Effectiveness of self-care instructions upon hypertensive patients' outcome: A quasi-experimental design

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ABSTRACT

Background: The primary cause of cardiovascular disease and stroke is hypertension (HTN). However, it is rarely taken seriously and is frequently poorly managed. Lowering blood pressure (BP) lowers the hazards connected with it. The focus of hypertension therapy, as well as the debates over treatment paradigms, have shifted dramatically throughout time. Historically, the focus has been on identifying the best single-drug therapy for lowering the risk of cardiovascular disease (CVD).

Objectives: The current study aims to assess the psychological condition of hypertensive patients before and after the program to establish the therapeutic effectiveness of a self–care instructional program on hypertensive patients' outcomes.

Methods: A quasi-experimental design was used on 85 hypertensive patients who were sent to the AL-Najaf Center for Cardiac Surgery and Cardiac Catheterization for clinical consultation. Patients were randomly allocated to two groups of (50) patients in the study and (35) patients in the comparative over the study time. The study group was given instructions by the researcher. The comparable group is the group that has not been trained by the researcher.

Outcomes: The present study found that participants with hypertension in the study group improved more than those in a control group.

Conclusion: The study's findings and discussion lead to the major conclusion that the instructional program improves the psychological state of hypertension patients.

Recommends: Another instructional program's success in lowering problems, particularly for people with hypertension, may be determined by large-scale population research.

Keywords: Effectiveness, self-care, psychological, instruction program, hypertension.

Introduction

The primary cause of cardiovascular disease and strokeis hypertension (HTN). However, it is rarely taken seriously and is frequently poorly managed. Lowering blood pressure (BP) lowers the hazards connected with it. The focus of hypertension therapy, as well as the debates over treatment paradigms, have shifted dramatically throughout time. Historically, the focus has been on identifying the best single-drug therapy for lowering the risk of cardiovascular disease (CVD). (Beigi et al., 2014).

A systolic pressure of 140 mmHg and a diastolic pressure of 90 mmHg are considered hypertension. Prehypertension is described as a systolic pressure between 120

and 139 mmHg, as well as a diastolic pressure between 80 and 90 mmHg. (Solomon, 2017).

High blood pressure is the leading cause of cardiovascular illness and death throughout the world. Accurate blood pressure monitoring is critical because early detection and treatment of high blood pressure reduces the risk of future cardiovascular events. Recent evidence supports the use of home blood pressure monitoring for hypertension therapy since it gives clinical information that is superior to in-clinic blood pressure and improves medication adherence with lower blood pressures. As a result of this data, it is now widely recommended that home blood pressure be used to confirm hypertension diagnosis and medication titration. (Picone et al., 2020).

The current study aimed To test the effectiveness of self-care programs on patients' hypertension, a detailed psychological examination of patients' psychological health before and after utilizing self-care programs was conducted, and participants were compared to a control group.

The study hypothesis: Patients who attend the program exhibit a better psychological parameter compared with those who don't attend the program.

Materials and Methods

This Quasi-Experimental design was used on patients allocated to two groups (study and comparative) at Al Najaf Center for Cardiac Surgery and Cardiac Catheterization to research (the Effectiveness of self-care education on hypertension patients' outcomes). The research was conducted from December 27th to March 1st, 2021 to July 1st, 2022.

Selection of Participants: During the research period, a total of 118 patients were referred to the Al-Najaf Center for Cardiac Surgery and Cardiac Catheterization for hypertension consultation. Ten patients declined to engage in the study, seven patients did not finish the program, six patients were unable to read and write, ten patients in the pilot study, 50 patients in the study group, and 35 patients in the comparison group. The 85 participants in the research were divided into two groups: study group 50 and comparative group 35.

Sample and Sampling Technique: The current study includes 85 patients who were chosen using a non-probability (purposive sample) approach. All patients with hypertension are medically diagnosed and sent to the AL-Najaf Center for Cardiac Surgery and Cardiac Catheterization for clinical consultation.

