Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital In 2022

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Article Info

ISSN (online): 2582-8940
Volume: 06
Issue: 04
October-December 2025
Received: 26-09-2025
Accepted: 28-10-2025
Published: 24-11-2025
Page No: 93-112

Abstract
Backgroud: Hypertension is one of the most common worldwide health problems, medication adherence is a major public health concern and leads to considerable morbidity, mortality, and healthcare costs.
Objective of Study: The main objective of this study was to an Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital.
Method: A quantitative descriptive cross-sectional design was performed among 424 adult hypertensive patients attending hypertension clinics in Al-Nasiriyah Teaching Hospital in Al-Nasiriyah, southern Iraq. over a period of three months from April 6th, 2022, to June 29th, 2022. study requirements were selected using a convenience sampling method, were the Samples selection according to the inclusion criteria include: Patients aged 18-above, Being able to communicate with researcher, The questionnaire was includes three parts, related to Socio- Demographic and clinical data, eight item-Morisky Medication Adherence Scale (8-MMAS), and Brief illness perception questionnaire (Brief-IPQ). Data was analysis by using SPSS version 25, descriptive statistics (percentage, frequency, SD, mean) used to describe socio-demographic data, Inferential statistics (chi- square test).
Conclusion: The study found that 34. 2% are from the age group (50-59), Were male, with a percentage of 54. 7%. and results revealed a total score of (Brief-IPQ) were (Moderate) with mean 43. 0684 and the eight item-MMAS total score were (low adherences) with mean 3. 7588. There is a positive correlation between the (Brief-IPQ) and the eight item-MMAS.

DOI: https://doi.org/10.54660/IJMBHR.2025.6.4.93-112

Keywords: Medication Adherence, Illness Perception, Hypertension

Introduction

Hypertension is a public health issue that greatly contributes to morbidity, financial load on healthcare, and mortality and if not controlled, is a risk factor for coronary artery disease, a major noncommunicable disease that is the leading cause of cardiovascular disease-related deaths globally. Other potential side effects of high blood pressure include damage to the walls of the arteries in the brain, which reduces blood flow to the brain and can cause a stroke if the stenosis becomes too severe or the arteries in the brain become completely closed, an important principle in disease management is patient acceptance and participation to follow self-care behaviors and appropriate to the disease conditions, and poor self-care leads to poor health outcomes and poor quality of life. Understanding the disease is important in guiding coping patterns and specific behaviors related to the disease, such as adherence to treatment, so that having a misconception about the disease can lead to weaker self-care behaviors and if the patient has misconceptions about the disease, adopt inappropriate adaptation strategies, and such strategies can have detrimental effects on life and lead to disease.

When a person has a proper understanding of his or her illness and its causes or exacerbations, he or she may be more motivated to follow and take better care of themselves to prevent or exacerbate the signs and symptoms of the illness, therefore, understanding of the disease includes cognitive and emotional components. Cognitive perception refers to beliefs about symptoms, timing, consequences, perceived individual control, and control of disease treatment. Emotional perception is related to a psychological disorder and shows the patient's personal sense of illness and can determine the extent of his adjustment. a person's understanding of the disease plays a very important role. Disease perception is the organized cognitive representations that patients have of their disease, its effects, and how to deal with their complaints. According to Leventhal's theory, patients are based on their emotional behavior and reaction to the disease, their perception of nature, causes, consequences, controllability, and duration. They regulate the time of illness. Bandura writes in this regard: Understanding the disease is an important framework for evaluating patients' beliefs and how its components affect behaviors and health care. Many factors may be positively associated with medication adherence, such as education, employment, and age. Ethnic minorities, higher medication costs, and regimen complexity may have negative effect on medication adherence. Medication adherence goes beyond medication consumption and reflects healthy behaviorAdherence to antihypertensive drugs, however, is an active area of clinical research. Adherence to treatment is not well defined among patients who refer to a health care agency. In addition, studies that have examined the adherence to multiple antihypertensive drugs in patients receiving concomitant treatment for other conditions are limited. The goal of this study was to an Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital In 2022.

Problem Statement:

High blood pressure is one of the greatest dangers to human health, particularly in poor nations (Movahedi *et al*., 2019) [56] It is now one of the most prevalent long-term illnesses. (Ghanei *et al* 2019). The disease is known as the silent killer because it goes unnoticed until symptoms appear. (Chapman *et al*., 2020) [19]. When the systolic and diastolic blood pressures are greater than or equal to 140/90 millimeters of mercury, it is referred to as hypertension. As a result of the interplay of numerous environmental and genetic factors, this illness is complex. (Haricharan *et al*., 2017) [33]. And it seems that lifestyle, and the stresses in life, diet and many other factors cause and accelerate the increase in blood pressure (Kassavou *et al*., 2020) [42]. It is a public health issue that greatly contributes to morbidity, financial load on healthcare, and mortality and if not controlled, is a risk factor for coronary artery disease, a major noncommunicable disease that is the leading cause of cardiovascular disease-related deaths globally. Other potential side effects of high blood pressure include damage to the walls of the arteries in the brain, which reduces blood flow to the brain and can cause a stroke if the stenosis becomes too severe or the arteries in the brain become completely closed (Liu *et al*., 2020) [47]. The prevalence of hypertension is estimated to rise to 1. 56 million adults worldwide by 2025, with two-thirds of the population living in emerging countries. An estimated 9. 5%–51. 6% and 4. 8%–43% of people in urban and rural areas were infected; nationwide, an estimated 12. 4%–34. 83% of people were infected. (Iloh and Amadi, 2017) [35].

There are more people in the United States with high blood pressure than any other chronic disease. (Tavakoly Sany *et al*., 2020) [78]. And it has a direct impact on 78 million people. An important risk factor for other cardiovascular diseases and strokes can be reduced by addressing this problem. (Oluwole *et al*., 2019) [60]. When it comes to cardiovascular disease, hypertension is a leading cause of death in the adult population. It is widely accepted that high blood pressure is a risk factor for a wide range of chronic illnesses. Hypertension is the largest cause of disability-adjusted life years in the world, according to the Global Burden of Disease research, which was published in 2013. (Iloh and Amadi, 2017) [35]. Approximately 1. 13 billion individuals in the world have hypertension (20% of women and 24% of men), according to the World Health Organization. In 2015, Croatia, Latvia, Lithuania, Hungary, and Slovenia had the highest rates of male arterial hypertension (AH), whereas the highest rates for female AH were found in Niger, Chad, Mali, Burkina Faso, and Somalia. Over a third of the population in these countries is infected with AH. (Gavrilova *et al*., 2019) [29]. Management of primary health care institutions (community medical service centers, township hospitals, and village clinics) will have a direct impact on the future development trend of cardiovascular illnesses. Hypertension awareness is higher in this region than in other locations, which may be due to a shift in the disease's incidence mode as well. (Wei *et al*., 2021) [88].

An important principle in disease management is patient acceptance and participation to follow self-care behaviors and appropriate to the disease conditions, and poor self-care leads to poor health outcomes and poor quality of life (Zahedi *et al*., 2019) [94]. Factors that can affect self-care behaviors include lack of information, incompatibility with multiple treatments, and most importantly, lack of belief and understanding of the positive effect of behavior on symptoms (Xu *et al*., 2019) [91]. Self-care in HTN is individual decisions and strategies to maintain healthy functioning and life and misunderstanding of the condition and nature of the disease, and low awareness of the symptoms of HTN can lead to undesirable self-care (Cicero, Landolfo and Borghi, 2020) [21]. People's thoughts, feelings, and behaviors when they are coping with a medical condition are all considered "illness perception" in the context of this study. In addition, the concept of disease perception encompasses the perception of being discriminated against by society because of the condition. People with type 2 diabetes may find it more difficult to maintain control of their condition if they experience negative emotional reactions, according to new research. (Boonsatean *et al*., 2018) [16]. Therefore, understanding of the disease includes cognitive and emotional components. Cognitive perception refers to beliefs about symptoms, timing, consequences, perceived individual control, and control of disease treatment. Emotional perception is related to a psychological disorder and shows the patient's personal sense of illness and can determine the extent of his adjustment. (Leventhal 2003). According to Bandura, understanding the disease provides an important framework for examining patients' opinions and how their implementation affects health behaviors (Bandura, 1990) [9].

It should be noted that the first effect that the disease has on a person's performance is due to a change in his perception and then has psychological effects, followed by affecting the general health and social functioning of individuals (Garcia-

Codina *et al*., 2019) [27]. Patients to the future life because Sudden changes in their health status led to uncertainty, and as a result of these fluctuations in life, patients experience a change in their perception of the disease, which can ultimately affect a person's belief and self-confidence to take effective care of themselves (Barati 2020). Understanding the disease is important in guiding coping patterns and specific behaviors related to the disease, such as adherence to treatment, so that having a misconception about the disease can lead to weaker self-care behaviors and if the patient has misconceptions about the disease, adopt inappropriate adaptation strategies, and such strategies can have detrimental effects on life and lead to disease. When a person has a proper understanding of his or her illness and its causes or exacerbations, he or she may be more motivated to follow and take better care of themselves to prevent or exacerbate the signs and symptoms of the illness (Bashirian 2017).

