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Investigating medication adherence and illness perception among patients with hypertension in Al-Nasiriyah Teaching Hospital in 2022

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Abstract---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. Hence, it is considering a serious challenge for the patients as well as for caregivers. The main objective of this study was to an Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital. 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. The data were collected over a period of three months from April 6th, 2022, to July 1st, 2022, by using a questionnaire includes three parts, related to Socio- Demographic and clinical data, eight item-Morisky Medication Adherence Scale (8-MMAS), and Brief illness perception questionnaire (BIPQ). 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) was used to assess the association between illness perception and treatment adherence, and Anova used to find the relationship between overall evaluation of (BIPQ), eight item 8-MMAS and Demographical data. Were the results revealed a total score of (BIPQ) were (Moderate) and the eight item-MMAS total score were (low adherences). There is a correlation between the (BIPQ) and the eight item-MMAS, the level of

education is significantly more important than other sociodemographic characteristics such as age, gender, and marital status that is revealed non significantly. Each patient must follow a variety of recommendations when making daily considerations about medication adherence and illness perception to control their hypertension. It also needs the ability of the individual to control many parts of their own lifestyle. Thus, 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.

Keywords---medication adherence, illness perception, hypertension.

Introduction

Hypertension is defined as a chronic disease diagnosable in the office or clinic when the person has an SBP of more than 140 mm Hg and/or DBP more than 90 mm Hg after repeated examination (1). High blood pressure is one of the greatest dangers to human health, particularly in poor nations, It is now one of the most prevalent long-term illnesses. (2). 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 (3).

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. (4). 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 (5).

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, patients' understanding of the disease may be key to Provide appropriate interventions and enable patients to control their disease (6). The effect of the disease and cognitive ability may play an important role in determining perceptions of the disease (7). 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 (8).

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. (9).

Objectives of the study

Research Main Objectives

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

Research Specific Objectives

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

Research Questions

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

Materials and Methods

Study Design

A descriptive design, Cross-sectional was a carried out from April 6th, 2022, to July 1st, 2022, in order to Investigating Medication Adherence and Illness Perception Among Patients with Hypertension in Al-Nasiriyah Teaching Hospital.

Study Setting

The study was conducted at AL- Nasiriyah Teaching Hospital in Al Nasiriyah city, Thi-Qar, Iraq.

Sample Size and Sampling method

Anon –Probability sampling technique. 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., who matched the inclusion criteria. 1. Patients aged 18-above. 2. Being able to communicate with researcher. 3. Patients with recorded diagnose of hypertension for at least six months with a medical treatment regimen 4. Not having psychiatric illness. Were the Exclusion criteria involved: 1. Refusal of patients to take part in the research. 2. Pregnancy and hospitalization of patients.

The questionnaire was filled from each patient through direct interview, People who met the study requirements were selected using a convenience nonprobability selection procedure. The sample size calculation assumed a 95% confidence level 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 formula.

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

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). 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.

Instrument

For the purpose of the present study, data was collected by using a questionnaire in this study; the researcher was use 3 tools: first part is Socio-demographic and clinical data: The Demographic information (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 is Illness perception: Illness perceptions was evaluated by the (BIPQ) Brief Illness Perception Questionnaire (10). The BIPQ designed by (11) is a quick and easy way to gauge how people think and feel about their health. The BIPQ consists of a total of nine components. Items 0 through 9 on a continuous linear scale are new additions, while item 9 is an open-ended inquiry that can be answered in any way you choose. 0 means "no effect at all," while 10 means that the result has had a significant impact on one's life. The BIPQ has a possible score range of 0 to 80. Higher scores indicated a more ominous perspective of disease; a score ranging from 0 to 27 showed "high threatening illness perception," a score ranging from 28 to 54 indicated "moderate threatening illness perception," and a score ranging from 55 to 80 indicated "low threatening illness perception. ". the third part is Medication adherence: The Morisky Medication Adherence Scale MMAS-8 was

used to measure medication adherence, evaluation of the patient's adherence to their medical therapy. There are eight questions on it. There are just two possible answers to questions one through seven: yes or no. Answers to the eighth question are given on a five-point scale: never, almost never, occasionally, frequently, and always. There are no right or wrong answers. This scale has a range of 0 to 8 as its total score. Patients are divided into three groups based on their adherence scores: those with scores of 6 or lower (poor adherence), those with scores of 6 to 7 (moderate adherence), and those with scores of 8 or higher (moderate adherence) (high adherence).

