or bradycardia needing atropine was 6.4 percent (16/250 instances) (Maheedhar et al., 2017 &). In another research, Yurtdaş et al., (2014) found that sinus bradycardia requiring atropine occurred in 4.3 percent of patients (17/398) who underwent transradial coronary operations.

2.4.2.6. Back ache:

Back discomfort and groin pain are two common side effects of this type of treatment. According to Fathi (2017), post-angiography back discomfort is the cause of pain complaints in 35.8% of patients.

2.4.2.7. Fluid and electrolyte accumulation:

Patients having cardiac catheterization may also experience urine retention for a variety of causes. Urinary retention may be temporary, but it can cause harm to the urinary system if left untreated. Urinary retention affects about 11.4 percent of people who have this treatment. Urinary retention leads to the use of analgesics and urinary catheterization, each of which have their own set of risks. Nonmedical methods and nursing care are appropriate to avoid problems caused by analgesics and urine catheterization (Abdollahi et al., 2015, Christakopoulos et al., 2015).

2.4.3. Determinants leading to complications:

Concerning diagnosing risk variables related with cardiac catheterization problems. Being older and female, having a short height, being fat, having a concomitant disease of hypertension and/or renal failure, using a big sheath, having a long sheath duration, and having excessive coagulation are all risk factors for vascular problems (Mohamed et al., 2018, & Wimmer et al., 2016)

One risk factor is the difficulty of femoral artery catheter placement owing to artery size. Female gender, present and prior smoking, and the existence of peripheral vascular disease have all been linked to small artery size. The femoral artery size has been reported to vary as a result of repeated cardiac catheterizations and the use of vascular closure devices (VCDs). Femoral artery diameters are also lower in women with peripheral vascular disease who are current or previous smokers. Statin-using women have bigger femoral arteries than males (Wimmer et al., 2016).

Females, big sheath size, left groin access, and low body surface area have all been linked to an increased risk of retroperitoneal hematomas, (Sabo et al., 2008). Individuals who receive dosages approaching 1 mg/kg

subcutaneously every 12 hours, have renal impairment, are of advanced age, and use concurrent drugs that potentially alter hemostasis have experienced spontaneous retroperitoneal hemorrhage (Gündeş et al., 2017).

Anxiety among patients prior to cardiac catheterization was thought to be a risk factor for (CC) problems. While many of these diagnostic procedures have been remembered for most cardiac nurses because it is a native and foreign process for the patient, a cardiac catheterization is likely one of the most diagnostic instruments accessible to the cardiologist today. The nurse assists the patient during cardiac catheterization operations. These procedures should not be feared or feared by the patient. As a result, the majority of patients awaiting cardiac catheterization lacked appropriate information regarding the operation, which caused them anxiety and concern. The current study's goal was to see how early nurse intervention affected anxiety in individuals having cardiac catheterization (Neubeck, 2017).

According to Neubeck (2017), having family or friends present before the test lessens anxiety in both patients and relatives. There is evidence that early information provided by nurses can help to lessen anxiety.

2.4.4. Therapeutic recommendations (discharge plan):

After PCI there are guidelines to be followed by health care providers. the study of Mustafa & Hassan, (2020) include these type of care in review of literature and argues that the most important item of post PCI care concerns discharge plan of therapeutic recommendations. According to Shrestha et al., (2016) and Brunner et al., (2014), therapeutic recommendations include the following:

A. Limit physical activity for the first week following catheterization.

- B. For the first two weeks following catheterization, avoid lifting more than 10 pounds.
- C. After an exercise stress test, resume exercise regimen.
- D. Stick to the low-fat diet that has been prescribed.
- E. Take cardiac rehabilitation into consideration.
- F. Limit alcohol consumption to three drinks each week.
- G. Report any oozing, blood, or discomfort at the puncture site to doctor.
- H. Inform doctor if become feverish or other indications of illness.
- I. If chest discomfort persists after taking three nitroglycerin pills 5 minutes apart, contact the doctor or health facility.
- J. If necessary, begin a weight-loss program.
- K. Psychosocial Teaching Points:

According to the Federal Aviation Administration (2015) and Brunner et al., (2014), the following should be done:

- a) Stop smoking, if suitable, and avoid second-hand smoke exposure.
- b) After completing an exercise stress test, resume sexual activity.
- c) Begin stress-reduction exercises.
- d) Recognize depressive symptoms.
- e) Stick to the medication schedule.
- f) Keep track of medical appointments.

Stress reduction, weight loss, and quitting smoking are all highlighted as risk factors and secondary prevention. The patient is instructed to take drugs that aid in the prevention of thrombus formation and the maintenance of maximum dilation at the location of the culprit lesion. When all patients are discharged, aspirin should be given to them as an antiplatelet agent. Patients who get one or more DESs should be given Clopidogrel (Plavix), which can be taken permanently. Clopidogrel should be taken for a minimum of 12 months and can be given permanently. Long-acting nitrates, calcium channel

blockers, (ACE) inhibitors, and lipid-lowering agents are frequently added to the medical regimen, and the nurse may be responsible for clarifying to the client the hints for the specific medications instructed by the physician, such as side effects and signs of overdose which should also be able to address any queries the patient might have about his or her follow-up treatment (Colombo et al., 2014, Windecker and Kolh, 2014, and Valgimigli et al., 2012).

2.5. Adherence to therapeutic recommendations:

Chronic diseases are intimately linked to medical therapy regimen adherence, regardless of the treatment used. The three-year follow-up concerning the clinical trial towards a revolution in chronic diseases health trial revealed that patients who adhered to their therapeutic recommendations had a longer duration before their first exacerbation, a decreased vulnerability to exacerbation, and a lower all-cause mortality. (Jardim & Nascimento, 2019).

The adherence reflects the congruence of a person's behavior with the ability to take the medication prescribed by the instructions, and also gives us a good impression of compliance with the diet and lifestyle appropriately and according to health service providers. It is necessary to note that adherence to medication is very important as it falls within the success of the program of disease rehabilitation and recovery or reflect a clinically unfavorable image of drug non-adherence through the entire health-care program (Pramesti, 2019).

The issue of drug adherence is a public health concern, particularly among individuals with chronic diseases. The fundamental problem for the program's success and achievement of the aim is increasing patient health awareness and enhancing the interaction between health staff and patients (Sanduzzi, et al., 2014).

Patients' non-adherence with recommended medication is commonly measured in percentages, according to a study concerning adherence to treatment regimen. The results indicate that patients with acute conditions

had better adherence to drugs than patients with chronic diseases, according to the researchers who conducted more extensive investigations that included treatment times per day and the number of recommended dosages. These outcomes were underwhelming. It was found that patients with chronic conditions were less likely to stick with their treatments in the first six months (Moussa & Abd-Ali, 2020).

Adherence to therapy is a difficult issue to define. Adherence can be described simply as how closely people follow their healthcare provider's orders. The mode of administration, frequency of use, taste, response to therapy, and adverse effects are all factors that impact pharmaceutical usage. A single oral drug, for example, can be simpler to stick to than three tablets taken at different times. Inhaled drugs also have one extra variable: how well the device is used. There are, however, additional factors, such as the patient's actions and beliefs, as well as the patient-physician relationship, that have a direct impact on adherence (Jardim & Nascimento 2019).

2.5.1. Locus of control and adherence to therapeutic recommendations:

Rotter is the creator of the health LoC theory. The idea of LoC refers to people's perceptions of their own control over their lives. In fact, Rotter's health locus control scale was the first to evaluate belief orientation, which reflects how important one's actions are in achieving one's goals. The internal LoC and the external LoC are two components of this theory. Individuals of internally oriented LoC feel that their actions have a direct impact on their results. A person of an externally oriented LoC believes that, outcomes are determined by chance or by other strong individuals, such as doctors (Bijoux Leist & Leist, 2022).

As a result, according to Social Learning Theory, LoC is defined as a generalized anticipation that may be used in instances where an individual

lacks sufficient experience with a particular action or activity to acquire specialized expectancies. As a result, the LoC may be used in a wider range of scenarios (Zaky, 2016).

Locus of control, also known as health LoC, is a concept derived from social-learning theory that refers to how much influence people think they have over their own health. Internal, chance, or external variables are all blamed for health LoC in its multidimensional form. Internally oriented people feel that their own health outcomes are mostly affected by their own decisions and activities. People who have a strong LoC in chance feel that luck or chance play a large role in their health results, actions and decisions (Álvarez-Rodríguez, 2022).

The original construct was regarded as a very consistent personality trait, and LoC is thought to be quite stable over time. Internal LoC beliefs have been linked to positive treatment results; patients who had stronger internal beliefs benefited more from therapy. Previous researches has discovered the association between LoC and treatment adherence behavior. The LoC, as a single component, explains just a small portion of health behavior. According to previous literature, the LoC is thought to be a mediating factor (Álvarez-Rodríguez, 2022).

Empirical research, on the other hand, have mixed results, with some showing no relationship or minimal explanatory power between LoC and health behavior. Living with a chronic condition that requires long-term therapy might have an impact on one's perception of health. In today's industrialized world, chronic conditions are of high prevalence and the important cause of mortality (Berglund, et al., 2014).

Self-efficacy and internally oriented health LoC are two factors that have been shown to be beneficial in improving medication adherence on a regular basis. The external control dimensions were found to have mostly negative (Chance and God attributed control perceptions) or unclear (Powerful others attributed control beliefs) associations with medication

adherence, with the exception of the health care provider's LoC, which was found to have a positive connection. Considering the interaction between the sub-dimensions and the level of attitudinal homogeneity between health practitioners and patients in terms of the patient's control over disease management, promising new options to fully capture how health LoC dimensions influence medication adherence have been proposed (Náfrádi et al., 2017).

The health LoC plays a significant role in chronic disease adaption and successful health treatment strategies. Health locus control (HLC) is a term that describes a person's perception of control over his or her health and the extent to which they believe they have influence over health outcomes. As a result, the patient's belief dictates how much effort he puts into his care plan and regimen. Internal health LoC, external powerful others, or external chance are all possibilities (Grubman-Nowak, et al., 2022).

Individuals bear responsibility for their actions and health consequences in the internal sphere. Individuals in the external powerful domains feel that others, such as health professionals, are responsible for their health, whereas those in the external chance domains believe that their health is determined by luck and chance. HLC was found to modulate health behaviors and adherence to treatment strategies in studies. Those with high internality and low externality had bad health results and felt less able to manage their health and disease problems, whereas those with low internality and high externality had poor health outcomes and felt less able to control their health and illness complications. Others discovered that patients with a high internal LoC developed excellent pain-management methods. Furthermore, a prior study found a link between HLC beliefs, psychological characteristics, and biological markers of physical health and survival (Al Nawafa'h & Hamdan-Mansour, 2015).

A drug does not function in patients who do not take it; in order for a medication to have a therapeutic effect, not only must the active component

be effective and the carrier used to carry it to the body be ideal, but the patient must also follow the therapy. According to a large body of research on the LoC, people who think they have control over their environment are more likely to be aware of actions and information that will help them achieve their goals. Personality qualities can result in good improvements in comfortable life expectancies. (Sanduzzi, et al., 2014).

2.6. Theoretical baselines of LoC:

2.6.1. General overview through history:

The LoC theory of personality was the framework of Rotter in 1954, concerning Social-Learning. In 1966, Rotter and his students published Psychological Monographs article in which detailed nearly a ten years of study. The majority of it had never been published before. The Herbert Lefcourt clarifies the perceived LoC as a broad expectation of internal reinforcement control rather than external reinforcement control. Opportunities have been attempted to trace origin of the concept back to Alfred Adler's work, which is then followed by Rotter & Rotter's students' work. Soon, Phares and James set up a study on the topic of expectations about control of reinforcement. This was for their unpublished doctoral project at The Ohio State University in 1995, which was supervised by Rotter. (Krampen, 2005)

The point at which people believe they have influence over the outcome of events in their lives, rather than external factors beyond their control, has subsequently become a part of personality research. A human's belief can indeed be internal, such as the idea that one can govern one's personal life, or external, like the view that life is well-ordered by outside factors that the individual cannot affect, or that chance or fate dominate one's life (Carlson, et al., 2007)

Intuitively, those who have a high internal LoC feel that the vast majority of their experiences are driven by their own choices and decisions. People who have an internal LoC, for example, prefer to praise or criticize themselves and their abilities when they receive test results, rather than others. The instructor or the test are examples of external items that people who have a strong external LoC are more inclined to praise or condemn in their own words (Bak-Sosnowska, et al., 2022).

2.6.2. Theory dimensions:

Judge *et al.*, (1997) stated that the Locus of control (LoC) is unique of the four dimensions of main self-assessments

- 1- One's essential appraisal of oneself.
- 2- Beside with neuroticisms.
- 3-Self- efficiency.
- 4-Confidence

2.6.3. Theory concepts:

The idea of LoC was initially described as a personality trait and employed by Rotter within the context of social learning theory in 1966. The way people ascribe their reinforcements, such as the outcomes of their experiences or rewards, or their successes or failures, is referred to as the LoC. These characteristics can be shaped by chance, powerful acquaintances, fate, and other uncontrollable events, as well as their own actions. As a technique of explaining this, the LoC belief emerges, which is separated into two categories (Basm and Harun 2010):

1. The individual's sense that a reinforcement or result is driven by fate, luck, or other external variables beyond his or her control is known as external LoC.
2. Internal LoC is described as a person's view that events are mostly caused by their own conduct or generally stable qualities and activities.

2.6.4. Theory assumption:

Thus, according to Heckhausen and Schulz's life span theory, "internally controlled" people have two options: alter the environment or change themselves, cognitively and/or emotionally. Control can be perceived and exercised in any circumstance. They also anticipated that as individuals aged and became less able to change the external environment, they would revert to changing/adapting their interior moods (secondary control). In our opinion, incorporating a life span perspective is a critical theoretical focus in how to think about LoC, especially when researching older and chronically ill people (Nowicki and Duke, 2016).

2.6.5. Theory application:

The concept of LoC has sparked a lot of research in psychology. Educational psychology, health psychology, and clinical psychology are all disciplines where the notion might be used. The debate over whether specialized or more universal LoC mechanisms will be more beneficial in practice continues. The distinction between the LoC (a concept associated with future predictions) and the attributional approach (a concept associated with explanations for prior results), even between LoC and concepts such as self-efficacy, is also crucial (Bak-Sosnowska, et al., 2022).

According to the work of Kenneth Wallston, it is possible that the very best use of LoC was in the area of health psychology. In 1993, Furnham and Steele investigated the use of scales to determine the LoC in the health domain. The Health LoC Scale and the Multidimensional Health LoC Scale, sometimes known as the MHLC, are two of the most widely used measures. Based on the idea that wellness comes from three sources: internal factors (like deciding to live a healthier life), external factors (like one's doctor), and luck which is very dangerous because healthy life advice will be ignored and these people are very hard to help (Wallston, et al., 1976, and Shin, & Lee., 2021).

Health-related behavior encompasses a wide range of behavioral patterns, acts, and routines that are relevant to maintaining, restoring, or improving one's health. Internal health LoC has been associated with promoting self-reliance and independence in performing different health-related activities, making health-related decisions, and achieving various health outcomes (Wu, et al., 2020).

Acceptance of sickness is a psychological indication of how well people adjust to living with a condition. Patients may have difficulty adapting to and accepting the inevitability of chronic illnesses since they impose a variety of constraints on their regular everyday activities and can damage their quality of life. As a result, individuals may exhibit varying levels of sickness acceptance, which indicates how well they handle the disease's burden (Janowski et al., 2013)

Acceptance of sickness can influence the likelihood of health-related behavior by altering the desire to perform certain behaviors. Patients who have a high level of acceptance of their condition, for example, may be driven to engage in or continue behaviors that assist them in maintaining the lowest possible disease burden (Janowski et al., 2013). On the other hand, Janowski and his colleagues found that a high level of acceptance of the

illness may be linked to being happy with the way things are and not making much effort to change them.

2.7. Previous studies:

2.7.1. First study:

Diabetes health related LoC and depression in people with type 1 and type 2 diabetes in older people: the study of longevity in diabetes. The study conducted to find out if diabetes locus of control (DLOC) is linked to depression in older adults with type 1 and type 2 diabetes and if this link is different based on diabetes type. Data for this study came from the Study of longevity in diabetes (SOLID), which is a long-term study of aging and diabetes. This study didn't include any people who didn't have diabetes because the main exposure, diabetes health related LoC, didn't apply to them. Covariate-adjusted linear and logistic regression models were used to look at the relationships between DLOC and depression. As a group, people with T1D were more likely to have a higher DLOC score than people with T2D. This means they had a more internal LoC than people with T2D. Having more internal DLOC, or one more unit of DLOC, was linked to a lower depression score and a lower chance of having depression. There was a link between higher DLOC scores and less depressive symptoms in people over 60 with either type 1 or type 2 diabetes, even if they had both. T1D people had higher DLOC scores than people with T2D, which means they had stronger internal DLOC than people with T2D (Pretty, (2020).

2.7.2. Second study:

The role of LoC and internet use in the impact of COVID-19 on mental Health the exact scope of the COVID-19 pandemic's mental health consequences is unknown, although early research shows that people who have been exposed to the virus have worse mental health. The Internet may have a variety of consequences, such as linking individuals to resources or

reinforcing the need to constantly monitor for undesirable information. Furthermore, in an unmanageable epidemic, LoC becomes critical. The goal of this study was to see if COVID-19 exposure was linked to increased symptoms of depression, anxiety, and stress, as well as the influence of internet use and LoC. Adults from the United States and five European nations (N = 1723) took part in an online survey on the website. The findings suggest that people who have been infected with COVID-19 or believe they are at high risk of becoming infected have more psychological problems. Internet usage is linked to less symptoms, but information searching is linked to greater symptoms. Internet social capital is linked to reduced depressive symptoms. External LoC is associated with more symptoms. These findings imply that public health authorities should concentrate on the pandemic's mental health implications, and that internet use and LoC might be used as objectives to enhance population mental health (Sigurvinsdottir, et al., 2020).

2.7.3. Third study:

Does believing in fate facilitate active or avoidant coping? The effects of fate control on coping strategies and mental well-being. To develop a dynamic model of control, the researchers suggest that external control would affect avoidant coping, which in turn would affect psychological distress, whereas fate control would affect both active and avoidant coping when dealing with stress. The model was supported among Hong Kong Chinese using a cross-sectional approach in study 1 (n = 251) and hypothetical stressful scenarios in study 2 (n = 294). The moderating effect of perceived controllability was observed in coping behaviors using a diary approach in Study 3 (n = 188). The study findings offer an alternative perspective to the dichotomous view of control and provide implications for coping strategies and mental well-being (Wu, et al., 2020).

2.7.4. Fourth study:

The relation between maternal LoC and coping styles of pediatric leukemia patients during treatment. The study examines the relationship between children with leukemia's coping methods and their moms' LoC throughout treatment. In particular, the study wants to find out if the mother's sense of control over her child's illness can affect how the child copes with being sick, and if this relationship can be used to predict how the child will be able to adapt. The study looked at a group of 60 kids with leukemia who were getting treatment and a group of their mothers. The people who took part came from two pediatric oncology and hematology units in Italy. Using the child behavioral style scale (CBSS) and the parental health LoC scale (PHLCS), we looked at how children coped with their parents' illnesses. A linear regression model was used to see if there was a connection between children's coping styles and their mothers' sense of control. The K-S test was used to look at the differences in mean CBSS scores between the two groups. Multivariate analysis of variance was done to see if the child's gender, the hospital setting, and the socio-cultural status of the mother all had an effect on how the children coped. Study findings show that children's coping strategies and their mothers' sense of control are linked. In particular, the scales of media, fate, and health care professionals have a predictive effect on children's monitoring coping style, because there is a positive correlation. The same scales, on the other hand, have a negative correlation with blunting adapting style. For the study's central idea, certain scales of maternal LoC and children's coping styles have both positive and negative correlations, which could be used to predict children who might have trouble with their emotions (Polizzi, et al., 2020).

2.7.5. Fifth study:

During COVID-19, the relationship between Korean adolescents' participation in sports, internal health LoC, and wellness was investigated. The goal of this study was to provide practical information to promote

Korean teenagers' wellbeing by experimentally determining its association with sports involvement and who are internally oriented LoC. In January 2021, they enlisted the help of 844 Korean teenagers to take part in an online self-reported survey. In the primary study, they looked at the variations in all variables based on the demographic features of teenagers, as well as the structural link between sports participation, IHLC, and wellbeing. IHLC and wellbeing were both improved by engagement in sports. Furthermore, IHLC showed a favorable impact on wellbeing. They recommends that there is a need to establish measures in juvenile educational institutions to boost health, sports engagement, and IHLC among teenage students, which can improve their wellbeing in the COVID-19 pandemic (Lee, et al., 2021).

2.7.6. Sixth study:

Relationships among the internal health LoC, mental health problems, and subjective well-being of adults in South Korea during the lengthy COVID-19 epidemic. The goal of this study was to confirm the link among both internal health LoC, mental health issues, and subjective well-being in people. An online survey was used to undertake a cross-sectional descriptive design. The participants were 600 South Korean individuals over the age of 20. Hierarchical regression analysis and SPSS process macro were used to evaluate the gathered data. The internal health LoC had such a considerable detrimental influence on mental health problems as a consequence of the study. Furthermore, the mediating influence of mental health disorders was demonstrated in the process of the internal health LoC on subjective well-being. It is critical to build a high internally oriented health LoC in individuals during an infectious disease pandemic, such as COVID-19, and to encourage surveillance and therapy introduction for those who have a decreased internally oriented health LoC Furthermore, it was explained how managing mental health issues might promote subjective well-being, which is defined as happiness and life satisfaction (Shin, & Lee., 2021).

2.7.7. Seventh study:

Secondary schoolers in Southern Poland's nutritional behavior patterns, wellness literacy, and health LoC. Nutritional habits are still an important part of a healthy lifestyle. It's clear that bad health habits learned in adolescence stay until adulthood and may have a big impact on individual health. Health literacy, health LoC, and socioeconomic factors were the main goals of this study. It looked at how these factors were linked to nutritional behaviors in secondary school students from Poland. The questionnaire was filled out by 2223 students from the schools that were chosen through cluster sampling. Participants who took the survey answered five questions about their diets and how often they ate fruit and vegetables and fast food. They also answered questions about their socioeconomic and demographic backgrounds. Univariate and multivariate logistic regression models have been used to find out what factors are linked to indicators of good nutrition. The adjusted models found that internal HLC was not linked to any of the nutritional behaviors that were studied. Powerful other HLC and Chance HLC (dimensions of external HLC) were important predictors of the dietary patterns that people chose. In addition, people who had a higher level of HLC were more likely to eat more fruit and vegetables and less likely to eat fast food. In the end, the regression models that were made show that there is a link between HLC and the types of food that people eat, but not with dieting habits. Contrary to previous studies, internal HLC was not linked to nutrition habits. In this study, boys were more likely than girls to be good about what they ate. People who used the Internet more often had less healthy eating habits (Duplaga, & Grysztar, 2021).

2.7.8. Eighth study:

Beliefs, LoC, and psychological reactions in oral contraception adherence in young women. This study conducted to measure mental mechanisms and attitudes toward medicine that are involved in adherence to OCP to avoid unplanned pregnancies (AUP) or gynecological disorders,

depending on the prescription. In this cross-sectional study, 689 young women in their fertile phase, with an average age of 23.41, were asked to answer questionnaires on their attitudes, beliefs, psychological reactance, LoC, and contraceptive pill adherence. Researcher use a descriptive statistics and a binary logistic regression. Based on women's motivations for using contraceptive medicine, the findings revealed that diverse attitudes and psychological mechanisms were involved in adherence to oral contraception. Non-adherence was linked to more psychological processes in the AUP group than in other group. Non-adherence in women who took the OCP to avoid unexpected births was mostly explained by psychological reactance. Women with gynecological issues, on the other hand, reported challenges with adherence, owing to their preconceptions about contraceptive tablets. These data suggest that attitudes about medicine and LoC, as well as motives for taking the pill, might influence adherence to OCP. Identifying the psychological elements and attitudes associated with contraception might help health practitioners give counseling to women, resulting in increased drug adherence and improved well-being (Fumero, et al., 2021).

