Iranian Study on Social Determinants of Self-management in Patients with Hypertension Referring to Tabriz Health Care Centers in 2017-2018

Abstract

Aim: The present study aims to evaluate self-management status in Iranian patients with hypertension and its relationship with social determinants. **Setting and Design:** This study was carried out in 2017-2018 in health care centers affiliated with Tabriz University of Medical Sciences in Iran. **Methods:** A total of 240 patients with hypertension, who referred to health care centers of Tabriz, were invited to fill out the self-management (researcher made) and social determinants of health questionnaires. **Statistical Analysis:** Spearman correlation was used to determine the relationship between self-management score and its items with items of social determinants of health questionnaire. Also, Pearson correlation Student *t*-test was used. **Results:** In this research 197 patients were studied. Mean age of the participants was 56.6 ± 10.1 years. The mean $\pm$ SD (standard deviation) of self-management score was 81.51 ± 13.16. The correlation coefficient of self-management with financial ability of securing the education expenses, nutrition and fruits, and health care expenses were 0.228 ($P = 0.001$), 0.149 (P value <0.05), and 0.28 ($P < 0.001$) respectively. Also, the correlation coefficient of age with self-management was -0.206 (P value $= 0.004$). Item level analysis showed strong significant associations between social determinants and three items related to lifestyle and two items related to monitoring of blood pressure (BP) at home. **Conclusion:** Overall self-management status of the patients was very good. Health centers that plan self-management support programs for patients should consider the social determinants of life style modification and monitoring of BP at home by hypertensive patients.

Keywords: *Hypertension, self-care, self-management, social determinants of health*

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Introduction

Hypertension causes 7.6 million deaths, 80% of which occur in low- to middle-income countries with limited sanitation resources, where the patients are not fully aware of their hypertension and have poor control of the disease.[1-3] The most important causes of hypertension include: aging population, diet, stress, family history with hypertension, ethnicity, low education, and socioeconomic status, low physical activity, obesity, and smoking.[4-7]

Self-management is a dynamic and practical process which offers a patient-centered health care. In such a process, patients play a pivotal role in promoting their health, preventing diseases, and successfully controlling their own disease. In other words, self-management is a strategy for individuals to maintain their healthy behavior, strengthen a positive behavior or skill, or dismiss an unhealthy behavior.[8,9]

A metasynthesis on 53 articles concerning barriers and facilitators of self-management in patients with chronic diseases revealed that the barriers of self-management include: lack of knowledge, lack of support, and experiencing negative consequences of doing self-management and poor relationship with healthcare providers.[10] Also, in a study conducted by Nagel Kerk and his colleagues, the main barriers of self-management were lack of knowledge concerning specific diet, misunderstanding treatment plan, frustration from blood sugar control, and deterioration of the disease despite following treatment orders.[11]

Encouraging patients to make a change in their lifestyle plays a significant role in controlling of hypertension.[3,12,13] In addition, a combination of drug regimens with self-management contributes to controlling hypertension.[14-17] Self-management can result in more reduction in hypertension in comparison

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with office-based standard care and hence provides important clinical benefits.[18] On the contrary, social determinants have a dramatic effect on occurrence, control, and prognosis of hypertension.

There are many studies that have been conducted on the role of self-management in improving of chronic diseases such as diabetes and heart failure.[10,11] Few studies in world have been done on assessing self-management status in hypertensive patients and its social determinants. However, there is not any study in Iran about this important public health subject. So, there is a need to investigate the status of self-management in Iranian patients with hypertension and its relation with social determinants.

The present study aims to evaluate self-management status in Iranian patients with hypertension and its relationship with social determinants

Methods

Design and setting

The present analytical cross-sectional study was carried out from 15 March 2017 to 15 April 2018 in health care centers affiliated with Tabriz University of Medical Sciences in Iran.

Instrumentation

There was no standard questionnaire in Iran to evaluate self-management in patients with hypertension. However, there was a questionnaire on diabetes with proper psychometric properties.[19] Considering the similarities between various aspects of self-management in hypertension and diabetes, in previous study we prepared a new questionnaire with proper psychometric properties patients (Cronbach's alpha = 0.828 and intraclass correlation coefficient = 0.94) to be employed in evaluating self-management in patients with hypertension.[20] Also, a socioeconomic status questionnaire whose validity and reliability were tested by Abobakri *et al*. and Sadeghi-Bazargani *et al*. was used to evaluate socio-economic status.[21,22] Occupation, education level, monthly income, affording to provide clothes, affording to provide nutrition and fruits, monetary value of housing, monetary value of car, affording to provide education expenses, affording to provide health care expenses, of the family were the nine intended factors.[21,22]

Sampling

A total of 240 patients with hypertension, who referred to health care centers of Tabriz, were invited to fill out the research questionnaire concerning self-management and social determinants affecting health. In order to calculate the precise number of samples, using the following formula, sample size was calculated to be 232 while we had estimated it to be 240.

$$n = \frac{(N \times 5) \times 1.2}{1 - 0.2}$$

In this formula, *N* stands for the number of questions in the questionnaire so that for every question five patients were selected and in this questionnaire there were 31 questions. Design effect was considered to be 1.2. Plus, withdrawal rate was considered to be 20%. Ultimate sample size after subtracting withdrawal rate was 186. Finally, the data collected from 197 patents were analyzed.

