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Research Paper

Adherence to Treatment Regimen and Spousal Social Support in Patients With Hypertension

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ABSTRACT

Background and Aim: Hypertension is one of the most significant risk factors for cardiovascular diseases. Social support is quite effective in patients with hypertension to adhere to their treatment regimens. Therefore, this study was conducted to investigate the relationship between adherence to treatment regimens and the perceived spousal social support by patients with hypertension.

Materials and Methods: This research was a cross-sectional (descriptive-analytical) study conducted on 239 patients with primary hypertension referred to urban community health centers in Qom City, Iran, in 2019. The patients were recruited by available sampling methods. The data collection tools included a demographic questionnaire, Hill-Bon medication adherence questionnaire, Sherbourne and Stuart social support questionnaire, checklist for assessing and recording systolic and diastolic blood pressure, measuring with the standard handheld barometer. The data were analyzed in the SPSS software v. 20 utilizing statistical tests.

Results: The findings revealed that more than half of the patients adhered to their treatment regimens, and they also benefited from high levels of social support. In addition, the findings demonstrated a significant relationship between treatment regimen adherence and spousal social support (P=0.004).

Conclusion: Spousal social support should be considered an influential factor on treatment regimen adherence and the systolic and diastolic blood pressure levels of patients with hypertension.

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Journal of Vessels and Circulation
Qom University of Medical Sciences

1. Introduction

Chronic diseases are responsible for 60% of deaths worldwide. Hypertension is among those chronic diseases. Hypertension is known as the “silent killer”. The disease is often asymptomatic and has become a global concern [1, 2]. Hypertension accounts for approximately 13% of global mortalities and is associated with illnesses, such as myocardial infarction, stroke, congestive heart failure, peripheral vascular and coronary artery diseases [3, 4]. At present, 400000 people die annually in Iran, of which 81000 are due to high blood pressure and stroke [5]. The findings of the latest national survey on the risk factors for non-communicable diseases (The WHO STEPwise Approach to NCD Risk Factor Surveillance [STEPS]) in 2017 revealed that hypertension had a 27% prevalence in Iran [6]. If not adequately treated, 50% of these patients will die of coronary heart disease, 33% from stroke, and 10%-15% from kidney failure [1]. Less than half of patients with heart problems perform the regular physical activity; less than 40% follow their medication regimen and control their weight, and less than 10% consume a low-salt diet [7].

On the other hand, even though anti-hypertension medications are considered the primary treatment, these treatments would not be effective if they were not completely followed [8]. The results of a study in Shiraz City, Iran, showed that more than two-thirds of patients with heart disease do not comply with instructions on taking anti-hypertension drugs [9]. Findings from other studies show that 50% of patients discontinue taking their medications during the first year of treatment [10]. Medications and lifestyle modifications have so far failed to control blood pressure adequately. One of the reasons for this low success relates to patients' refusal or ignoring treatment and medication regimens because of their beliefs [11]. There are multiple reasons for not following treatment instructions, including forgetfulness, lack of motivation, exorbitant medication prices, inadequate health literacy, complex medication regimens [12], distrust of the physicians and their diagnoses, carelessness in taking medications, drug side effects, religious considerations, and misunderstanding of doctor's instructions [9].

Several factors facilitate treatment adherence, such as reducing inappropriate and complex prescriptions [13], satisfaction with the treatment team, patient's social support, objective warnings to the patient, and involving the patient's family in the treatment process [14]. Family companionship and support are influential factors in treatment regimen adherence. The family is the primary and most significant source of support; spouses are often the first to act as a support source in times of crisis [15]. Among studies that have analyzed the effect of psychological variables on blood pressure, social support is the most key psychological variable that has received less attention and evaluation [16]. Social support as a situational factor can influence the patient's self-care behavior [17]. In a study by Taher et al. on the relationship between social support and adherence to treatment instructions in hypertension patients, the findings demonstrated a significant relationship between social support and adherence to the treatment regimen among patients [18]. The results of other studies have also shown that high levels of social support are associated with enhanced physical and psychological conditions [19]. Moreover, this support is not only quite helpful during times of stress but also helpful in educating and ultimately improving the patient's ability to adapt to the disease [20]. Therefore, consistent with what was said about the importance of adherence to treatment and social support in patients with hypertension, this study aimed to assess the relationship between adherence to treatment instructions and spousal social support in patients with hypertension in Qom City, Iran, in 2019.