2.7.9. Ninth study:

A model of how self-efficacy and health-oriented LoC affect empowerment and self-management behavior in people with chronic diseases: The goal of this study was to look into the effect of self in the effect of patient empowerment on self-management behaviors in people with chronic illnesses, and to look into how three types of health LoC (HLC) might play a role in this model. The study was done in a cross-sectional way. During the months of August and October 2020, 254 people were chosen to be part of a group of patients at a general tertiary care hospital. Self-efficacy played a big role in the relationship between patient empowerment and self-management behavior, with a 95 percent confidence interval that didn't include zero. It was found that the chance HLC played a role in how SE and self-management

behavior were affected. People with chronic illnesses who were empowered had more confidence and stayed on track with self-management if they had a high level of health literacy. This study looks at how patient empowerment & self-management behavior are linked in patients with various personality traits. This means that classifying the type of HLC could help researchers find groups of patients who could benefit from patient empowerment. It might be helpful for nurses and other health care professionals to know which patients have certain types of health beliefs and then provide the right care plans for patients who have different health beliefs in a patient-centered program (Wang, et al., 2021).

2.7.10. Tenth study:

Employment after kidney transplantation (KT) vs. the health LoC and the quality of life. The goal of the study was to look at the HLC of employed people and those non-employed and how HLC and the quality of life were linked. When it came to the study, there were 101 people who took part, and 60 people who took part in the control group. The questionnaires used were the multi- dimensional health locus of control MHLC, the WHO quality of life questionnaire, and a survey that asked about the socio-economic status and work experience of people in the study. The unemployed KT patients had a higher sense that chance had an effect on their health than the employed ones. They also had a lower level of quality of life on the somatic scale and environmental scale than the employed ones. Employed KTs had the internal control scale and significantly associated with all QoL scales (the Somatic scale with p-value of 0.036; the psychological scale with p-value of 0.001; the social scale with p-value of 0.029; and the environmental scale with p-value of 0.027). Unemployed people who took the internal control scale were linked to the somatic scale (correlation value of 0.396) and the psychological scale (correlation value 0.374), which means they had a lot of control over their lives. The study concludes that people who have job have more independence, and the results show that they have a strong internal orientation. Working

patients also rate their quality of life better, both in terms of their health and the way their environment is set up (Grubman-Nowak, et al., 2022).

2.7.11. Eleventh study:

During the epidemic, the influence of life satisfaction and LoC in using organic and local food. The relationship between LoC, life satisfaction, and Covid-19-related changes in consumers' inclinations to purchase natural or local food is investigated in this study. People with a high internal LoC are thought to participate in pro-environmental actions, such as eating organic or locally grown food. Furthermore, research reveals that life satisfaction is favorably influenced by internal LoC, and that the relationship between life satisfaction and changes in local and organic food purchase intentions during the Covid-19 epidemic is mediated by food choice motivations. These theoretical arguments are supported by the findings of this investigation. However, a significant and positive relationship could only be found among both internal LoC and the intentions to buy more produced locally food items since the outbreak of the Covid-19 pandemic. Because LoC and life satisfaction have mostly been used in health-related situations, this study fills a gap in the literature about their application in food and consumer habits research. The study recommends that, comprehensive understanding of these relationships contributes to the development of theoretical frameworks, and more study into these metrics in other food-related situations is required (Hempel & Roosen, 2022).

2.7.12. Twelfth study:

A systematic review of the effects of the LoC concept on the efficacy of physical therapy courses in patients with chronic pain. In physiotherapy treatments for chronic pain, the biopsychosocial paradigm considers the patient's personality attributes. As one of these traits, the LoC has a direct effect on how people deal with their health problems. The goal of this systematic review was to find out how a person's sense of control affects the

effectiveness of physiotherapy treatments for people who have chronic pain. Respondents with chronic pain for at least 3 months and at least one training of physiotherapy were eligible; Studies should have taken into account the patient's LoC as a predictor at the start of physiotherapy treatment; they should also have looked at pain intensity or clinical variables that are related to pain. Better results are more likely when there is an internal center of control. When arranging physiotherapy treatments, the personality features of the participants are a crucial component to consider” (Álvarez-Rodríguez, 2022).

2.7.13. Thirteenth study:

For Muslim American women in New York City, there are links between spiritual health-related LoC, perceived discrimination, and breast and cervical cancer screening. Religion-related factors, such as perceived discrimination and spiritual health-related LoC, were important in this study. The researcher wanted to find out how these factors affected breast and cervical cancer screening for Muslim American women. 421 Muslim American women were surveyed at the start of a breast and cervical cancer screening program. They were asked about discrimination through the perceived ethnic discrimination questionnaire (PED-Q), which is a 17-item scale measuring perceived interpersonal racial/ethnic discrimination; and about spiritual beliefs through the Spiritual Health LoC Scale, which is a 13-item scale measuring the link between control over one's health and religious beliefs. The majority of women (75.2 percent) wanted to obtain medical treatment from a woman of their own gender, race, ethnicity, or religion. Up-to-date mammograms were linked lower God's grace spiritual health LoC subscale. Muslim American women's spiritual beliefs have an influence on their chances of getting breast and cervical cancer examinations. As a result, these services must be better tailored to meet these requirements, such as ensuring that American Muslim female have achieves to health care

practitioners who are with same sex, color, ethnicity, or religious as they are (Azhar, 2022).

2.7.14. Fourteenth study:

A survey study of adults with chronic conditions: examining the correlation between patient activation and health LoC. This study aimed to examine the association between patient activation (PA), health LoC, sociodemographic and clinical factors, and also the effect of HLOC dimensions, sociodemographic and clinical factors on PA. Three hundred U.S. adults, with at least one chronic condition (CC) were recruited through Amazon Mechanical Turk and completed an online survey which included sociodemographic questions, the patient activation measure, and the multidimensional LoC. Statistical analyses, including descriptive, correlation, and multiple linear regression, were conducted. Multiple linear regression indicated that participants who reported they were black, retired, with a greater number of CCs, and with higher scores in chance MHLC had higher PA, while participants with higher scores in internal MHLC, were unemployed and reported to have been affected by COVID-19-related worry or fear to manage their CC, had lower PA (Imeri, et al., 2022).

2.7.15. Fifteenth study:

Multiple sclerosis: the link between LoC type & quality of life in people with low and high disabilities. This changes the way people think about how to cope with difficult situations. Multiple sclerosis (MS) is a long-term immune condition that affects the central nervous system. It is the most common cause of non-traumatic disability in young adults, even when they get treatment. The main goal of this non-experimental, cross-sectional, and quantitative study of 89 people with MS was to look into the HLOC of people with MS and see if holding an EHLOC improves their QoL while taking into account their level of disability. People who had more disabilities were more likely to have externally oriented health related LoC beliefs, and there was a

strong link between having externally oriented health related LoC beliefs and having a good quality of life. Conclusion: The role of control beliefs in the QoL of people with MS who have a greater level of impairment was captured in this study (Bijoux Leist & Leist, 2022).

2.7.16. Sixteenth study:

The effects of psychological determinants on medication adherence in chronic disease patients. The goal of this study was to see how the health LoC, stress coping style, and level of mindfulness affect medication adherence in chronic illness patients. There were 768 participants in the research. The medication adherence questionnaire tool, multidimensional health LoC scale, the engaging inventory for stressful conditions, and the mindful focus awareness scale were all used in the diagnostic survey. The participants were split into two groups: adherents (n = 219) and non-adherents (n = 549). Age, BMI, sex, residency, education, and all MHLC subscales and medication adherence scale showed significant variations across the subgroups. The study concludes that in patients with chronic illnesses, a strong internal health LoC, a greater degree of mindfulness, and a less level of emotional stress coping style boost the chance of medication adherence (Bak-Sosnowska, et al., 2022).

2.7.17. Seventeenth study:

A systematic review of the effects of the LoC construct on the efficacy of physiotherapy treatments in patients with chronic pain. In physiotherapy treatments for chronic pain, the biopsychosocial paradigm considers the patient's personality attributes. The LoC is one of these characteristics that has a direct link to an individual's adapting mechanisms in the front of health related challenges. The goal of this comprehensive review was in a way to see how LoC affected the efficacy of physiotherapy sessions in chronic pain patients. With the terms methods of physical therapy, long lasting (chronic) pain, internally-externally oriented control, self-dependent management, physio-therapy, a systematic evaluation of the previous ten years' articles in

PubMed, Scopus, science direct, and web of science databases was conducted. Respondents with long lasting ache for 3 months and more, and with training session of one or more of physio-therapy were eligible. Investigations must have gathered the patient's LoC as a predicting factor in the beginning of physio-therapy sessions; and the main variable of the study should have included ache intensity or pain related clinical variables. There were thirteen publications discovered in total, three of which experimental researches and 10 of which were descriptive studies. The study's participants complained of chronic kneecap pain, general back pain, low back pain, or neck stiffness; they were over the age of 65; and they had undergone hand surgery. The LoC construct is a prognosing factor of physio-therapy sessions outcomes in individuals who have had chronic pain for greater than three months. Better results are more likely when there is an internal center of control. When arranging physiotherapy treatments, the personality features of the participants are a crucial component to consider (Álvarez-Rodríguez, 2022).

2.7.18. Eighteenth study:

Poor adherence to lifestyle recommendations in patients with CHD: results from the EUROASPIRE surveys. Despite the widespread use of cardioprotective drugs, risk factor management in individuals with CHD remains poor. Healthy behaviors are just as essential as medication in secondary prevention, according to the guidelines. From the patient's point of view, the researchers outline the causes behind poor lifestyle adherence. The data collection process was completely standardized. A subsample of 2379 patients completed the Brief Illness Perception questionnaire. Patients' perceptions of their condition as frightening were highly linked to the number of unfavorable behaviors they had. Those who have completed a cardiac rehabilitation and preventive program had a higher success rate with lifestyle changes. Patients cited a lack of self-confidence as the most significant impediment to changing their harmful habits. The study concludes that all

patients with unhealthy lifestyles should be targeted for behavioral change in modern secondary prevention programs (De Bacquer, et al., 2022).

2.7.19. Nineteenth study:

Foot self-care and health LoC in patients with type 2 diabetes mellitus. The study's goal was to determine the relationship between health-related LoC and foot self-care in participants with type 2 diabetes. The study was conducted using a descriptive research approach. It was carried out at Tanta University's Al-Shamla clinics' endocrinology and diabetes clinic. A convenient sampling method was used. There were 230 participants in all that were investigated. There were four different tools employed. The first tool was a three-part organized interview schedule: - part one: Socio-demographic characteristics of the elderly, part two: medical history, and part three: Foot-care knowledge. The simplified 60 second diabetic foot screening was the second tool. Diabetic foot self-care behavior scale (3rd tool). Multidimensional health locus control was the fourth tool. Results showed that more than three-quarters (75.2%) of the elderly tested had an unsatisfactory practice, 79% had an internally oriented health-related LoC, 76% had a forceful health LoC, and 65% percent had a chance health LoC. The study discovered a link between health LoC and foot care. Nurses and counselors should emphasize LoC in their interventional courses and programs to increase internal LoC and improve foot self-care routines, according to the findings (Abo-Eata, et al., 2022).

2.8. Summary:

At the end of this chapter and specially after reviewing the previous studies the researcher summarize that in most of studies reviewed there was a significant relationship between LoC orientation and patients adherence to therapeutic recommendations. The nature of this relationship according to the previously mentioned studies reflect that the majority of participants with

Review of literature 60

internal LoC have good adherence to therapeutic recommendations, better health status, healthy life style, and were characterized by disease and health promotion. On the other hand these studies concludes that large number of the study participants with external LoC have poor adherence, unhealthy life style, poor health status prognosis.

Chapter Three

Methods

&

Research Process

Chapter three

Methods and research process

The approach for the recent study was as follows:

- 3.1. The study design
- 3.2. Administrative arrangements
- 3.3. Ethical considerations
- 3.4. The study setting
- 3.5. The study sample
- 3.6. The study questionnaire
- 3.7. Validity of the study questionnaire
- 3.8. Pilot study
- 3.9. Reliability of the study questionnaire
- 3.10. Data collection method
- 3.11. Rating and scoring
- 3.12. Data analysis
- 3.13. The study limitations

3.1. The study design:

The current paper employs a cross-sectional quantitative correlational design to examine the link between patients' LoC and their adherence to therapeutic recommendations following PCI. This study began on October 1st, 2020 and ends on March 20th, 2022 in order to accomplish the aforementioned objectives.

3.2. Administrative arrangements:

After picking a research topic, the researcher makes a presentation to the scientific committee, emphasizing the study's necessity, significance, objectives, and feasibility. The researcher discussed the dissertation topic with the scientific committee and demonstrated that the research plan is a credible topic for advancing general understanding regarding patient adherence to therapeutic suggestions.

The faculty of nursing at Babylon University gave its clearance for the study to be conducted. It is also important to seek formal approval from the health department in Najaf and the AL-Najaf Centre for heart surgery and cardiac catheterization, as well as permission from the Najaf Health Directorate, to collect relevant data and interview people in the health facility wards (Appendix B).

3.3. Ethical considerations:

Ethical permission is a critical step in conducting a research study since it ensures that no harm or discomfort will be caused to the participants. Thus, the researcher offered a printed copy of the tools for therapeutic recommendation adherence and LoC orientation, as well as a brief description of the data collection method and study procedures. The research ethical committee evaluated all materials and granted permission for this study to be conducted (Appendix A).

After completing the approval application forms, the scientific postgraduate committee at the University of Babylon/college of nursing council granted ethical approval. The formal ethical application forms contain restrictive regulations to safeguard the participants' safety and anonymity.

The researcher visited the Center of Cardiac Surgery & Catheterization in Al-Najaf city and during initial meeting with the participant, the researcher obtained oral consent from patients to be included in the sample, because ethical consideration is a critical aspect of nursing research; the purpose of ethical consideration is to protect both the researcher and the people involved.

3.4. The study setting:

The Alnajaf Centre for Cardiac Surgery & Catheterization was selected as data gathering area. This center was chosen for a variety of reasons, including the following:

3.4.1. It is a teaching facility that provides accessible services to people suffering from CAD.

3.4.2. This facility is responsible for the treatment and follow-up of all adult patients with CAD who attend clinics.

3.4.3. This center is equipped with a medical section (coronary care unit, Medical ward).

3.4.4. In order to gather a large number of patients quickly, who can serve as a useful representation of the target population.

3.4.5. The facility and its departments have a combined capacity of (98) beds:

a. 31 beds in the Coronary Care Unit (CCU).

b. Thirteen Intensive Care Unit beds (ICU).

c. Approximately 39 beds in Medical Wards.

d. Ten beds subjected to Enhanced External Counter pulsation (EECP).

e. Consultation Clinics with five beds.

3.5. The study sample:

During the study period, 120 patients who had undergone PCI before at least six months were included in this study using a non-probability purposive (according to the researcher-determined inclusion and exclusion criteria) design at Al-Najaf center of cardiac surgery and cardiac catheterization in Al-Najaf, Al-Ashraf governorate.

Clients at this center receive therapeutic suggestions for nutrition, behavior, medicine, and medical follow-up following PCI, particularly prior to discharge by a health care practitioner.

3.5.1. Number of samples:

The researcher determined the study sample size using the power analysis approach (Cohen's method). This method is applicable due to the variables that comprise it, which take into account things like significance level, power (strength), and size of effect. Power or strength is critical in determining the appropriate size of the study's sample for correlational or descriptive studies. Power can be defined as its capacity to identify links between dependent and independent variables. For nursing studies, the least acceptable power level is around 80 percent.

According to the Pearson & Grove paper in 2013, moderate, and small effect sizes were computed using three alternative thresholds: 0.10 for large effects, 0.30 for moderate effects, and 0.50 for minor effects. Alpha (α) was set at 0.05 for this investigation, which means that with infinite sampling, an erroneous answer has a 5% or less chance of being accepted.

Thus, according to the subsequent criteria ($\alpha=0.05$, effect size=0.30, and power=0.80), a suitable size for sample ($n = 85$) required to conduct the current study. However, the researcher included 120 patients in this study,

which improves the study's power to the maximum attainable level. Because as the sample size increases, the study's power increases proportionately.

3.5.2. Inclusion criteria:

The following criteria were used to select the study sample:

1. Patients who have spent at least six months of PCI.
2. Patient who consented to be a part of the study.
3. Patient who is capable of communicating (conscious and oriented), reading, and writing.

3.5.3. Exclusion criteria:

1. Critically ill patients who are unconscious or comatose.
2. Patients who are blind, deaf, or have a learning disability do not reply or communicate.
3. Mentally ill patients (do not give reliable answers).
5. Patients who declined to take part in the study.

3.6. The study questionnaire:

According to the study problem statement, which is the link between patients' LoC orientation and their adherence to therapeutic recommendations in order to achieve the desired outcomes, two primary variables will be measured:

3.6.1. The first variable (LoC):

Indicates a patient's belief and was initiated in 1966 by Julian Roberts' theory. Because this variable is connected to every aspect of human existence, determining its effect on human life is critical.

Numerous instruments have been played and subsequently adjusted and developed since the inception of this theory. These measurements were compiled in Rita Halpert's 2011 text book of 28 LoC measures. Concerning health, Wallston, Wallston, and DeVellis presented three measures of multidimensional health LoC (form A, B, and C) (1978) Barbara Wallston, Kenneth Wallston, and Robert DeVellis came up with a scale called the Multidimensional, Health LoC (MHLOC). The scale considered a self-report instrument comprised of 18 items intended for use in the general population to ascertain an individual's belief about the factors that influence health. The tool measures 3 relatively unrelated fields:

- Inner Beliefs (I am responsible for my own well-being because of my own decisions and actions.)
- Uncertainty Belief (In the end, my health is a matter of chance or fate, and neither my doctor nor I have any control over it)
- Strong Belief in Others (If my doctor is incompetent or my family members are misbehaving, it will affect my well-being.)

Form C (Appendix E and F) was used to conduct and collect data for this study because it relates to how patients with chronic conditions perceive and believe about their health status improvement or worsening.

According to reports by previous studies, this scale is extremely reliable. Additionally, the scale's validity has been demonstrated in earlier literatures with deaf populations, Columbian women, Caucasian Americans, Filipino Americans, and Latino Americans, as well as AIDS patients.

3.6.2. The second variable (adherence):

The four primary domains (nutritional, behavioral, medication, and medical follow-up) were assessed. This instrument was developed based on prior research conducted by Al-Bayyati in 2015 as a dissertation at the

University of Baghdad/College of Nursing on a study to determine if patients with IHD in Al-Najaf City are adhering to therapeutic prescriptions.

The questionnaire had 52 items divided into four categories: dietary, behavioral, medication, and medical follow-up. The questionnaire was prepared and updated based on existing literature and then used in the Al-Bayyati study. Thus, the researcher judged the present study to be adequate in terms of reliability and validity, particularly given the study site (Al-Najaf center of cardiac catheterization and heart surgery) and study purpose of assessing patients' adherence to therapeutic recommendations.

3.6.3. Parts of the study questionnaire:

Generally, the study instrument is divided into four sections:

First part: include demographic characteristics (age groups, occupation, gender, level of education, residency, marital status).

Second part: include clinical characteristics (disease duration, therapeutic recommendation, source of therapeutic recommendation, and number of admission)

Third part: patient adherence to therapeutic recommendations, comprising of four domains, reflects the various food categories and contains 27 items; healthy behaviors domain, comprised of eight items, assesses the various habits of patients with IHD. Seven items comprise the pharmaceuticals domain, which is based on the Morisky medication adherence scale; and ten items comprise the medical follow-up domain. Except for the pharmaceutical domain, all of the domains that researched are accepted and developed with the assistance of several scientific studies and guidelines. The National Institute for Health and Clinical Excellence released one of these guidelines in 2007.

Fourth part: a questionnaire with a multidimensional health LoC which include: 6 items concerning fate or chance belief domain, 6 items concerning powerful others belief domain, and finally 6 items concerning internal belief domain (Appendix D and E).

3.7. Validity of the study questionnaire:

The face validity of the study tools (adherence to treatment recommendations questionnaire and multidimensional health LoC questionnaire) is assessed by a panel of (13) experts with a minimum of five years of experience in their specialty (Appendix F).

Additionally, the average number of years of expertise for the expert panel is favorable. After a face-to-face discussion or email correspondence with each expert, the questionnaire were reviewed for substance, clarity, relevancy, and appropriateness, and the instrument was deemed legitimate after considering all comments and recommendations. The final text was unanimously approved by all specialists.

3.8. Pilot study:

The pilot study included 12 patients (10% of the entire study sample) who had spent at least six months from their PCI. Patients who took part in the pilot trial were not included in the study. The pilot study took place between June 20th and July 9th, 2021. This set of patients completed the study instrument items, and through the statistical procedures, the findings were positive, indicating that the tool and the rest of the project's qualities are sound.

The pilot study's goals are to:

A. Assess the study instrument's reliability; and to determine the feasibility of the study instrument (Intra Examiner).

B. To ensure that the instrument structure is clear and adequate in terms of content throughout the subjects' comprehension.

C. Calculate the average time required for each patient's data collection during the interviewing process.

D. Determine the best technique for gaining patients' cooperation and determining the nature of any challenges they may confront.

E. Determine the questionnaire adjustments and enhancements that are required.

3.8.1. The pilot study's findings:

The findings reveal that:

- a. The questionnaire was constant
- b. The contents and the guideline were both clear.
- c. The time necessary for all portions of the questionnaire was (25-30) minutes.
- d. Not all patients are willing to cooperate.
- e. The questionnaire is able to measure the variables.

The researcher also face some limitations such as patients rejection to participate, sometime the patient has difficulties in remembering the last month nutritional pattern, lake of sample due to some of inclusion and exclusion criteria because patients in the cardiac center divided into: coronary-angio or diagnostic catheterization, temporary or permanent pacemaker, electrophysiology procedure, valvular heart diseases, congenital defects (atrial septal defect and ventricular septal defect), embolization procedures, peripheral catheterization, open heart surgeries, several diagnostic or therapeutic test and procedures (EECP) and finally PCI .

Patients with PCI after at least six month cover very little portion of the total admitted to the study setting.

According to Nieswidomy (2002), pilot studies may be used to assess an existing instrument or to test a new instrument; they can also be used to establish the length of time required to collect data and to evaluate the subject's response to the data collecting technique.

3.9. Reliability of the study questionnaire:

The concept of reliability refers to the consistency and dependability of a research instrument used to quantify a variable. The internal consistency reliability / alpha Cronbach approach is used to determine the reliability of the adherence and LoC questionnaire (Table3.1). The reliability was calculated using Microsoft Excel's; moreover, the results were validated using the SPSS Program version 22's reliability analysis. Additionally, the dependability of the data may be determined using Pearson's Correlation Formula (r):

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

n= (number of instances, x=an participant's rating of variable X), y= (an person's rating of variable, Y), r= (correlation value of the factors x and y), (Σ) means summation.