Pilot study

Sample size of 20 participants was used in the pilot study to ensure that the questionnaire's reliability and validity. Patients with hypertension at Al-Nasiriyah Teaching Hospital in 2022 were asked to participate in the study between April 6th, to March 6th, 2022, and the goal was to examine medication adherence and illness perception. Measure the amount of time it takes to collect data and improve the questionnaire's reliability and validity. Having analyzed the questionnaire's clarity and content adequacy, identify any impediments to data collection.

Validity of the Questionnaire

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.

- 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 of the Questionnaire

The Alpha Correlation Coefficient (also known as Cronbach's Alpha) was used to assess the instrument's internal consistency. Statistical Package for Social Science Program (SPSS) version 25.0 was used to test the instrument's reliability using the Coefficient Alpha. Internal consistency and equivalence measurability of the questionnaires were found to be statistically acceptable (Table:1) according to the reliability results

Scale	Cronbach's Alpha (<i>r</i>)		Internal consistency
	Test	Retest	
Brief Illness Perception Questionnaire (BIPQ):	0.927	0.925	Excellent

Morisky Medication Adherence scale MMAS	0.891	0.940	Excellent
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Table 1: Reliability Analysis of the Scale (N= 20):

Data Analysis

In order 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).
- Graphical presentation with the help of: "

Inferential data analysis was used to determine whether or not to accept or reject the statistical hypotheses, such as:

- Examining whether or not the observed frequencies are randomly distributed in relation to their expected multiple-categorical nominal scale with a Chi-Square test.
- Testing the significance of the contingency coefficient.
- The method used to determine the difference is analysis of variance (ANOVA) for determining equality of means (testing of coincidence for variations in the parameter of the mean).

Results and Discussion

Table2: distribution of the responses for study sample among Brief Illness Perception Questionnaire (BIPQ)

BIPQ items	Emotional illness Representations		Cognitive illness Representations	
	Mean	S. d	Mean	S. d
Consequence	5.00	1.693		
Timeline	5.68	1.704		
Identity	5.20	1.715		
Concern	5.27	1.768		
Emotional response	5.02	1.638		
Personal control			5.98	2.040
Treatment control			5.64	2.259
Understanding			5.28	2.317

Table2 show that the study results that indicate overall evaluation of Brief Illness Perception Questionnaire (BIPQ) within mean of score (43.068) which evaluated as (moderate), Because of this, the BIPQ's 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 agree with study done by (12), The study had a total of 100 participants. Hill-Bone Compliance with Treatment for Hypertension The individuals' tally on the scale was moderately high. (Mean of 33.1 10.1) and low for Brief Illness Perception Questionnaire (mean of 38.5 12.3), respectively. However, they had a distorted view of their HT as a health hazard or were unconcerned enough about the treatment's significance. In addition, individuals were reluctant to take medication unless it was explained to them clearly. People over the age of 65 and those with a college degree were more likely to adhere to high blood pressure treatment.

Table3: Distribution of the Responses for Study Sample among Morisky medication adherence scale MMAS

Items	Scale	Frequency	Percent	Mean	S. d
Do you sometimes forget to take your antihypertensive pills?	Yes	196	46.2	0.54	0.499
	No	228	53.8		
	Total	424	100.0		
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	0.34	0.474
	No	144	34.0		
	Total	424	100.0		
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	0.46	0.499
	No	194	45.8		
	Total	424	100.0		
4. When you travel or leaving home do you sometimes forget to bring along your medication?	yes	242	57.1	0.43	0.496
	No	182	42.9		
	Total	424	100.0		
5. Did you take your antihypertensive pills yesterday?	no	200	47.2	0.53	0.500
	yes	224	52.8		
	Total	424	100.0		
6. When you feel like your blood pressure is under control, do you sometimes stop taking your medicine?	yes	211	49.8	0.50	0.501
	No	213	50.2		
	Total	424	100.0		
7. Do you ever feel hassled about sticking to your treatment plan?	yes	231	54.5	0.46	0.499
	No	193	45.5		
	Total	424	100.0		
8. How often do you have difficulty remembering to take your medication	All the time	12	2.8	0.508	0.229
	Usually	102	24.1		
	Sometimes	202	47.6		
	Once in a while	75	17.7		
	Never	33	7.8		
	Total	424	100.0		

According to Table3 revealed of Morisky medication adherence scale MMAS, the highest mean was found in Item No. 1 (0.54), while the lowest was found in Item No. 2 (0.34), While table4 show the overall evaluation of Morisky medication adherence scale MMAS are (low adherences) , this evidence supported by (13), study results revealed that When compared to those with higher MMAS levels of knowledge (6.451.45 vs. 7.081.04; P=0.038), the adherence scores of those in the low-knowledge group were lower. Between the low-knowledge group and the high-knowledge group, there was a statistically significant difference (P=0.023) in the percentage of patients with low adherence. Also there is none consistent with mixed method study design study results done at Iraq at 2021 by (14), that mention that A scale of 0 to 8 was used to rate participants' level of adherence to the MMAS-8 questionnaire. Iraqi patients were divided into three categories based on their MMAS-8 scores: medium to high (MMAS-8 score 6 to 8) or low (MMAS-8 score 6). (MMAS-8 score 9 to 12). A score of 8 (MMAS-8). Only 18.2 percent of those who participated in this study were found to have low adherence.