2. Materials and Methods

This cross-sectional (descriptive-analytical) study was conducted on hypertension patients in Qom in 2019 for 9 months (early spring to late autumn). The statistical population was all hypertension patients referred to local community service centers. The minimum required sample size was estimated at 239 based on the findings of the Taher et al. study, taking into account the correlation between the treatment adherence and social support (r=0.18), and type I and II errors of 5% and 20%, respectively [18]. The inclusion criteria were age range 30-65 years, at least one-year history of primary hypertension, confirmation of uncontrolled primary hypertension by a physician, consumption of at least one blood pressure control medication, and having previously been a patient (with a health record) in local health service centers. The exclusion criteria were the patient’s unwillingness to continue the study and suffering from high blood pressure due to other illnesses (secondary hypertension). To collect the data, we used the demographic questionnaire, Hill-Bon diet adherence questionnaire, Sherbourne and Stewart (1991) social support questionnaire, checklist for systolic and diastolic blood pressure, which was recorded with the standard Brisk HS20A handheld barometer. The questionnaires were self-report and completed by the patients themselves. It is noteworthy that ethical consider-

ations were observed by elucidating the study's objectives to patients. Moreover, their participation in the study was voluntary, and their informed consent was obtained.

The demographic information questionnaire included age, gender, education level, income, and occupation. To measure adherence to the treatment regimen, we used the Hill-Bon hypertension diet follow-up scale designed by Kim et al. [21]. This questionnaire consisted of 14 questions and was organized in three areas of following up medication regimens, following up diets, and following up medical appointments. Each question had 4 response options: never, 1 point; sometimes, 2 points; often, 3 points; always, 4 points. In this questionnaire, the lowest score was 14, and the highest was 56. The Ashktorab et al. study verified the instrument's reliability. Also, the Cronbach α level was found 0.71 [22].

To measure social support, we used the MOS-SSS social support scale, developed by Sherbourne and Stewart in 1991 [23]. This test measures the social support level received by the subject. It had 19 expressions and 5 subscales. The informational/emotional support section included questions 1-8 assessing positive affection, empathy, guidance, being informed, and feedback. The tangible support section included questions 9-12 that analyzed material and behavioral assistance. In the affectionate section, qualifying expressions of love and affection included questions 13-15. The positive social interaction section, evaluating engagement in recreational activities, included questions 16-18, and the last question [19] was added as a bonus. The questionnaire is scored on a 5-point Likert scale (never, 1 point; rarely, 2 points; sometimes, 3 points; often, 4 points; always, 5 points) whereby the subject's level of agreement or disagreement can be determined. To analyze the questionnaire, the obtained scores were evaluated as follows. The minimum possible score was 19 and the maximum 95. A score between 19 and 38 indicated low-level family support. A score between 38 and 57 indicated average-level family support. A score above 57 indicated high-level family support. All points are added up together, and an overall score was attained. A high score by a subject on this scale indicated that he or she enjoyed satisfactory family support [23]. The reliability of this test was in the 0.7-0.93 range utilizing the Cronbach α coefficient. While confirming the content validity of this tool from the perspective of psychologists, in their study, Tamanayi-Far and Mansouri-Nik declared its reliability 0.97 calculated with the Cronbach α coefficient [24].

To measure blood pressure, the subjects were initially asked to rest for 10 minutes. Then their blood pressures were measured twice (in 5 minutes intervals) by the standard Brisk HS20A handheld barometer from their right hand in a sitting position. The average systolic and diastolic blood pressure of the individual was then recorded. Finally, the obtained data were entered into the SPSS V.20 software and analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (the independent t test, variance analysis, and the Pearson correlation coefficient). P-values less than 0.05 were considered the significance level in all statistical analyses.

3. Results

The study demonstrated that 74.1% (177) of the subjects were male, and 25.9% (62) were female. The Mean±SD age of participants was 54.39±8.37 years. The Mean±SD duration of hypertension disease was 6.06±5.16 years. Most patients (68.6%, n=164) had primary education. Regarding the social support analysis, the findings revealed that 10% (24 patients) had poor social support, 10.9% (26 patients) had moderate social support, and 79.1% (189 patients) had good social support. The Mean±SD total score of social support was 75.51±22.23 (within the 19-95 range), while the Mean±SD treatment regimen adherence was 42.02±7.78 (within the 19-55 range). Also, the Mean±SD systolic and diastolic blood pressures were respectively 127.3±19.6 and 80.8±11.7 mm Hg (respectively within 80-190 and 55-110 mm Hg range) (Table 1).