Table 3.1. The reliability coefficients concerning questionnaire under investigation:

| Coefficients reliability | | Number of items | Lower standard level | Actual score | Evaluation |
|--------------------------|---------|-----------------|----------------------|--------------|------------|
| Cronbach alpha | Adhere. | 52 | 0.70 | 0.98 | Pass |
| | LOC | 18 | 0.70 | 0.96 | Pass |

Adhere. (adherence), LoC (locus of control)

Nieswidomy (2012) said that internal consistency reliability methodologies may be used to determine the questionnaire's reliability. Correlation techniques are typically used to evaluate the degree of dependability. Generally, reliability coefficients vary between (-1.00) and (0.00) to (+1.00); reliability coefficients greater than (0.70) are regarded excellent (Plot and Hungler, 1999). According to Table (3.1), the dependability coefficient for patients adhering to therapeutic suggestions is (0.98), and the LoC of patients is (0.96). As a result, the study questionnaire is trustworthy.

The MHLOC scale has supplanted the Wallston, Wallston, Kaplan, and Maides-designed Health Locus of Control Scale (HLOC) in 1976s. In contrast to the dichotomous health LoC tool (internal versus external), the multidimensional health LoC scale is multidimensional, and is thus regarded to be a more exact evaluation (see Wallston, 2005 and Dimensionality in Furnham and Steele, 1993). The MHLOC scale has been translated into a greater variety of languages and may be adjusted for specific scenarios.

3.10. Data collection method:

The current study questionnaire includes demographic characteristics, clinical data, and adherence measures, as well as a LoC components. The

items answered through choosing from 3 Likert scale (concerning adherence scale) and 6 Likert scale (concerning LoC orientation), so the easy and best method to collect participants information and take their data regarding study variables is the interview (face to face communication) method. Absolutely after taking informed consent of ethical agreement, the researcher applicate the inclusion and exclusion criteria and choose study participants and interview them for 25-30 minutes in quit room to insure the best possible patients opinion through the study questionnaire items. The data gathering operation was taken place between July 10th and November 27th, 2021, at Al- Najaf cardiac surgery and catheterization center (CCU, general and private wards).

The interview method is a well-known and widely used mode of communication for a variety of purposes. The most critical principle is to create or, in other words, to build a strong, wide bridge between the researcher and patients. By doing so, the researcher can spend the necessary time with patients filling out his study instrument, while the patients can freely respond to the intended things. The communication technique begins with the researcher's appearance, identification, and discussion of the interview's purpose. It continues with ensuring that the patient is comfortable and does not complain about any difficulties that make communication difficult. It also includes sitting near the patient at a distance and it is preferred if the patient agrees to enter the room with his relative to feel better and build trust, however it is compulsory if the patient is female in Middle Eastern cultures. Avoid blaming the subject for his responses, avoid using biased questions to steer his choice in a particular direction, and avoid using medical jargon.

3.11. Rating and scoring:

The researcher rates and scores the study questionnaire in the following manner:

3.11.1. Rating and scoring of the adherence questionnaire:

This section was graded on a Likert scale of always equal to 3, sometimes equal to 2, and never equal to 1 for positive items and versus for negative items.

The researcher makes a decision based on the mean of the scores (equal to $[3 - 1] = 2$, and $[2 / 3] = 0.66$) calculated using the following formula (sum of scores minus one, divided by the number of assessment levels), and this mean of the scores is used to make judgments about the patients' adherence to therapeutic recommendations. The subjects' responses were classified as Good, (MS 2.34 or greater), fair (MS of 1.67 to 2.33), and poor (mean of score 1 to 1.66).

3.11.2. Rating and scoring of multi-dimensional health LoC questionnaire:

This section was graded on a six-point Likert scale, with strongly agree equal to 6, moderately agree equal to 5, agree equal to 4, disagree equal to 3, moderately agree equal to 2, and finally strongly agree equal to 1 for positive items and versus for negative items.

The researcher makes a decision based on the mean of the scores (equal to $[6 - 1] = 5$, and $[5 / 3] = 1.66$) calculated using the following formula (sum of scores minus one, divided by the number of assessment levels), and this mean of the scores is used to make judgments about the patients' LoC orientation toward their health status. The individuals' responses were classified as either high (mean score of 4.34 or greater), moderate (mean score of 2.67 to 4.33), or low (mean of score 1 to 2.66).

Another assessment tool was also employed in this study to determine the LoC orientation of the participants, which categorizes their replies into two categories: internal and external. Additionally, the same formula (total of

scores minus one, divided by the number of assessment levels) was used to divide assessment into two categories: external LoC (mean of scores 1 to 3.5) and internal LoC (mean of scores 3.5 or more).

3.12. Data analysis:

The current study's data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22 and Microsoft Excel (2010). These data are evaluated using two statistical methodologies that may aid in determining the outcomes. Among these methods are the following:

3.12.1. Descriptive statistics:

The statistical data analysis technique entails the following measurements:

A. Tables Frequencies and percentages = frequencies multiplied by 100/Sample size.

B. Tables summarizing statistics, including (Mean of Score (M.S).

$$\sum_{i=1}^N f_i / M.S = \sum_{i=1}^N f_i x_i$$

C. Standard Deviation (S.D.): When interval or ratio data are gathered, the standard deviation is utilized to determine the variability. This statistic reflects the degree to which values deviate from the distribution's mean.

$$s = \sqrt{\frac{1}{N - 1} \sum_{i=1}^N (x_i - \bar{x})^2},$$

C. Graphical display with the use of a pie chart and a bar chart.

3.12.2. Inferential statistics:

Inferential statistics, which is based on probability concepts, allows researcher to draw inferences about population parameters based on data from a sample.

(A). Binomial: used to compare observed and anticipated frequencies on a two-categorical nominal scale.

(B). In a cross tabulation, the chi-squared (χ^2) test is used to investigate hypotheses about proportional differences.

(C). Correlation Coefficients Pearson's (r): may be utilized both descriptively and inferentially. As a descriptive statistic, (r) represents the magnitude and direction of a relationship between two variables. r analyzes population correlation hypotheses as an inferential statistic; the null hypothesis is that no relationship exists between two variables, i.e., that the population ($r = .00$). The correlation coefficients vary from -1.00 (completely negative correlation) to +1.00 (totally positive correlation) (perfect positive correlation).

(D). Regression linear: Correlations allow for prediction by researchers. For instance, the association between patients' LoC orientation and their adherence to therapy suggestions appears in the current study as 0.539. So through the use of the independent variable, the researcher might make predictions. Researcher can enhance their prediction of a result by doing a linear regression that includes both independent and dependent variables.

(E). (Alpha Cronbach) Reliability Coefficient – R.C. for the pilot study:

RC = It is used to measure the internal consistency of a study instrument's reliability.

3.13. The study limitations:

Additionally, the researcher faces several restrictions, including the following: patient refusal to cooperate; occasionally, the patient has difficulty recalling the previous month's dietary pattern;

Due to the correlational character of the study, the researcher utilized a subjective assessment of the studied phenomenon, and objective measures cannot be used to assess patients' adherence to therapy suggestions. As a result, the researcher cannot establish a degree of certainty of 100 percent for the facts given by the patients. Thus, the researcher can appraise the study phenomena but couldn't conduct an evaluation.

Lake of sample due to some of the inclusion and exclusion criteria because patients in the cardiac center are divided into the following categories: coronary-angio or diagnostic catheterization, temporary or permanent pacemaker, electrophysiology procedure, valvular heart diseases, congenital defects (atrial septal defect and ventricular septal defect), embolization procedures, peripheral catheterization, open heart surgeries, and several diagnostic or therapeutic tests and procedures (EECP, computed tomography, angiography) and PCI. Patients with PCI, particularly those who have been in the research setting for at least six months, account for a relatively small proportion of total client admissions to the study environment.

Chapter Four

Results

Chapter four

Results

The study's findings are summarized in the following tables, along with their explanations:

Table 4.1: The study participants, categories according to socio-demographic characteristics.

| Socio-demographic characteristics | Rates and intervals | F | % |
|-----------------------------------|---------------------------|------------|------------|
| Age / years | (31-40) | 5 | 4.2 |
| | (41-50) | 17 | 14.2 |
| | (51-60) | 49 | 40.8 |
| | (61-70) | 30 | 25.0 |
| | (71<) | 19 | 15.8 |
| | Total | 120 | 100 |
| Mean (St. deviation.) | 59.38(10.87) | | |
| Gender | Male | 79 | 65.8 |
| | Female | 41 | 34.2 |
| | Total | 120 | 100 |
| Educational levels | Does not read and write | 16 | 13.3 |
| | Reads and writes | 20 | 16.7 |
| | Primary School | 23 | 19.2 |
| | middle School | 25 | 20.8 |
| | Secondary School | 12 | 10.0 |
| | Institute graduate | 14 | 11.7 |
| | College graduate / higher | 10 | 8.3 |
| | Total | 120 | 100 |

Table 4.1. to be continued . . .

| Socio-demographic characteristics | Rates and intervals | F | % |
|--|----------------------------|------------|------------|
| Residency | Urban | 49 | 40.8 |
| | Rural | 71 | 59.2 |
| | Total | 120 | 100 |
| Marital status | Single | 7 | 5.8 |
| | Married | 108 | 90.0 |
| | Widowed | 4 | 3.3 |
| | Separated | 1 | .8 |
| | Total | 120 | 100 |
| Occupation | Retired | 22 | 18.3 |
| | Housewives | 21 | 17.5 |
| | Employee | 21 | 17.5 |
| | Jobless | 26 | 21.7 |
| | Free job | 30 | 25.0 |
| | Total | 120 | 100 |

F (frequency), % (percentage), St. deviation (standard deviation), and < (less than).

Table (4.1.) illustrates that major portion of study's sample which compose approximately (40.8%) percent of total number of study participant's drop within ranking of (51-60) years old. Versus the ranking of (31-40), appear to be the smallest group via 4.2% percent, also it is important to note the mean and standard deviation of participants age which appear at this table consequently by 59.38(10.87).

Regarding the term gender, the study results revealed that the majority of individuals included in the study, which serve approximately (65.8%) percent of total sample size are male.

In relation with persons educational categories, the study's present that (20.8%) percent within whole participants whom involved in the research project are intermediate school level, on the other side primary school level come in the second step by (19.2%) percent while the smallest group of them are of college or higher graduated by (8.3) percentage.

Additionally, and concerning the residency the study statistics reflects that 59.2% of sample are rural residence. Concerning the subjects' marital status, the table shows that biggest portion up to (90%) percent of the study sample are married.

In regards to the last item of study participants' demographic characteristics, occupational status the above table reflects that up to (25%) of them continued with free jobs. While housewives and employed ones build the same percentage of sample size by (17.5) percent and this range is the smallest part of total number of people involved in this study.

Table 4.2: Study sample distributed according to clinical data.

| Clinical data | Rating & categorized intervals | F | % |
|-----------------------------|--------------------------------|------------|------------|
| Duration of disease / years | (< 6) | 87 | 72.5 |
| | (6-10) | 21 | 17.5 |
| | (10 <) | 12 | 10.0 |
| | Total | 120 | 100 |
| Therapeutic recommendations | yes | 118 | 98.3 |
| | no | 2 | 1.7 |
| | Total | 120 | 100 |

Table 4.2. to be continued . . .

| Clinical data | Rating & categorized intervals | F | % |
|--|---|------------|-------------|
| Source of therapeutic recommendations | Physician | 108 | 90.0 |
| | Nurse | 9 | 7.5 |
| | Other sources | 1 | 0.8 |
| | No | 2 | 1.7 |
| | Total | 118 | 98.3 |
| Number of admission | 1 st time | 18 | 15.0 |
| | 2 nd time | 46 | 38.3 |
| | 3 rd time | 30 | 25.0 |
| | 4 th time | 16 | 13.3 |
| | 5 th time | 6 | 5.0 |
| | 6 th time | 4 | 3.3 |
| | Total | 120 | 100 |

F (frequency), % (percentage), St. deviation (standard deviation), and < (less than).

Table (4.2.) shows the distribution of participants depending on their clinical data. According to duration of disease, it is clear that (72.5) percent of total sample size experience CAD less than 6 years, while approximately (17.5) percent of them experience the disease for (6-10) years and only (10) percent of study sample continued with the disease up to 10 years or more.

Relative to the concept therapeutic recommendations most of participants (98.3) percent were received it but from deferent sources. The major source of therapeutic recommendations chosen by participants in the questionnaire was the physician, which appear at the above table with 90% percent, while nurses and other sources come consequently in the second and third stages by (7.5%) and (0.8) percent.

Lastly when talking about patients number of admission the biggest part of study included respondents admit for the 2nd time to the health care

facilities due to cardiac causes. This portion save (38.3) percent and it is important to note that little part of the sample size included in the study admit up to 6 times due to CAD via (3.3) percent.

Table 4.3: Adherence to therapeutic recommendations in patients following PCI.

| Main Domains | Rating & ranking | F | % | M.S. | Asses. |
|--|------------------|-----|------|------|--------|
| Overall assessment for patients' adherence | Poor | 11 | 9.2 | 2.07 | Fair |
| | Fair | 85 | 70.8 | | |
| | Good | 24 | 20.0 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

To achieve the study objective which is in concerning with assessment of patients adherence to therapeutic recommendations after PCI table (4.3.) find that the majority of study sample have fair level at mean of score of (2.07) and range of (70.8) percent.

In addition, the table reveals that good adherence level is greater than poor adherence consequently by (20) and (9.2) percent.

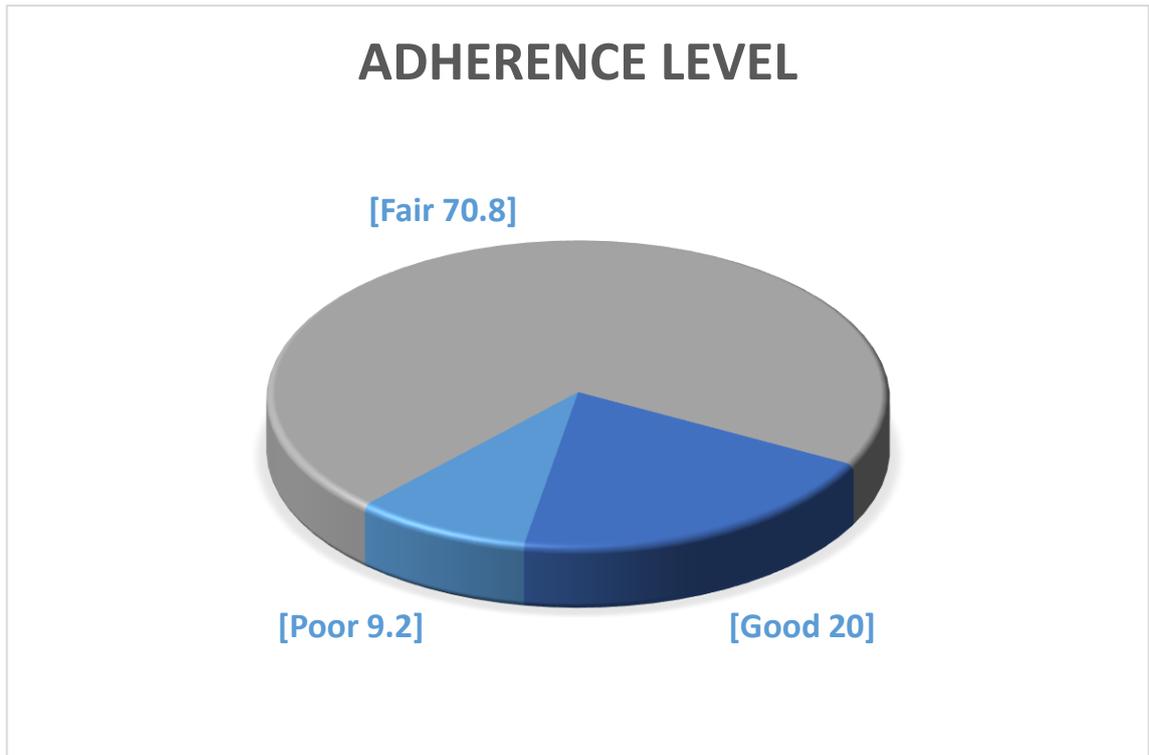


Figure 4.1: Patient adherence to therapeutic recommendations following PCI: an overall assessment.

Table 4.4: Adherence to therapeutic recommendations as measured by patients' overall feedback to the nutritional domain.

| Main domains | Rating | F | % | M.S | Asses. |
|--------------|--------------|------------|------------|------|--------|
| Nutritional | Poor | 23 | 19.2 | 1.96 | Fair |
| | Fair | 79 | 65.8 | | |
| | Good | 18 | 15.0 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Table (4.4.) shows that the patients' responses towards patients adherence to therapeutic recommendations concerning nutritional domain is

generally fair, through mean of score of (1.96) and rate of major responses (65.8) percent.

Table 4.5: Adherence to therapeutic recommendations as measured by patients' overall feedback to the behavioral domain.

| Main domains | Rating | F | % | M.S | Asses. |
|--------------|--------------|------------|------------|------|--------|
| Behavioral | Poor | 23 | 19.2 | 2.13 | Fair |
| | Fair | 56 | 46.7 | | |
| | Good | 41 | 34.2 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

The above table reflect patients' responses towards behavioral domain. The results appear that the majority of patients' level of adherence is fair through mean of score of (2.13) and (46.7) percent of responses.

Table 4.6: Adherence to therapeutic recommendations as measured by patients' overall scores to the medication domain.

| Main domains | Rating | F | % | M.S | Asses. |
|--------------|--------------|------------|------------|-------|--------|
| Medication | Poor | 19 | 15.8 | 2.219 | Fair |
| | Fair | 53 | 44.2 | | |
| | Good | 48 | 40.0 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Relative to medication domain the table 4.6 presents the results of study participants' responses as a part of adherence to therapeutic

recommendations, and it is clear that overall level assessment is fair via mean of score at (2.21) and rating of up to (44.2) percent.

Table 4.7: Patients' adherence to therapeutic recommendations as measured by total responses to the medical follow-up topic.

| Main domains | Rating | F | % | M.S | Asses. |
|-------------------|--------------|------------|------------|-------|--------|
| Medical follow up | Poor | 16 | 13.3 | 2.211 | Fair |
| | Fair | 50 | 41.7 | | |
| | Good | 54 | 45.0 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

As the previous domains of patients adherence to therapeutic recommendations this table shows the results of overall level of responses concerning to medical follow up domain. The general assessment is also fair with mean of score of (2.21) but the majority of rating responses are good (45) percent.

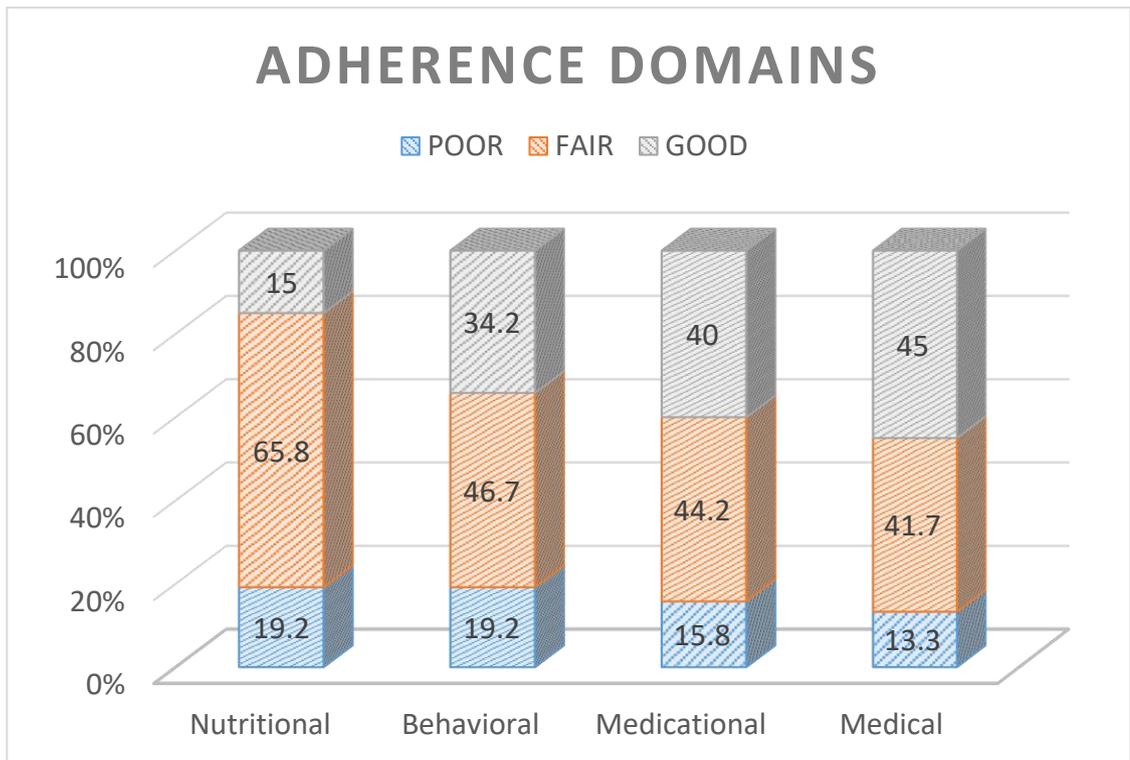


Figure 4.2: Assessing patients' adherence with therapeutic recommendations based on their overall responses to all domains.

Table 4.8: Assessment of nutrition domain items regarding patients' adherence to therapeutic recommendations.