Because non-adherence to medical treatments is high in patients with HTN and leads to exacerbation of the condition and premature death, and patients try to respond to symptoms with self-awareness and self-care, understanding patients' understanding of the disease may be key to Provide appropriate interventions and enable patients to control their disease (Seo *et al*., 2020) [70]. The effect of the disease and cognitive ability may play an important role in determining perceptions of the disease (Popiołek *et al*., 2019) [63]. This illness perception is based on personal experience (physical symptoms and feelings), societal influences, and/or interactions with health-care providers and may not be scientifically or medically confirmed. Individuals' beliefs regarding these aspects of illness aid in the development of coping methods. The patient's perspective of their sickness is a critical component in determining how they seek medical help (Shakya *et al*., 2020) [72]. The perceived chronicity of HTN is also mentioned as a factor in determining whether or not a person will start and stick to blood pressure medication. It's difficult to recognize a disease condition that isn't usually accompanied by physical symptoms. The presence of symptoms in black people diagnosed with HTN who report symptoms is thought to be owing to a temporal illness state, implying that the occurrence of symptoms is linked to a changeable treatment practice. In the absence of symptoms, there is a higher risk of inconsistent medication use or nonadherence (Spikes *et al*., 2019a) [75]. Patients' perceptions of illness, according to studies, influence their coping responses, wellness, and adherence to healthy lives. 18 Patients who have a full awareness of their health situation and are aware of the disease's repercussions are more inclined to modify unhealthy behaviors like smoking and stick to cardiac rehabilitation programs. (Paryad and Rouhi Balasi, 2018) [62]. In the context of chronic illnesses, the WHO defines adherence as "the degree to which a person's behavior in respect to taking medication, following a diet, and/or implementing lifestyle modifications follows approved guidance from a healthcare professional. " WHO adherence A good adherence rate is considered to be between 80 and 100 percent drug ownership. Hypertensive medication adherence has previously been associated to higher blood pressure. (Gutierrez and Sakulbumrungsil, 2021) [31]. The term "medication adherence" refers to a patient's ability to take their prescription medication as directed. Some patients, on the other hand, may be unable or unwilling to follow instructions or may simply refuse to take their prescription as prescribed. Medication adherence may be influenced by a variety of factors, including education, occupation, and even age. Adherence to medication may be negatively impacted by ethnic minorities, greater pharmaceutical costs, and more complicated regimens, according to research. Adherence to medication is more than just taking medication; it's a sign of a person's overall well-being. (Shahin *et al*., 2020) [71]. Hypertension continues to be the biggest cause of noncommunicable illness death around the world, partly due to an out-of-control global epidemic. There are many factors that contribute to poor blood pressure management, including poor adherence to pharmacotherapy and failure to take medication as advised. When it comes to nonadherence, several things come into play. These include the patients' own traits as well as the features of the healthcare team and system as a whole. Managing non-adherence requires an understanding of the various factors that go into it. (Burnier and Egan, 2019) [17]. Many causes have been identified as contributing to poor blood pressure control, the most prevalent of which being poor patient adherence to treatment. Adherence to lifestyle modifications, salt reduction, follow-up appointments, and prescription refills, in addition to drug adherence, are all key contributors to poor blood pressure control. Understanding the components that contribute to hypertension management is critical for increasing overall adherence and preventing target organ damage such as strokes and myocardial infarctions. As a result, more targeted therapies to promote hypertension control may be performed (Chia *et al*., 2021) [20]. Taking prescription medications as directed and sticking to doctor's instructions is essential to getting desired therapeutic outcomes. Many chronic diseases have low treatment success rates because of a lack of teamwork and commitment to a predetermined treatment strategy. Adherence may be affected by the following. Only a few of these factors, such as an older age, a low level of education, the potential for side effects during pharmacotherapy, memory or cognition issues, low socioeconomic status (unaffordability of pharmaceuticals), and ineffective medication instruction from health care providers, are mentioned. (Uchmanowicz *et al*., 2018) [81]. Globally, the prevalence of hypertension is expected to rise by 30% by the year 2025, while nonadherence to chronic medication regimens is common; approximately 43% to 65. 5% of hypertensive patients fail to adhere to prescribed medications, and nonadherence to medications is a potential contributor to the occurrence of concomitant illnesses. (Abegaz *et al*., 2017) [2]. As a result, substantial steps must be taken to prevent the rise in the prevalence of hypertension and its complications. Patients, family members, and others in the community at risk for high blood pressure can benefit from education about self-care strategies. (Sobhe 2021). HTN is one of the disorders that can be effectively managed by boosting self-care activities, according to the World Health Organization. The importance of self-care in HTN is for getting a thorough understanding of the disease and its symptoms, home blood pressure monitoring, greater treatment adherence, and adopting a healthy lifestyle. One of the elements impacting the selection and adoption of this health-promoting habit appears to be a lack of patient information (Mohebbi *et al*., 2021) [52]. It is important to conduct a study on understanding the disease and treatment because it can be used to adjust patients' treatment plans (Shim 2020) Many researchers in this field have been interested in identifying the extent to which high blood pressure patients adhere to therapeutic drugs including a

study of Anuwer *et al*., (2015) [7] The study focused on the importance of educating hypertensive patients about their disease, with specific emphasis on its causes, the severity of the disease, their medications, and the consequences of non-adherence of treatment. 45. 8 percent of the study population did not adhere to the prescribed medication. In study of Ismael and Qadir, (2015) [38] most of the hypertensive patients did not comply with drug therapy on a regular basis. Major factor for non-compliance is forgetfulness and the study recommended the importance of giving hypertensive patients an educational program on compliance with drug therapy. Also, in study of Iroegbu, (2016) [37] found that forgetfulness and side effects of hypertensive medication on sexual performance in males was the main reasons for non-compliance of medications. Alsallami and Abutiheen, (2015) [6] They found a link between poor blood pressure control and medication noncompliance in their research. The results of the Twumasi-Ankrah, (2017) [80] indicated that the adherence rates of hypertensive individuals are low. Patients were unable to stick to their hypertension medication due to a variety of causes, including their own health and those of their loved ones. In another study, perceptions of the disease were reported in patients with high coronary heart disease, and patients expressed that they could control their disease with appropriate treatment. Men also had a better understanding of the disease than women and there was a link between the chronic nature of the disease and age (Zhou *et al*., 2021). As can be seen, studies have shown that patients differ in their perception of the disease and the nature of the disease, and demographic factors associated with perception of the disease include gender, age, employment status, functional class, and race (Park, Cho and Bower, 2016) [61]. Modification of the HTN treatment process in the study environment the status of drug adherence and disease perception in patients with hypertension should be examined. Antihypertensive medication compliance, on the other hand, is a focus of current clinical studies. Patients who seek the assistance of a medical facility have a hard time describing how effectively they adhere to their treatment plan. There is a lack of research on the adherence of patients to numerous antihypertensive medications in patients who are also receiving therapy for other medical illnesses. According to the researcher's experiences as a nurse while working in providing health care to patients with high blood pressure in Al-Nasiriyah Heart Center and that despite many measures taken, statistics show that high blood pressure is among the non-communicable diseases. And can threaten the lives of patients with hypertension indicates that this chronic disease can be a challenge to control and intervene Because the nurse can play an important role in improving blood pressure control through patient education, counseling, and measuring and monitoring blood pressure. There is anti-hypertension in Al-Nasiriyah Teaching Hospital, so it can be said that considering the importance of high blood pressure as a latent disease with high mortality, examining the understanding of the disease and adherence to the drug in Iraqi patients with hypertension in the hospital. Al-Nasiriyah is necessary. Specifically, we wanted to see how well patients with hypertension adhere to their medication and how well they comprehend the disease process by doing this study. In addition, this study sought to examine the link between patients' perceptions of their condition and their adherence to therapy for hypertension. The social perception of demographics and disease that affects adherence to antihypertensive medication is the primary goal of this study. This study provides unique international statistics and important updates on the current adherence to antihypertensive medication in Iraq's hypertensive population. And There will be an advance in scientific knowledge as a result of this investigation. This information can be used to improve patient compliance with antihypertensive therapy to reduce the impact of hypertension and its complications, as well as improve the quality of life of the patients and the health care cost burden, as well as to inform the practice and policy makers, such as the Ministry of Health.

Main objective & purpose

To Investigate Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital**.**

Sub-objectives

- To determine the level of illness perception in patients with hypertension.
- To determine the level of treatment adherence in patients with hypertension
- To determine the relationship between illness perception and treatment adherence in patients with hypertension

Research question

- What is the level of illness perception in patients with hypertension in AL-Nasiriyah?
- What is the level of treatment adherence in patients with hypertension in AL-Nasiriyah?
- Is there a relationship between illness perception and treatment adherence in patients with hypertension in AL-Nasiriyah?

Literature Review

Conceptual framework:

Conceptual framework for this research was based on hypertension, treatment adherence, disease perception and Role of Nurses in Adherence to Medication. Hypertension (raised blood pressure) is a serious medical condition that significantly increases the risk of heart, brain, kidney, and other diseases. Hypertension affects an estimated 1. 28 billion people ages 30 to 79 worldwide, with two-thirds of those living in low- and middle-income nations. Many people with hypertension do not know they have the condition. Only 42% of people with high blood pressure are diagnosed and treated, making this a major public health problem. One in five hypertensive people has their blood pressure under control. hypertension is a major cause of Premature death in the world. Over the course of the next decade, the prevalence of hypertension is expected to fall by 33%. (WHO, 2022) [89]. High blood pressure (hypertension) is related with increased rates of cardiovascular morbidity and death in the general population, and antihypertensive medicines have been shown to decrease these rates in those with mild to moderate hypertension. Preventative measures (reducing overall cardiovascular risk) are the focus of most primary care visits for hypertension, with medication adjustments often necessary to achieve BP levels that are considered safe. (Garrison *et al*., 2017) [28]. Hypertension is becoming more prevalent in several low- and middle-income countries (LMICs) that are through a variety of health transitions. According to the World Bank's categorization of the world's