Inclusion criteria

Patients with hypertension without any sign of accelerated hypertension or malignant hypertension, who were over 30 years of age and referred to health care centers affiliated to Tabriz University of Medical Sciences, were eligible to participate in this study.

Exclusion criteria

Patients with proven secondary hypertension and presence of cognitive problems like dementia or Alzheimer.

Social determinants of lifestyle-related self -management

We selected three items of the questionnaire that strongly represent the lifestyle aspects of hypertension self-management. We hypothesized that these three items may be associated with socioeconomic status. These three items were as follow: consuming enough fruits and vegetables (3-5 times per day) (#item 1), control of weight (#item 8), and exercise for controlling blood pressure (BP) (#item 11). All of these three lifestyle-related items could reduce both systolic and diastolic BP.

Social determinants of blood pressure measurement by patients

Measuring BP by patients is the main part of medical aspect of self-management that needs skills and family support. So, we selected two items of the questionnaire related to BP measurement: If I feel a decrease or increase in my BP level, I measure it (#item 27) and I measure my BP on a regular basis (#item 26). We hypothesized that these two items may be associated with socioeconomic status. We correlated these two items with socioeconomic variables.

Ethical considerations

Informed consent

Informed consent was obtained for any experimentation with human subjects.

The present project was approved by the ethics committee of Tabriz University of Medical Sciences (code number: IR.TBZMED.REC.1396.467). Confidentiality of the patients' information was seriously considered and the questionnaire was filled out with their consent.

Analysis

The data were analyzed by SPSS software version 21. The mean score of the patients' self-management was calculated through using descriptive statistics method. In order to consider the way the data were distributed,

Kolmogorov–Smirnov (KS) test and histogram normal curve were used. Spearman correlation was used to determine the relationship of each social determinants variable with self-management score of the patients, three items of the questionnaire related to lifestyle and two items of the questionnaire related to BP measurement. Also, Pearson correlation was used to consider the relationship between age and self-management score of the patients. Finally, in order to consider the relationship between gender and self-management, Student's *t*-test was used.

Results

In the present study, on the whole 240 patients with hypertension were studied. Out of all the questionnaires, 43 were incomplete; hence, they were left aside. All of these questionnaires were analyzed and statistically studied. Of all the participants, 75.1%(148) were female and 24.9% (49) were male. Average age of the participants was 56.6 ± 10.1 years. Minimum age of participants was 35 and maximum age of them was 83.

The range of self-management score of the patients was 45--113 and the mean score of self-management was 81.51 ± 13.16. A total of 25 patients (12.7%) under study had a university degree. Three (1.5%) of them had over 50 million Rial monthly income, while the rest earned less than this. The information concerning baseline characteristics and social determinants is presented in Table 1.

Table 2 represents the correlation between social determinants variables and self-management score of whole sample and separately by sex.

Table 3 shows the correlation of social determinants variables with three items of lifestyle and two items of BP measurement.

Discussion

The aim of the present study was to evaluate self-management status in patients with hypertension and explore the relationship between social determinants and self-management. We found that self-management has a positive relationship with financial ability of securing the education and health expenditure, while it had a negative relationship with age. Moreover, there was no significant relationship between self-management score and gender, occupation, education level, income, financial ability of securing clothes and nutrition and fruits also monetary value of housing and monetary value of car.

The range of self-management score of the patients was 45--113 and the mean score of self-management was 81.51 (SD = 13.16), which indicates that generally the patients self-management is very good. But item level analysis showed most of the patients do not use fruit and vegetables regularly, have low concerns about their weight, do not exercise regularly and do not monitor their BP properly. Previous study showed that cultural factor and family support can play important role in self-management of diabetes.[11,23] We could not find any similar study about hypertensive patients. The high score of self-management in our study may be related to the culture of efficient family support in this country. There are few studies in literature about the relationship between

Table 1: Socioeconomic variables of the patients in the study about the relationship between social determinants and self-management