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 1. | In the previous month did you eat whole brown bread (one piece)? | Never | 59 | 49.2 | 1.84 | Fair |
| | | Sometimes | 21 | 17.5 | | |
| | | Always | 40 | 33.3 | | |
| 2. | In the previous month did you eat macaroons (3 cups)? | Never | 69 | 57.5 | 1.55 | Poor |
| | | Sometimes | 35 | 29.2 | | |
| | | Always | 16 | 13.3 | | |
| 3. | In the previous month did you eat rice (3 cups)? | Never | 19 | 15.8 | 2.30 | Fair |
| | | Sometimes | 46 | 38.3 | | |
| | | Always | 55 | 45.8 | | |

Table 4.8. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 4. | In the previous month did you eat biscuits (3 pieces)? | Never | 55 | 45.8 | 1.73 | Fair |
| | | Sometimes | 42 | 35.0 | | |
| | | Always | 23 | 19.2 | | |
| 5. | In the previous month, did you eat salad without salt or sauce (3 cups)? | Never | 44 | 36.7 | 1.93 | Fair |
| | | Sometimes | 40 | 33.3 | | |
| | | Always | 36 | 30.0 | | |
| 6. | In the previous month, did you eat beans without salt or sauce (3 cups)? | Never | 54 | 45.0 | 1.73 | Fair |
| | | Sometimes | 44 | 36.7 | | |
| | | Always | 22 | 18.3 | | |
| 7. | In the previous month, did you eat peas without oil, salt or sauce (3 cups)? | Never | 68 | 56.7 | 1.61 | Poor |
| | | Sometimes | 30 | 25.0 | | |
| | | Always | 22 | 18.3 | | |
| 8. | In the previous month did you eat green leafy vegetables such as radish, celery (3 cups)? | Never | 18 | 15.0 | 2.26 | Fair |
| | | Sometimes | 52 | 43.3 | | |
| | | Always | 50 | 41.7 | | |
| 9. | In the previous month did you eat dark green leafy vegetables, including chard, or spinach (3 cups)? | Never | 36 | 30.0 | 1.95 | Fair |
| | | Sometimes | 54 | 45.0 | | |
| | | Always | 30 | 25.0 | | |
| 10. | In the previous month did you eat onions (one piece)? | Never | 28 | 23.3 | 2.20 | Fair |
| | | Sometimes | 39 | 32.5 | | |
| | | Always | 53 | 44.2 | | |
| 11. | In the previous month did you eat fruits such as apples, oranges, bananas, lemons (one piece)? | Never | 16 | 13.3 | 2.35 | Good |
| | | Sometimes | 46 | 38.3 | | |
| | | Always | 58 | 48.3 | | |
| 12. | In the previous month did you eat fat-free milk? | Never | 55 | 45.8 | 1.75 | Fair |
| | | Sometimes | 39 | 32.5 | | |
| | | Always | 26 | 21.7 | | |

Table 4.8. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|---|-----------|----|------|------|--------|
| 13. | In the previous month did you eat yogurt? | Never | 32 | 26.7 | 1.95 | Fair |
| | | Sometimes | 61 | 50.8 | | |
| | | Always | 27 | 22.5 | | |
| 14. | In the previous month did you eat cheese? | Never | 23 | 19.2 | 2.04 | Fair |
| | | Sometimes | 69 | 57.5 | | |
| | | Always | 28 | 23.3 | | |
| 15. | In the previous month did you restrict eating creams? | Never | 47 | 39.2 | 1.77 | Fair |
| | | Sometimes | 53 | 44.2 | | |
| | | Always | 20 | 16.7 | | |
| 16. | In the previous month did you restrict drinking whole milk? | Never | 62 | 51.7 | 1.66 | Poor |
| | | Sometimes | 36 | 30.0 | | |
| | | Always | 22 | 18.3 | | |
| 17. | In the previous month did you eat white eggs with yolks (1)? | Never | 24 | 20.0 | 2.15 | Fair |
| | | Sometimes | 53 | 44.2 | | |
| | | Always | 43 | 35.8 | | |
| 18. | In the previous month did you eat grilled chicken without the skin? | Never | 25 | 20.8 | 2.08 | Fair |
| | | Sometimes | 60 | 50.0 | | |
| | | Always | 35 | 29.2 | | |
| 19. | In the previous month did you eat lean fish? | Never | 25 | 20.8 | 2.01 | Fair |
| | | Sometimes | 68 | 56.7 | | |
| | | Always | 27 | 22.5 | | |
| 20. | In the previous month did you restrict eating roast beef? | Never | 43 | 35.8 | 1.88 | Fair |
| | | Sometimes | 48 | 40.0 | | |
| | | Always | 29 | 24.2 | | |
| 21. | In the previous month did you restrict eating liver and kidneys? | Never | 63 | 52.5 | 1.65 | Poor |
| | | Sometimes | 35 | 29.2 | | |
| | | Always | 22 | 18.3 | | |

Table 4.8. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|---|-----------|----|------|------|--------|
| 22. | In the previous month did you drink natural juice such as orange, lemon (1-2 cups)? | Never | 31 | 25.8 | 2.03 | Fair |
| | | Sometimes | 54 | 45.0 | | |
| | | Always | 35 | 29.2 | | |
| 23. | In the previous month did you eat foods without adding salt? | Never | 42 | 35.0 | 1.95 | Fair |
| | | Sometimes | 41 | 34.2 | | |
| | | Always | 37 | 30.8 | | |
| 24. | In the previous month did you eat foods without adding fats? | Never | 40 | 33.3 | 2.04 | Fair |
| | | Sometimes | 35 | 29.2 | | |
| | | Always | 45 | 37.5 | | |
| 25. | In the previous month did you drink coffee (1-2 cups)? | Always | 28 | 23.3 | 2.30 | Fair |
| | | Sometimes | 27 | 22.5 | | |
| | | Never | 65 | 54.2 | | |
| 26. | In the previous month did you drink tea (1-2 cups)? | Always | 70 | 58.3 | 1.64 | Poor |
| | | Sometimes | 23 | 19.2 | | |
| | | Never | 27 | 22.5 | | |
| 27. | In the previous month did you drink water (8 glasses)? | Never | 11 | 9.2 | 2.68 | Good |
| | | Sometimes | 16 | 13.3 | | |
| | | Always | 93 | 77.5 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Table (4.8.) shows total patients' responses to the nutritional domain items, which in turn reveals their adherence to healthy nutritional program. According to the above table, study participants have fair adherence to the majority of the items. While it is clear that they have poor level of adherence regarding items 2, 7, 16, 21, and 26 consequently.

On the other hand good adherence only might seen in responses towards item 11 and 27 only as following; (In the previous month did you

eat fruits such as apples, oranges, bananas, lemons (one piece), and (In the previous month did you drink water (8 glasses)?

Table 4.9: Assessment of behavior domain items regarding patients’ adherence to therapeutic recommendations.

| List | Items | Rating | F | % | M.S | Asses. |
|------|---|-----------|----|------|------|--------|
| 1. | In the last month, have you get enough sleep every day (about 8 hours)? | Never | 24 | 20.0 | 2.28 | Fair |
| | | Sometimes | 38 | 31.7 | | |
| | | Always | 58 | 48.3 | | |
| 2. | In the last month, have you take a break (when you feel chest pain, shortness of breath or headache)? | Never | 19 | 15.8 | 2.46 | Good |
| | | Sometimes | 26 | 21.7 | | |
| | | Always | 75 | 62.5 | | |
| 3. | In the last month have you doing simple exercises for at least 20-30 minutes a day, such as regular walking | Never | 55 | 45.8 | 1.82 | Fair |
| | | Sometimes | 31 | 25.8 | | |
| | | Always | 34 | 28.3 | | |
| 4. | In the last month have you avoid drinking alcoholic beverages? | Never | 41 | 34.2 | 2.20 | Fair |
| | | Sometimes | 14 | 11.7 | | |
| | | Always | 65 | 54.2 | | |
| 5. | In the last month have you avoid smoking (cigarettes, water pipes)? | Never | 39 | 32.5 | 2.18 | Fair |
| | | Sometimes | 20 | 16.7 | | |
| | | Always | 61 | 50.8 | | |
| 6. | In the last month have you avoid the psychological pressures you face in your daily life? | Never | 48 | 40.0 | 1.85 | Fair |
| | | Sometimes | 41 | 34.2 | | |
| | | Always | 31 | 25.8 | | |
| 7. | In the last month have you avoid heavy work (such as lifting heavy objects)? | Never | 29 | 24.2 | 2.24 | Fair |
| | | Sometimes | 33 | 27.5 | | |
| | | Always | 58 | 48.3 | | |

Table 4.9. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 8. | In the last month have you avoid drinking soft drinks (such as Pepsi)? | Never | 37 | 30.8 | 2.00 | Fair |
| | | Sometimes | 46 | 38.3 | | |
| | | Always | 37 | 30.8 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Table (4.9.) reflects the study participants’ responses concerning items of behavioral domain during last month. The above table shows that patient’s adherence is fair in all questions only for the second one, which reveals good level according to the following statement: In the last month, have you take a break (when you feel chest pain, shortness of breath or headache)?

Table 4.10: Assessment of medication domain items regarding patients’ adherence to therapeutic recommendations.

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 1. | Q1) In the last month did you forget to take your medication? | Always | 22 | 18.3 | 2.27 | Fair |
| | | Sometimes | 43 | 35.8 | | |
| | | Never | 55 | 45.8 | | |
| 2. | Q2) In the last month did you not to take your medication for reasons other than forgetfulness? | Always | 18 | 15.0 | 2.35 | Good |
| | | Sometimes | 41 | 34.2 | | |
| | | Never | 61 | 50.8 | | |
| 3. | Q3) In the last month did you stopped taking your medications without informing your doctor because you felt worseshile you were taking them | Always | 21 | 17.5 | 2.25 | Fair |
| | | Sometimes | 47 | 39.2 | | |
| | | Never | 52 | 43.3 | | |
| 4. | Q4) In the last month did you forget to carry your medications with you when traveling or leaving the house? | Always | 31 | 25.8 | 2.20 | Fair |
| | | Sometimes | 33 | 27.5 | | |
| | | Never | 56 | 46.7 | | |

Table 4.10. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 5. | In the last month did you stop taking your medications? when you feel that the symptoms of the disease are under control | Always | 15 | 12.5 | 2.35 | Good |
| | | Sometimes | 48 | 40.0 | | |
| | | Never | 57 | 47.5 | | |
| 6. | In the last month did you feel upset about a commitment to taking your medications | Always | 63 | 52.5 | 1.78 | Fair |
| | | Sometimes | 20 | 16.7 | | |
| | | Never | 37 | 30.8 | | |
| 7. | In the last month did you have difficulty remembering to take your medication | Always | 16 | 13.3 | 2.30 | Fair |
| | | Sometimes | 52 | 43.3 | | |
| | | Never | 52 | 43.3 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Table (4.10.) presents the results of study sample adherence to items of medication domain. The results shows that, adherence level at items number 1, 3, 4, 6, and 7 is fair but in the remainder items, 2 and 5 (In the last month did you not to take your medication for reasons other than forgetfulness?), (In the last month did you stop taking your medications? when you feel that the symptoms of the disease are) is good.

Table 4.11: Assessment of medical follow up domain items regarding patients’ adherence to therapeutic recommendations.

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 1. | In the last month did you inform your doctor about any changes to your treatment plan? | Never | 24 | 20.0 | 2.36 | Good |
| | | Sometimes | 28 | 23.3 | | |
| | | Always | 68 | 56.7 | | |

Table 4.11. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|---|-----------|----|------|------|--------|
| 2. | In the last month did you will visit your doctor at specific times for testing? | Never | 34 | 28.3 | 2.10 | Fair |
| | | Sometimes | 39 | 32.5 | | |
| | | Always | 47 | 39.2 | | |
| 3. | In the last month did you follow your doctor's instructions carefully? | Never | 17 | 14.2 | 2.40 | Good |
| | | Sometimes | 38 | 31.7 | | |
| | | Always | 65 | 54.2 | | |
| 4. | In the last month did you perform laboratory tests (for example, blood lipid level, salt level, etc.) if ordered by a doctor? | Never | 11 | 9.2 | 2.58 | Good |
| | | Sometimes | 28 | 23.3 | | |
| | | Always | 81 | 67.5 | | |
| 5. | In the last month did you performing diagnostic operations (for example, chest x-ray, ultrasound, electrocardiogram) if ordered by a doctor | Never | 15 | 12.5 | 2.50 | Good |
| | | Sometimes | 29 | 24.2 | | |
| | | Always | 76 | 63.3 | | |
| 6. | In the last month did you monitor your body weight regularly? | Never | 42 | 35.0 | 2.08 | Fair |
| | | Sometimes | 26 | 21.7 | | |
| | | Always | 52 | 43.3 | | |
| 7. | In the last month did you monitor vital signs (pulse, blood pressure) regularly? | Never | 34 | 28.3 | 2.17 | Fair |
| | | Sometimes | 31 | 25.8 | | |
| | | Always | 55 | 45.8 | | |
| 8. | In the last month did you tell your doctor about any new signs and symptoms? | Never | 18 | 15.0 | 2.50 | Good |
| | | Sometimes | 23 | 19.2 | | |
| | | Always | 79 | 65.8 | | |
| 9. | In the last month did you I took any advice from a nutritionist? | Never | 73 | 60.8 | 1.60 | Poor |
| | | Sometimes | 21 | 17.5 | | |
| | | Always | 26 | 21.7 | | |

Table 4.11. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. |
|------|--|-----------|----|------|------|--------|
| 10. | In the last month did you I followed a therapeutic diet prescribed by a dietitian? | Never | 63 | 52.5 | 1.77 | Fair |
| | | Sometimes | 21 | 17.5 | | |
| | | Always | 36 | 30.0 | | |

M,S indicates mean scores/ poor indicates mean score of 1 to 1.66/ fair indicates mean score of 1.67 to 2.33/ good indicates mean score of 2.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

This table (4.11.) composed of study participants’ responses towards items of medical follow up domain. The results shows that the majority of response’s are within good range mean of score which appears good adherence level in items no. 1, 3, 4, 5, and eight.

This table also represents that regarding items 2, 6, 7, and 10 level of patients’ adherence are fair with mean of score of 1.67 to 2.33. Finally, the above table shows only one poor assessment of level of adherence concerning item no.9, which is about taking advices from nutritionist.

Table 4.12: Assessment of overall patients’ LoC orientation.

| Subject | Rating | Frequency | Percentage | M.S | Assessment |
|------------------|----------|-----------|------------|------|------------|
| Locus of Control | External | 58 | 48.3 | 3.56 | Internal |
| | Internal | 62 | 51.7 | | |
| | Total | 120 | 100 | | |

The cut point is 2.50/ M,S indicates mean scores/ External indicates mean score of 1 to 3.50/ Internal indicates mean score of 3.51 to 6.

Table (4.12.) views the results of LoC orientation. After understanding, the above table it become clear that when dividing total study sample into two groups the two portion are approximately equal.

However, the majority of the study sample 51.7% are internally LoC through mean of score of 3.56 and the remainder are of external LoC by 48.3 percent.

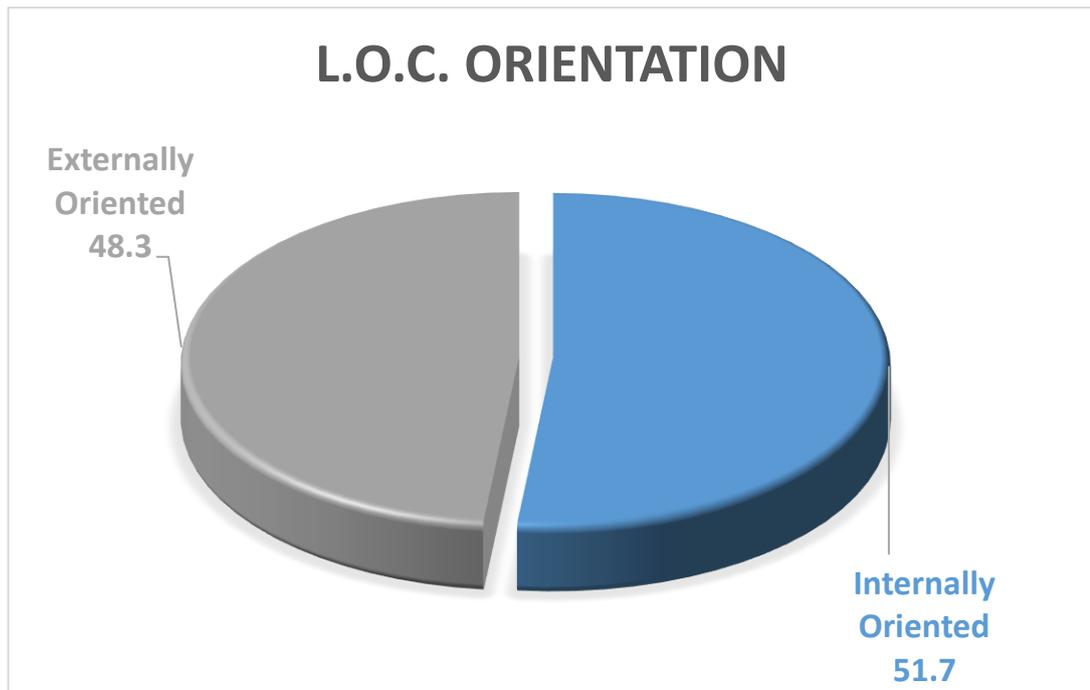


Figure 4.3: Assessment of overall patients’ LoC orientation.

Table 4.13: Assessment of overall patients’ LoC by three level scale.

| Subject | Rating | F | % | M.S | Asses. |
|------------------|--------------|------------|------------|------|----------|
| Locus of Control | LOW | 20 | 16.7 | 3.56 | Moderate |
| | MODERATE | 78 | 65.0 | | |
| | HIGH | 22 | 18.3 | | |
| | Total | 120 | 100 | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment.

Table (4.13.) represents another scale for assessment of study participant’s LoC there by three level scale of low, moderate, and high. According to this scale the majority of sample size 65 percent have moderate LoC, and the high LoC is slightly more than the low LoC between patients through 18.3, and 16.7 consequently. In addition, this table shows that the general assessment of LoC concerning study sample is moderate.

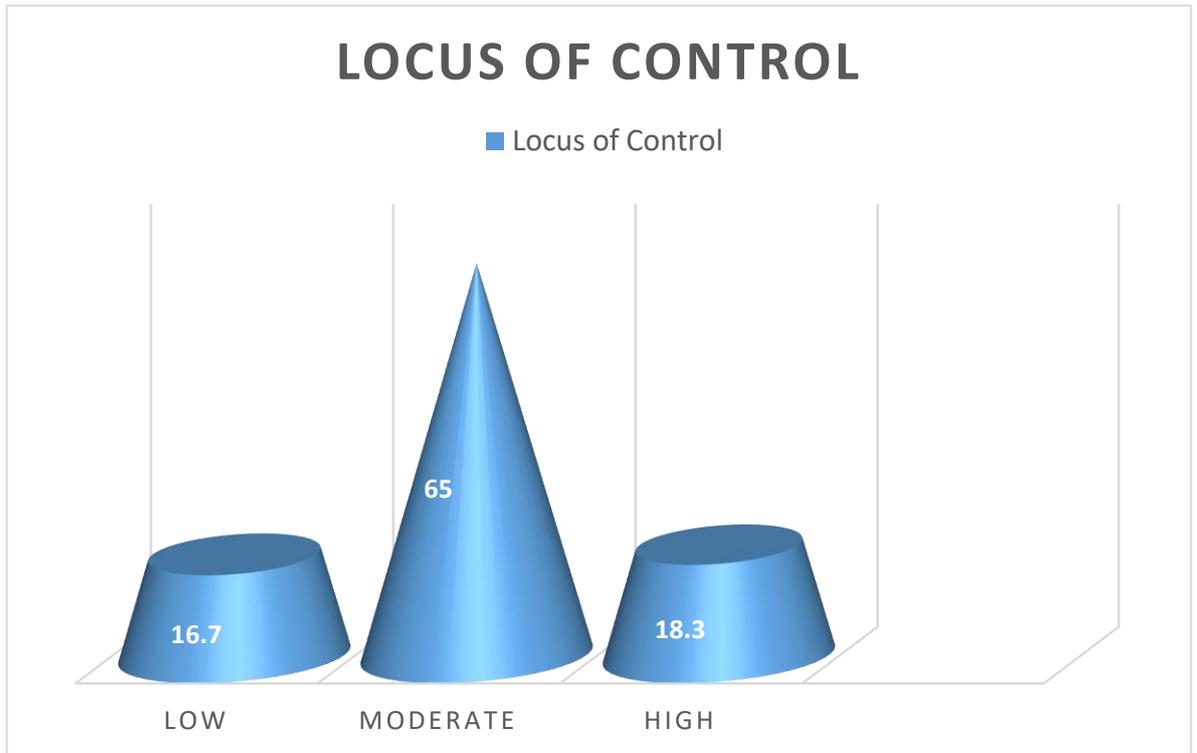


Figure 4.4: Assessment of overall patients’ LoC by three level scale.

Table 4.14: Assessment of patient’s LoC according to self-domain responses.

| Main Domain | Rating | F | % | M.S | Asses. | Orient. |
|-------------|--------------|------------|------------|------|----------|----------|
| Self Domain | LOW | 18 | 15.0 | 3.83 | Moderate | Internal |
| | MODERATE | 65 | 54.2 | | | |
| | HIGH | 37 | 30.8 | | | |
| | Total | 120 | 100 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to3.50/ Internal indicates mean score 3.51_to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation)

According to the previous table the distribution of study participants responses related to self domain of LoC presents as the following: low 15%, moderate 54.2%, and high 30%, and the general assessment appears to be

moderate regarding this section. In addition this table shows the LoC orientation which indicates that the overall responses of study sample is internally oriented through the mean of score of more than 3.50.

Table 4.15: Assessment of patients LoC according to powerful others domain overall responses.

| Main Domain | Rating | F | % | M.S | Asses. | Orient. |
|------------------------|--------------|------------|------------|------|----------|----------|
| Powerful Others Domain | LOW | 14 | 11.7 | 3.82 | Moderate | Internal |
| | MODERATE | 76 | 63.3 | | | |
| | HIGH | 30 | 25.0 | | | |
| | Total | 120 | 100 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to3.50/ Internal indicates mean score 3.51_to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation)

Table number 4.15. represents the distribution of sample responses towards powerful others domain of LoC, which is as follow: low 11.4 percent, moderate 63.3 percent, and high 25 percent and the general assessment appears to be moderate with mean of sore of 3.82. Regarding the overall participants orientation the above table reveals the internal LoC orientation via 3.51 or more M.S.

Table 4.16: Assessment of patients LoC according to chance domain overall responses.

| Main Domain | Rating | F | % | M.S | Asses. | Orient. |
|---------------|--------------|------------|------------|------|----------|----------|
| Chance Domain | LOW | 49 | 40.8 | 3.02 | Moderate | External |
| | MODERATE | 49 | 40.8 | | | |
| | HIGH | 22 | 18.3 | | | |
| | Total | 120 | 100 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to3.50/ Internal indicates mean score 3.51_to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation)

When observe table 4.16. the results indicates that overall assessment of patients responses to chance domain of LoC is moderate through mean of score of 3.02. The digits describes the domain as follow: low 40.8%, moderate same percent, and high 18.3 % only. For the last column, concerning orientation the participant’s responses goes towards external LoC.

Table 4.17: Patients’ LoC orientation by their responses according to the self-domain items.

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|--|--------|----|------|------|----------|----------|
| 1 | If my condition worsens, it is my own behavior which determines how soon I will feel better again. | S.D | 24 | 20.0 | 3.71 | Moderate | Internal |
| | | M.D | 8 | 6.7 | | | |
| | | D | 14 | 11.7 | | | |
| | | A | 33 | 27.5 | | | |
| | | M.A | 14 | 11.7 | | | |
| | | S.A | 27 | 22.5 | | | |

Table 4.17. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|--|--------|----|------|------|----------|----------|
| 6 | I am directly responsible for my condition getting better or worse. | S.D | 10 | 8.3 | 4.15 | Moderate | Internal |
| | | M.D. | 13 | 10.8 | | | |
| | | D. | 14 | 11.7 | | | |
| | | A. | 29 | 24.2 | | | |
| | | M.A. | 19 | 15.8 | | | |
| | | S.A. | 35 | 29.2 | | | |
| 8) | Whatever goes wrong with my condition is my own fault. | S.D. | 20 | 16.7 | 3.50 | Moderate | External |
| | | M.D. | 9 | 7.5 | | | |
| | | D. | 30 | 25.0 | | | |
| | | A. | 30 | 25.0 | | | |
| | | M.A. | 14 | 11.7 | | | |
| | | S.A. | 17 | 14.2 | | | |
| 12 | The main thing, which affects my condition, is what I myself do. | S.D. | 8 | 6.7 | 4.05 | Moderate | Internal |
| | | M.D. | 9 | 7.5 | | | |
| | | D. | 23 | 19.2 | | | |
| | | A. | 34 | 28.3 | | | |
| | | M.A. | 21 | 17.5 | | | |
| | | S.A. | 25 | 20.8 | | | |
| 13 | I deserve the credit when my condition improves and the blame when it gets worse | S.D. | 23 | 19.2 | 3.70 | Moderate | Internal |
| | | M.D. | 7 | 5.8 | | | |
| | | D. | 23 | 19.2 | | | |
| | | A. | 23 | 19.2 | | | |
| | | M.A. | 17 | 14.2 | | | |
| | | S.A. | 27 | 22.5 | | | |

Table 4.17. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|---|--------|----|------|------|----------|----------|
| 17 | If my condition takes a turn for the worse, it is because I have not been taking proper care of myself. | S.D | 13 | 10.8 | 3.85 | Moderate | Internal |
| | | M.D | 9 | 7.5 | | | |
| | | D | 27 | 22.5 | | | |
| | | A | 29 | 24.2 | | | |
| | | M.A | 17 | 14.2 | | | |
| | | S.A | 25 | 20.8 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to 3.50/ Internal indicates mean score 3.51 to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation). S.A= strongly agree, M.A= moderately agree, A= agree, S.D= strongly disagree, M.D= moderately disagree, D= disagree.