income levels, we evaluated the epidemiology and burden of disease. Lower-middle and low-income nations had the greatest age-standardized mortality rates from CVD and SBP in 2019, and fatalities associated with high SBP were more prevalent in the Middle East, North Africa, and Sub-Saharan regions as compared to North America. (Schutte *et al*., 2021) [69]. Since 1990, the global prevalence of hypertension in adults has remained relatively consistent, with 32% of women and 34% of men suffering from hypertension, and these numbers are expected to be the same in 2019. But in countries like Germany, Spain, Canada, Switzerland, and the United Kingdom (where rates have declined dramatically), they've risen or been unchallenged. Hypertension was diagnosed in around one in four Canadians and Peruvians in 2019. Taiwan (24%), South Korea (24%), Japan (24%), and several countries in Western Europe (Switzerland, Spain, and the UK) had the lowest rates of female hypertension (less than 24%). (less than 25 percent). (Lancet, 2021) [43]. In the United States, rates of hypertension remain high, and the prevalence of hypertension management is low, despite public health initiatives. Mortality rates linked to hypertension as the primary cause of death in the United States have risen recently, while racial and gender inequities remain. The underlying cause of mortality is seldom hypertension; rather, it contributes to cardiovascular disorders (CVDs), such as ischemic heart disease, heart failure (HF), and cerebrovascular illness (Rethy *et al*., 2020) [65]. In Iraq, hypertension affects both men and women at a rate of 29. 4% (20. 4%–38. 9%), according to WHO health statistics from the Eastern Mediterranean Region published in 2008. The prevalence of hypertension in Thi-Qar Governorate was found to be 26. 5 percent in a 2014 household survey. Many persons with hypertension in poor and middle-income nations are unaware of their condition or the importance of having their blood pressure checked on a regular basis. They could be Hypertension was found to be prevalent in 40. 4% of Iraqi adults, according to WHO health statistics from the Eastern Mediterranean Region published in 2008. (Saka *et al*., 2020) [67]. About 44 percent of Iraqi individuals are estimated to have hypertension. Indeed, there are very few research in Iraq on the treatment and results of hypertension. However, research found that just 48. 2 percent of diabetics had a decrease in their blood pressure. More research is needed to learn about other groups and the factors that contribute to poor blood pressure management. Iraq's policymakers lack the epidemiological expertise necessary to identify and treat uncontrolled hypertension, which could be a severe threat to the country's public health. Strategic planning and policy formulation in Iraq are currently hampered by a lack of reliable evidence. (Nassr & Forsyth, 2019) [57]. Hypertension rarely present with symptoms and are usually diagnosed by examination, or during treatment of another disease. Some people with high blood pressure have symptoms such as headaches (especially in the back of the head and in the morning) as well as lightheadedness, nausea, tinnitus (hoarseness or whistling), blurred vision, or fainting (Emamian *et al*., 2017) [24]. On clinical examination, if retinopathy due to hypertension is diagnosed on ophthalmoscopy, the presence of hypertension is suspected. The severity of retinopathy changes due to hypertension is generally divided into grades 1 to 4, but milder types can be difficult to diagnose. Ophthalmoscopic results can also indicate how long a person has high blood pressure (Ayele and Abdurehman, 2017) [8]. Secondary hypertension might be indicated by other signs and symptoms, such as kidney disease or an endocrine disorder, which can lead to high blood pressure. Cushing's syndrome can be identified by a variety of symptoms, including obesity in the chest and belly, glucose intolerance, the "moon face," the "buffalo hump," and bruising. High blood pressure can also be caused by thyroid illness and acromegaly with certain signs and symptoms. Renal artery stenosis may be indicated by abdominal rumbling (narrowing of the arteries feeding the kidneys). Aortic stenosis might manifest as a drop in leg blood pressure or a slowing or halting of the thigh arteries (narrowing of the aortic artery shortly after separation from the heart). When symptoms of hypertension, such as headache, tremor, pallor, and excessive sweating, appear, a pheochromocytoma should be considered a possibility. (Tanaka *et al*., 2018) [77]. The term "hypertensive crisis" refers to a sudden increase in blood pressure (equivalent to or more than systolic pressure of 180 or diastolic pressure of 110). A high blood pressure reading of 140/90 implies a considerable risk of problems. People whose blood pressure is in this range may have no symptoms, but more than normal people experience headaches (in 22% of cases) and dizziness. Other symptoms of a hypertensive crisis can include vision loss, shortness of breath due to heart failure, or a general state of restlessness due to kidney failure (Maruhashi *et al*., 2020) [51]. One or more essential organs are damaged by an extreme rise in blood pressure, leading to "hypertension urgency," formerly known as "malignant hypertension. " Hypertensive encephalopathy, marked by headaches and a diminished degree of consciousness, can result from inflammation and brain failure in addition to this damage (dizziness or drowsiness). One of the most common symptoms of direct damage to essential organs is papular edema (the enlargement of the optic disc or moderate to severe abnormalities in retinal arteries). Heart muscle injury (perhaps a heart attack) or a rupture of the aorta can cause chest pain. In some situations it can also be caused by the inner wall of the heart rupturing. The most common symptoms of pulmonary edema include shortness of breath, coughing up blood and blood clots in sputum. (Cohen *et al*., 2019) [22]. Pregnancy-induced hypertension affects 8 to 10 percent of all pregnancies. Preexisting primary hypertension is present in the majority of women with gestational hypertension. Preeclampsia, a dangerous condition that can develop in the second part of pregnancy and in the weeks following delivery, might have its earliest signs in high blood pressure during pregnancy. Preeclampsia is characterized by elevated blood pressure and the presence of protein in the urine as a diagnostic sign. Approximately 5% of pregnancies are affected by pre-eclampsia, which is responsible for 16% of all maternal deaths globally. Preeclampsia also raises the chance of newborn death by a factor of two. Preeclampsia normally has no symptoms and can only be discovered by routine testing. Pre-eclampsia symptoms include headache, blurred vision, nausea, vomiting, and swelling in the upper abdomen (edema). When pre-eclampsia worsens, it can turn into the potentially fatal illness known as eclampsia. Eclampsia is one of the most dangerous forms of hypertensive urgency, and it comes with a number of devastating side effects. Vision loss, inflammation of the brain, or seizures, kidney failure, pulmonary edema, and widespread intravascular coagulation are some of the side effects of this disease (a type of blood clotting disorder)(Wagata *et al*., 2020) [85]. Several groups of drugs, commonly called antihypertensive drugs, exist today

to treat high blood pressure. Cardiovascular disease (including the risk of myocardial infarction and stroke), doctor should keep track of how you're responding to therapy and look for any negative side effects, according to the Joint National Committee (JNC-7) on Hypertension. As much as a 5 millimeter drop in blood pressure can cut stroke risk by 34% and ischemic heart disease risk by 21%. Blood pressure control can lessen the likelihood of mental illness, heart failure, and cardiovascular-related death. (Umemura *et al*., 2019) [82]. Most people's blood pressure should be kept below 140/90 millimeters of mercury, but those with diabetes or kidney illness should have it lower. Some pharmacologists recommend that blood pressure levels not exceed 120/80 mm Hg. If the blood pressure goals are not met, more therapy is required. Drug selection strategies have evolved over time and vary from country to country, making it difficult to know which medication is appropriate for a certain patient. Experts disagree on the optimum medication. Low-dose thiazide-based diuretics have been recommended by the Cochrane Cooperative, the World Health Organization, and US guidelines as the preferred treatment of choice. Calcium channel blockers are the primary treatment option in the UK for adults over the age of 55 and of African or Caribbean heritage (CCBs). A key therapy option for younger patients is angiotensin-converting enzyme inhibitors (ACEIs). CCB, ACEI / ARB, thiazide diuretics, beta-blockers, and alpha-blockers are among the six groups of medications that are deemed appropriate in Japan. All but alpha blockers should be taken as soon as possible in Canada. (Arabshahi *et al* 2020). Some people need more than one medication to control their high blood pressure. JNC7and ESH-ESC guidelines recommend the use of two drugs at the When blood pressure is 20 mm Hg above systolic pressure or 10 mm Hg above diastolic pressure, the treatment begins. There are a number of drugs in this class, including diuretics, renin-angiotensin system inhibitors, calcium channel blockers, and more. (Namvar *et al* 2020) [58].

The following substances have been approved for use:

- Beta-
  blockers and diuretics are also calcium channel blocker s.
- Beta
  blockers and calcium channel blockers such as calcium dihydroperidin
- Diltiazem or verapamil are calcium channel blockers of dihydroperidine.

The following combinations have been rejected:

- calcium channel blockers (such as verapamil and diltiaz em) and beta-blockers
- blocking both the angiotensin converting enzyme and th e angiotensin receptor at the same time
- Beta blockers and renin-angiotensin system inhibitors
- Adrenaline receptors and beta-blockers