Criteria for Sample Inclusion: The following criteria were utilized by the researcher to define the study subjects who were included in the study; patients who did not meet these criteria were essentially excluded:The criteria for the selection of the study sample were:

1. A patient with hypertension who has been diagnosed for more than a year.
2. The patient consented to take part in the research.
3. Patient must be able to converse, read, and write in order to get treatment.
4. Adults (18-79) of both genders.

Criteria for Sample Exclusion: Patients with end-stage renal illness who were unable to do the activities due to absolute or relative contraindications.

1. Patients who are unable to read or write.
2. Patients with heart failure.
3. Patients with renal failure .
4. Patients with disabilities.
5. Patients having a sickness that has lasted less than a year.

Randomization (The Group Assignment)

A total of 85 patients were randomized into two groups at random. The research group consisted of 50 patients, whereas the comparison group consisted of 35. The study group comprised of 50 patients who were subjected to the researcher's educational program. The comparison group is the group that was not exposed to the researcher's educational program. To eliminate selection bias and reduce possible confounding, random allocation is used. Patients were assigned to each group on a weekly basis to avoid interaction between the two groups. As a result, the intervention was randomly allocated

to the first week of the trial using a simple random procedure. After then, every other week, all of the eligible patients were randomly allocated to either the study or the comparison group.

The Comparative Group

The patients in the comparison group were just given the center's standard instructions. Specifically, the general teaching given by the nurses or physicians in the study's center. The physician or nurse delivering general hypertension teaching was also included in this information. If patients in the comparison group had questions for the researcher, they were told to direct them to the relevant health care team members, such as nurses and the physician.

The Study Group

The study group got the same information as the control group (the center's customary instructions), as well as an educational program designed by the researcher to offer patients with knowledge and enhance their psychological status, quality of life, and self-care management.

The Data Collection

Between December 27, 2021, and March 1, 2022, the instructional program was implemented at the AL-Najaf Center for Cardiac Surgery and Cardiac Catheterization (Clinical Consultations). After receiving clearance from the Ministry of Health/Al-Najaf Health Ministry, as well as the head of the AL-Najaf Center for Cardiac Surgery and Cardiac Catheterization. The nursing intervention in the experimental group was subsequently implemented using the methods below.

Patients gave their written consent to take part in the trial. The researchers first introduced themselves to all of the patients in the experimental group, then described the study's purpose, assuring them that all data obtained would be kept private and solely utilized for the study's purpose.

The psychological condition of the patients in the comparison group got just regular hospital treatment after the exam. Patients in the study group, on the other hand, received an educational program from the researchers in addition to their regular hospital treatment.

Depending on the scales utilized to assess the research phenomena, several data gathering methods are used.

The Statistical Analysis

Under the usage of the Statistical Package for the Social Sciences (SPSS) Ver. (26) and Microsoft Excel (2010), the following statistical data analysis technique is employed to examine the study's data:

Descriptive Statistics

The following metrics are included in the statistical data analysis approach:

A. Tables Frequencies, Percentages **=** frequencies x100/ Sample size

B. Summary statistic tables including (Mean of Score (M.S))

Inferential Data Analysis:

This form of statistical analysis is used to accept or reject statistical hypotheses, such as the ones listed below:

A) Paired t-test to determine whether the mean difference within the same group.

B) ANOVA test (analysis of variance) compares multiple (three or more) samples with a single test.

Resuts

Table (4.1): Distribution of Socio-Demographic Characteristics for both Study and Comparative Groups

Variables	Rating	Statistics	Grouping	
			Comparative	Study
Gender	Female	Freq.	12a	21a
		%	34.3%	42.0%
	Male	Freq.	23a	29a
		%	65.7%	58.0%
Age Group	<= 29.00	Freq.	0a	1a