Table 4.17. shows the description of others domain items for LoC concept in details. Briefly, all six questions appears to assess moderately concerning LoC through mean of score of between 2.67 and 4.33. patients included in the study have internal LoC regarding items of this domain except for question number eight which indicates that they does not accept that deterioration of their health status is due to their self fault with mean of score of 3.50.

Table 4.18: Patients' LoC orientation by their responses according to powerful others domain items.

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|---|--------|----|------|------|----------|----------|
| 3 | If I see my doctor regularly, I am less likely to have problems with my condition | S.D. | 12 | 10.0 | 4.35 | High | Internal |
| | | M.D. | 9 | 7.5 | | | |
| | | D. | 10 | 8.3 | | | |
| | | A. | 28 | 23.3 | | | |
| | | M.A. | 15 | 12.5 | | | |
| | | S.A. | 46 | 38.3 | | | |
| 5. | Whenever my condition worsens, I should consult a medically trained professional. | S.D | 7 | 5.8 | 4.67 | High | Internal |
| | | M.D | 11 | 9.2 | | | |
| | | D | 7 | 5.8 | | | |
| | | A | 19 | 15.8 | | | |
| | | M.A | 21 | 17.5 | | | |
| | | S.A | 55 | 45.8 | | | |
| 7 | Other people play a big role in whether my condition improves, stays the same, or gets worse. | S.A. | 26 | 21.7 | 3.21 | Moderate | External |
| | | M.A. | 20 | 16.7 | | | |
| | | A. | 24 | 20.0 | | | |
| | | D | 20 | 16.7 | | | |
| | | M.D. | 12 | 10.0 | | | |
| | | S.D. | 18 | 15.0 | | | |
| 10. | In order for my condition to improve, it is up to other people to see that the right things happen. | S.A. | 20 | 16.7 | 3.16 | Moderate | External |
| | | M.A. | 22 | 18.3 | | | |
| | | A. | 32 | 26.7 | | | |
| | | D | 22 | 18.3 | | | |
| | | M.D. | 12 | 10.0 | | | |
| | | S.D. | 12 | 10.0 | | | |

Table 4.18. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|--|--------|----|------|------|----------|----------|
| 14 | Following doctor's orders to the letter is the best way to keep my condition from getting any worse. | S.D. | 8 | 6.7 | 4.43 | High | Internal |
| | | M.D. | 6 | 5.0 | | | |
| | | D. | 14 | 11.7 | | | |
| | | A. | 31 | 25.8 | | | |
| | | M.A. | 20 | 16.7 | | | |
| | | S.A. | 41 | 34.2 | | | |
| 18 | The type of help I receive from other people determines how soon my condition improves | S.A. | 24 | 20.0 | 3.12 | Moderate | External |
| | | M.A. | 19 | 15.8 | | | |
| | | A. | 31 | 25.8 | | | |
| | | D. | 23 | 19.2 | | | |
| | | M.D. | 10 | 8.3 | | | |
| | | S.D. | 13 | 10.8 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to 3.50/ Internal indicates mean score 3.51 to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation) S.A= strongly agree, M.A= moderately agree, A= agree, S.D= strongly disagree, M.D= moderately disagree, D= disagree.

Looking at the above table will provides descriptive statistics of study sample responses towards items of powerful others domain concerning LoC concept. The almost items of this domain talk about the importance and the influence of health care provider and others surrounding the patients to his health status improvement or retardation.

Concerning items 3, 5, and 14 they highly accepts that the others have good effect on health improvement by mean of score of more than 4.33. While the remainder items reveals moderate health LoC by mean of score between 2.67 and 4.33.

In addition, back to the last column the participants responses to items 7, 10, and 18 present external LoC orientation, while the remainder items present internal according to mean of score.

Finally, the previous table shows clearly that patients have internal LoC concerning health care provider follow up but they have external orientation towards the surrounding individuals care.

Table 4.19: Patients’ LoC orientation by their responses according to chance\ fate domain items.

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|---|--------|----|------|------|----------|----------|
| 2. | As to my condition, what will be will be | S.A. | 32 | 26.7 | 2.85 | Moderate | External |
| | | M.A. | 24 | 20.0 | | | |
| | | A. | 22 | 18.3 | | | |
| | | D | 21 | 17.5 | | | |
| | | M.D. | 13 | 10.8 | | | |
| | | S.D. | 8 | 6.7 | | | |
| 4 | Most things that affect my condition happen to me by chance | S.A. | 34 | 28.3 | 2.90 | Moderate | External |
| | | M.A. | 19 | 15.8 | | | |
| | | A. | 27 | 22.5 | | | |
| | | D | 17 | 14.2 | | | |
| | | M.D. | 10 | 8.3 | | | |
| | | S.D. | 13 | 10.8 | | | |
| 9 | Luck plays a big part in determining how my condition improves. | S.A. | 28 | 23.3 | 3.16 | Moderate | External |
| | | M.A. | 14 | 11.7 | | | |
| | | A. | 29 | 24.2 | | | |
| | | D | 23 | 19.2 | | | |
| | | M.D. | 11 | 9.2 | | | |
| | | S.D. | 15 | 12.5 | | | |

Table 4.19. to be continued . . .

| List | Items | Rating | F | % | M.S | Asses. | Orient. |
|------|---|--------|----|------|------|----------|----------|
| 11 | Whatever improvement occurs with my condition is largely a matter of good fortune | S.A. | 26 | 21.7 | 3.27 | Moderate | External |
| | | M.A. | 12 | 10.0 | | | |
| | | A. | 26 | 21.7 | | | |
| | | D | 32 | 26.7 | | | |
| | | M.D. | 7 | 5.8 | | | |
| | | S.D. | 17 | 14.2 | | | |
| 15. | If my condition worsens, it's a matter of fate | S.A. | 47 | 39.2 | 2.73 | Moderate | External |
| | | M.A. | 10 | 8.3 | | | |
| | | A. | 25 | 20.8 | | | |
| | | D | 15 | 12.5 | | | |
| | | M.D. | 12 | 10.0 | | | |
| | | S.D. | 11 | 9.2 | | | |
| 16 | If I am lucky, my condition will get better. | S.A. | 28 | 23.3 | 3.20 | Moderate | External |
| | | M.A. | 15 | 12.5 | | | |
| | | A. | 27 | 22.5 | | | |
| | | D | 21 | 17.5 | | | |
| | | M.D. | 12 | 10.0 | | | |
| | | S.D. | 17 | 14.2 | | | |

M,S indicates mean scores/ low indicates mean score of 1 to 2.66/ moderate indicates mean score of 2.67 to 4.33/ high indicates mean score of 4.34 or more/ F indicates frequency/ % indicates the percent/ and Asses. Indicates assessment/ Orient. Indicates to Orientation/ External indicates mean score of 1 to3.50/ Internal indicates mean score 3.51_to 6/ F (frequency), % (percentage), Asses. (Assessment), Orient. (Orientation) S.A= strongly agree, M.A= moderately agree, A= agree, S.D= strongly disagree, M.D= moderately disagree, D= disagree.

In relation with the last domain of multidimensional health LoC questionnaire, table 4.19. represents descriptive data regarding fate or chance domain items. In this table all items results in external LoC orientation through mean of score of less or equal to 3.50.

Assessment of all six items appears as moderate and there is no low level assessment of LoC. However, when looking at the mean of score of each item it is clear that concerning total items it is near the lower border of moderate level close to low level (2.66).

This table indicates that study participants believes that fate or chance has big influence on their health status far than the adherence to the therapeutic recommendations by the patients himself or caring of the others in his life.

Table 4.20: Relationship among both patients’ adherence to therapeutic recommendations & their demographics.

| Patients Demographics | Rating And Intervals | Poor | Fair | Good | X² | D.F | P-Value |
|------------------------------|----------------------------------|-------------|-------------|-------------|----------------------|------------|----------------|
| Age / years | (31-40) | 1 | 3 | 1 | 20.004 | 8 | 0.01 |
| | (41-50) | 0 | 8 | 9 | | | |
| | (51-60) | 3 | 38 | 8 | | | |
| | (61-70) | 6 | 21 | 3 | | | |
| | (71<) | 1 | 15 | 3 | | | |
| Gender | Male | 8 | 56 | 15 | .351 | 2 | 0.839 |
| | Female | 3 | 29 | 9 | | | |
| Levels of education | Does not read and write | 2 | 13 | 1 | 29.611 | 12 | 0.003 |
| | Reads and writes | 4 | 15 | 1 | | | |
| | Primary graduate | 0 | 21 | 2 | | | |
| | Middle graduate | 2 | 19 | 4 | | | |
| | Secondary graduate | 0 | 7 | 5 | | | |
| | Institute graduate | 2 | 7 | 5 | | | |
| | College graduate / higher | 1 | 3 | 6 | | | |

Table 4.20. to be continued . . .

| Patients Demographics | Rating And Intervals | Poor | Fair | Good | X² | D.F | P-Value |
|------------------------------|-----------------------------|-------------|-------------|-------------|----------------------|------------|----------------|
| Residency | Urban | 6 | 31 | 12 | 2.36 | 2 | 0.307 |
| | Rural | 5 | 54 | 12 | | | |
| Marital status | Single | 1 | 4 | 2 | 12.291 | 6 | 0.056 |
| | Married | 9 | 77 | 22 | | | |
| | Widowed | 0 | 4 | 0 | | | |
| | Separated | 1 | 0 | 0 | | | |
| Occupation | Retired | 2 | 16 | 4 | 7.176 | 8 | 0.518 |
| | Housewives | 3 | 16 | 2 | | | |
| | Employee | 0 | 14 | 7 | | | |
| | Jobless | 2 | 20 | 4 | | | |
| | Free job | 4 | 19 | 7 | | | |

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value, N.S.= Non-significant, S.= Significant, H.S.=Highly significant.

Table 4.20. reveals the relationship between patient's adherence to therapeutic recommendation and their socio-demographic data. The results find out that there are significant association regarding to the age groups through p-value of less than 0.01, degree of freedom of 8, and chi-square value of 20.004.

In relation to level of education, also this table shows that there is highly significance association depending on p-value 0.003, degree of freedom 12 and X² value equal to 29.611. Concerning the remainder demographic characteristics there are no relationship marker because of p-value of more than 0.05.

When interpreting the above table it is clearly visible that concerning age groups, patients with younger age have better adherence to therapeutic recommendations than older one. In addition, in concerning with level of education as the patient's level of education increases their adherence also increases.

Table 4.21: Relationship among both patients' adherence to therapeutic recommendations and patients' clinical characteristics.

| Clinical Factors | Rating And Intervals | Poor | Fair | Good | X ² | D.F | P-Value |
|---------------------------------------|----------------------|------|------|------|----------------|-----|---------|
| Duration of disease / years | (< 6) | 6 | 59 | 22 | 14.145 | 4 | 0.007 |
| | (6-10) | 1 | 18 | 2 | | | |
| | (10 <) | 4 | 8 | 0 | | | |
| Therapeutic recommendations | Yes | 11 | 83 | 24 | .837 | 2 | 0.658 |
| | No | 0 | 2 | 0 | | | |
| Source of therapeutic recommendations | physician | 9 | 78 | 21 | 6.029 | 4 | 0.197 |
| | Nurse | 2 | 5 | 2 | | | |
| | other sources | 0 | 0 | 1 | | | |
| Number of admission | 1 st time | 0 | 11 | 7 | 13.41 | 10 | 0.202 |
| | 2 nd time | 5 | 31 | 10 | | | |
| | 3 rd time | 1 | 23 | 6 | | | |
| | 4 th time | 3 | 12 | 1 | | | |
| | 5 th time | 1 | 5 | 0 | | | |
| | 6 th time | 1 | 3 | 0 | | | |

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value, N.S.= Non-significant, S.= Significant, H.S.=Highly significant.

Table 4.21. reveals the relationship between patient's adherence to therapeutic recommendation and their clinical data. During interpreting the results of table, you can find out significant association concerning only the disease duration and clinical data there by p-value of .007 and degree of freedom of 4, and chi square value of 14.145.

The above association indicates that patients with disease duration of less than 6 year have good adherence to therapeutic recommendations and as the duration increases the adherence decreases.

Table 4.22: Relationship of the participants' LoC orientation and patients' demographic data.

| Demographic Data | Rating And Intervals | Low | Moderate | High | X ² | D.F | P-Value |
|---------------------|-------------------------|-----|----------|------|----------------|-----|---------|
| Age / years | (31-40) | 1 | 3 | 1 | 20.292 | 8 | 0.009 |
| | (41-50) | 2 | 6 | 9 | | | |
| | (51-60) | 6 | 38 | 5 | | | |
| | (61-70) | 8 | 19 | 3 | | | |
| | (71<) | 3 | 12 | 4 | | | |
| Gender | Male | 13 | 51 | 15 | .067 | 2 | 0.967 |
| | Female | 7 | 27 | 7 | | | |
| Levels of education | Does not read and write | 6 | 10 | 0 | 32.465 | 12 | 0.001 |
| | Reads and writes | 5 | 14 | 1 | | | |
| | Primary graduate | 1 | 20 | 2 | | | |
| | Intermediate graduate | 2 | 18 | 5 | | | |
| | Secondary graduate | 1 | 7 | 4 | | | |
| | Institute graduate | 3 | 7 | 4 | | | |
| Residency | Urban | 9 | 29 | 11 | 1.340 | 2 | 0.512 |
| | Rural | 11 | 49 | 11 | | | |
| Marital status | Single | 3 | 2 | 2 | 10.902 | 6 | 0.091 |
| | Married | 16 | 73 | 19 | | | |
| | Widowed | 0 | 3 | 1 | | | |
| | Separated | 1 | 0 | 0 | | | |

Table 4.22. to be continued . . .

| Demographic Data | Rating And Intervals | Low | Moderate | High | X ² | D.F | P-Value |
|------------------|----------------------|-----|----------|------|----------------|-----|---------|
| Occupation | Retired | 3 | 16 | 3 | 21.879 | 8 | 0.005 |
| | Housewives | 7 | 14 | 0 | | | |
| | Employee | 1 | 11 | 9 | | | |
| | Jobless | 2 | 21 | 3 | | | |
| | Free job | 7 | 16 | 7 | | | |

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value, N.S.= Non-significant, S.= Significant, H.S.=Highly significant.

To achieve the intended last objective of table 4.22. represents that there are three significant relationship between LoC and socio-demographic characteristics. The first association is regarding age groups through p-value of .009, degree of freedom of 8, and chi-square value of 20.292. This relationship indicates that the patient's LoC is high in front of young age groups.

The second one is concerning level of education through probability value of .001, which indicates high significance association. In details, this table shows that as patient's level of education increases the LoC also increases. This interpretation is clearly visible in college or higher education, which score six, high LoC level, comparing with does not read and write, which does not, involved any participant of high level.

Finally the above table reveals a high significance relationship towards occupation there by p-value of .005 which in turn refers to that the higher level of LoC between study sample find out within the employee and free job individuals, consequently as nine and seven participants.

Table 4.23: Relationship between the respondents' LoC orientation and their clinical data.

| Clinical Data | Rating And Intervals | Poor | Fair | Good | X ² | D.F | P-Value |
|---------------------------------------|----------------------|------|------|------|----------------|-----|---------|
| Duration of disease / years | (< 6) | 13 | 58 | 16 | 6.758 | 4 | .149 |
| | (6-10) | 2 | 14 | 5 | | | |
| | (10 <) | 5 | 6 | 1 | | | |
| Therapeutic recommendations | yes | 20 | 76 | 22 | 1.095 | 2 | .578 |
| | no | 0 | 2 | 0 | | | |
| Source of therapeutic recommendations | physician | 17 | 71 | 20 | 2.721 | 4 | .606 |
| | nurse | 3 | 4 | 2 | | | |
| | other sources | 0 | 1 | 0 | | | |
| Number of admission | 1 st time | 1 | 11 | 6 | 21.08 | 10 | .021 |
| | 2 nd time | 5 | 28 | 13 | | | |
| | 3 rd time | 6 | 23 | 1 | | | |
| | 4 th time | 5 | 10 | 1 | | | |
| | 5 th time | 3 | 3 | 0 | | | |
| | 6 th time | 0 | 3 | 1 | | | |

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value, N.S.= Non-significant, S.= Significant, H.S.=Highly significant.

The results in table 4.23. shows only one significant relationship between number of admission and patient's LoC assessment. This association find out at p-value of .021, and degree of freedom of 10, and X² value of 21.08 in the last row.

The nature of relationship indicates that respondents with enhanced LoC assessment (internal) admitted fewer times to the health care facility than patients with low-level assessment (external). The remainder clinical characteristics does not associated to patient's LoC.

Table 4.24: Correlation between participants' LoC orientation and adherence with therapeutic recommendations by chi-square and correlation.

| Main domain | Rating | Locus of Control Orientation | | | R | Significance |
|-------------|--------|------------------------------|----------|------|---|--------------|
| | | Low | Moderate | High | | |
| | | Patients' Adherence | Poor | 7 | | |
| Fair | 11 | | 69 | 5 | | |
| Good | 2 | | 6 | 16 | | |

S means significant according to probability-value of less than .05, R: correlation value, d.f: degree of freedom

Table 4.24. use chi-square and correlation to find out if there is a significant association between the two main study variables. The remembered table shows that there is a highly significant relationship between patient's LoC and their adherence to therapeutic relationship at p-value 0.00, degree of freedom 4 and chi-square value of 66.289 according to last column.

In addition regarding quality and quantity of the relationship according to R= 0.539 we can see that it is positive in nature and more than 0.5 towards 1 which mean very high correlation.

Table 4.25: Regression between the patients' LoC orientation and their adherence to therapeutic recommendations.

| Regression | | | | | | | |
|-------------------|--------------------------------|--------------------|---------------------------------|-------------------|----------------------------------|---------------------------|------|
| (Model) | R. | R. Squar | Adjusted R. Square | | S.D. Error for Estimation | | |
| 1 | .539 | .291 | .285 | | 16.77788 | | |
| (Model) | Sum. Squar | | d.f. | Mean Squar | F. | Significance Value | |
| 1 | Reg. | 13608.626 | 1 | 13608.626 | 48.344 | .000 ^b | |
| | Residual | 33216.674 | 118 | 281.497 | | | |
| | Total | 46825.300 | 119 | | | | |
| (Model) | Un-standard Coefficient | | Standard Coefficient | | t. | Sig. Val. | |
| | B. | S.D. Errors | Beta/ β | | | | |
| 1 | (Constant) | 68.449 | 5.870 | | | 11.661 | .000 |
| | LOC | .615 | .088 | .539 | | 6.953 | .000 |

R (Regression value), LoC (Locus of Control), df (degree of freedom), sum (summation), F (Anova value), Sig. (Significance), Std. (Standard), B (Beta value), Reg. means Regression, Val. Means Value.

The last table in this chapter (table 4.25.) shows the statistical marker “regression” between the main variables of the study to know if prediction is possible or not. According to the p-value in the fourth row of less than 0.05, the researcher can depends the regression formula to predict the adherence level from the LoC orientation. So according the correlation magnitude of 0.539, the independent variable affect the dependent variable. The R Square value of .291 is the effect size of the independent variable on

the dependent one for each X in front of each Y in the regression formula ($Y = \alpha + \beta (X)$), when X represent the independent variable (LOC orientation), and Y represent the dependent variable (patients adherence to therapeutic recommendations).

Chapter Five

**Discussion
Of
The Results**

Chapter five

Discussion of the results

Using the existing literature and relevant research, this chapter gives a systematically arranged interpretation of the results, as well as a fairly developed discussion of the results based on those findings. Subjects to be discussed in a decent manner will include the following:

- ❖ Discussion of demographic and clinical data of study participants' (tables 4.1. and 4.2.)
- ❖ Discussion of patients' adherence to therapeutic recommendations.
- ❖ overall assessment of patients' adherence to therapeutic recommendations (table 4.3.)
- ❖ Assessment of patients' adherence with therapeutic recommendations based on their nutritional status (table 4.4. and 4.8)
- ❖ Assessment of patient adherence to therapeutic recommendations based on their behavioral characteristics (table 4.5. and 4.9.)
- ❖ Adherence to therapeutic recommendations in patients is assessed on the basis of medication domain (table 4.6. and 4.10.)
- ❖ Medical follow-up domain-specific assessment of patients' adherence with therapeutic recommendations (table 4.7. and 4.11.)
- ❖ Discussion of patients' LoC orientation.
- ❖ Overall assessment of patients' LoC orientation (table 4.12. and 4.13.).
- ❖ Assessment of patients' LoC orientation according to self-domain of MHLC (table 4.14. and 4.17.).
- ❖ Assessment of patients' LoC orientation according to powerful others domain of MHLC (table 4.15 and 4.18.).
- ❖ Assessment of patients' LoC orientation according to chance domain of MHLC (table 4.116. and 4.19.).

- ❖ Discussion of relationship between participants' adherence to therapeutic recommendations and their demographics and clinical data.
- ❖ The associate between participant's adherence and demographic features (table 4.20.).
- ❖ The relationship between patients' adherence and clinical data (table 4.21.).
- ❖ Discussion of relationship between the patients' LoC orientation and their demographic and clinical data.
- ❖ The relationship between patients' LoC orientation and their demographic characteristics (table 4.22.).
- ❖ The relationship between patients' LoC orientation and their clinical data (table 4.23.).
- ❖ Discussion of the association between the LoC Orientation with Participants' adherence along with therapeutic recommendations (table 4.24.).
- ❖ Discussion of patients' adherence prediction according their LoC orientation through linear regression (table 4.25.).

5.1. Discussion of demographic and clinical data of study participants' (Tables 4.1. and 4.2.):

The present research illustrates that vast majority of the study respondent resides in urban areas, which is in line with previous findings. This finding is consistent with the findings of Okoro and Ngong (2012), who found that the majority of the research sample resides in large cities rather than rural areas, as previously reported. Furthermore, Saleem et al., (2011) reported that the bulk of research participants come from urban residential areas, which is supported by the data. Also in agreement with the present study's findings is Alzolibani (2011), who discovered that 78.8 percent of his study sample came from metropolitan areas, which is consistent with the present study's findings.

The reason behind this result, in comparison of the urban residential area with the rural residential area, it is clear that living in rural areas with walkable green spaces, in addition to natural foods, fruits, and vegetables, positively influenced the longevity of rural citizens regardless of their age, sex, marital status, in addition to their baseline functional status and socioeconomic status. When compared to residents in rural areas, urban residents complain about smoky weather, as well as unhealthy fast food and psychological stress.

The United States found that high levels of greenness were associated with a lower risk of acute myocardial infarction, CAD, heart failure, and atrial fibrillation among 249,405 Medicare beneficiaries aged more than 65 years. This finding was supported by research conducted in the United Kingdom (Wang et al., 2019). The growing body of research also shown that higher levels of greenness in the immediate environment were related with decreased BMI and obesity (Huang et al., 2020, Sarkar, 2017). In recent years, an increasing number of major epidemiological studies have discovered that being surrounded by greenery is connected with a lower risk

of cardio metabolic disorders such as high blood pressure and high cholesterol levels, obesity, type 2 diabetes, and metabolic syndrome (Dzhambov et al., 2018, Sarkar, 2017, Yang et al., 2020, Yang et al., 2019). Several research have also looked at the relationship between greenness exposure and CVD (Orioli et al., 2019, Wang et al., 2019).

