ORIGINAL ARTICLE

A Survey on Health Beliefs Relation with Self-Care Practice among the Elderly Hypertension in Iran (2013)

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ABSTRACT

In this research, we are going to study the relation between health beliefs and self-care behaviors. This is a cross-sectional-analytical study conducted on 130 elderly residents of Qom at the age group of 60-65, based on designing and evaluation of a questionnaire consisted of items about their demographic, health beliefs and self-care practice data. Data analysis was conducted using SPSS-18 and the subjects' self-care and the related factors were analyzed. Then, the self-care practice predictors were determined using regression analysis. The mean score of the self-care practice among the total factors was 34.7% of the total performance score. Among the effective demographic factors, some had a meaningful relations with self-care practice including gender (P=0.011), education level (P=0.003) and marital status (P=0.004). The ultimate predictors of the self-care practice were knowledge (P=0.019), self-efficacy (P=0.005), perceived barriers (P=0.0001) and perceived benefits (P=0.021). Self-care practice is not at satisfactory level among the elderly hypertension. Self-efficacy is the most powerful predictor of the self-care; so a sound understanding of this factor helps us promote the elderly health.

Keywords: Self-care; Health belief model, Hypertension.

INTRODUCTION

As in any other countries of the world, life expectancy and elderly population in Iran is increasing, because of health promotion. In the country, population growth rate is 1.6%; while the rate is 2.5% for elderly population(1)**.** It is predicted that the Iranian elder population reaches to about 10 million people during the next 20 years(2).With regard to the changes in life style during the recent years as well as the increase of the chronic diseases, specifically at the higher ages, more than 50% of mortality is related to vasco-cardiac diseases and brain stroke(3).

Hypertension is a feeding health disease and an important risk factor for vasco-cardiac diseases as well as strokes (2, 4). Hypertension is the second top reason (after diabetes) for renal failure or kidney failure (3, 5). Hypertension is known as silent murderer; because the hypertension- infected individuals rarely experience the related symptoms (6). Receiving extra calories in long time, consuming long time and extra sodium amounts, obesity, alcohol, low-mobility and socio-mental stress are effective factors in hypertension (7, 8). On the other hand, hypertension prevalence is related to aging; so that 60-70% of people over 60 years are infected by the disease(8). Increase of blood pressure among the elder leads to increase of inability and mortality; moreover hypertension's side effects are more acute in this age group (9, 10) and may change their life quality (11). Studies have shown that hypertension control reduces inabilities and mortality out of the heart disease (1, 12).

The results of the earlier 87 studies revealed that self-regulatory interventions and self-care behaviors reduce hypertension and the related side effects, severely (13-15).

On the other hand, self-care behaviors reduce with increase of the patients' age (14-16). Therefore, when the elder face hypertension, it is of great importance for them to pay attention to hypertension control and self-care behaviors. Self-regulatory behaviors including refraining from salt consumption, regular control of the blood pressure, healthy feeding, preventing from stresses, sport activities, no smoking, regular weight control and drug taking (14). Many studies confirmed efficacy of the individuals' beliefs on self-care behaviors. The health belief model (HBM) is the most famous and prevalent educational model which is based on health beliefs (16). HBM is based on the hypothesis that the health behaviors including the self-care practices are rooted in individuals' health beliefs and lead them toward the healthy behaviors (17, 18). According to the model, adoption of self-care behavior by the elderly infected by the hypertension requires that they feel being susceptible for the disease (perceived susceptibility); to feel the disease is followed by severe consequences (perceived severity); to feel that the disease control is beneficial for the infected individual through reduction and prevention of the disease's side effects and consequences (perceived benefits); to feel little barriers againstself-care behaviors (perceived barriers); mass media, health care personneland relatives encourage and stimulate the elderly to the sound behaviors (cues to act); and lastly to feel that he or she can conduct hypertension controlling behaviors (self-efficacy)(19).

There are very few studies in Iran about the effects of the health beliefs on the elderly hypertension self-care. This study investigates the level of self-care behaviors among the patients of 60-65 years old as well as the effective factors and the relation between health beliefs and self-care behaviors.

METHOD
This is a cross-sectional-analytical study

Samples
With regard to the pervious study, the sample volume was considered as 130 Qom-Iran residents of the 60-65 years old age (20, 21). Sampling method was snowball during which the primary participants were asked to invite their counterparts to participate in the study. It is highly useful when participants are hardly accessible (22).