Acute renal failure is more likely if an ACE inhibitor or angiotensin II receptor is combined with a diuretic, a nonsteroidal anti-inflammatory drug (such as selective COX-2 inhibitors and over-the-counter treatments such as ibuprofen). A "triple collision" is a term used in Australian medical literature to describe this combination. Fixed-compound tablets from two classes of medicines are available. Even if these medications are appropriate, the ideal dosage is dependent on the individual's features. (Poorhoseini *et al* 2020) [64]. Death and cardiovascular complications are reduced in adults 60 and older who have moderate to severe hypertension. The general death rate appears to be unaffected, although the risk of heart disease is reduced in persons over the age of 80. Blood pressure should be kept at or below 140/90 mm Hg as a general rule of thumb. While in the United States, thiazide diuretics are the go-to medication, in the United Kingdom, calcium channel blockers were found to be the most effective treatment for lowering blood pressure to less than 150/90 mm Hg in the clinic or to below 145/85 mm Hg in home monitoring. (Liu *et al*., 2020) [47]. Illness perception is an important aspect of hypertension therapy. Patients' implicit and common-sense ideas regarding their condition are termed as illness perception. The cognitive and emotional representations of illness are described. Identity, timing, consequences, control/cure, and sickness coherence are all part of cognitive representation, but negative reactions like fear, wrath, and distress are part of emotional representation. As a result, the authors propose that manipulating people's perceptions of illness is the ideal target for health intervention (Norfazilah *et al*., 2013) [59]. Prior to making a treatment decision, patients use the term "adherence" to describe how they decide whether or not to follow a treatment plan that is intended to address their specific problem. The therapy effectiveness for patients, who have the option of stopping treatment if they believe it is useless. People's opinions and beliefs about medicine and their own health have a significant impact in determining the medications they prefer to use for treatment. According to studies, people who have a more pessimistic view of illness tend to take longer to recover and use more medical services, but this can be changed if they are given the right information (Shakya *et al*., 2020) [72]. According to the World Health Organization, HTN is one of the conditions that can be effectively treated by increasing self-care habits. Home blood pressure monitoring, better medication adherence, and a healthy lifestyle all contribute to the relevance of self-care in hypertension (Mohebbi *et al*., 2021) [52]. It is said that when a person receives a diagnosis of a disease, encounters a health risk, or suffers an injury, they develop an organized belief system about their condition. It is believed that the person's coping methods are influenced by their belief system, combined with their cognitive and emotional representations of their sickness, or illness perceptions. Age, cognitive development, disease status, and potentially confounding contextual factors all have an impact on how psychologically ill someone is depicted (Jiya *et al*., 2021) [40]. The seven components of ilness perception are identity (symptoms of the illness), disease outcome, disease course (chronic or acute), individual control, therapeutic control, dealing with the disease, a period without the disease, and emotional manifestations of the disease. Numerous studies have proven the connection between medication adherence and how patients view their illness. Older hypertensive patients had positive views on the prognosis and management of their illness. correspond with medication compliance, and the perception of illness is related to medication compliance. When using the health-related behaviours of people who have chronic illnesses, there is a prediction value for disease perception. People's perspectives on the condition can differ depending on their social and cultural contexts (Bilondi, Noghabi and Aalami, 2021) [15]. The way the patient views their illness and how they view and perceive the benefits and risks of medication have an impact on their coping

mechanisms as well as the direction and management of their treatment. In this regard, it is claimed that the most significant variable influencing medication adherence is the perception of the illness (Yildirim and Baykal, 2020) [93]. The reasons why patients take or don't take their medications and what may be done to modify their behavior continue to be a mystery despite years of research. Poor compliance is one potential cause of the UK's poor control of hypertension. Recent surveys based on the self-regulatory paradigm have proved successful in measuring attitudes about medical treatment and perceptions of sickness (Batte *et al*., 2021) [12]. Between 35 and 50 percent of those with hypertension report not taking their medication as prescribed. One should consider drug adherence as the cause in every case of uncontrolled hypertension. There are a number of tested techniques to identify noncompliance, with the Haynes test, pill count, and usage of an electronic prescription being the most popular. Combining proper patient education, a simpler treatment plan, and routine adherence monitoring are effective strategies to increase compliance. Programs for blood pressure self-measurement at home, the use of set double- or triple-drug combinations, group health education, reminders, calendars, and cards enforcement, and enhancing doctor-patient relationships are all helpful methods for maximizing compliance. (Márquez Contreras *et al*., 2017). Different theoretical models have been produced within the field of health psychology to explain the persistence of healthy behaviors. The perception of a disease encompasses its causes, effects, identity (name and symptoms), timing, emotional reaction, coherence, and control over the patient's care. To deal with the health risks and/or accompanying emotions, patients set goals. Actions are taken to decrease the threat itself or the feelings that go along with it. Continuous evaluations analyze the effectiveness of replies and inform subsequent representations in an ongoing iterative process. The CSM model has been extended to include patients' views about their treatment, including their concerns about the medication's side effects and judgments of its need. (Massey *et al*., 2013) [55]. Patients' adherence is a term used in medicine to indicate how well a patient follows medical recommendations. It usually relates to medicine or drug adherence, but it can also refer to things like Utilization of medical devices, self-care, and activities planned independently by the patient. Patients, healthcare professionals, and caregivers all have an effect on a patients ability to adhere to their medication regimen, which is defined as maintaining a level of consistency between the medications they take and the instructions given to them by their physicians. In other words, it relates to the degree to which patients follow the medication treatment plan, which has a significant influence on both the efficacy of therapy and the prognosis of the condition. (Ge *et al*., 2022) [30]. Nonadherence with medicine is a major public health issue that jeopardizes the efficacy of therapies and leads to poor clinical outcomes. Acute disease has a higher rate of adherence than chronic disease. Unfortunately, medication adherence is extremely low in chronic conditions, and it drops dramatically after six months of treatment (Hajialibeigloo *et al*., 2021) [32]. To become a fit and healthy nation and to avert negative health outcomes is our national challenge. Making sure people take their prescriptions as prescribed is one way we can prevent significant health issues and even death, especially for those who have many chronic conditions and must manage a lot of different drugs to help them stay as healthy as possible. To address the important public health issue of medication adherence, patients and members of the healthcare community must collaborate. (Benjamin, 2012) [13]. Patients frequently fail to follow their doctor's instructions for taking their medications, especially those with chronic illnesses including diabetes, hypertension, and cardiovascular problems. Poor health outcomes and higher healthcare expenses can result from noncompliance with pharmaceutical regimens. In eHealth, examining advances in drug adherence has taken center stage. It is typical to take into account a number of crucial health care outcomes when analyzing eHealth. Recent studies have looked at how eHealth affects spending on healthcare as well as patient happiness, quality of life, and safety. (Wong *et al*., 2020) [90]. Although it is frequently assumed that patients must adhere to their treatment plans, informal caregivers, primary care professionals, including clinical nurse specialists, practice nurses, and general practitioners, as well as pharmacy (such as pharmacy technicians and pharmacists), and home care professionals, they can help. (Dijkstra *et al*., 2021) [23]. It is essential to follow prescribed treatment plans in order to treat, prevent the onset of, or lessen the symptoms of diseases. Medication adherence has been noted as a problem for many home care patients who find it difficult to follow a doctor's prescription for medication. Up to 80% of individuals receiving home health care do not take their medicines as directed. Pharmaceutical non-adherence may be caused by a number of circumstances, including those that are related to the patient, their treatment, and/or their healthcare provider. Patients could, for instance, forget to take their medicines, take them in the improper dosages, or decide that they don't need the therapy. The risk of non-adherence may be increased by treatment-related problems such polypharmacy or a difficult medication schedule. Additionally, there can be a communication barrier between patients, unofficial carers, and medical staff. Patients may not get the full benefits of their prescription as a result of non-adherence, which might lead to morbidity, mortality, hospital admissions, and greater healthcare costs. (Dijkstra *et al*., 2021) [23]. The most frequent therapeutic intervention is medication, and in order for it to be successful, patients must take their medications according to the suggested timetable. Adherence is especially challenging to accomplish in multimorbid patients who take several medications to manage their illnesses. Health care costs associated with non-adherence are high due to waste and rising rates of illness. Numerous factors affect a person's compliance with a medication regimen, and non-adherence might be intentional or unintentional. There are several techniques that might be helpful, but interaction with a health care provider is very necessary for both identifying the reason for non-adherence and for encouraging adherence. (Chaplin, 2017) [18]. The effectiveness of the nurse's job depends on patient education. Giving patients information about their drugs does not necessarily guarantee medication adherence. The patient's characteristics, the regimen's complexity, communication barriers, the coordination of care by various providers, the lack of communication about potential side effects, the lack of health information technology, and patient beliefs regarding medication are all factors that contribute to the best possible results. (Rosenberger *et al*., 2017) [66]. Treatment efficacy, healthcare expenditures, and patient safety are all significantly impacted by medication adherence. It is described as the extent to which people follow

their doctors' instructions and take their drugs. Medication compliance also reflects concordance, or a shared decision-making process between the patient and the healthcare professional. Patients with chronic illnesses had an average drug adherence rate of just 50%, according to a WHO study. This was a severe problem that increased morbidity and mortality as well as healthcare costs. Many elderly people are being treated with a range of medications for several chronic conditions for which they are at risk. They thus have a significant risk of non-adherence, including skipping doses, quitting, switching schedules and dosages, or abusing the medication. Poorer clinical outcomes, such as readmission to the hospital, the progression of chronic illnesses, and higher healthcare costs, might result from non-adherence. Up to 10% of hospital readmissions have been associated with non-adherence. (Verloo *et al*., 2017) [84]. Due to side effects or issues like memory loss, a significant proportion of patients may consciously or accidentally disregard their drug regimens. thus nurses working in hospital, community, and primary care settings may can successfully assist patients in taking their prescriptions on their own in line with the ideals of shared decision-making and person-centered care. (Latter, 2022) [44]. There are conflicting theories on adherence behavior that come from the disciplines of anthropology, biology, and psychology. In the literature, we found evidence that behavioral and educational interventions may increase medication adherence and health gains. However, it is generally acknowledged that further study is needed in this area. Understanding the reason for non-adherence is crucial in order to change behavior. Medication non-adherence, a health issue that disproportionately affects older patients in primary care, has a significant influence on medical practice. Every day, nurses deal with the aging population, which is expanding nowadays and has a range of needs. Therefore, it is crucial that nurses be familiar with the best research that has been conducted to address this worldwide problem (Jorge De Sousa Oliveira, José and Caldas, 2017) [41].

It is important to conduct a study on understanding the disease and treatment because it can be used to adjust patients' treatment plans (Shim 2020) there are many previous studies that review on hypertension, treatment adherence, illness perception and dealt with it from different angles, the articles in this part screened using keywords: (medication adherence, illness perception, hypertension) from the scientific databases (PubMed, Cochrane, Scopus, EMBASE and Google Scholar),from 2015 to 2020, and the articles was presented based on their relation to the topic.