When it comes to the gender of the study respondents, the findings suggest that men constitute a greater proportion of the study sample, as demonstrated in the current study by a margin of (65.8) percent. Accompanying this finding are the findings of Akhtari-Zavare et al., (2010), as well as Saleem et al., (2011), who both concluded that the vast majority of patients with IHD are male. As an additional point of agreement, the current research corroborated the findings of Yana et al., (2016), who conducted a study to assess "Knowledge and Meaning of Cardiac Catheterization from the Perspective of Cardiac Patients," and discovered that the vast majority of the participants in the study were men. According to Auras et al., (2016), a study published in the Cardiology journal to determine the predictors of medical management in patients undergoing elective coronary angioplasty (CC) for chronic IHD had the same results as this study, which revealed that the majority of the patients (74 percent) were men.

As far as the researcher is concerned, this finding pertains to the differences between male and female genders in terms of the bodily system and its physiology, as well as distinctions in terms of role-playing and duties throughout life. However, from a specific perspective, Iraqi men are suffering from a lack of qualified medical personnel, and in some areas, security problems continue to severely affect health-care services after decades of war and sanctions, in addition to a difficult life situation and an elevated rate of poor people, which makes it difficult for men to earn enough money each month in order to meet the needs of their families. Another point

to consider is that males in the job had less options for expressing their emotional tension than women did.

Regarding the age groups included in the study sample, the findings suggest that the largest proportion of the study sample falls within the age range of (51-60) years old, which accounted for 40.8 percent of the total. Additionally, the study showed that the mean and standard deviation for age groups were 59.38, respectively (10.87).

The present study agreed with a study done in Egypt by Elsay et al., (2016), which indicated that the majority of the analyzed patients were aged (51-60) years. This conclusion was similar with the findings of Schulman et al., (2016), who discovered that the age of the patients in their research ranged from (51-65) years at the time of the investigation. This study, which was published in the American Journal of Cardiology in 2012 and analyzed "the efficacy, and outcomes of cardiac catheterization in Nonagenarians," indicated that the majority of the sample was in the age range of 53-61 years, which corresponds to the findings of this study. Finally, the findings of Pini et al., (2014) indicate that the majority of patients are between the ages of 45 and 65, which is consistent with the findings of the current study.

The researcher confirmed that the majority of patients undergoing PCI are between the ages of 50 and 60, which is due to a number of contributing factors such as the nature of blood vessels, which become less flexible as they age, making it more difficult for blood to move through them. Due to the poor dietary habits practiced by the majority of Iraqi citizens, fatty deposits known as plaques accumulate along artery walls and restrict the flow of blood away from the heart. These maleficent blood components amass gradually during life and exert their influence when the human body becomes more sensitive in old age, as we all know and understand. Another key aspect is bad exercise habits, which can be caused by a lack of community understanding as well as a lack of access to exercise fields in the community, which can raise the risk of heart disease. Additional risk factors,

such as stress from the overall political situation, high blood pressure, smoking, and diabetes will almost certainly increase the likelihood of having a heart attack in the future.

According to Abd-Ali, and Al-Rubaiyee, 2015 these findings are compatible with scientific facts, which suggest that the risk for IHD increases with increasing age in humans. Individuals with advanced age are less likely to engage in regular physical activity, which is related to the physical impairment of the ageism phenomenon. Another factor is that regular physical activity is difficult for individuals with advanced age are less likely to engage in regular physical activity. He also points out that the risk of developing hypertension and diabetes mellitus increases as a patient's age increases, which increases the likelihood of developing IHD in the elderly population.

When it comes to marital status, the majority of the research participants are married (90 percent). It was discovered that a large proportion of study participants are married. This finding is similar to that of Alemu et al., 2014, and Alzolibani 2011, and Bisiriyu (2010), that all indicated that a large proportion of study participants are married. The majority of respondents in this study are old age patients, which is consistent with the finding that the majority of them are married.

The nationwide burden of CVD continues to pose a significant risk of morbidity and death, as well as an enhancement in health cost, in this respect. The relevance of nontraditional risk factors, such as socioeconomic and psychological variables, is becoming more acknowledged, despite the fact that traditional risks are well-known. Several studies have discovered a relationship between marriage status and the incidence of CVD and its negative repercussions. According to data from numerous U.S. and foreign cohorts, patients who are single, including those that are separated, divorced, widowed, or never married, have a greater incidence of adverse cardiovascular events than those who are married. This is true whether the

patients are married or not. In certain research, it has been shown that marriage may have a larger protective effect for males than it does for women. Furthermore, discontent in a marriage, as well as the quality of a marriage, have a substantial influence on the risk of CVD. Although the particular mechanisms by which this is done are not completely known, psychosocial and socioeconomic characteristics, as well as other acute stresses, all may play a role in the relationship between marriage status and CVD outcomes (Dhindsa, et. al., 2020).

Unmarried status is related with a worse overall survival rate in the general population, according to a study published in the Journal of the American Heart Association. The study looked at the link between marriage status and CVD outcomes in individuals. In individuals with or at high risk of CVD, marital status is found to be independently related with cardiovascular outcomes, with unmarried people having a greater mortality than married people (Schultz, et. al., 2017).

Finally, Ramezankhani, et al., 2019 illustrated that the association among both marriage status and health status differed depending on the sex of the study respondents. Being single and never married was found to be a substantial risk factor for hypertension in men, as well as a significant risk factor for death in this group.

According to the educational levels examined in this study, those who are intermediate school (20.8%) and those who are elementary school (19.2%) had the highest percentage. In addition, the study reveals that institute graduates (11.7%) and college graduates or higher with (8.3 percent) made up the smallest proportion of study participants in this regard as well.

In this regard, according to the findings of the study done by Giannakopoulou et al., (2012), 31.2 percent of patients had completed primary school, 23.7 percent had completed high school, and just 20.4 percent had completed university. According to the findings of a study conducted by Sreenivas and Babu (2012), 68.33 percent of those working in

the same profession had a poor degree of education. In addition to the previously stated research, the study by Tang et al., (2013), which indicates that 79 percent of the respondents had educational levels below pre-university level, is in agreement with and supports these findings. Pre-university education and above is the most common level of education, accounting for 21% of all levels.

Furthermore, these findings were consistent with those of a research done by Shajimon (2013), who found that the majority of the sample in their study group (33.4 percent) had only completed primary school. The contrary is true, according to Aboalizm et al., (2016), who published their findings in the American Journal of Nursing Science, in which they found that 30% of the control group (about a third of the control group) in their study had just a primary school or less.

Researchers from Woodward et al., (2015) examined nearly 90000 participants from Australia and New Zealand. They discovered that those with a primary education were at an increased risk of CVD, cardiovascular mortality, and all-cause mortality (all-cause mortality) compared to those with a tertiary education. The study found that more education was associated with higher alcohol use and was inversely related to smoking, blood pressure, cholesterol levels, and diabetes mellitus.

Several studies like Kim et al., 2014; and Mehta et al., 2011 have also showed that persons with a lower educational level are at greater risk of acute myocardial infarction. Lower levels of educational attainment are also associated with poorer short- and long-term outcomes (30 days and 1 year following AMI, respectively). Out of the several socioeconomic characteristics investigated in a South Korean cohort of patients, only a low level of education (less than 6 years of schooling) was shown to be connected with an elevated risk of cardiac events or overall mortality.

The level of education have an impact on one's health in a variety of ways. Higher numbers of CVD risk factors are seen in individuals with less educational attainment than others (Rosenbach et al., 2015).

Kershaw et al., (2013) conducted a study in the Netherlands and found that the majority (56.6 percent) of CHD risk among persons with poor education was attributed to behavioral and biological risk factors, rather than genetic risk factors.

Hu et al., (2012) discovered that conventional risk variables were responsible for nearly half of the higher risk of incident (AMI) in low-education groups, according to their findings. Still, even with these estimates, the processes behind the remainder of the elevated risk linked with poor educational attainment are still being investigated.

According to the findings of the researchers, the relationship between health literacy and outcomes may be partially mediated by poor reading comprehension, which has an indirect influence on CHD. Reading is a fundamental skill that every person should possess in order to expand his or her knowledge in a variety of subjects. However, simply comprehending material is not sufficient to encourage a healthy lifestyle. It is necessary for information to create awareness in an individual, and this awareness then transforms into perception, which, after a period of time that varies from person to person, develops into a widely accepted belief, which will stimulate or, activate people to carry out their daily activities in accordance with the belief. As a result, the beliefs of elementary school graduates differ from the beliefs of those with greater levels of educational attainment, which in turn influences their commitment to a healthy lifestyle.

In terms of occupational status, patients with free-work (25 percent) have the greatest rate of participation, followed by the patients who are jobless (21.7 percent). Among the reasons for this outcome are not only the advanced age of the patients (both male and female), but also the fact that IHD is exacerbated by several factors such as excessive physical activity,

exposure to cold weather, and emotional stress, all of which cause the patients to be forced to leave their places of employment. The findings of Al-Hussein (2015) indicate that fifty two percent of the research total sample are out-work, but Shinde & Kapurkar, (2014) illustrate that the largest proportion of study participants is out of work at 60 percent, and these findings corroborate the current study's conclusions about occupational status.

There are some studies which agreed with the current study's findings by reflecting that the majority of study respondents are of insufficient income, according to Shinde & Kapurkar (2014), Sreenivas & Babu (2012), plus to Singh et al., (2013), which indicates to jobless and free workers who are having difficulties preparing a sufficient monthly income for themselves and their families, and this increases their concerns about continuing their lives without experiencing emotional stress.

In terms of disease duration, the highest percentage (72.5%) is seen among people who have been afflicted by the condition for less than 6 years. This results is consistent with the findings of the Abd-Ali, and Al-Rubaiyee, (2015) research, which was conducted at the same cardiac facility and argues that ninety one percent of people who took part in the study had been ill for less than 4.5 years at the end of the study period. When it comes to past admissions, the highest percentage is seen among those who are accepted for the second time (38.3 percent), followed by those who are admitted for the third time.

From the researcher's perspective, focusing on the two previously mentioned study results (duration of disease, number of previous admissions), it is true to reason that the majority of contributing patients suffer from acute IHD, and that the incidence of IHD has increased more than at any other time in recent years, particularly in Iraq. As a result of political issues, security problems (terrorism), inefficiency in health-care services, dirty environments, a lack of availability for good food and stress,

people's lives have returned to a tough state. This has resulted in an unhealthy life style. On the subject of therapeutic recommendations, the findings of the study show that participants administer therapeutic recommendations in the cardiac center, and that 90 percent of participants receive therapeutic recommendations from a physician, with only 10 percent receiving therapeutic recommendations from a nurse.

5.2. Discussion of patients' adherence to therapeutic recommendations:

5.2.1. Overall assessment of patients' adherence to therapeutic recommendations (Table 4.3.):

Patients' adherence to therapy suggestions is found to be fair in the majority of research participants, according to the study's findings, which have a mean score of (2.07) and a rate of (70.8) percent. Furthermore, the data demonstrates that good adherence levels are much higher than poor adherence levels, by a value of (20) and (9.2) percent, respectively.

Among cardiac patients in Iran, Heydari, et al., conducted a study in 2015 on the relationship between awareness of disease and adherence to therapeutic regimens. According to the findings of the study, the majority of study participants had a high degree of adherence to therapy recommendations, with just a tiny proportion of them having a low level of adherence. However, the findings of this study differ from those of the current study on one hand, and they are consistent with them on the other, as this study demonstrated that patients who are highly committed to their treatment have the highest percentage of patients who adhere to treatment recommendations. The findings of this study were in agreement when they demonstrated that the minority of participants in this study were those who did not follow to treatment suggestions to a high enough degree.

Another study conducted at the Department of Public Health and Caring Sciences, Uppsala University, Sweden by Berglund, et al., (2013)

regarding coping to and beliefs in Fat-lowering medical therapy, a structural formula modeling method involving the necessary concerns framework, found that 54.5 percent of patients had high adherence to their statin, and 45.5 percent had low adherence to their statin. The results of this study were published in the journal *Adherence* in 2013. The findings of the current investigation are in contrast to these findings.

Because of the differences in geographical location, environment, and general culture of societies, the previously mentioned study findings differ from the current study findings. For example, Iraq is a country where the media does not play a significant role in educating people about the importance of adhering to therapeutic recommendations, whereas in other countries such as Iran, Sweden, and others, where the previously mentioned studies were conducted, there is a strong media role to educate people about the importance of adhering to therapeutic recommendations. On the other hand, the health system in Iraq as a whole is beset with flaws and poor quality health-care services as a result of political corruption, resulting in disparities in patient outcomes across the country.

5.2.2. Assessment of patients' adherence with therapeutic recommendations based on their nutritional status (Table 4.4. and 4.8):

The present study's findings indicate that patients' responses to therapy suggestions in the nutritional domain are typically favorable, as evidenced by a mean score of (1.96) and a rate of major responses of (65.8) percent for the nutritional domain.

In accordance with the findings of Abd-Ali, and Al-Rubaiyee, (2015) study, the final assessment of patients' responses demonstrated fair adherence in terms of the mentioned domain, with a mean score of 2.09 and a patient response rate of 57.8 percent. This study is consistent with the current one, and the validity of the results obtained in the current study is

confirmed by the fact that the two investigations were conducted at the cardiac center, albeit with a very short time interval between them.

When it comes to diet adherence, another study conducted by Khodadadi and colleagues (2017), entitled Evolution of Knowledge of the Principles of Self-care in Acute Coronary Syndrome Patients Admitted to Aliebn Abitaleb Rafsanjan University Hospital, disagrees with the findings of the current study because it indicates that adherence to the diet domain is high in the majority of study participants.

5.2.3. Assessment of patient adherence to therapeutic recommendations based on their behavioral domain (Table 4.5. and 4.9.):

The findings of the current study indicate patients' responses to therapy recommendations in the behavioral domain. According to the results, the majority of patients have a fair level of adherence, as indicated by the mean score of (2.13) and the percentage of responses (46.7).

According to the findings of Heydari, et al., (2015), the respondents have low physical activity adherence, accounting for 62 percent of the total sample size. In addition, the findings of the Khodadadi et al., (2017) study are consistent with prior findings and indicate that the majority of patients had poor physical activity adherence, which means that the conclusions of the current study are not supported by these two studies.

5.2.4. Adherence to therapeutic recommendations in patients is assessed on the basis of medication domain (Table 4.6. and 4.10.):

In the pharmaceutical area, the results of the study participants' responses as a component of adherence to therapeutic recommendations demonstrate unequivocally that the overall level evaluation is fair, with a mean score of (2.21) and ratings 44.2 percent.

It was done by Gerland, and Prell, in 2021 to see if there is a link between the Health-related LoC and Treatment Adherence. There were 44 participants which compose 27% of total sample, who said they were fully

adhering to their treatment, 93 people or 58% of study sample who said they were moderately not adhering, and finally 23 people or the remainder 14% who said they weren't adhering at all, which is in line with the findings of this study. Around three-quarters of the people in the group that was previously mentioned didn't follow the rules. According to the findings, the majority of people were just a little bit non-adherent. Only a few people were clinically significant non-adherents. Most of the reasons why people didn't follow the rules were accidental (e.g., forgetting to take medication, 47.4 percent).

Various studies have found that non-adherence to treatment for various chronic conditions, including hypertension and diabetes, occurs in anywhere between 20 and 80 percent of patients. For example, the study conducted by Brown, and Bussell, in 2011 in the direction of medication adherence: who cares? Another study, treatment coping in people who have apparent therapy-resistant increased blood pressure: systematic review and meta-analysis, conducted by Durand, et al., in 2017, found the same results as the previous study mentioned above. Also included in this set of studies is Abegaz, et al., (2017) conducted by entitled non-adherence to antihypertensive drugs: a systematic review and meta-analysis, which was published in hypertension. Finally, the final study, conducted by Fernandez-Lazaro et al., (2019) toward medication adherence and hurdles among low-income, uninsured individuals with various chronic diseases, found the identical results as the previous studies.

5.2.5. Medical Follow-up domain-specific assessment of patients' adherence with therapeutic recommendations (Table 4.7. and 4.11.):

Patients' adherence to therapeutic recommendations has been studied previously, and the results reflect the overall level of responses in the medical follow up domain, as has been done previously. The overall evaluation is

fair, with a mean score of (2.21), although the bulk of rating answers are favorable (45 percent).

Adherence to the treatment regime in patients with heart failure, a study performed via Muzzarelli et al., (2010), is relevant to the current study results. Whose results show that 75 percent of study participants have a good level of adherence to medical follow-up therapeutic regimen, which supports the current study results because, in the current study, the best patients adherence to therapeutic regimen domains is found in the last one, which is consistent with the previous study results (nutritional domain good adherence rate 15 percent , behavioral domain good adherence rate 34.2 percent , medication domain good adherence rate 40 percent , and finally medical follow up domain rate 45 percent).

Also, the findings of the Abd-Ali, and Al-Rubaiyee, (2015) study are consistent with the current dissertation, as the fair level of adherence to medical follow up domain reserve 98 percent of the total sample size.

There are a variety of factors that contribute to these findings, which indicate that the patient does not visit the specialist physician on a regular basis. In Iraq, the most serious of these factors are the scarcity and unavailability of doctors in government hospitals on a permanent basis, as well as the difficulty of patient access to them, as well as the overcrowding in the Iraqi health organization, as a result of the lack of available hospitals in comparison with the population census to absorb the momentum of people. As a result, the patient must seek treatment from specialists in private clinics, which are expensive in terms of money, and where the patient must wait in long lines of other patients, making it difficult for the patient to continue seeing the physician and following his recommendations.

All of these obstacles are a result of the inability of the Iraqi health organization to function effectively and of its lack of commitment to international contexts and standards when it comes to providing health care services to clients. Consequently, it is true to consider these findings to be

indicative of average rates of patient commitment to referring to doctors, while these percentages vary in developed countries from a health perspective, so the patient does not have to go to a doctor much trouble in order to reach a doctor and consult him, as well as the health care that is available inside homes, and the patient does not have to go to the doctor, For checkups and medical follow-up, the doctor, on the other hand, visits the patient in his or her home.

5.3. Discussion of patients' LoC orientation:

5.3.1. Overall assessment of patients' LoC orientation (Table 4.12. and 4.13.):

Table (4.12) in this study depicts the results of LoC orientation when the total study sample is divided into two groups that are approximately equal in size and composition.

However, the majority of the study sample (51.7 percent) is internally LoC, as indicated by a mean score of 3.56, and the remainder (48.3 percent) is externally LoC.

There are three levels of control in the study participant's LoC, which are represented in Table (4.13) by a three-level scale with the following values: low, moderate, and high. Following the guidelines of this scale, a majority of the sample size (65 percent) has a moderate locus control, & the highly estimated LoC between patients is slightly greater than the low LoC between patients through 18.3 and 16.7, respectively. In addition, this table demonstrates that the overall assessment of LoC in relation to the study sample is moderate in nature.

Referencing Moussa, and Abd-Ali, (2020), who are conducting a thesis on the link among both LoC orientation and patients' adherence to medication after chronic obstructive pulmonary disease, will be used to support the findings of this study. The findings of this study show that the

majority of study participants (74 percent) have a moderate level of LoC, and that the general assessment is also moderate.

Nawafeh and Hamdan-Mansour (2015) conducted a study titled "Correlates of health LoC among patients diagnosed with type-II diabetes mellitus." According to their findings, subjects have a moderate level of motivation to adhere to medication regimens. The findings of these two studies are consistent with those of the current study.

Another point to note is that the findings of this study are similar to those of Ahmedani et al., (2013), who conducted a study titled Asthma therapeutic regimen adherence, role of God aspect and the remainder health related LoC determinants. The researchers' findings indicate that the majority of participants were poorly oriented to their disease, and that the general assessment of their LoC orientation was moderate, with a mean of score of 3.1. The findings of this study are consistent with those of the current study.

For the most part, the studies that have been used same questionnaire (MHLC) have indicated that the participants' orientation toward LoC was moderate in their overall assessment of their LoC orientation. Commenting on these findings and speaking from the researcher's perspective, no one can deny that in the twenty-one century, it is critical to adhere to scientific principles in order to achieve the best possible results in a variety of fields. In order to achieve optimum results, every individual must follow natural causes. However, with the amazing advancement of science, scientists have acknowledged their incapacity to explain many events and many things that occur in human life, which are typically assigned to invisible forces. This point of view indicates that it is possible to find a human being, whether from the internal LoC section or from the external LoC section, according to the theory of Julian Robert in 1966, who believes only in the outward things without believing in the unseen, or who believes only in the unseen things without believing in the outward things, and that this indicates what is

imposed by the reality that human experience it throughout their lives until this moment. Consequently, the percentage difference between the two categories is extremely tiny, and this results in an average percentage for the overall evaluation of patients beliefs about LoC in the overall assessment of individuals.

5.3.2. Assessment of patients' LoC orientation according to self-domain of MHLC (Table 4.14. and 4.17.):

This study's findings on self-domain of LoC are as follows: low 15 percent, moderate 54.2 percent, and high 30 percent, with the overall impression being that this area is moderate. Additionally, it depicts the LoC orientation, which demonstrates that the general responses of the research population are internally directed, as indicated by the mean of 3.83.

As previously noted by Shinde and Mane (2014), life on dialysis (End Stage Renal Disease) exhibits parallels to other chronic diseases in that there are risks to autonomy and changes in functional status, as well as changes in a person's ability to do daily activities. As a result, the sufferers cope in order to preserve control over his or her life.

In addition, the findings are consistent with Paraskevi (2011), who investigated health beliefs in end-stage renal disease patients and their relationship to quality of life and mental health. He discovered that hemodialysis patients gave a higher preference to the internal dimension of health beliefs, emphasizing a greater emphasis on their own personal control to regulate their health condition.

This explanation is in accordance with Catherine (2011) study findings. Using 50 hemodialysis patients as subjects, he assessed stressors and coping strategies. He discovered that the most prevalent coping strategies adopted by patients with end-stage renal disease, "issue centered coping," include accepting the condition and attempting to keep the situation under control.

In addition, the findings of Ahmedani et al., (2013) are consistent with the findings of the previous study in terms of the self-domain of MHLC. According to the findings of the study, the mean score was 5.90, indicating that the replies of the study participants were in accordance with the internal LoC orient.

5.3.3. Assessment of patients' LoC orientation according to powerful others domain of MHLC (Table 4.15 and 4.18.):

According to this study, table number 4.15 depicts the distribution of sample answers towards the powerful others domain of LoC, which is as follows: low 11.4 percent, moderate 63.3 percent, and high 25 percent; and the overall evaluation appears to be moderate, with a mean of 3.82. In terms of the overall participants' orientation, the outcomes of the study demonstrate that the internal LoC orientation is predominant.

In addition, the findings of the current study revealed that a very high percentage of patients believe that "if they see an excellent doctor on a regular basis, they are less likely to have health problems." This may be due to the prevalent concept in Iraqi culture that prof. doctors are more able to provide accurate diagnosis and offer medication that has fewer side effects than other types of medication.' The choice of the professor affects both the therapy and the health insurance coverage. This finding is similar with the findings of Mahmoud, and Abd-Elaziz, (2015), who found that more than four fifths of the research sample agreed with this statement. This finding, which is consistent with Al Nazly et al., (2013), indicates that patients who are accustomed to discussing their problems with a professional individual have a better quality of life (such as doctors, nurse, minister, teacher, or counselor).

The findings explain why more than half of the research sample believes that the sort of care they receive from other people is responsible for how well they recover from an illness; however, the other half disagrees. It is possible that they are attributable to the fact that patients have proper

knowledge of treatment suggestions and are mature enough to understand that social support can only help to decrease the burden of disease. In contrast to Tilden et al., (2008), this finding highlighted that one of the key methods for people to manage with chronic disease is to rely on others for assistance. The significance of social support in the adaption to chronic disease, on the other hand, remains uncertain.