The interviewees were two post-graduated experts of health education who were well trained for the interviews. They applied interview method in order to make their methods the same for all elderly (Literate and illiterate). The participants with inclusion criteria were evaluated and examined to measure their data concerning the knowledge, HBM constructs, self-care practice and blood pressure.

The inclusion criteria consisted of being at 60-65 age groups, being infected by hypertension, being consent of participation, and lack of cognitive deficiency and dementia. The participants' birth date was asked orally. Also, participants' and their families' cognitive deficiencies and their referring to the psychotherapist were questioned; and finally, they were asked about dementia. The questions were related to the number of months and week days.

Instruments
The questionnaire of the present research consisted of four sections. Section one includes demographic characteristics (age, gender, marital status, educations, occupation); section 2 includes questions about knowledge; section 3 consisted of HBM constructs including cues to action, perceive susceptibility, perceived severity, perceived benefits, perceived barriers and self-efficacy, and finally section 4 consisted of questions about self-care. Knowledge construct had 6 items each with three scores of 1 for "correct" and zero for "false" and "do not know". Scoring for the 16 questions was conducted using Likert method from 1 to 5. Self-care had 5 questions with the answers of "Yes", "No" and "do not remember". "Yes" represented for positive and healthy practice. The "Yes" answer was scored by 1 and "No" and "do not remember" scored by zero. The total score of the questionnaires' sections was calculated based on 100. Also, each sections' scores were classified for comparison purposes in three groups based on percentage including weak (less than 50% of the total score), moderate (50-75% of the total score), and favorite (over 50% of the total score).

The perceived barriers construct was also classified using a different scoring system, including weak (over 50% of the total score), moderate (25-50% of the total score), and favorite (less than 25% of the total score) (23). The questionnaires' content validity was evaluated through interview with experts, so the questionnaire was distributed among 8 health education experts. Their suggestion about the questions and required changes were observed. Finally the validity was calculated as 81%. Its reliability was also calculated through retest, i.e. the questionnaires were distributed among 30 elderly of age 60-65 in a two weeks interval and the correlation was calculated as 0.68 for the two stages. Moreover, the Chronbach's alpha for the internal correlation of the knowledge questions was 0.85, for the perceived susceptibility was 0.76, for the perceived severity was 0.79, for the perceived barriers was 0.76, for the perceive benefits was 0.85, for self-efficacy was 0.90 and lastly for self-care practice was 0.81.

Then JNC VII criterion was used to measure high blood pressure (24). According to the criteria, the systolic blood pressure of 140mm and higher or the diastolic blood pressure of 90mm and higher or consuming anti-hypertension drugs during the last on month are considered as hypertension. The subjects were asked about using drugs and their answers were recorded. For measuring the blood pressure of the elderly participants we used and aneroid and sphygmomanometer process began after a ten-minute rest and using their dominant hand while they were sitting and holding their arms before their hearts on a rigid support.

Data Analysis

All the subjects' data were put in SPSS-18. Data analysis was conducted using descriptive statistics for normal data distribution and the results were confirmed through Kolmogorove Smirnov test.

T-test and Kruscal Wallace test were applied to evaluate the relation among demographic variables and self-care practice. The Spearman correlation coefficient was applied to evaluate the relation between the model's constructs and self-care practice. Also, the multiple regression analysis was used to determine self-care practice predictors. The tests' significance were determined as $P < 0.05$.

Moral considerations

This research was approved by the Arak Medical Sciences University's committee for morality in research. All participants announced their knowingly consent for participating in data collection process.

RESULTS

In this research, 130 elders of 60-65 years with the mean age of 62.26 ± 1.3 were studied. Among the participants 50 individuals were women (38.5%) and 80 others were men (61.5%). Also, 91 patients (70%) were married. Concerning their occupation, most of them were retired (46.2%). The general view of the subjects' demographic characteristics and their mean scores of self-care has been shown in table 1. The mean score of the self-care practice for all participants was 34.7% of the total score of the practice. Concerning the quality, 73.1% of the patients had weak self-care practice, 18.5% were at mean level and 8.5% were good, in this regard.

The mean score of practice was significantly higher for men then that for women (P=0.011); while there was no significant relation between men and women, concerning the knowledge (P=0.2). Self-care practice was directly related to education level (P=0.003). The self-care practice was more meaningful among the married people than that among other groups (P=0.004). On the other hand, there was not any meaningful relation between the patients' self-care practice and their occupation (P=0.56).