1. A research was conducted by Alsallami and Abutiheen, (2015) [6] with the topic of ”Hypertensive Patients Compliance with Medications in Marjan Teaching Hospital/ Babylon” in Iraq. A descriptive cross-sectional study was conducted, to evaluate compliance of hypertensive adults with their treatment. and the study sample consisted of 323 adult hypertensive patients attending to consultation clinics of Marjan Teaching Hospital. data was collected from respondents by using the Morisky 8-Item Medication Adherence Scale. According to the results of the study 57. 9% had low compliance with treatment, Compliance with treatment is associated increased with higher level of education, presence of complication, longer duration of disease and the use of single medication. (Alsallami and Abutiheen, 2015) [6]
2. A research was conducted by Esmaeili *et al*., (2016) [25, 26] with the topic of “Factors Affecting Adherence to Antihypertensive Medication: Results from a Rural Population Study in East of Iran” in Razavi Khorasan Province. A cross-sectional study was conducted to measure medication adherence and to examine its determinants in patients with hypertension in a rural population of Iran. among 422 patients with hypertension, Morisky 8 items Medication Adherence Scale (MMAS-8) Persian version was used to identify Medication adherence. Results showed out of a total of 422 patients, 299 (70. 9%) were female. poor medication adherence in half of the patients with hypertension (49. 5%), the significant factors associated with the level of medication adherence were, education (P=0. 022), age (P=0. 032), income (P=0. 001), medication regime complexity (P=0. 001), side effects (P=0. 081), the patient’s beliefs about the effectiveness of medications (P=0. 001). gender and marital status were not significantly correlated with the level of medication adherence. conduct similar studies in other rural areas of Iran to assess the external validity of the results of this study is the main recommendation of the study. (Esmaeili *et al*., 2016) [25, 26]
3. Research was conducted by Maharjan, (2016) [49] Patients with hypertension in Nepal's "Illness Perception and Treatment Adherence," Patients with hypertension were the subjects of a descriptive correlational study to gauge their level of illness perception, medication adherence, and the relationship between the two. Purposive sampling was used to choose 85 outpatients from the Sahid Gangalal National Heart Centre, Bansbari, Kathmandu, Nepal, for this study. As part of this research project, the Demographic and Health-Related Data Questionnaire (DHRDQ) was used to gather demographic and health-related information, as well as the Extended Brief Illness Perception Questionnaire (EBIPQ) and the Open-Ended Questionnaire (OEQ) (MTAQPH). Patients' demographics, illnesses, and treatment adherence were analyzed using descriptive statistics, which included frequencies, percentages (e. g. percentage of patients with a diagnosis), mean, standard deviation, median, and interquartile range (IQR). Spearman's rank correlation was used because the data violated the assumption for normality. Among patients with hypertension, the study found a significant (p. 05) positive correlation between sickness perception and treatment adherence; the mean total illness perception score was 40. 35 (SD= 14. 53), reflecting an intermediate danger perception toward high blood pressure. (Maharjan, 2016) [49]
4. A research was conducted by Ahmed, (2019) [3, 48] with the topic of “Adherence towards Antihypertensive medications among Patients attending the Family Practice Clinics in Ismailia Moustafa” A cross- sectional study was conducted to assess levels of adherence and its barriers, and to identify the relation between adherence and blood pressure control, performed from December 2017 to March 2018, in Egypt Ismailia city Suez Canal university hospital with a total sample of 90 hypertensive patients. Data was collected from patients attending family practice clinic using a structured questionnaire including socio-demographic scale, Morisky 8-Item Medication Adherence Questionnaire, and Adherence Barriers Questionnaire (ABQ). According to the findings

there is a low level of adherence in Less than two thirds (61. 1%) of the participants and There is a significant association between the level of adherence to anti-hypertensive medications and blood pressure control (p<0. 01). (Ahmed *et al*., 2019) [3, 48]

5. Research was conducted by Shakya *et al*., (2020) [72] An outpatient study at the Manmohan Cardiothoracic Vascular and Transplant Center in Kathmandu, Nepal, focused on "Perceived Illness and Treatment Adherence to Hypertension Among Patients Attending a Tertiary Hospital in Kathmandu, Nepal. " The study's primary goal was to investigate the link between hypertension patients' perceptions of sickness and their medication adherence. Non-probability purposive sampling was employed to choose the sample, which included 204 individuals. An illness perception questionnaire-revised (IPQ-R) and the Hill Bone compliance to high blood pressure therapy scale were used to collect data, which was then analyzed using data from the questionnaire (HBCTS). Inferential statistics (chi-square test) were used to examine the relationship between demographic characteristics and treatment adherence, and Spearman correlation was used to examine the relationship between sickness perception and treatment adherence. The data was analyzed using SPSS version 20. There was a strong correlation p=0. 282 between the sense of sickness and medication adherence, with 63 percent of individuals believing hypertension to be an extremely dangerous disease. (Shakya *et al*., 2020) [72]
6. A research was conducted by Twumasi-Ankrah, (2017) [80] adhering to antihypertensive medications among patients at the Ridge Hospital is the subject of the study. In this cross-sectional study, 350 hypertension patients at Ridge Hospital in Ghana were asked about their medication adherence using the Morisky Medication Adherence Scale, a health and facility-related assessment. About half of the hypertension patients at Ridge Hospital had low levels of adherence to their drug regimens, with patient-related factors (p=0. 001) and health facility-related factors (p=0. 001) both having a significant impact on patient compliance. As a result of these findings, we can conclude that medication adherence is linked to a number of demographic characteristics, including education level and income level. The study's key recommendation is to increase health education about the benefits of hypertensive medicines. (Twumasi-Ankrah, 2017) [80]

Conclusion of literature review

Study participants with hypertension were surveyed about their perceptions of their condition as well as their medication adherence, as well as how these two factors were linked. Worldwide, the prevalence of hypertension varies greatly, making it impossible to establish a precise statistic to illustrate this because most prevalence estimates reported were not age-standard. Nevertheless, it is apparent that both in developing and affluent countries, hypertension is widespread and that the number of people with hypertension is rising. Because the prevalence of high blood pressure has risen so rapidly in such a short time, numerous studies have confirmed that it is a health threat. Patients with hypertension need to adhere to both medication and non-pharmacological behavior or lifestyle adjustments, according to a review of relevant research. Socioeconomic factors, patient-related factors, condition-related factors, treatment-related factors and health care team, and system-related factors, including disease perception, are all implicated in adherence to therapy in patients with hypertension. Patients who are more likely to adhere to treatment regimens have a more positive attitude toward the disease, as evidenced by research. Perception of the disease is positively correlated with adherence to treatment in most studies. Also, disease perception significantly predicted positive adherence to treatment in several studies. However, in studies on adherence to treatment, adherence to medication was considered the most important, regardless of the potential impact of lifestyle management for hypertension. To add, the role of understanding the disease was never examined in Iraq. Iraq's diverse ethnicity and religion greatly influence Iraqi culture and lifestyle, which may have different effects on the perception of the disease than in other countries where most high blood pressure studies have been performed. Hence, conducting a study to examine the relationship between perceived disease and adherence to treatment in patients with hypertension in Iraq.

Research method

Study method: Descriptive study conducted.

Research method: A descriptive design, Cross-sectional was a carried out, in order to Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital. Quantitative research was used in the design of the study

Research environment: Al-Nasiriyah teaching hospital / Thi-Qar/ Iraq.

Research community: The study community were patients with hypertension, who were using anti-hypertensive medication and attending outpatient clinic in AL-Nasiriyah Teaching Hospital, 2022.

Research sample: this study was involved patients with hypertension who are visiting hypertensive clinic at Al-Nasiriyah teaching hospital.

Characteristic of research sample:

This research was a cross-sectional descriptive study in which to an Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital In 2022. The research samples are patients with hypertension, who were using anti-hypertensive medication and attending outpatient clinic in AL-Nasiriyah Teaching Hospital, Iraq. were the Samples selection according to the inclusion criteria include: Patients aged 18-above, Being able to communicate with researcher, Patients with recorded diagnose of hypertension for at least six months with a medical treatment regimen, Not having psychiatric illness. and Exclusion criteria include: Refusal of patients to take part in the research, Pregnancy and hospitalization of patients. Researcher after obtaining approval from the Research Ethics Committee of the Iran University of Medical Sciences (Code of Ethics) and receiving a letter of recommendation from the dean of the faculty and university and submitting a letter of recommendation and proposal summary to the hospital in Thi-Qar/ Al-Nasiriyah in Iraq and after obtaining permission

and explaining the objectives of the research and obtaining permission from the research environment begin sampling. The data collected by questionnaire it consists of three parts. (Appendix B)

The first part was designed to collect data of the demographic and clinical data. Demographic information consists of (gender, age, marital status, occupation, monthly family income, and place of residence) and clinical information were collected by questionnaires (months diagnosed with hypertension, comorbidities, smoking, taking medication).