According to the findings of our investigation, the vast majority of study participants do not feel that their health state is influenced by other individuals. However, in their investigation towards the correlation among both Health related LoC and adherence to therapeutic recommendations, Gerland, and Prell, (2021), discovered that the majority of patients in the study felt that other people have a significant impact on their physical state.

5.3.4. Assessment of patients’ LoC orientation according to chance domain of MHLC (Table 4.16. and 4.19.):

Overall, patients' reactions to the fate or chance domain of LoC are somewhat assessed, according to the study results, which yielded a mean score of 3.02 in respect to the fate or chance domain. The domain is described by the following digits: low 40.8 percent, moderate same percent, and high 18.3 percent alone. The replies of the participants in the last column, which concerns orientation, are oriented toward the external LoC.

Ahmedani et al., (2013) agreed with current findings, in which they discovered an external LoC orientation in relation to the chance domain, and that the majority of participants agreed with the interaction of chance or fate in their health when compared to the internal or self-domain, resulting in a mean of 2.09 from a total of six points, indicating a full internal or very high LoC assessment.

It is said that a fated event is something that happens without a person's permission and is thought to have been planned by a supernatural power. Fatalism is a mode of thought about fate in which it is thought that fate is in charge of people's lives and that their own actions aren't important. Studies

from the past say that Easterners were much more likely than Westerners to start believing that fate played a role in drawing health related life events regarding individuals (Cheng et al., 2013).

This higher trust in fate among Easterners would suggest a decrease in action and agency; nevertheless, many Asian nations' high levels of academic accomplishment and GDP development contradict this idea. Recent research like Au et al., in 2011, and 2012, and 2017 has proposed a new viewpoint on fate: the concept of negotiating with destiny, as a response to this challenge. Contrary to popular belief, the notion of bargaining with fate posits that fate establishes limitations within which people may change their fates by their choices and behaviors. That is to say, according to this belief, destiny places restrictions on individuals' ability to function within specific parameters, such as social settings, socioeconomic position, and uncontrolled life events, but it is how individuals exercise agency inside those restrictions that shapes their life trajectory. The process of dealing with fate provides certain roles for fate as well as personal control from this perspective. In reality, we may unconsciously operate in accordance with the notion of negotiating with fate on a regular basis without recognizing it (Au, and Savani, 2019, respectively).

For example: Once we get home from work and open the fridge to prepare dinner, we may opt to use the ingredients which we already have on hand to make the finest dinner possible rather than going out to buy the components for a certain cuisine that we are wanting. We are therefore actively collaborating with the limits that we are confronted with (i.e., the items that we have available) in order to attain a desired objective (i.e., preparing a tasty supper) (Au, & Savani, 2019).

5.4. Discussion of relationship between participants' adherence to therapeutic recommendations and their demographics and clinical data:

5.4.1. The associate between participant's adherence and demographic data (Table 4.20.):

Through a p-value of less than 0.01, this study demonstrates that there is a significant relationship between age groups. This study also demonstrates that there is a very significant correlation between educational level at p-value 0.003. Finally, because the p-value is greater than 0.05, there are no association markers for the remaining demographic parameters.

When assessing the nature of relationships, it is apparent that, when it comes to age groupings, younger patients adhere to therapy suggestions better than older patients. Furthermore, when it comes to degree of education, as a patient's level of education rises, so does their adherence.

In 2016, Basheti et al., conducted a study on the relationship between patient variables and medication adherence. Their findings back with the current study, indicating that there is a strong link between a patient's educational level and their adherence to therapy suggestions. In another study published in 2020 by Moussa, and Abd-Ali, the link between LoC orientation and patients' adherence to medication after chronic obstructive pulmonary disease, the findings revealed a significant relationship between study participants' educational levels and their medication adherence. Similarly, Berglund et al., (2014) conducted a study on "The effect of LoC on self-rated health in the setting of chronic illness." Their findings suggest that there is a relationship between medication adherence and a high degree of education.

In addition, De las Cuevas, et al., (2017) stated in factors influencing adherence to psychopharmacological medications in psychiatric patients: a structural equation modeling approach, "The first logistic regression model

built to predict adherence according to sociodemographic variables showed a strong link between gender, age, and level of education, and treatment adherence to psychopharmacological medications." Female gender, older age, and a university degree all boosted treatment adherence, according to this study. After adding the clinical variables (medication utilized, quantity of medicines used, treatment length, and diagnosis) to the second logistic regression model (Model 2), age and educational level continued to favorably affect treatment adherence. After the attitudinal factors were included to Model 3, the variables that increased adherence were age and education. Finally, after including the perceived health control variables (health LoC, general self-efficacy, and psychological reactance) in the fourth model, it was discovered that age was the only significant demographic variable that predicted a high level of treatment adherence, while university degree was marginally significant."

Finally, in regarding the link between age and therapeutically adherence, Ahmedani et. al., in 2013, complement our findings by revealing a very significant link with a probability value of 0.001, which is consistent with our findings.

5.4.2. The relationship between patients’ adherence and clinical data (Table 4.21.):

The association between patient adherence to treatment recommendations and clinical data is revealed in Table 4.21. When reading the table's results, you can see that a significant association, links between disease duration and the clinical features, with a p-value of .007. Patients with a disease duration of less than 6 years demonstrate strong adherence to therapy guidelines, however adherence diminishes as illness duration grows.

In light of this finding, see Pasma et. al., (2013) study on factors associated with adherence to pharmaceutical treatment for rheumatoid arthritis patients, as well as Curtis et. al., (2016) study on Adherence and

persistence with methotrexate in rheumatoid arthritis, and lastly Scheiman-Elazary et. al., (2016) study on the rate of adherence to anti-arthritis medicationas and contradicts the findings of the current study.

On the other hands the study of Anghel, et. al., (2018), towards medication adherence and persistence in patients with autoimmune rheumatic diseases, illustrate that until now, a relationship between adherence and disease duration or disease severity has been established in diabetes, hypertension, and epilepsy. This study findings are in consistent with our study.

The relationship between adherence and disease severity and duration can be bidirectional. Disease severity could be both the cause and effect of adherence, especially in rheumatic diseases where manifestations include symptoms such as severe pain, stiffness, and multi-organ involvement. While in hypertension or diabetes mellitus the results are different because these type of diseases are usually asymptomatic and patients does not feel any indication for adherence to therapeutic recommendations.

5.5. Discussion of relationship between the patients' LoC orientation and their demographic and clinical data:

5.5.1. The relationship between patients' LoC orientation and their demographic characteristics (Table 4.22.):

Through calculating chi-square, the study findings show that there are significant connections between patients' age, level of education, and employment and their LoC orientation at p-values less than 0.05. The nature of these correlations reveals that as patients' ages reduce, their LoC falls as well, and as their level of education rises, their LoC rises as well. Finally, patients who are employed and have free work have a high LoC level, whilst others have a low LoC level.

Ibrahim et al., (2016) and Al Nawafa'h et al., (2015) conducted investigations on COPD patients' medication adherence. Correlates of a participants' health related LoC in chronic illness. Findings of their study reflects that the LoC and age group levels have a significant association.

Relationships between LoC and adherence to chronic illness therapy programs were studied by Kretchy et al., (2014) and Morowatisharifabad et al., (2010). Their findings suggest that there is a link between LoC and educational level and medication adherence. Furthermore, patients' educational level has a significant impact on their capacity to stick to therapy and their sense of control by guiding their activities in a good direction.

"Prevalence and predictors of COPD in a sample of adult smokers in Baghdad," according to Al Lami and Salim (2017), there is a link between locus of control orientation and socioeconomic class. Furthermore, the findings of Moussa, and Abd-Ali, (2020) study are compatible with those of the current study in terms of occupation and socioeconomic position. This is because the patient's socioeconomic condition has a good or negative impact on the subjective potential of receiving drugs and therapy, as well as the capacity to continue or stop smoking, depending on the patient's internal self-control and willpower.

5.5.2. The relationship between patients' LoC orientation and their clinical data (Table 4.23.):

Table 4.23 of this study's findings demonstrates that there is only one statistically significant association between the number of admissions and the patient's LoC evaluation. In the last row, this link was discovered with a p-value of .021, a degree of freedom of 10, and the chi-square value of 21.08, all of which are statistically significant. In accordance with the nature of the connection, respondents with a much higher LoC assessment (internally oriented LOC) were admitted to the health-care institution less times than

patients with a lower LoC evaluation (external). The remainder of the clinical qualities are not related to the patient's LoC, as previously stated.

As an example, and from the researcher's perspective, the patients who attended the heart center for the purpose of cardiac catheterization or the so-called PCI for the least number of times were the patients who had just a brief length of time affected by the disease. When compared to individuals who have more times to access the cardiac area for this purpose, it benefits that they have been suffering of the condition for a much more period of time. As a result, we can justify this result by pointing out that the nature of people when confronted with disease indicates that the disease is in its early stages; that is, the early stages after diagnosis afflict the patient with worries, and this concern necessitates the patient's adherence with treatment recommendations and a tendency to believe in the possibility of curing the disease. Alternatively, the longer the disease period and the patient's adaptation to the new condition and recurrence of symptoms, the lower the interest level, the lower the level of commitment and the lower the level of belief that commitment is the only way to recovery, because the patient did not recover from the disease.

5.6. Discussion of the association between the LoC orientations with participants' adherence along with therapeutic recommendations (Table 4.24.):

The current study's findings show that the aforesaid subject has a very significant positive association with a p-value of 0.00 and a power of 0.539 in magnitude. This suggests that patients with an internal LoC are more likely to follow therapy suggestions than those with an externally oriented LoC. Nafradi et al., in 2017, was published underneath the subject of, is client empowerment the main key to accelerate adherence to therapeutic regimen. According to a thorough assessment evaluating the link among both self-efficacy, health related LoC, and treatment adherence, enhanced levels

of self-efficacy and Internally Healthy LoC are consistently appears to become better treatment adherence. With the exception of the doctor Health-related LoC, which illustrate a positive link with treatment adherence, externally oriented control were found to have mostly bad (probability and God ascribed control beliefs) or unclear (powerful others ascribed control perception) relation to adherence. The Wulandari et al., 2013 study on Health related LoC and iron supplement consumption adherence among pregnant in Bali, as well as the Bolman et al., 2011 study on Adherence to preventative asthma medication, are both in accord with the current study's findings. Where internal HLOC and patient adherence were found to be linked in the research discussed.

According to the findings of Moussa, and Abd-Ali, study published in 2020, there is a direct, high significant, and positive association between LoC orientation and medication adherence. In addition, Taher and Bayat (2015) conducted a study to investigate the "Correlation between adherence regimens and healthy oriented LoC concerning chronic illness patients." their study results illustrates that adherence to medicine has a direct and positive relationship with internal health LoC in individuals with chronic diseases. Furthermore, patients with a strong LoC were able to limit illness development and consequences.

5.7. Discussion of patients’ adherence prediction according their LoC orientation through linear regression (Table 4.25.):

The last study objective was the prediction of patients’ adherence to therapeutic recommendations according to their LoC orientation. Linear regression used to achieve this objective and as the result indicates that the prediction is possible. According to the p-value of less than 0.05, the researcher can depends the regression equation to predict the adherence level from the LoC orientation. So according the correlation magnitude of 0.539,

the independent variable affect the dependent variable. The **R** Square value of 0.291 is the effect size of the independent variable on the dependent one for each **X** in front of each **Y** in the regression equation ($Y = \alpha + \beta (X)$), when **X** represent the independent variable (LOC orientation), and **Y** represent the dependent variable (patients adherence to therapeutic recommendations).

The remainder effect is for another factors which didn't studied in this dissertation far away from the **X** variable effect size on the **Y** variable. The effect size of independent variable **X** is 0.291 and the remainder effect of another factors is $(1 - 0.291)$ equal to 0.709.

Pretty et al., 2020 found that a one-unit increase in diabetic LoC (i.e. more internal diabetic LOC) was associated with a lower depression score and a lower likelihood of having depression

Wang, R., et al., 2021 published a paper titled Patient empowerment and self-management behavior of chronic illness patients: A moderated mediation model of self efficacy & healthy LoC. According to findings significant differences were found in the moderating influence of the chance HLC and the interaction effect on self-efficacy and self-management behavior.

The findings of the Imeri, et al research in 2022, which is about the study of patients with chronic diseases, are as follows: When multiple linear regression was used to examine the relationship between patient activation and health LoC, it was discovered that participants who reported higher scores in Chance MHLC had higher patient activation, whereas participants who reported higher scores in Internal MHLC had lower patient activation.

Religious views of Muslim American women influence their chance of receiving breast and cervical cancer screenings, according to the American Cancer Society. As a result of this research on the associations between spiritual health related LoC, perceived discrimination, and breast

and cervix malignancy diagnostic tests among American Muslim women in New York City, Azhar, (2022) came to this conclusion.

As additional support for the current study findings, the study by Ivarez-Rodrguez et al., 2022 about the influence of the LoC construct on the efficacy of physiotherapy treatments in patients with chronic pain concludes that the LoC construct is a predictor of the outcomes of physiotherapy treatment in patients with chronic pain. The presence of an internal center of control is associated with improved outcomes. Physiotherapy treatments should be designed with the individuals' personality features in mind, since they are a significant consideration.

| | |
|---------------------------------|-----|
| Discussion of the results | 145 |
|---------------------------------|-----|

Discussion of the results 146

Chapter Six

Conclusions
&
Recommendations

Chapter six

Conclusions, and recommendations

6.1. Conclusions:

In the last chapter, after representation of the study findings and clear discussion, there are some facts that appear to be the most important conclusions, which will review them in the following paragraphs:

6.1.1. General conclusion:

At the end of this study, reject the null hypothesis, which assumes that there is no significant relationship between LoC orientations and patients' adherence to therapeutic recommendations after PCI. While accept the alternative hypothesis, which assumes that there is a significant positive relationship between two main study variables.

6.1.2. Specific conclusions:

1. Patients' adherence to therapeutic recommendations is moderate after PCI.
2. Patients believe that medical follow-up through a specialist visit makes them more assured about their health status.
3. Patients face difficulties in adherence to therapeutic diets, behavior, and medication.
4. As age increases, adherence to therapeutic recommendations decreases.
5. A high level of adherence accelerates among patients with a high educational level.
6. Longer disease duration accompanied by poor adherence.

7. Concerning LoC, older patients are more externally oriented than younger ones.

8. Education pushes patients' LoC towards internal orientation.

9. Engagement in the community and having more interpersonal relationships, especially with educated people, grows the internal LoC Orientation.

10. Internal LoC orientation seems to be linked to controlling diseases, avoiding complications, and improving health.

11. Patients with an internal LoC orientation are more likely to stick to their treatment plan than those with an external orientation.

6.2. Recommendations:

The study releases the most important recommendations after achieved objectives:

1. Encouraging researchers to get from the results of the present study and use it as a data base for conducting further studies in future. Intensive wide-range population-based studies could be conducted to assess the same topic, with appropriate solutions aimed at perfection of both LoC orientation and patients' adherence to therapeutic recommendations.

2. A mass media strategy with health directed goals could be used in order to raise the responsiveness of health-care professionals to policies that should be implemented in order to improve patients' adherence to treatment suggestions. This is likewise true in the case of patients.

3. Educational initiatives for all health care professionals should be stepped up to emphasize the importance of determining a patient's LoC orientation to give a focused therapeutic recommendations to the externally oriented patients.

4. According the study conclusion, both internally and externally LoC oriented Patients have good adherence to medical follow up domain, and believe that medical follow up through a specialist visit, gives them insurance about their health status. So providing more facilities and focus concerning specialist visit (medical follow up domain) could be power point to report patients about their health status changes comparing with previous visit (promoted or deteriorated) and renew the required therapeutic recommendations.

| | |
|--------------------------------------|-----|
| Conclusions, & recommendations | 149 |
|--------------------------------------|-----|

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| References | 179 |
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Appendices

University of Babylon
College of Nursing
Research Ethics Committee



جامعة بابل
كلية التمريض
لجنة اخلاقيات البحث العلمي

Issue No:

Date: / /2021

Approval Letter

To,

MOHAMMAD MAHDI SAEED SAHIB

The Research Ethics committee at the University of Babylon, College of Nursing has reviewed and discussed your application to conduct the research study entitled "The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention."

The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision:

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Dr.

Prof. Dr. Salma K. Jehad
Chair Committee
College of Nursing
Research Ethical Committee
10 / 5 /2021

السيد المساعد العلمي المحترم.

السيد رئيس فرع تـمريض البالغين المحترم.

السادة اعضاء اللجنة العلمية والأخلاقيات البحث المحترمون.

م اخلاقيات البحث

يرجى التفضل بالموافقة على عرض موضوع (الدكتوراه) على اللجنة العلمية واخلاقيات البحث العلمي عن موضوع اطروحتي الموسومة:

باللغة العربية:

(العلاقة بين اتجاه اعتقاد المرضى و التزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية).

واللغة الإنكليزية:

(The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention.)

مع التقدير

اسم المشرف وتوقيعه: أ.م. د. شذى سعدي محمد

اسم الطالب وتوقيعه: محمد مهدي سعيد صاحب

رئيس الفرع وتوقيعه: أ.م. د. شذى سعدي محمد

المعاون العلمي
شذى سعدي محمد
رئيس الفرع

ملاحظة: ترفق جميع الاستمارات الخاصة بلجنة اخلاقيات البحث مع الطلب. (Ethical form ١, Ethical Form ٢, Ethical Form ٣)

Republic of Iraq

Al-Najaf Al-Ashraf Governorate

Najaf Health Directorate

Training and Human Development Center

No.
Date:



جمهورية العراق
محافظة النجف الأشرف
دائرة صحة النجف

مركز التدريب و التنمية البشرية
العدد: ٢٢٨٥٢
التاريخ: ٢٠٢١ / ٦ / ١٥

إلى / جامعة بابل / كلية التمريض
م / تسهيل مهمة

تحية طيبة ...
إشارة إلى كتابكم ذي العدد ١٨٦٩ في ٢٠٢١ / ٦ / ٩ بخصوص تسهيل مهمة الباحث طالب الدراسات العليا الدكتوراه (محمد مهدي سعيد صاحب جاسم) للحصول على الموافقة الاخلاقية للبحث الموسوم: العلاقة بين اتجاه اعتقاد المرضى والتزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية

حصلت موافقة اللجنة العلمية للبحوث في مركز دائرتنا على إجراء البحث في (مركز النجف لجراحة القلب والتداخل القسطاري) دائرتنا مع التأكيد على الالتزام الكامل بتعليمات السلامة الحيوية والضوابط الاخلاقية والحصول على موافقة المشاركين قبل الشروع بالبحث والحفاظ على خصوصيتهم وعدم افشاء البيانات او استخدام العينات لغير اغراض البحث العلمي ... على أن لا تتحمل دائرتنا أية تبعات مادية .. مع الاحترام.

ملاحظة:
تم استيفاء اجور جباية البحوث والبالغة (١٠٠٠٠) عشرة الاف دينار بموجب الوصل المرقم (٥٩٩٩٣١) في ٢٠٢١/٦/١٥


١٥ / ألكندري

م. رضوان كامل الكندي

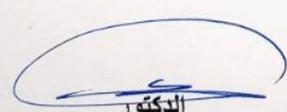
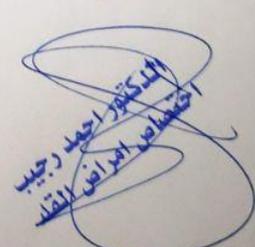
المدير العام

٢٠٢١ / ٦ / ١٥



نسخة منه الى

مكتب المدير العام / للعلم مع الاحترام .
مركز التدريب و التنمية البشرية / مع الاوليات .
مركز النجف لجراحة القلب والتداخل القسطاري ، للفضل بالاطلاع وتسهيل مهمة اجراء البحث مع التقدير

| | | |
|--|---|---|
| Republic of Iraq Al-Najaf Al-Ashraf Governorate Najaf Health Directorate Training and Human Development Center |  | جمهورية العراق محافظة النجف الاشرف مركز التدريب والتنمية البشرية العدد: التاريخ: ٢٠٢١ / ٧ / ١٠ |
| No. Date: | ٢١٩٦٥ | |
| الى / مركز النجف لجراحة القلب والتداخل القسطاري م / تسهيل مهمة | | |
| <p>تحية طبية ... اشارة الى كتاب جامعة بابل/كلية التمريض ذي العدد ١٨٦٩ في ٢٠٢١/٦/٩ بخصوص تسهيل مهمة الباحث طالب الدراسات العليا / دكتوراه (محمد مهدي سعيد صاحب جاسم) لإجراء البحث الموسوم : (العلاقة بين اتجاه اعتقاد المرضى والتزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية) نرجو بيان رأيكم حول اجراء البحث في وتزويده بالبيانات والمعلومات المطلوبة لإجراء البحث واعلامنا ليتسنى لنا اتخاذ ما يلزم .. مع التقدير والاحترام.</p> | | |
| المرافقات : استمارة الموافقة على اجراء بحث توقع وتعاد الينا. | | |
|  الدكتور حيدر خضير عباس مدير مركز التدريب والتنمية البشرية ٢٠٢١ / ٧ / ١٠ | معانق |  الدكتور احمد رجب مدير مركز التدريب والتنمية البشرية |
| نسخة منه الى / - مكتب السيد المدير العام المحترم / للعلم مع الاحترام . | | |
| تسلسل الاستمارة : ٢٢٨ | | |

Ministry of Higher Education and Scientific Research
جامعة البصرة / وزارة التعليم العالي والبحث العلمي

University of Babylon
College of Nursing
جامعة بابل / كلية التمريض

Ref. No. :
Date: / /

العدد : ٦٧٤٤
التاريخ : ٢٠٢٢ / ٤ / ٢٨

QR Code

إلى / جامعة بابل / كلية التربية للعلوم الانسانية - مكتب السيد العميد
م / مقوم لغوي

جامعة بابل / كلية التربية للعلوم الانسانية

تحية طيبة :
يرجى التفضل بتحديد عضو هيئة تدريس في كليتكم لغرض تقويم رسالة الدكتوراه للطالب (محمد مهدي سعيد صاحب) والموسومة ب
العلاقة بين اتجاه اعتقاد المرضى والتزامهم بالتوصيات العلاجية بعد التداخل القسطري
للشرايين التاجية .

The Relationship between Locus of Control Orientation and Patients' Adherence to
Therapeutic Recommendations after Percutaneous Coronary Intervention.

مع الاحترام ...

الد. ياسر ياسر
إبراهيم - الامم لظن
د. ياسر ياسر
٢٠٢٢ / ٤ / ٢٨

أ.د. امين عجيل ياسر الياسري
العميد
٢٠٢٢ / ٤ / ٢٨

نسخة منه الى //
مكتب السيد العميد... للتفضل بالاطلاع مع الاحترام.
مكتب السيد معاون العميد للشؤون العلمية... للتفضل بالاطلاع مع الاحترام.
وحدة الدراسات العليا مع الاوليات.

E-mail:nursing@uobabylon.edu.iq

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جامعة بابل
كلية التربية للعلوم الانسانية

Ref. No :
Date: / /

العدد : ٤٥٩
التاريخ : ١٥ / ١٠ / ٢٠٢٢

جامعة بابل / كلية التمريض
الواردة
العدد / ١٢٧١
التاريخ ٥ / ١٠ / ٢٠٢٢

الى / جامعة بابل / كلية التمريض

مكتب السيد معاون العميد للشؤون العلمية المحترم
المرسل الى السيد / محمد مهدي سعيد صاحب
البريد الإلكتروني
م. د. اسامة كاظم عمران

م / إعادة رسالة

تحية طيبة:

نعيد إليكم اطروحة طالب الدراسات العليا / الدكتوراه (محمد مهدي سعيد صاحب)
بعد تقويمها لغوياً من قبل (أ.م.د. حسين حميد معيوف) من قسم اللغة الانكليزية في
كليتنا، وقد ثبتت الملاحظات على متن الاطروحة يرجى من الباحث الالتزام بها .