Social determinant	Male	Female	Total (%)
Age			
<40	2	9	11 (5.6)
41-50	12	37	49 (24.9)
51-60	17	50	67 (34)
61-70	10	46	56 (28.4)
71-80	6	6	12 (6.1)
>80	2	0	2 (1)
	49	148	197 (100)
Occupation			
Retired	14	36	50 (25.4)
Self employed	22	80	102 (51.8)
Housewife	2	11	13 (6.6)
Unemployed	2	6	8 (4.1)
Office worker	9	15	24 (12.2)
	49	148	197 (100)
Education level			
Illiterate	11	41	52 (26.4)
Primary (grade	1911	64	83 (42.1)
1-6)	49	26	37 (18.8)
High (grade 6-12)		17	25 (12.6)
University degree		148	197 (100)
Monthly self-reported income (million Rial)*			
<6	6	27	33 (16.8)
6-10	10	33	43 (21.8)
10-15	11	41	52 (26.4)
15-20	6	28	34 (17.3)
>20	16	19	35 (17.7)
	49	148	197 (100)
Affording education expenses			
Very weak	4	11	15 (7.6)
Weak	9	28	37 (18.8)
Average	14	61	75 (38.1)
Good	18	40	58 (29.4)
Excellent	4	8	12 (6.1)
	49	148	197 (100)
Affording health care expenses			
Very weak	3	8	11 (5.6)
Weak	11	33	44 (22.3)
Average	17	61	78 (39.6)
Good	11	39	50 (25.4)
Excellent	7	7	14 (7.1)
	49	148	197 (100)

*Rial is the national currency of Iran. At time of study one million Rial was equal with 25 US dollars

Table 2: The relationships between self-management mean score and social health determinants

Social health determinant	*R* correlation coefficient		
	Total population	Male	Female
Occupation	−0/047	0/104	−0/123
Education level	0/105	0/156	0/083
Monthly income	0/114	0/135	0/106
Financial ability of securing the clothing	0/092	0/156	0/053
Financial ability of securing the fruits and feed	0/149*	0/212	0/123
Financial ability of securing the education	0/228***	0/253	0/212**
Financial ability of securing the health expenditure	0/27***	0/318	0/246**
Monetary value of housing	0/111	0/116	0/057
monetary value of car	0/026	0/031	0/01
Age	−0/206**	0.225	0.199*
Gender	0/024	-	-

*P<0.05, **P<0.01, ***P<0.001 (two-tailed)

Table 3: Correlation of social determinants with three items of lifestyle and two items of blood pressure measurement

Social determinants	Consuming enough fruits and vegetables (3-5 times per day	Controlling your weight	Exercise for controlling blood pressure	Measuring blood pressure when the patient feels BP rises or drops	Measuring BP regularly
Age	0.059	0.116	0.168*	0.145*	0.206**
Education	0.183**	0.178*	0.060	0.154*	0.109
Income	0.242**	0.129	0.117	0.126	0.135
Financial ability of securing the clothing	0.365**	0.195*	0.173*	0.256**	0.184**
Financial ability of securing the fruits and feed	0.379**	0.222**	0.105	0.315**	0.285**
Financial ability of securing the education	0.384***	0.210**	0.040	0.252**	0.266**
Financial ability of securing the health expenditure	0.230**	0.172*	0.123	0.291**	0.304**
Monetary value of housing	0.196**	0.050	0.052	0.171*	0.151*
Monetary value of personal car	0.020	0.081	0.100	0.092	0.014

*P<0.05, **P<0.01, ***P<0.001 (two-tailed)

social determinants and self-management in patients with hypertension.[24,25] In our study, there was no relationship between occupation and social determinant but a study in south India showed that self-management was poor in those who were unemployed, unskilled workers, and retired.[24] Also in our study there was no relationship between education and self-management. Two studies in India and China showed that patients with lower health literacy had poorer self-management.[24,25] We could not find any similar study investing relationship between income and self-management score, two indirect factors, affording to provide education expenses and health care expenses, were significantly correlated with self-management. We could not find any similar study investing the relationship between income and self-management. In our study, there was reverse relationship between age and self-management score. Aging is likely to reduce the capability of performing self-management among hypertensive patients. Our finding is similar to the studies in India and China.[24,25] Self-management support programs should consider the negative association between aging and self-management.

Even so most of social determinants variables did not have significant correlations with total score of self-management questionnaire, our item level analysis shows that three lifestyle-related items and two blood measurement related items were associated with social determinants variables [Table 3]. This finding has important policy implications: Health centers should screen social determinants among patients and conduct specific well design "Self-Management Support" programs for patients according to their socioeconomic status. Such programs not only should train patients about the importance of lifestyle modification but also support patients financially and mentally to facilitate the process of lifestyle change. Our study also shows that patients with low socioeconomic status monitor their BP less regularly. We also found that the less socioeconomic status the less measuring of BP during raising and dropping. As a self-management support program, health centers should train these patients about how to measure their BP and manage the raising and dropping of their BP. Also patients who have not financial ability of securing BP measurement devices may be offered BP devices.

Conclusion

When Health Center plan self-management support programs for patients they should consider the social determinants of lifestyle modification and monitoring of BP at home by hypertensive patients.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest

There are no conflicts of interest.

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