The second part was related to collect data by Brief illness perception questionnaire (BIPQ). This is a self-report scale that was developed by (Broadbent 2006). The researcher used this instrument after got approval from original author Broadbent (Appendix D). Brief illness perception questionnaire Brief-IPQ is a short and simple version of the illness perception questionnaire it comprises of total nine items scale. That's measures patients' cognitive illness representations and emotional illness representations. Each item of the Brief-IPQ assesses one dimension of the illness perceptions. The cognitive illness representation items include: item 1 is simply response of the Consequences a typical statement to which they responded is, "How much does hypertension affect your life?" the responses noted on a linear scale which range from 0 means "not effect at all" while 10 means "severely affects my life". Item 2 is simply response of the Timeline a typical statement to which they responded is "How long do you think hypertension will continue?" the responses noted on a linear scale which range from 0 denoting " a very short period" and 10 denoting " forever". Item 3 is simply response of the personal control a typical statement to which they responded is "How much control do you feel you have over hypertension?" the responses noted on a linear scale which range from 0 means "absolutely no control" and 10 denoting "extremely amount of control". Item 4 is simply response of the treatment control a typical statement to which they responded is "How much do you think your treatment can help hypertension?" the responses noted on a linear scale which range from 0 means "Not at all" and 10 means "extremely helpful". Item 5 is simply response of the identity a typical statement to which they responded is "How much do you experience symptoms from hypertension?" the responses noted on a linear scale which range from 0 being "No symptoms" and 10 means "many sever symptoms". Item 7 is simply response of the coherence a typical statement to which they responded is "How well do you feel you understand hypertension?", the responses noted on a linear scale which range from 0 means "not understand at all" and 10 means "understand very clearly"

Item 8 is simply response of the emotional illness representation a typical statement to which they responded is "How much does your hypertension affect you emotionally? (e. g., does it make you angry, scared, upset, or depressed?)", on this item 0 indicates "not at all affected emotionally" whereas 10 indicates "extremely affected emotionally". And item 6 is measuring the illness concern a typical statement to which they responded is "How concerned are you about hypertension?". this reflects a combination of emotional and cognitive representation, the responses which range from 0 means "no at all concerned" whereas 10 indicates "extremely concerned". Each dimension of cognitive and emotional representation is rated on liner-Scale from 0 to 10. Which produces a total score of 0 to 80. Higher scores indicating a stronger perception of being threatened by one's illness. The causal item (item 9), "Please list in rank-order the three most important factors that you believe caused your hypertension" the responses can be grouped into categories such as hereditary, lifestyle, stress. It is open-ended response item adopted from IPQ-R, which asks patients to list the most important causal factors of hypertension illness. The total possible score is ranged from 0 to 80. Scores between 0 to 27 indicate high threatening illness perception. a score ranging from 28 to 54 indicated moderate threatening illness perception. and Scores between 55 to 80 indicated low threatening illness perception.

And The Third was to measure medication adherence by Eight-item Morisky (eight- item MMAS), (Morisky *et al*., 2008) [53]. It is a self-reported structure questionnaire; it was developed from previously validated four-item Morisky Medication Adherence Scale. (Morisky, Green and Levine 1986) [54].

The 8-item MMAS consists of 8 items, first seven items form 1 item to 7 item answered with yes or No. Whereas the 8-item answered with five-point Likert scale.

Items 1 through 7 have response each "No" is rated as 1 and each "yes" is rated as "0". Except for item 5 which is typically (do you take all your medication yesterday?) each response "yes" is rated as 1 and each "No" is rated as "0".

For item 8 which is typically (how often do you have difficulty remembering to take all your medication?), responses measured by 5-point Likert scale. if a patient chooses response "Never" the score is "1", and if they choose "once in a while" the score is "0. 75", the response of "sometimes" the score is "0. 5", the response of "usually" the score is " 0. 25", and if they choose response of "all the time" the score is "0".

The total score divided into three levels of adherence, scores of 8 reflecting high adherence, score between 7 to 6 reflecting medium adherence, and Score less than 6 reflecting low adherences.

After collecting, the researcher will analyze the completed questionnaires after entering the information into the computer with SPSS software version 25.

Inclusion criteria:

- Patients aged 18-above.
- Being able to communicate with researcher
- Patients with recorded diagnose of hypertension for at least six months with a medical treatment regimen
- Not having psychiatric illness

Exclusion criteria

- Refusal of patients to take part in the research.
- Pregnancy and hospitalization of patients.

Sampling method:

People who met the study requirements were selected using a convenience sampling method.

Method of calculating the sample size and its number:

Sample of 424 patients with hypertension, who were using antihypertensive treatment and attending outpatient clinic in the AL-Nasiriyah Teaching hospital in Al-Nasiriyah city, Thi-Qar, Iraq, 2022.

The sample size calculation assumed a 95% confidence leve l and a 5% margin of error in order to establish the required sample size for the primary study.

The sample size was determined using the following formul a.

$$N \frac{t^2 XP(1-P)}{M^2}$$

At the 95 percent confidence level, t is the percentage of the population with the characteristic, which is 50%, and p is the percentage of the population that has the characteristic (standard value of 0. 05).

$$N = \frac{1.96^2 X(.50)(1-.50)}{.05^2}$$

$$\frac{3.8416x.25}{.0025}$$

$$\frac{0.9604}{.0025}$$

=384. 16, 385

385x10% = 38. 5

N= 385+39=424

In order to conduct the primary investigation, a sample size of N = 385 participants was deemed necessary. The sample size was raised by 10% to account for attrition (N = 424).
For the primary investigation, the proportion of the population with the characteristic 50% was used to determine sample size. When the population percentage (p) is unknown, p = 0. 5 is commonly employed since it assumes the greatest possible degree of heterogeneity. Based on the webpage, sample size estimations were made

Specifications of data collection tools and how to collect it:
In this study, the data was collected by questionnaire it includes three parts, related to Socio- Demographic and clinical data, eight item-Morisky Medication Adherence Scale (8-MMAS), and Brief illness perception questionnaire (BIPQ).

Reliability & validity of questionnaires
Validity
The degree to which an instrument corresponds is what we mean when we talk about validity. The instrument's content validity was verified by a team of three experts from different fields. (Appendix C)

- Adult health nursing faculty members from the Musol nursing college and the University of Musol.
- Southern Technical University, Department of Community Health, Nasiriyah Technical Institute.
- Kut Technical Institute/Middle Technical University/Department of Community Health.

After considering their suggestions and considering all the feedback and recommendations, the survey was found to be valid and well-constructed.

Reliability
Statistical Package for Social Science Program (SPSS) version 25. 0 was used to test the instrument's reliability using the Coefficient Alpha. Testing Cronbach's alpha was used in a sample of 20 hypertensive patients, and they are not concluded in main sample of the study.
Internal consistency and equivalence measurability of the questionnaires were found to be statistically acceptable according to the reliability results

Table show Reliability Analysis of the Scale (N= 20):

Brief-IPQ

Reliability Statistics

Cronbach's Alpha	N of Items

8-item MMAS

Reliability Statistics

Cronbach's Alpha	N of Items

Intervention method - working method.
This study was conducted in Nasiriyah Teaching Hospital, which is one of the governmental hospitals in Thi-Qar Governorate, the capacity of this hospital is 400 beds. It also contains advisory units, service, and rehabilitation sections for patients. The researcher collected the sample from the participants in this study who attend the outpatient clinics of Nasiriyah Teaching Hospital, during the official working hours, which start from eight in the morning until three in the afternoon, and for five days a week from Sunday to Thursday, Where the sample collection continued for three months. From the 6th of April to the 1st of July. Before starting to collect the sample and start work, the researcher obtained all official approvals that allow him to collect and use data for the purpose of the study. It started with the university's approval of the research plan, then the approval of the research committee within the university and giving the researcher an ethical code. As well as the approval of the Iraqi Ministry of Health, and then the approval of Nasiriyah Teaching Hospital to collect the sample from the participants. To collect the sample from the patients participating in the study, the researcher used the questionnaire, which is divided into three parts, related to Socio- Demographic and clinical data, eight item-Morisky Medication Adherence Scale (8-MMAS), and Brief illness perception questionnaire (BIPQ), and before starting to use these tools, the researcher contacted the original author of the tool to request permission to use it in this study. Where the researcher obtained a approval to use the tool Brief illness perception questionnaire (BIPQ) from original author Elizabeth Broadbent, also obtained approval from Morisky to use the tool of eight item-Morisky Medication Adherence Scale (8-MMAS). This study was designed to be a descriptive, quantitative, cross-sectional study, was amid to an Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital. This study recruited 424

participants, who were selected according to the inclusion criteria include: Patients aged 18-above, being able to communicate with researcher, Patients with recorded diagnose of hypertension for at least six months with a medical treatment regimen, Not having psychiatric illness. and Exclusion criteria include Refusal of patients to take part in the research, Pregnancy, and hospitalization of patients. Were the data analysis by using SPSS version 25, descriptive statistics (percentage, frequency, SD, mean) used to describe socio-demographic data, Inferential statistics (chi- square test) was used to assess the association between illness perception and treatment adherence.

Data analysis method

To analyze and evaluate the study's data, the following statistical data analysis methodologies were applied (SPSS-ver. 25).

- Statistics tables are used in descriptive data analysis (Frequencies and percentages).
- arithmetic mean & arithmetic average (MS).
- The pilot study's reliability (Alpha Cronbach) coefficient (*r*).
- Examining whether or not the observed frequencies are randomly distributed in relation to their expected multiple-categorical nominal scale with a Chi-Square test.

Ethical consideration

- Permission from Iran University of medical sciences were obtained via the research ethics committee. (Appendix E)
- Permission from the Iraqi ministry of health was obtained before collecting data. (Appendix F)
- Informed written consent was obtained from each participant. (Appendix A)
- Confidentiality and benefit/non-harm. a respect for the individual's right to choose whether or not to participate in this research.

The Ethics Committee of Iran University approved the study
(IR. IUMS. REC. 1401. 086). https://ethics. research. ac. ir/IR. IUMS. REC. 1401. 086

Findings

This study was conducted among 424 patients. Who are attending the outpatient clinics in Nasiriyah Teaching Hospital, its amid to Investigate Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital, the study found that most of the samples are from males, 54. 7%, while the highest age group was (50-59). And when evaluate Brief Illness Perception Questionnaire (Brief-IPQ) among all respondents of the study samples, that showed the high mean (5. 98) within item 6 illness concern, while the lowest mean (5. 00) appears with item 1 consequence at cognitive representation illness perception. And the overall evaluation of Brief Illness Perception Questionnaire (Brief-IPQ) was (moderate) with mean (43. 0684). The calculation of possible scores obtained from the Brief-IPQ ranges from 0 to 80, higher scores indicated more threatening view of illness perception, the score of 0 to 27 indicated 'high threatening illness perception', the score of 28 to 54 indicated 'moderate threatening illness perception' and 55 to 80 indicated 'low threatening illness perception. While the overall evaluation of eight item-Morisky medication adherence scale 8-MMAS are (low adherences) with mean (3. 7588). The total score of this scale is from 0 to 8. The classification of patients according to their scores is as follows: less than 6 (low adherence), 6 to 7 (moderate adherence), and 8 (high adherence).