*** مع الاحترام ***

م. د. اسامة كاظم عمران
معاون العميد للشؤون العلمية
والدراسات العليا

نسخة منه الى //
- الدراسات العليا .
- الصادرة

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Appendix (C) Linguist certification

Appendix (D) المقوم العلمي

University of Babylon - Faculty of Nursing

2020 - 2021

Questionnaire form for the research project

Dear patient:

This form is designed for the purpose of gathering data on The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention.

Problem statement:

The Relationship between Locus of Control Orientation and Patients' Adherence to Therapeutic Recommendations after Percutaneous Coronary Intervention.

Note:

This questionnaire is subject to strict confidentiality and you can express your opinion frankly.

With respect...

The first axis / demographic characteristics

- 1- Residence:** Urban
Countryside
- 2- Gender:** Male Female
- 3- Age:** / Year
- 4- Marital status:**
Single Married
Widower absolute
Separated
- 5- Educational level**
A middle school graduate Does not read or write
Institute graduate Reads and writes
College or postgraduate graduate Elementary school
graduate college
Postgraduate graduate Middle school graduate
- 6- Professional status**
Government employee, housewife, personal business
(private)
Retired unemployed

The second axis / clinical features

- 7. Diagnosis**
8. The duration of the disease is - - - - -year
9. Have you received health education about treatment recommendations?
Yes, No
- If the answer is yes, then what is the source of education?
Nurse's medical journals, Television, Information network (the internet),
other sources
10. The number of times you were admitted to the hospital - - - - - times

The third axis / Adherence to medical recommendation**1. Nutritional recommendation**

| N | Question | Always | Sometimes | Never |
|---|--|---------------|------------------|--------------|
| Grains: | | | | |
| In the previous month did you eat: | | | | |
| 1. | 1. Whole brown bread (one piece) | | | |
| 2. | 2. Macaroons (3 cups) | | | |
| 3. | 3. Rice (3 cups) | | | |
| 4. | 4. Biscuits (3 pieces) | | | |
| Greens / Beans / Dry Peas, Fruits | | | | |
| In the previous month I had: | | | | |
| 5. | 5. Salad without salt or sauce. (3 cups) | | | |
| 6. | 6. Beans without salt or sauce (3 cups) | | | |
| 7. | 7. Peas without oil, salt or sauce (3 cups) | | | |
| 8. | 8. Green leafy vegetables (such as radish, celery, etc.) (3 cups) | | | |
| 9. | 9. Dark green leafy vegetables, including chard, or spinach? (6 cups) | | | |
| 10 | 10. Onions (one piece) | | | |

Appendix (D) English questionnaire

| | | | | |
|--|--|--|--|--|
| 11 | 11. Fruits (such as apples, oranges, bananas, lemons ... etc.). (One piece) | | | |
| Dairy products and eggs: | | | | |
| In the previous month did you: | | | | |
| 12 | 12. Drink fat-free milk | | | |
| 13 | 13. Eat yogurt | | | |
| 14 | 14. Eat cheese | | | |
| 15 | 15. Restrict creams | | | |
| 16 | 16. Restrict whole milk | | | |
| 17 | 17. Eat white eggs with yolks (1) | | | |
| Meat, poultry, fish, fats and oils: | | | | |
| In the previous month did you? | | | | |
| 18 | 18. Eat Grilled chicken without the skin | | | |
| 19 | 19. Eat lean fish | | | |
| 20 | 20. Restrict roast beef | | | |
| 21 | 21. Restrict liver and kidneys | | | |
| Others: | | | | |
| In the previous month did you eat? | | | | |
| 22 | 22. Natural juice (such as orange, lemon, etc.) (1-2 cups) | | | |
| 23 | 23. Foods without adding salt | | | |
| 24 | 24. Foods without adding fats | | | |
| 25 | 25. Coffee (1-2 cups) | | | |

| | | | | |
|----|-----------------------|--|--|--|
| 26 | 26. Tea (1-2 cups) | | | |
| 27 | 27. Water (8 glasses) | | | |

2. Healthy behavior

| N | Question | Always | Sometimes | Never |
|-------------------------------------|---|--------|-----------|-------|
| | | Day | Week | Month |
| In the last month, have you: | | | | |
| 1. | 1- Get enough sleep every day (about 8 hours)? | | | |
| 2. | 2- Take a break when you feel tired (when you feel chest pain, shortness of breath, headache, ... etc)? | | | |
| 3. | 3- Doing simple exercises for at least 20-30 minutes a day, such as regular walking? | | | |
| 4. | 4- Avoid drinking alcoholic beverages? | | | |
| 5. | 5- Avoid smoking (cigarettes, water pipes,)? | | | |
| 6. | 6- Avoid the psychological pressures you face in your daily life? | | | |
| 7. | 7- Avoid heavy work (such as lifting heavy objects)? | | | |
| 8. | 8- Avoid drinking soft drinks (such as Pepsi, etc.) | | | |
| 9. | In the last month, have you: | | | |
| 10 | 1- Get enough sleep every day (about 8 hours)? | | | |

3. Medication

| N | Question | Always Day | Sometimes Week | Never Month |
|-------------------------------|--|---------------|-------------------|----------------|
| In the last month did: | | | | |
| 1. | 1 Forget to take your medication | | | |
| 2. | 2 Do not take your medication for reasons other than forgetfulness. | | | |
| 3. | 3 You stopped taking your medications without informing your doctor because you felt worse while you were taking them? | | | |
| 4. | 4 forget to carry your medicines with you when traveling or leaving the house? | | | |
| 5. | 5 stop taking your medications? When you feel that the symptoms of the disease are under control | | | |
| 6. | 6 you feel upset about a commitment to taking your medications | | | |
| 7. | 7 you have difficulty remembering to take your medication? | | | |

4. Medical follow up

| N | Question | Always | Sometimes | Never |
|-------------------------------|--|--------|-----------|-------|
| | | Day | Week | Month |
| In the last month did: | | | | |
| 1. | 1 Inform your doctor about any changes to your treatment plan | | | |
| 2. | 2 You will visit your doctor at specific times for testing | | | |
| 3. | 3 Follow your doctor's instructions carefully | | | |
| 4. | 4 Perform laboratory tests (for example, blood lipid level, salt level, etc.) if ordered by a doctor | | | |
| 5. | 5 Performing diagnostic operations (for example, chest x-ray, ultrasound, electrocardiogram, ...) if ordered by a doctor | | | |
| 6. | 6 Monitor your body weight regularly | | | |
| 7. | 7 Monitor vital signs (pulse, blood pressure) regularly | | | |
| 8. | 8 Tell your doctor about any new signs and symptoms | | | |
| 9. | 9 I took any advice from a nutritionist | | | |
| 10. | 10 I followed a therapeutic diet prescribed by a dietitian | | | |

The fourth axis / locus of control**Multidimensional health locus of control (form C)**

| N | Question | Agree | Neutral | Disagree |
|-----------------|---|--------------|----------------|-----------------|
| Internal | | | | |
| 1. | If my condition worsens, it is my own behavior which determines how soon I will feel better again. | | | |
| 2. | If my condition takes a turn for the worse, it is because I have not been taking proper care of myself. | | | |
| 3. | I am directly responsible for my condition getting better or worse. | | | |
| 4. | Whatever goes wrong with my condition is my own fault. | | | |
| 5. | I deserve the credit when my condition improves and the blame when it gets worse. | | | |
| 6. | The main thing which affects my condition is what I myself do. | | | |
| Chance | | | | |
| 7. | As to my condition, what will be will be. | | | |
| 8. | Most things that affect my condition happen to me by chance. | | | |
| 9. | Luck plays a big part in determining how my condition improve | | | |

Appendix (D) English questionnaire

| | | | | |
|--|--|--|--|--|
| 10. | If my condition worsens, it's a matter of fate. | | | |
| 11. | If I am lucky, my condition will get better | | | |
| 12. | Whatever improvement occurs with my condition is largely a matter of good fortune. | | | |
| Health professionals and others | | | | |
| 13. | If I see my doctor regularly, I am less likely to have problems with my condition. | | | |
| 14. | Whenever my condition worsens, I should consult a medically trained professional. | | | |
| 15. | Other people play a big role in whether my condition improves, stays the same, or gets worse. | | | |
| 16. | In order for my condition to improve, it is up to other people to see that the right things happen. | | | |
| 17. | Following doctor's orders to the letter is the best way to keep my condition from getting any worse. | | | |
| 18. | The type of help I receive from other people determines how soon my condition improves. | | | |

جامعة بابل - كلية التمريض

2021 - 2020

استمارة الاستبانة لمشروع البحث

عزيزي المريض:

ان هذه الاستمارة قد صممت لغرض جمع البيانات حول العلاقة بين اتجاه اعتقاد المرضى و التزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية.

عنوان البحث:

العلاقة بين اتجاه اعتقاد المرضى و التزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية.

ملاحظة:

ان هذه الاستبانة تخضع لسرية تامة و يمكنك الادلاء برأيك بكل صراحة.
مع التقدير...

المحور الأول/ الصفات الشخصية

1-الإقامة ريف حضر
2-الجنس ذكر أنثى

3-العمر / سنة

4-الحالة الزوجية

أعزب
 متزوج
 أرمل
 مطلق
 منفصل

5-المستوى التعليمي

لا يقرأ ولا يكتب
 يقرأ ويكتب
 خريج مدرسة ابتدائية
 خريج مدرسة متوسطة
 خريج مدرسة إعدادية
 خريج معهد
 خريج كلية أو دراسات عليا

6-الحالة المهنية

موظف حكومي ربة بيت
 عاطل أعمال شخصية (خاصة)
 متقاعد

المحور الثاني/ الصفات السريرية

7. فترة المرض منذ التشخيص سنة

8 هل تلقيت التثقيف الصحي حول التوصيات العلاجية ؟ نعم لا

إذا كان الجواب نعم فما هو مصدر التثقيف ؟ الطبيب الممرض مجلات طبية

التلفزيون شبكة المعلومات (الانترنت) مصادر أخرى

9. عدد مرات دخولك للمستشفى

المحور الثالث/ التزام المرضى

1/ التوصيات الغذائية:

| ت | الفقرات | دائما (يومية) | أحيانا (أسبوعيا) | أبدا (شهريا) |
|---|--|------------------|---------------------|-----------------|
| الحبوب: | | | | |
| في الشهر السابق هل تناولت: | | | | |
| 1. | الخبز الأسمر كامل (قطعة واحدة) | | | |
| 2. | المعكرون (3 أكواب) | | | |
| 3. | الأرز (3 أكواب) | | | |
| 4. | البسكويت (3 قطع) | | | |
| الخضار / الفول / البازلاء الجافة، الفواكه | | | | |
| في الشهر السابق تناولت من: | | | | |
| 5. | سلطة بدون ملح أو صلصة. (3 أكواب) | | | |
| 6. | الفاصوليا بدون ملح أو صلصة (3 أكواب) | | | |
| 7. | البازاليا بدون زيت، ملح أو صلصة (3 أكواب) | | | |
| 8. | الخضار الورقية الخضروات (مثل الفجل، والكرفس) (3 أكواب) | | | |
| 9. | الخضار ذات الأوراق الخضراء الداكنة بما في ذلك السلق، أو السبانخ؟ (6 أكواب) | | | |
| 10. | البصل (قطعة واحدة) | | | |
| منتجات الألبان والبيض: | | | | |
| في الشهر السابق هل : | | | | |
| 11. | تناولت فواكه (مثل التفاح، البرتقال، الموز، ليمون). (قطعة واحدة) | | | |
| 12. | تناولت حليب خالي من الدهون | | | |
| 13. | تناولت زبادي | | | |
| 14. | تناولت جبن | | | |
| 15. | قيدت تناول القشطه | | | |
| 16. | قيدت تناول حليب كامل الدسم | | | |
| 17. | تناولت بياض البيض مع الصفار (1) | | | |
| اللحوم والدواجن والأسماك، والدهون والزيوت: | | | | |
| في الشهر السابق هل؟ | | | | |
| 18. | تناولت دجاج شوي بدون الجلد | | | |
| 19. | تناولت سمك خالي من الدهن | | | |
| 20. | قيدت تناول لحم بقر مشوي | | | |
| 21. | قيدت تناول الكبد والكلى | | | |
| أخرى: | | | | |
| في الشهر السابق هل تناولت؟ | | | | |
| 22. | عصير طبيعي يوميا (مثل البرتقال والليمون) (1-2 قذح) | | | |
| 23. | الأطعمة بدون إضافة ملح | | | |
| 24. | الأطعمة دون إضافة الدهون | | | |
| 25. | القهوة يوميا (1-2 كوب) | | | |
| 26. | الشاي يوميا (1-2 كوب) | | | |
| 27. | الماء يوميا (8 أقداح) | | | |

2/ السلوك الصحي

| ت | الفقرات | دائما | أحيانا | أبدا |
|-----------------------------|---|-------|--------|------|
| في الشهر الماضي، هل قمت بـ: | | | | |
| 1- | أخذ قسط كاف من النوم يوميا (حوالي 8 ساعات)؟ | | | |
| 2- | أخذ استراحة عند شعورك بالتعب (مثلا عندما كنت تشعر بألم في الصدر، ضيق في التنفس، والصداع)؟ | | | |
| 3- | تمارس تمارين بسيطة لمدة 20-30 دقيقة على الأقل يوميا مثل المشي المنتظم؟ | | | |
| 4- | تجنب شرب المشروبات الكحولية؟ | | | |
| 5- | تجنب التدخين (السجائر، والأركيلة)؟ | | | |
| 6- | تجنب الضغوط النفسية التي تواجهها في حياتك اليومية؟ | | | |
| 7- | تجنب الأعمال الثقيلة (مثل رفع الأشياء الثقيلة)؟ | | | |
| 8- | تجنب تناول المشروبات الغازية (مثل البيبسي) | | | |

3/ الأدوية

| ت | الفقرات | دائما | أحيانا | أبدا |
|---------------------|---|-------|--------|------|
| في الشهر الماضي هل: | | | | |
| 1 | تنسى أن تأخذ الأدوية الخاصة بك | | | |
| 2 | لا تتناول الأدوية الخاصة بك لأسباب أخرى من النسيان. | | | |
| 3 | توقفت عن تناول الأدوية الخاصة بك دون إبلاغ طبيبك لأنك شعرت بتدهور عندما كنت تتناولها؟ | | | |
| 4 | تنسى حمل الأدوية الخاصة بك معك عند السفر أو مغادرة المنزل؟ | | | |
| 5 | تتوقف عن تناول الأدوية الخاصة بك؟ عندما تشعر بأن أعراض المرض تحت السيطرة | | | |
| 6 | تشعر بالضيق من الالتزام بأخذ الأدوية الخاصة بك | | | |
| 7 | لديك صعوبة في تذكر أخذ الأدوية الخاصة بك؟ | | | |

4/ المتابعة الطبية

| ت | الفقرات | دائما | أحيانا | أبدا |
|---------------------|---|-------|--------|------|
| في الشهر الماضي هل: | | | | |
| 1 | تخبر طبيبك عن أي تغييرات في خطة العلاج الخاصة بك | | | |
| 2 | تزر طبيبك في أوقات محددة لإجراء الفحوصات | | | |
| 3 | تتبع إرشادات الطبيب بدقة | | | |
| 4 | إجراء الفحوصات المختبرية (على سبيل المثال، مستوى الدهون في الدم، مستوى الأملاح) إذا أمرت من قبل الطبيب | | | |
| 5 | إجراء العمليات التشخيصية (على سبيل المثال، أشعة الصدر، السونار، تخطيط القلب الكهربائي) إذا أمرت من قبل الطبيب | | | |
| 6 | مراقبة وزن الجسم بشكل منتظم | | | |
| 7 | رصد العلامات الحيوية (النبض، وضغط الدم) بانتظام | | | |
| 8 | تخبر طبيبك عن أي علامات وأعراض جديدة | | | |
| 9 | أخذت أي نصائح من طبيب تغذية | | | |
| 10 | اتبعت برنامج غذائي علاجي موصوف من قبل طبيب تغذية | | | |

المحور الرابع \ استبانة قياس اتجاه الاعتقاد

| الفقرات | اوافق بشدة | اوافق الى حد كبير | اوافق | لا اوافق | لا اوافق الى حد كبير | لا اوافق بشدة |
|---|------------|-------------------|-------|----------|----------------------|---------------|
| 1. اذا ساءت حالتي, فان سلوكي هو الذي يحدد متى ساشعر بالتحسن مرة اخرى. | | | | | | |
| 2. بالنسبة لحالتي الصحية فالأمور خارجة عن ارادتي. | | | | | | |
| 3. اذا ازور طبيبي بانتظام, فانا اقل عرضة للمشاكل الصحية المتعلقة بحالتي . | | | | | | |
| 4. معظم الاشياء التي تؤثر على حالتي تحدث لي عن طريق الصدفة. | | | | | | |
| 5. كلما تساءت حالتي, يجب ان استشير طبيبا اخصائيا متمرسا. | | | | | | |
| 6. انا مسؤول بشكل مباشر عن تحسن حالتي او تفاقمها. | | | | | | |
| 7. يلعب الآخرون دورا كبيرا في تحديد ما اذا كانت حالتي تتحسن, تظل كما هي, او تزداد سوءا. | | | | | | |
| 8. كل ما يحدث بشكل خاطيء مع حالتي الصحية, هو خطأي. | | | | | | |
| 9. يلعب الحظ دورا كبيرا في تحديد كيفية تحسن حالتي. | | | | | | |
| 10. تحسن حالتي متعلق بالافعال الصحيحة للآخرين. | | | | | | |
| 11. مدى تحسن حالتي متعلق بحسن الحظ الى حد كبير. | | | | | | |
| 12. الشيء الرئيسي الذي يؤثر على حالتي هي افعالي و سلوكياتي. | | | | | | |
| 13. استحق الثناء عندما تتحسن حالتي و اللوم عندما تساءت. | | | | | | |
| 14. اتباعي لأوامر الطبيب حرفيا هي افضل طريقة للحفاظ على حالتي من التدهور. | | | | | | |
| 15. اذا ساءت حالتي فهذا مصيري. | | | | | | |
| 16. اذا كنت محظوظا, فستتحسن حالتي. | | | | | | |
| 17. اذا سارت حالتي نحو الأسوأ, فذلك لأنني لم اعتن بنفسي بالشكل المناسب. | | | | | | |
| 18. ان نوع الرعاية التي اتلقاها من الآخرين هي التي تحدد مدى تعافيني من المرض. | | | | | | |

Panel of experts

| ت | اسم الخبير | اللقب العلمي | مكان العمل | الاختصاص الدقيق |
|----|-------------------------------|--------------|--|-----------------------------------|
| 1 | د. سعاد جاسم محمد النجفي | استاذ | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 2 | د. شكريه شدهان جواد | استاذ | جامعة الفرات | تمريض صحة الام و الطفل |
| 3 | د. هدى باقر حسن التميمي | استاذ | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 4 | د. صباح عباس احمد الكعبي | استاذ | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 5 | د. خالدة محمد خضر الصفار | استاذ | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 6 | د. حسين هادي عطيه الابراهيمى | استاذ | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 7 | د. ضياء كريم عبدعلي البياتي | أستاذ مساعد | جامعة العميد/ كلية التمريض | تمريض البالغين |
| 8 | د. جهاد جواد كاظم السوداني | أستاذ مساعد | جامعة الكوفة/ كلية التمريض | تمريض البالغين |
| 9 | د. صادق عبد الحسين حسن الفياض | استاذ مساعد | جامعة بغداد /كلية التمريض | تمريض البالغين |
| 10 | د. حيدر حمزة علي الحدراوي | أستاذ مساعد | جامعة الكوفة /كلية التمريض | تمريض الصحة النفسية |
| 11 | د. حسام عباس داوود | أستاذ مساعد | جامعة بابل /كلية التمريض | تمريض البالغين |
| 12 | د. علي حسين احمد الموسوي | طبيب اختصاص | مركز النجف لجراحة القلب و التداخل القسطاري | اختصاص دقيق قلب و الاوعية الدموية |
| 13 | د. احمد نعمة رجب | طبيب اختصاص | مركز النجف لجراحة القلب و التداخل القسطاري | اختصاص دقيق قلب و الاوعية الدموية |

الخلاصة

قد يدفع المعتقد، المرضى نحو الالتزام بالتوصيات العلاجية، أو قد يعمل على إعاقة ذلك. لذا، فإن معرفة اتجاه الاعتقاد مهم لتحسين التزام المرضى بالتوصيات العلاجية.

اجريت دراسة كمية ارتباطية في مركز النجف لجراحة القلب والتداخل القسطاري في محافظة النجف الاشراف لغرض ايجاد العلاقة بين اتجاه الاعتقاد و التزام المرضى بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية.

بدأت هذه الدراسة من الأول من تشرين الأول 2020 وحتى العشرون من اذار 2022 من أجل تحقيق أهداف الدراسة. تضمنت عينة الدراسة عينة غير عشوائية (غرضية) من 120 مريض بعد التداخل القسطاري للشرايين التاجية.

وجدت الدراسة أن 40.8% من العينة كانوا من الفئة العمرية 51-60 سنة ، 65.8% ذكور، 20.8% كانوا من خريجي المتوسطة ، 59.2% يقيمون في الريف ، 90% متزوجون ، 72.5% يعانون من مرض الشرايين التاجية لأقل من 6 سنوات، 98.3% تلقوا توصيات علاجية ، و 38.3% دخلوا الى المركز للمرة الثانية، و 70.8% لديهم مستوى مقبول (متوسط) من الالتزام. اظهرت نتائج الدراسة ايضا، ان العمر ومستوى التعليم ومدة المرض يرتبط معنويا بمتغير الالتزام، بينما يرتبط العمر ومستوى التعليم والمهنة وعدد مرات الدخول ارتباطاً معنويا باتجاه الاعتقاد. أخيراً، يرتبط الالتزام و اتجاه الاعتقاد ارتباطاً وثيقاً ومن الممكن التنبؤ بالالتزام المرضى من خلال اتجاه الاعتقاد.

استنتجت الدراسة أن اتجاه الاعتقاد الداخلي مرتبط بالسيطرة على الأمراض. منع المضاعفات، و تحسين الصحة. وان اصحاب الاعتقاد الداخلي يُتوقع أن يكون لديهم مستوى التزام جيد، مقابل اصحاب الاعتقاد الخارجي.

يعتقد المرضى أن المتابعة الطبية من خلال زيارة الأخصائيين تمنحهم التأمين على حالتهم الصحية. لذا فإن توفير المزيد من التسهيلات والتركيز فيما يتعلق بزيارة الطبيب المختص يمكن أن يكون بمثابة نقطة قوة لإبلاغ المرضى عن تغيرات حالتهم الصحية مقارنة بالزيارة السابقة (إذا كانت متدهورة او متحسنة) وتجديد التوصيات العلاجية المطلوبة.

Arabic abstract



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التمريض

العلاقة بين اتجاه اعتقاد المرضى و التزامهم بالتوصيات العلاجية بعد التداخل القسطاري للشرايين التاجية

أطروحة
مقدمة الى مجلس كلية التمريض/ جامعة
بابل - جزء من متطلبات نيل درجة دكتوراه - الفلسفة
في التمريض

من قبل
محمد مهدي سعيد صاحب

بإشراف

الأستاذ

الدكتورة شذى سعدي محمد