		%	0.0%	2.0%
	30.00 - 39.00	Freq.	0a	2a
		%	0.0%	4.0%
	40.00 - 49.00	Freq.	8a	15a
		%	22.9%	30.0%
	50.00 - 59.00	Freq.	10a	21a
		%	28.6%	42.0%
	60.00 - 69.00	Freq.	11a	7a
		%	31.4%	14.0%
	70.00 - 79.00	Freq.	6a	4a
		%	17.1%	8.0%
	Mean + S.D		**58±10.2**	**52±10.28**
Residency	Rural	Freq.	11a	22a
		%	31.4%	44.0%
	Urban	Freq.	24a	28a
		%	68.6%	56.0%
Monthly income	<300000	Freq.	11a	16a
		%	31.4%	32.0%
	300000-600000	Freq.	13a	22a
		%	37.1%	44.0%
	601000-900000	Freq.	5a	7a
		%	14.3%	14.0%
	901000-1200000	Freq.	4a	2a
		%	11.4%	4.0%
	1201000-1500000	Freq.	2a	2a
		%	5.7%	4.0%
	>1500000	Freq.	0a	1a
		%	0.0%	2.0%
Educational level	Read and Write	Freq.	8a	6a
		%	22.9%	12.0%
	Primary School	Freq.	8a	15a
		%	22.9%	30.0%
	Intermediate school	Freq.	3a	11a
		%	8.6%	22.0%
	Secondary School	Freq.	5a	2a
		%	14.3%	4.0%
	Institute graduate	Freq.	8a	13a
		%	22.9%	26.0%
	University graduate	Freq.	3a	3a
		%	8.6%	6.0%
Job	House Wife	Freq.	9a	13a
		%	25.7%	26.0%

	Free Job	Freq.	15a	20a
		%	42.9%	40.0%
	Retired	Freq.	5a	5a
		%	14.3%	10.0%
	Governmental Employee	Freq.	6a	12a
		%	17.1%	24.0%
Smoking	Yes	Freq.	13a	16a
		%	37.1%	32.0%
	No	Freq.	22a	34a
		%	62.9%	68.0%
Alcohol	Yes	Freq.	1a	0a
		%	2.9%	0.0%
	No	Freq.	34a	50a
		%	97.1%	100.0%
Source of learning	Mass Media	Freq.	1a	0a
		%	2.9%	0.0%
	Social Media	Freq.	13a	16a
		%	37.1%	32.0%
	My Physician	Freq.	20a	31a
		%	57.1%	62.0%
	Health Care Provider	Freq.	1a	3a
		%	2.9%	6.0%

%= percentage, freq. = frequency (Each subscript letter denotes a subset of Grouping categories whose column proportions do not differ significantly from each other at the .05 level)

Table (4.1) indicates the statistical distribution of the participants according to their socio-demographic data. Regarding the study group, the study result indicates that most of the study group participants 50-59 years old (42.0%), male (58.0%) Primary School (22.0%). Those with free job (40.0%), their income is insufficient (44.0%) and their non-smoker (68.0%). While for the control group, the results of the study show that most of the control group participants are 60-69(31.4%) years old; male (65.7%) does read and write, primary school and institute graduate (22.9%), occupation status free job (42.9%), their income is insufficient (37.1%) and their non-smoker (62.9%)

Table (4.9) Comparison of Total Anxiety Score of Pre and Posttest between Study and Comparative Groups

Variables	Rating	Statistics	Grouping					
			Comparative	M.S.	S.D	Study	M.S.	S.D
Pre-test Anxiety	Mild	Freq.	4	14.05	2.48	5	14.24	3.17
		%	11.4%			10.0%		
	Moderate	Freq.	9			19		
		%	25.7%			38.0%		

	Sever	Freq.	22			26		
		%	62.7%			52.0%		
t-test (0.280), d.f. (83), P-value (0.7), NS								
Post-test Anxiety	Normal	Freq.	0	13.17	2.92	37	4.06	3.77
		%	0.0%			74.0%		
	Mild	Freq.	8			11		
		%	22.8%			22.0%		
	Moderate	Freq.	12			2		
		%	34.2%			4.0%		
	Sever	Freq.	15			0		
		%	43.0%			0.0%		
t-test (11.980), d.f. (83), P-value (0.000), HS								

% = percentage, freq. = frequency, d.f. = degree of freedom, M.S. =mean of score, S.D= standard deviation, NS = Non-Significant, HS =Highly Significant.