Tables and charts:

Table 1: Statistics Distribution of the Study Sample by Their Socio-Demographic data N= 424.

Demographic data	Scale	Frequency	Percent
Age/ years	30-39	51	12. 0
	40-49	123	29. 0
	50-59	145	34. 2
	60-69	78	18. 4
	70-79	27	6. 4
	Total	424	100. 0
Gender	Male	232	54. 7
	Female	192	45. 3
	Total	424	100. 0
Marital Status	Single	26	6. 1
	Married	295	69. 6
	Widow/ widower	61	14. 4
	Divorcee	42	9. 9
	Total	424	100. 0
	Single	26	6. 1
Educational Status	No formal education	82	19. 3
	Primary level	102	24. 1
	Secondary level	109	25. 7
	University	79	18. 6
	Higher Secondary	52	12. 3
	Total	424	100. 0
Occupation	Housewife	109	25. 7
	Unemployed	122	28. 8
	Government	112	26. 4
	Business	80	18. 9
	Others	1	0. 2
	Total	424	100. 0
Monthly Family Income	Sufficient	121	28. 5
	Barely sufficient	163	38. 4
	Insufficient	140	33. 0
	Total	424	100. 0
Residential area	Rural	220	51. 9
	Urban	204	48. 1
	Total	424	100. 0

This table (1) show that the study result by their socio-demographic data was indicate that the male among all study samples represents 54. 7, while the highest age group was between (50 to 59) which represents 34. 2. And most of the study samples were married accounted 69. 6. In related to the educational status this table revealed that the majority of study sample within secondary level of education and account 25. 7 of all study sample. And occupational status revealed that most of the study samples were employed and account 28. 8. Also, the study result indicates that monthly income within barely insufficient and within rural area regarding to residential area living.

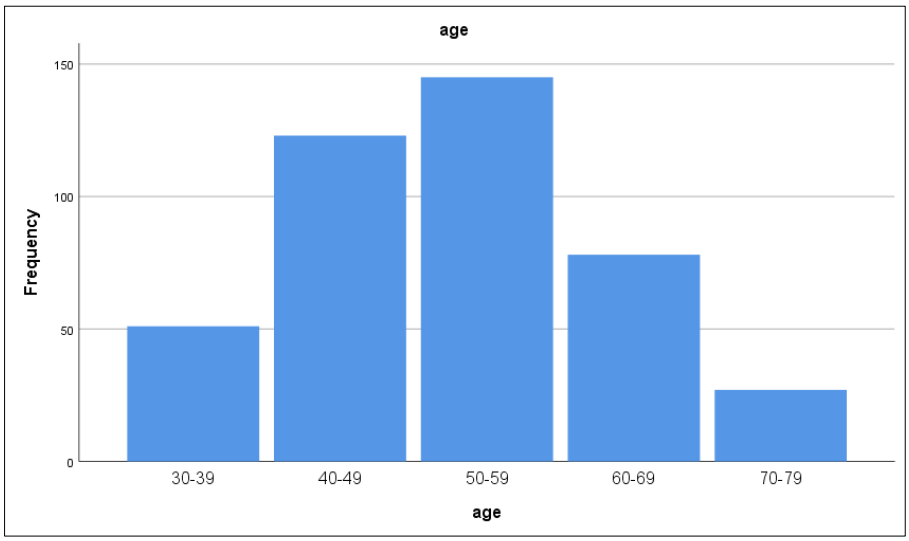

Fig 1: Assessment of age years for study sample

Table 2: Study sample Statistical distribution by Clinical Data (N=424):

Clinical data	Scale	Frequency	Percent
Month(s) Diagnosed with Hypertension	< 6 months	48	11. 3
	6 to 12 months	160	37. 7
	12 to 24 months	143	33. 7
	> 24 months	73	17. 2
	Total	424	100. 0
Comorbidities:	No	107	25. 2
	Heart Disease	74	17. 5
	Diabetes Mellitus	164	38. 7
	Dyslipidemia	73	17. 2
	Renal disease	6	1. 4
	Total	424	100. 0
Smoking	Yes	239	56. 4
	No	101	23. 8
	Previously Smoking	84	19. 8

The table above show that the majority of the study participants their diagnosis is between 6 to 12 months accounted for 37. 7, and most of the study sample comorbidities within diabetes mellitus, Also the study sample are revealed almost of respondents 56. 4 with yes to smoking

Descriptive Statistics

Table 3: Distribution of the responses for study sample among Brief Illness Perception Questionnaire (Brief-IPQ):

	N	Minimum	Maximum	Mean	Std. Deviation
1. How much does hypertension affect your life?	424	1	9	5. 00	1. 693
2. How long do you think hypertension will continue?	424	0	9	5. 68	1. 704
3. How much control do you feel you have over hypertension?	424	0	9	5. 20	1. 715
4. How much do you think your treatment can help hypertension?	424	0	10	5. 27	1. 768
5. How much do you experience symptoms from hypertension?	424	2	10	5. 02	1. 638
6. How concerned are you about hypertension?	424	0	10	5. 98	2. 040
7. How well do you feel you understand hypertension?	424	0	10	5. 64	2. 259
8. How much does your hypertension affect you emotionally? (e. g., does it make you angry, scared, upset or depressed?)	424	0	9	5. 28	2. 317
Valid N (listwise)	424				

This table show the distribution of Brief Illness Perception Questionnaire (Brief-IPQ) among all respondents of the study samples, that showed the high mean within item 6 illness concern, while the lowest mean (5. 00) appears with item 1 consequence at cognitive representation illness perception.

Table 4: Distribution of the Responses for Study Sample among eight item-Morisky medication adherence scale (8-MMAS):

1. Do you sometimes forget to take your antihypertensive pills?	yes	196	46. 2%
	No	228	53. 8%
2. People sometimes miss taking medications for reasons other than forgetting; thinking over the past two weeks was there any days when you did not take your medicine?	yes	280	66. 0%
	No	144	34. 0%
3. Have you ever cut back or stopped taking your medication without telling your doctor because you felt worse when you took it?	yes	230	54. 2%
	No	194	45. 8%
4. When you travel or leaving home do you sometimes forget to bring along your medication?	yes	242	57. 1%
	No	182	42. 9%
5. Did you take your antihypertensive pills yesterday?	No	200	47. 2%
	yes	224	52. 8%
6. When you feel like your blood pressure is under control, do you sometimes stop taking your medicine?	yes	211	49. 8%
	No	213	50. 2%
7. Do you ever feel hassled about sticking to your treatment plan?	yes	231	54. 5%
	No	193	45. 5%

Table (4) show the distribution of Study Sample among eight-item Morisky medication adherence scale (8-MMAS), that showed the high percentage within item number one within (53. 8%) while the lowest percentage appears within item number two within (34. 0%).

Table 5: Distribution of the item eight of the MMAS

8. How often do you have difficulty remembering to take your medication?					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	All the time	12	2. 8	2. 8	2. 8
	usually,	102	24. 1	24. 1	26. 9
	Sometimes	202	47. 6	47. 6	74. 5
	once in a while	75	17. 7	17. 7	92. 2
	Never	33	7. 8	7. 8	100. 0
	Total	424	100. 0	100. 0	

The above table shows that the participant's answers to the eighth question (How often do you have difficulty remembering to take your medication?) of the 8-MMAS, were in the majority 47. 6 of participant's answer Sometimes

Tables (6-7) Summery statistics for overall evaluation of Brief Illness Perception Questionnaire (Brief-IPQ).

Table 6:

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	moderate	414	97. 6	97. 6	97. 6
	low	10	2. 4	2. 4	100. 0
	Total	424	100. 0	100. 0	

Table 7:

	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
BIPQ	424	28. 00	72. 00	43. 0684	5. 73056
Valid N (listwise)	424				

These tables (6-7) shows that the study results that indicate overall evaluation of Brief Illness Perception Questionnaire (BIPQ) was (moderate) with mean (43. 0684), which account 97. 6 of all study participants. The calculation of possible scores obtained from the Brief-IPQ ranges from 0 to 80. Higher scores indicated more threatening view of illness perception, the score of 0 to 27 indicated 'high threatening illness perception', the score of 28 to 54 indicated 'moderate

threatening illness perception' and 55 to 80 indicated 'low threatening illness perception

Tables (8-9) Summery statistics for overall evaluation of eight item-Morisky Medication Adherence scale (8-MMAS).

Table 8:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low	341	80. 4	80. 4	80. 4
	medium	80	18. 9	18. 9	99. 3
	high adherence	3	. 7	. 7	100. 0
	Total	424	100. 0	100. 0	

Table 9:

	N	Minimum	Maximum	Mean	Std. Deviation
MMAS	424	. 50	7. 75	3. 7588	1. 37987
Valid N (listwise)	424				

These tables (8-9) shows that the study results that indicate overall evaluation of eight item-Morisky Medication Adherence scale (8-MMAS) was (low) with mean (3. 7588), which account 80. 4 of all study participants. The total score of this scale is from 0 to 8. The classification of patients according to their scores is as follows: less than 6 (low adherence), 6 to 7 (moderate adherence), and 8 (high adherence).

Tables (10,11) Summery Statistics for association between overall evaluation of Brief Illness Perception Questionnaire (Brief-IPQ) and eight item-Morisky Medication Adherence scale 8-MMAS.

Table 10: Correlations

		BIPQ	MMAS
BIPQ	Pearson Correlation	1	. 155**
	Sig. (2-tailed)		. 001
	N	424	424
MMAS	Pearson Correlation	. 155**	1
	Sig. (2-tailed)	. 001	
	N	424	424
**. Correlation is significant at the 0. 01 level (2-tailed).			