Spearman correlation coefficient shows the positive and meaningful relation between knowledge and self-care practice (P=0.035 and r=0.185). Among the HBM constructs, self-efficacy had the most powerful positive and significant relation with self-care practice (P<0.0001, r=0.402) and the perceive barriers had a reverse and significant relation with the practice (P=0.0001, r=-0.3). The correlation coefficients of the other HBM constructs with the self-care practice have been shown in table 2.

The Stepwise and Regression Analysis methods have been used to determine predictive power of the self-care practice (16).

Knowledge and all constructs of the HBM have been considered in this regression analysis and the results revealed that the ultimate predictors of self-care are the perceived barriers and benefits, self-efficacy and knowledge which are as a whole able to predict 29% (R^2=0.29) of self-care practice.

Regression analysis indicates that self-efficacy is able to predict 16% of self-care practice changes, by itself, (R^2=0.16). The analysis findings have been shown in table 3 and 4.

Table1- A general view of demographic characteristics of the subjects, along with the mean score of self-care practice

Demographic characteristics	Numbers	Percent	Mean score of self-care (criterion deviation)	P
Gender				
Women	50	38.5	27.6 (24.2)	0.011
Man	80	61.5	39.2 (24.3)	
Marital status				
Married	91	70	39.1 (23.4)	
Died husband or wife	34	26.2	24.1 (26.8)	0.004
Divorced	5	3.8	28 (10.9)	
Single	0	0		
Education level			22.9 (23.9)	
Illiterate	27	20.8	30.8 (24.7)	0.003

Primary school	37	28.5	44.1 (20.1)	
Guidance school and high school	48	36.9	35.5 (29.5)	
Diploma and higher	18	13.8		
Occupation			36.3 (23.4)	
Retired	60	46.2	35.4 (27.2)	0.56
Unemployed	44	33.8	30 (24.1)	
Employed	26	20		
Mean scores based on the score from hundred				

Table 2- Coefficient correlations of the knowledge level and constructs of the HBM with the self-care practice

Variable	Self-care Practice	
Knowledge	(P=0.035)	r= 0.185
Perceived susceptibility	(P=0.07)	r=0.16
Perceived severity	(P=0.09)	r= 0.14
Perceived benefits	(P=0.008)	r= 0.23
Perceived barriers	(P=0.001)	r= -0.3
Cues to action	(P=0.245)	r=0.103
Self-efficacy	(P=0.0001)	r= 0.402

Table 3- Processes of the multi-variable regression analysis in prediction of the self-care practice

Models	R^2	R^2 Adjusted	R^2 change	Sig.
1	0.157	0.150	0.157	(P=0.0001)
2	0.212	0.199	0.055	(P=0.004)
3	0.26	0.242	0.048	(P=0.005)
4	0.291	0.268	0.031	(P=0.021)
Predictive model 1, includes constant value and self-efficacy				
Predictive model 2, includes constant value, self-efficacy and the perceived barriers				
Predictive model 3, includes constant value, self-efficacy, perceived barriers and knowledge				
Predictive model 4, includes constant value, self-efficacy, perceived barriers knowledge and perceived benefits				

Table 4- Regression coefficients at the last level (4) of the multi-variable regression analysis

	B	Std. Error	Beta	t	Sig.
Constant value	0.88	0.44		1.9	P=0.04
Self-efficacy	0.092	0.03	0.24	2.84	P=0.005
Perceived barriers	-0.201	0.05	-0.32	-3.92	P=0.0001
knowledge	0.144	0.06	0.18	2.38	P=0.019
Perceived benefits	0.051	0.02	0.19	2.33	P=0.021

Table 5- Comparison of the mean scores for knowledge, perceived barriers and self-efficacy among men and women

Construct	Mean* (Criterion deviation)		
	Women	Men	Sig.
knowledge	53.6±28.8	58.9±25	0.2
Perceived barriers	54.2±19.5	51.1±20.1	0.02
Self-efficacy	36.2±14.1	42.6±16.9	0.3
*- Mean scores based on the score hundred			

DISCUSSION

The HBM model has been established based on the principle that health beliefs affect the individuals' behavior and practice (25). This study has been conducted in order to measure the self-care practice among the hypertension infected elders as well as considering its relation with health beliefs.