Based on the study of the relationship between demographic variables and social support, the ANOVA test demonstrated that occupation has a significant relationship with social support ($P<0.001$) and treatment regimen adherence ($P=0.001$). Homemakers receive the least support, and office workers have the least amount of treatment regimen adherence. Also, the study findings showed that education and income level have no significant relationship with social support and treatment regimen adherence ($P<0.05$) (Table 2).

The independent t test showed a significant relationship between gender, social support ($P<0.001$), and treatment adherence ($P=0.021$); the average social support and treatment adherence are higher in men than women (Table 2).

In assessing the relationship between demographic variables, the Pearson correlation coefficient demonstrated no significant relationships between age with social support components ($P=0.785$) ($r=-0.188$) and treatment adherence ($P=0.936$) ($r=-0.005$).

Journal of Vessels and Circulation
Qom University of Medical Sciences

Table 1. Social support, treatment regimen adherence, systolic, and diastolic blood pressure

Components	Minimum	Maximum	Mean±SD	Range
Emotional/Informational support	8	40	31.05±9.86	8-40
Tangible support	4	20	16.68±4.75	4-20
Positive social interaction	3	15	11.90±4.04	3-15
Kindness/Affection	3	15	11.80±3.93	3-15
Social support (Total)	19	95	75.51±22.23	19-95
Treatment adherence	19	55	42.02±7.78	14-56
Systolic blood pressure, mm Hg	80	190	127.3±19.6	-
Diastolic blood pressure, mm Hg	55	110	80.8±11.7	-

Journal of Vessels and Circulation
Qom University of Medical Sciences

Also, the Pearson correlation coefficient did not show a significant relationship between the duration of the disease and social support components (P=0.149) (r=0.094) and treatment adherence (P=0.316) (r=0.065). However, this test showed a significant relationship between the dimensions of social support and the treatment regimen adherence level (P<0.05). It also showed a significant relationship between treatment adherence and systolic (P<0.001) and diastolic (P=0.008) blood pressure levels (Table 3).

4. Discussion

This study examined the relationship between received spousal social support and treatment regimen adherence in patients with hypertension. The findings pointed out that treatment regimen adherence is at a desirable level in more than half of the patients. This result can be due to adequate spousal social support, the motivation and interest of patients to improve health and treat hypertension, also the endeavors of healthcare system staff to encourage and inspire the patients by providing the required training, follow-up, and treatment under direct supervision. These findings were similar to the Abbasi et al. [25] study where most hypertension patients obeyed their treatment regimen. Meanwhile, Hadi et al. [26] reported that treatment regimen adherence of hypertension patients was low compared to the present study (only 39.6%). Perhaps this difference can be due to the place of living, sociocultural beliefs, and easy access to health facilities. In the present study, the subjects were patients with records in comprehensive health service centers. The majority of them regularly and routinely went to the medical facilities every month near their place of residence to check their blood pressure and receive other care. These issues are the reasons why these individuals were more sensitive to their health status and, as a consequence, their additional adherence to their treatment regimen. The findings of our study pointed out that more than half of the subjects in this research enjoyed high social support (79.1%). Social support plays a crucial role in a person's tendency to carry out or abandon a particular behavior. This factor is influenced by perceived social pressure from family and close friends, and its intensity depends on the individual's motivation to meet the expectations of others. Many studies indicate that social support is an influential factor in health and self-care behaviors. Other positive outcomes of social support include increased behavioral health, personal growth and competence, and better adaptation to illnesses [27]. The findings of our study revealed a positive and significant correlation between received spousal social support levels and treatment regimen adherence. Moreover, our findings are in line with the results of Omidi et al. [28], Taher et al. [18], Hu et al. [29], Criswell et al. [30], and Turan et al. [31].

In the Omidi et al. study [28], one of the areas of hypertension management is medication regimen adherence. Patients with poor social support had inadequate medication regimen adherence. In their 1-year study on family-centered heart health-related experimental interventions, Aggarwal et al. [32] concluded that having adequate social support for heart patients is among the most important factors in sticking to their treatment plan after hospital discharge. Also, in patients who did not enjoy adequate family support, treatment plan adherence was significantly reduced after discharge.