Table4: Summery statistics for overall evaluation of Brief Illness Perception Questionnaire (BIPQ) and Morisky Medication Adherence scale MMAS

Overall evaluation	Statistics		
	Mean Score	S. d	Evaluate
Brief Illness Perception Questionnaire (BIPQ):	43.0684	5.73056	Moderate
Morisky Medication Adherence scale MMAS	3.7588	1.37987	Low adherence

This table show that the study results that indicate the there is significance or relationship between Brief Illness Perception Questionnaire (BIPQ) and Morisky Medication Adherence scale MMAS at p. value , when analyze by Chi-squire, these evidences supported by the finding of (15), that revealed There was a connection between the HTN illness perception scale and medication adherence ($\chi^2=10.53$, P =.001). This study found that adherence was linked to two aspects of the HTN illness perception scale: "Consequence" and "Identity," indicating that open and honest communication between physicians about HTN and its treatment is essential for improving adherence. Also their is agreement with (16).

Table5: Summery Statistics for association between overall evaluation of Brief Illness Perception Questionnaire (BIPQ), Morisky Medication Adherence scale MMAS and Demographical Data

ANOVA							
Variables	Scales		Sum of Squares	df	Mean Square	F	P, Value
Age	BIPQ	Between Groups	2.794	4	0.698	1.366	0.245
		Within Groups	214.253	419	0.511		

		Total	217.047	423			
	MMAS	Between Groups	0.134	4	0.033	1.127	0.343
		Within Groups	12.450	419	0.030		
		Total	12.584	423			
Gender	BIPQ	Between Groups	0.004	1	0.004	0.008	0.930
		Within Groups	217.043	422	0.514		
		Total	217.047	423			
	MMAS	Between Groups	0.062	1	0.062	2.096	0.148
		Within Groups	12.522	422	0.030		
		Total	12.584	423			
Marital Status	BIPQ	Between Groups	0.525	3	0.175	0.340	0.797
		Within Groups	216.522	420	0.516		
		Total	217.047	423			
	MMAS	Between Groups	0.157	6	0.026	0.378	0.769
		Within Groups	5.483	93	0.059		
		Total	5.640	99			
Educational Level	BIPQ	Between Groups	5.101	4	1.275	2.521	0.041
		Within Groups	211.946	419	0.506		
		Total	217.047	423			
	MMAS	Between Groups	0.300	4	0.075	2.557	0.038
		Within Groups	12.285	419	0.029		
		Total	12.584	423			

The data in this table demonstrate the lack of significance or relationship between overall evaluation of Brief Illness Perception Questionnaire (BIPQ), Morisky Medication Adherence scale MMAS and Demographical Data (age, gender and marital status), while overall evaluation of Brief Illness Perception Questionnaire (BIPQ), Morisky Medication Adherence scale MMAS and Demographic data are significant or related with (educational level) at p. value more than 0.05, when analyses by Anova, these findings agree along with study by (17) in Egypt, that agree statistically significance with educational level relatively to this study but not agree with other demographics data which mention In terms of adherence, patients' gender, class, marital status, educational level, job title, and length of time on medication were all significantly associated with adherence.

Conclusions and Recommendations

Conclusion

Outcomes from the research contributed to these conclusions, according to the researchers:

1. 1.The BIPQ (Brief Illness Perception Questionnaire) results have been thoroughly analyzed (moderate).
2. In total score, the Morisky medication adherence scale MMAS provides (low adherences)
3. There is a correlation between the Brief Illness Perception Questionnaire (BIPQ) and the Morisky Medication Adherence Scale (MMAS), the level of education is significantly more important than other sociodemographic characteristics such as age, gender, and marital status.

Recommendations

1. 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.
2. Advocating for educational training workshops targeted at improving the perception of illness and medication adherence.
3. 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. Perception illness and medication adherence in hypertension are strongly influenced by patient perceptions, according to the findings of this study. it's important that it's founded on solid scientific concepts.

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