Table (4 – 9) shows that there is a non – significant difference between study and comparative pre-test Anxiety scores, but Shows a high significant difference between study and comparative groups in post-test; (i.e in other words, patients' anxiety level decreased after undergoing the program).

Table (4.11) Comparison of Total Depression Score of Pre and Posttest between Study and Comparative Groups

Variables	Rating	Statistics	Grouping					
			Comparative	M.S.	S.D	Study	M.S.	S.D
Pre-test Depression	Normal	Freq.	0	13.85	2.61	1	14.06	3.31
		%	0.0%			2.0%		
	Mild	Freq.	0			7		
		%	0.0%			14.0%		
	Moderate	Freq.	19			14		
		%	54.2%			28.0%		
	Sever	Freq.	16			28		
		%	45.8%			56.0%		
t-test (0.30), d.f. (83), P-value (0.7), NS								
Post-test Depression	Normal	Freq.	0	14.25	3.25	46	5.18	2.18
		%	0.0%			92.0%		
	Mild	Freq.	6			3		
		%	17.1%			6.0%		
	Moderate	Freq.	7			1		
		%	20.0%			2.0%		
	Sever	Freq.	22			0		
		%	62.9%			0.0%		
t-test (15.40), d.f. (83), P-value (0.00), HS								

% = percentage, freq. = frequency, d.f. = degree of freedom, M.S. =mean of score, S.D= standard deviation, NS = Non-Significant, HS =Highly Significant.

Table (4 – 10) Show there is non – a significant difference between study and comparative groups in pre-test Depression Score; but Shows a high significant difference

between study and comparative groups in post-test Depression Score; (i.e. in other words, patients' depression level decreased after undergoing the program).

Discussion

In the current study, participants were assigned into two groups (study group) who received(the researcher's program, physician education and the guideline of the ministry of health), and the comparative group (who received only physician education and the guideline of the ministry of health).

The outcome for the present study is to examine the effectiveness of self-care program on patients with hypertension. After implementation of the self-care program through the present work, the study results indicated an improvement in the study group of self-care compared with those participants in the comparative group (i.e., the applied method is an effective way to improve the self-care of patients diagnosed with hypertension.

Cardiovascular disease is the leading cause of mortality, responsible for roughly one-third of all deaths globally. Most of these events are caused not by one single cardiovascular risk factor but rather a mixture of several factors. The most important of these in industrialized countries are hypertension and high levels of blood lipids, obesity, physical inactivity, smoking, glucose intolerance/diabetes, and age. High blood pressure certainly represents a modifiable risk factor (Sawicki et al., 2011).

Table (4:1) presented that 29 (58%) of patients in the study group and 23 (65.7%) in the comparative group were male, this result accord with the study finding conducted by (Alkhaqani & Ali, 2021) stated that about 22 (68.8%), 21 (67.7%) of the participant were male in both group (study and comparative) respectively

Concerning the age group, about 21 (42%) of patients in the study group (50-59) years and 11 (31.4%) in the comparative group with age group (60-69), with the mean age for the study group was (52±10.28), and mean age for the comparative group was (58.5 ±10. 2), This result complies with the finding conducted by(Zhang et al., 2021) stated that the most mean of age group about (55.69 ± 10.14).

According to monthly income, most of the study participants in both groups (study and comparative) with income insufficient, about (44%, 37.1%) separately. This result corresponds with the finding conducted by (Tavakoly Sany et al., 2020), which stated that most of the participants with income were insufficient, about 25.6.

Regarding to educational level, the study participant shows about 15 (30%) of the study group were from primary school, and 8(22.9%) of the comparative group were (read and write, primary school and institute graduate). This results consent with the study finding conducted by (Sun et al., 2022) stated that about (34.34%) of the participant was in middle school.

Concerning to occupation, among the study participant shows in the study group, the most participant with a free job, Two fifths; these results harmonize with the finding conducted by (Bacha & Abera, 2019) stated that the majority about 122 (31.7%) of participants with free job.