Table 11: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3. 028a	2	. 220	. 164
Likelihood Ratio	2. 568	2	. 277	. 274
Fisher's Exact Test	3. 892			. 164
Linear-by-Linear Association	2. 259b	1	. 133	. 242
N of Valid Cases	424			
a. 3 cells (50. 0%) have expected count less than 5. The minimum expected count is . 07.				
b. The standardized statistic is 1. 503.				

These tables (10-11) show that the study results indicate there is positive correlation between Brief Illness Perception Questionnaire (Brief-IPQ) and eight item-Morisky Medication Adherence scale (8-MMAS), and also when analyze by Chi-square (table 11) illustrate there is significance or relationship between Brief Illness Perception Questionnaire (Brief-IPQ) and eight item-Morisky Medication Adherence scale (8-MMA).

Recommendation & Conclusion

Short Explanation:

Many people throughout the world suffer with hypertension, and in the United States, it is the most common reason for nonpregnant adults to visit their doctor and take long-term prescription medications. As many as half of people with high blood pressure (hypertension) have difficulty controlling their blood pressure. Non-adherence to treatment plans and prescription drugs is an important challenge in patients with chronic diseases, non-adherence with treatment plans in these patients causes serious consequences, including disease recurrence and progressive disability, so they may need serious treatments. and be admitted to the hospital. Sometimes non-adherence with treatment regimens leads to irreversible complications such as stroke or heart attack, so it is considered as a serious medical condition that significantly increases the risk of heart, brain, kidney, and other diseases. Hypertension affects an estimated 1. 28 billion people ages between 30 to 79 worldwide, with two-thirds of those living in low- and middle-income nations. Many people with hypertension do not know they have the condition. Only 42% of people with high blood pressure are diagnosed and treated, making this a major public health problem. One in five hypertensive people has their blood pressure under control. Premature death is a leading cause of death in the world because to hypertension. Over the course of the next decade, the prevalence of hypertension is expected to fall by 33%. About 44 percent of Iraqi individuals are estimated to have hypertension. Indeed, there are very few research in Iraq on the treatment and results of hypertension. (Nassr and Forsyth, 2019) [57].

Conclusion & Discussion

Discussion Socio-Demographic Characteristics of Study Sample

The study result by their demographic data that indicate age groups within (50-59) years are 34. 2. And among all study sample male within percent 54. 7. the finding agree with results of (Bashyal and Thapa, 2020) [10], that revealed that over half of those polled (47. 8%) were ages of 60 years, although there were 58% of men among those surveyed., these findings supported with study done at iraq within (Mahmood *et al*., 2019) [50], that revealed that the majorty of study sample were male gender, Also in regardinding to study age sample were agree within study by (Wake *et al*., 2021) [86], that mention Patients with hypertension who participated in the research responded to 98% of the time participants were on average 55. 17 years old and the standard deviation of 17. 986 years. And this study shows the most of the participants were married accounted 69. 6. In related to the educational status this study revealed that the majority of study sample within secondary level of education and account 25. 7 of all study sample. Also study result indicate monthly income within barely insufficient, The (Yassin and Hassan, 2020) [92], study in Iraq in Al-najaf Al-ashraf city, evidence supported marital status and deffer within educational level, monthly income and occupation, by which revealed that According to educational level, 22% of the study sample graduated from university or above, 58% of them were married at a low economic position, and 36% of them were retired. And within rural area regarding to residential area living, thses sopported within a study by (Hassan, 2015) [34] that mention the majorty of study sample were lived at city and accounted for 85. 8 of total study sample.

Discussion of the Study Sample's Clinical Data

The study results indicate the clinical data for study sample related to duration of hypertension diagnosis the majority of the participants their diagnosis is between 6 to 12 months accounted for 37. 7,these results not agree with (Imam, Sundström and Lind, 2020) [36] that revealed that after a decade of monitoring, 285 of them (or 70 percent) were found to have hypertension. It was 5 years ago when the average time to diagnosis was. and this study revealed that most of the participants comorbidities within diabetes mellitus, Also the study sample are revealed almost of respondents 56. 4 with yes to smoking, these results supported by the study results done by (Thagizadeh *et al*., 2022) [79] shows that 54. 2% of participants who had a family history of cardiovascular disease, Some 66. 4 percent had a cardiovascular risk factor, such as diabetes, at the time of the study (36. 6 percent), Also twenty-six percent of participants reported smoking.

Discussion of the Distribution and Overall Evaluation of the responses for study sample among Brief Illness Perception Questionnaire (Brief-IPQ)

The distribution of Brief Illness Perception Questionnaire (Brief-IPQ) among all respondents of study sample, that showed the high mean within item 6 illness concern, while the lowest mean (5. 00) appears with item 1 consequence at cognitive representation illness perception., these evidence not agree with study results by (Salome Oyiela and Deborah Kemunto, 2021) [68] that demonstrated that the Consequences and Timeline subscales as well as the Identity and Emotional representations of the patient's self-perceived illness are associated with higher patient self-reported scores. It's clear that patients who score highly on the “consequence”, "Personal control," "Treatment management," "concern," or "illness comprehensibility" scales are confident in their view that their illness is within their power to manage and comprehend, but this does not necessarily mean that the patient has a positive attitude toward the illness.

Discussion of statistics for overall evaluation of Brief Illness Perception Questionnaire (Brief-IPQ)

Tables (6-7) show that the study results that indicate overall evaluation of Brief Illness Perception Questionnaire (Brief-IPQ) within mean of score (43. 068) which evaluated as (moderate), Because of this, the (Brief-IPQ) is possible scores vary from 0 to 80. More dangerous illness perception was reflected by higher scores, with a score of 0 to 27 indicating the highest level of threat, the score of 28 to 54 indicated ‘moderate threatening illness perception’ and 55 to 80 indicated ‘low threatening illness perception. This finding agrees with study done by (Wattanaburapakul, Leelacharas and Jianvitayakij, 2021) [87], The study had a total of 100 participants. The study finding revealed that was moderate score for Brief Illness Perception Questionnaire (mean of 38. 5 12. 3).

Discussion of the Distribution and Overall Evaluation of the responses for study sample among eight item-Morisky Medication Adherence scale (8-MMAS)

According to Table (4) of eight item-Morisky medication adherence scale (8-MMAS), the highest the high percentage within item number one within (53. 8%) while the lowest percentage appears within item number two within (34. 0%), While table (8-9) show the overall evaluation of eight item-Morisky medication adherence scale (8-MMAS) are low adherences with mean (3. 7588), which account 80. 4 of all study participants, this evidence supported by study results done in Egypt, Ismailia city Suez Canal university hospital with a total sample of 90 hypertensive patients, by (Ahmed *et al*., 2019) [3, 48] that demonstrate there is a low level of adherence in Less than two thirds (61. 1%) of the participants, and there is a significant association between the level of adherence to anti-hypertensive medications and blood pressure control ($p<0.01$). in addition this study supported by the study conducted at Marjan Teaching Hospital in Babylon I Iraq, by (Alsallami and Abutiheen, 2015) [6] that demonstrate 57. 9% had low adherence with treatment regimen.

Final result and conclusion

1. The Brief Illness Perception Questionnaire (Brief-IPQ) results have been thoroughly analyzed (moderate).
2. In total score, the eight item-Morisky medication adherence scale (8-MMAS) provides (low adherences).
3. There is a positive correlation between the Brief Illness Perception Questionnaire (Brief-IPQ) and the eight item-Morisky Medication Adherence Scale (8-MMAS).

Knowledge translates

According to the results obtained from this study, the percentage of adherence to medication was found low. This contributes to increasing the burden on health institutions by directing patients to hospitals in search of a treatment for the complications resulting from their lack of adherence to taking medication. Although the illness perception of the patients

was moderate. the low adherence indicates the presence of many factors that can affect the patients' non-adherence to taking their medication, as in the lack of awareness and educational programs showing the importance of taking treatment and adhering to medication. So, the researcher urges the establishment of training workshops and special programs that explain the importance of adherence to taking medication.

Suggestions for the application of the findings:

Clinical domain:

Each patient must follow a variety of recommendations when making daily considerations about medication adherence and illness perception in order to control their hypertension. It also needs the ability of the individual to control many parts of their own lifestyle.

Educational domain:

Advocating for educational training workshops targeted at improving the perception of illness and medication adherence.

Research domain:

The study suggests that more specific research in the area of hypertension illness perception and medication adherence be carried out, including giving each patient an educational package, booklet, or video.

Suggestion for next research

The researcher Suggest that it is necessary to conduct studies and research similar to this study in a broader field to include the largest number of the population of Iraq and not be limited to a specific region as in this study. The patient's adherence to taking treatment is affected by many factors, which requires a vigorous effort to know these factors and the behavior of society towards the adherence to take their treatment. As the low adherence to taking medication would increase the health burden on society, as well as contribute to increasing patients' readmission to hospitals to find solutions to the complications resulting from their lack of adherence to taking treatment, and this contributes to increasing the burden on health institutions, so the researcher believes that it is necessary to develop quality Research interested in the patient's adherence and illness perception towards taking medication**.** Due to the fact that this study was a cross-sectional study, it is suggested to conduct interventional studies related to the effect of education on patient's adherence and illness perception.

Limitation:

The limitations found in this study are as follows:

1. The results of this study cannot be generalized to all hypertensive patients in Iraq. because the study was conducted in southern Iraq in the city of Nasiriyah only.
2. There are no previous studies were conducted at the same place of the study on illness perception and medication adherence.

The instruments used for investigation medication adherence and illness perception are self-reporting instrument, thus there is a risk of social desirability biases**.**

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How to Cite This Article
Sagban AK. Investigating medication adherence and illness perception among patients with hypertension in Al-Nasiriyah Teaching Hospital in 2022. Int J Med All Body Health Res. 2025;6(4):93-112. doi:10.54660/IJMBHR.2025.6.4.93-112.