Table 2. Relationship between demographic variables, social support, and treatment regimen adherence (n=239)

Variables		No.	Social Support		Treatment Adherence	
			Mean±SD	P	Mean±SD	P
Education	Primary/Elementary	164	74.50±55.53	0.406	41.33±8.0	0.199
	Junior high school	37	74.32±24.16		43.32±6.79	
	High school diploma	20	79.85±20.89		44.60±8.31	
	University	18	82.38±15.60		42.72±6.42	
Occupation	Homemaker	59	59.74±26.61	0.001	41.06±8.0	0.491
	Worker/Laborer	14	83.92±12.91		46.07±5.86	
	Office worker	61	81.27±17.12		39.19±8.99	
	Self-employed	56	79.69±18.32		43.10±7.39	
	Retired	49	80.16±19.72		44.28±5.20	
Income, IRR	<7 million	88	73.55±23.71	0.111	41.27±7.65	0.021
	>7 & <15 million	95	74.13±21.88		42.27±7.80	
	>15 million	56	80.94±19.80		42.76±7.96	
Gender	Male	177	80.68±18.75	0.001	42.70±7.29	
	Female	62	60.77±24.82		40.06±8.80	

However, Spikes et al. [33] study concluded no significant relationship between social support and adherence to treatment, which is contradictory to our findings.

In the present study, blood pressure status had a significant inverse relationship with treatment regimen adherence, meaning that patients who stuck to their treatment had more control over their blood pressure which was within a more favorable range. In a study conducted in Beirut by Yassine on 210 patients with hypertension at the Cardiovascular Clinic in the Beirut Hospital, the Morisky medication adherence scale was utilized. They found that treatment regimen adherence had a significant inverse correlation with systolic and diastole blood pressure. In the Oliveira-Filho study entitled "The Relationship Between Treatment Regimen adherence and Blood Pressure Control", it was found out that those who follow a poor regimen have higher systolic and diastolic blood pressure. This finding is similar and in line with our study's results [34, 35].

Moreover, in the present study, a significant relationship was observed between gender and treatment adherence in patients (P<0.05). This finding is consistent with Uchmanowicz's study [36]. They found that the gender variable was significantly related to treatment regimen adherence level, and men adhered to treatment more than women. In this study, no significant relationship was ob-

Table 3. Correlation between systolic and diastolic blood pressure and social support

Variables	Values	Emotional/ Informational Support	Tangible Support	Affection/ Caring	Positive Social Interaction	Social Support (Total)	Systolic Blood Pressure	Diastolic Blood Pressure
Treatment adherence	P	0.700	0.017	0.004	0.005	0.004	0.0001	0.008
	r	0.173	0.155	0.185	0.180	0.184	-0.242	-0.171

Journal of Vessels and Circulation
Qom University of Medical Sciences

served between age and treatment adherence, which is consistent with the Asayeshi et al. study [37] findings.

In the present study, no significant relationship was observed between education level, treatment adherence, and received social support. On the other hand, in the Taher et al. [18] study, higher literacy levels increased adaptation rates and a better understanding of the disease and encouraged patients to adhere better to the treatment regimen. This result is contrary to our study's findings. However, in the Taher et al. study [18], there was no significant relationship between treatment adherence and occupation. This result also is inconsistent with our study's findings. Because these patients receive most of the care at home, the role of the family, especially the spouse, should not be underrated in the patient's ability to cope with and deal with this disease. Close family relationships have a particular part, and family members, especially the spouse's bonds with the patient and their awareness of the patient's medical issues, are some of the factors that can play an essential part in increasing cooperation, support, and reducing social barriers in the patient's adherence to the treatment regimen.

5. Conclusion

According to the study findings, half of the patients with hypertension are in satisfactory condition with regard to adhering to the treatment regimen. Furthermore, receiving spousal social support has an evident relationship with adherence to the treatment regimen. In addition, it was determined that systolic and diastolic blood pressure levels are significantly associated with treatment regimen adherence. It is recommended that physicians and other healthcare providers responsible for treating and controlling chronic diseases, specifically high blood pressure, include social support, especially spousal social support, in their programs. They should also consider the factors affecting spouse support and adherence to the treatment regimen that lower the blood pressure in patients.

Among this study's limitations included conducting this study on only hypertension patients referred to local community health centers who were selected by convenience, non-probability sampling method. So other patients not referring to these local community health centers were excluded from the study. This factor can create bias; hence, the study findings cannot be extended and generalized to all hypertension patients. Moreover, the self-reporting nature of the questionnaire is also noteworthy. A sufficient number of samples is among the strengths of this study.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Qom University of Medical Sciences (Code: IR.MUQ.REC.1398.132).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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Journal of Vessels and Circulation
Qom University of Medical Sciences

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