According to smoking status, the majority about 43(68%), and 22(62.9%) of a participant in both group respectively were non-smoker; this result comply with the finding conducted by (Delavar et al., 2020) stated that the most of participant were non-smoker about 46 (85.2%).

Table (4.11) Comparison of Total Depression Score of Pre and Posttest between Study and Comparative Groups:

There is no – significant show between the study and comparison groups in the pre-test Depression Score. The current study consisted with (Birkie et al., 2022) showed the majority of patient 279 (66.4%) of imprisoned people, had major depressive disorder, while 281 (66.9%) had a generalized anxiety disorder.

The finding of a study done in Spain by (Aguirre-Camacho & Moreno-Jiménez, 2018) confirmed that Patients with considerably different levels of disease severity might develop clinically-significant depression

and anxiety was only accurately predicted in 50% and 56.5% of cases, respectively.

The study mentioned above which was conducted by (Liao et al., 2021) to "Associations between depressive symptoms, anxiety symptoms, their comorbidity and health-related quality of life: a large-scale cross-sectional study" Depressive symptoms, anxiety symptoms and their comorbidity were associated with low HRQoL in rural population, which needed further efforts on preventive and treatment interventions.

The current study consisted of (Takita et al., 2021) found that the study found that hypertensive patients are prone to depression. Identifying factors and themes that influence the psychological distress of hypertensive patients is important information that can be used to improve the support for the physical and mental health of these patients.

The finding of a study done in Turkey by (Sensoy et al., 2021) is that both anxiety and depression are common psychological disorders. Also, different from the symptoms of depression, the symptoms of anxiety are associated independently with hypertension. The current study consisted with (Yorke et al., 2018) found that the Patients with hypertension experience high levels of symptom severity and the negative impact on HRQoL was unchanged over time.

Table (4-11) shows high significance between the study and comparison groups in the post-test Depression Score. This result harmonize with the finding of the present study done by(Jafari & Shahriari, 2022) the results revealed that the regression model is statistically significant in predicting changes in Anxiety of study group with Mean± SD (7.6±1.5), Anxiety of the comparative group with Mean± SD (9.5±2.0), the results revealed that the regression model is statistically significant in predicting changes in depression of study group with Mean± SD (7.1±2.1), depression of comparative group with Mean± SD (9.4±2.0).

Moreover (Hwang & Sim, 2020) they studied the , the results and revealed that the regression model is statistically significant in predicting changes in the depression of study group with Mean± SD (5.80 ± 2.93), depression of the comparative group with Mean± SD (6.41 ± 4.00). Also (Ahmadpanah et al., 2016) confirmed that the results revealed that the regression model is statistically significant in predicting changes in the anxiety of the study group with mean (17.00), anxiety of comparative group with a mean (24.00).

The finding of a study mentioned above conducted with (Sensoy et al., 2021) showed that both anxiety and depression are common psychological disorders. Also, different from the symptoms of depression, the symptoms of anxiety are associated independently with hypertension, the symptoms of depression and anxiety irrespective of hospitalized status in the investigated groups, Anxiety (10.7±10.1), Depression (11.2 ± 9.3).

Moreover (Yeon et al., 2021) they studied forest therapy is preventive management and non-pharmacologic treatment to improve depression and anxiety; these results are consistent with the previous results on psychological effects, including depression and anxiety. The results showed that forest therapy is a more effective short-term intervention for adult depression prevention and treatment with an average effect size of 1.18 (95% CI: 0.86 to 1.50), $p < 0.0001$).

(Araya et al., 2021) showed that the almost of patients with hypertension or diabetes and depressive symptoms who received the digital intervention were significantly more likely to have a 50% or greater reduction of depressive symptoms than those in the enhanced usual care group 3 months after completing the intervention, but differences between groups were no longer statistically significant after 6 months.

The finding of a study done in South Africa by (Petersen et al., 2021) disagreed with the researcher`s results confirmed that the relation to the primary outcome, the collaborative care model incorporating lay counselling services did not result in a significant reduction in depressive symptoms in the study group compared to the control group.

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