The mean score of the patients' self-care in this study was 34.7% of the total score of the practice. Generally, 73.1% of patients had weak self-care practice, 18.5% were moderate and just 8.5% were good in this regard. Barati(14) showed that the hypertension infected elderly self-care practice is less than 50% of the total score of the practice. Noyil (26) also reported the self-care behaviors at moderate level

among those infected by hypertension. Many other studies revealed that self-care practice is law among non-epidemic patients including hypertension (27-30). Therefore, attention to the necessary educations to enable hypertension infected elders is a must for health policy makers and authorities. The self-care behaviors among the elders are under the influence of various factors among which demographic factors and health beliefs have been studied in this research.

The perceived self-efficacy is the last construct of the HBM. Many studies confirm the direct relation between the perceived self-efficacy and self-care practice is various non-epidemic diseases(16, 23, 25, 31-33).

Self-efficacy in the present study has been determined as the most powerful predictor of the self-care practice. The perceived self-efficacy, which was introduced by Bandura for the first time means self-confidence in conducting a behavior. It is a very powerful determiner for health practice and controlled behavior of hypertension (34, 35). Robinson's(16), despite of the present study, has reported the perceived barriers as the strongest predictor of self-care practice some studies revealed that self-efficacy can predict 18% of self-care behavior variance among the hypertension infected elders, and reported self-efficacy as the most crucial factor related to adopting the hypertension's controlled behavior (36).

Many other studies have also introduced self-efficacy as the most important predictors of the elders' physical activities (21, 37-39). Apparently, elders' care-takers must attempt to promote elders' self-efficacy and specifically for those who infected by high blood pressure. It is suggested that other researchers to adopt their study priority as promotion of the elders' self-efficacy and benefits are other self-care predictors. Our study revealed that the perceived barriers are more powerful predictor than the perceived benefits, concerning the self-care construct. There are other studies that introduce the perceived barriers as one of the most effective factor in self-care behavior among those infected by hypertension (16); so that it is called the main preventive factor of observing the drug prescriptions (40). Robinson (16) has also reported the perceived barriers as the strongest predictor of self-care practice among the hypertension infected elders. Tan (2004) concluded that the perceived barriers lead to less observation of medical orders including regular drug usage (41). Chao (2005) reported a reverse relation between the perceived barriers and the health behaviors including the hypertension controlling behaviors i.e. the less perceived barriers, the less probability of the healthy behaviors (42). Many others studies showed the strong reverse relation between the perceived barriers and self-care (20, 31, 40, 43, 44). The perceived benefits are also efficient in behavior prediction. Of course, Robinson's study states that the perceived benefits are not good predictors of the self-care behaviors among the elder people. However, some other studies explained that the correct percent piton and knowledge of self-care behavior benefits encourage people to adopt self-care behaviors. People will conduct healthy behaviors, if they know that it is helpful for them (43, 45, 46).

Concerning the analysis of the regression model, the results showed that the cues to action, perceived severity and perceived susceptibility are not able to predict self-care practice. Although Aghamolai et al. (32) announced the perceived severity as an effective factor in diabetic patients' behavior change; Robinson claims that the perceived susceptibility and cues to action cannot predict self-care behaviors among hypertension infected patients (14-16). Apparently, the elder practice of self-care is not favorable, despite of their high level of the perceived susceptibility; because self-efficacy and unfavorable perceived barriers are the main reasons and determinants of the weak self-care(16). Hence, it seems that the perceived susceptibility is not able to predict self-care practice. Analysis of the demographic factors related to the self-care practice reveals no difference between men and women knowledge, but self-care practice among men was significantly higher than that among women. Barati(14) and Baghiyani(47) have also reported that self-regulatory practice is higher among the hypertension infected men than women. According to the findings of the present research (table 5), the reasons for better practice of men are higher self-efficacy and less perceived barriers. Men possess higher self-efficacy, because of social factors and their specific roles and opportunities; therefore, self-care behaviors are more prevalent among men (48).

Our study concludes that education is directly and significantly related to self-care practice among the hypertension diseases.

Robinson investigated 169 hypertension infected elders and concluded no relation between self-care behaviors and education which is not in conformity with our findings (16); while other studies confirm such a relation(19, 29, 30, 47, 49, 50). Increase education is accompanied by increase of knowledge, responsibility taking, self-efficacy and judgment and decision making power.

Knowledge may lead to better practice expectation. Some studies reported knowledge as a predictor of health behavior (19).

Results of this study also state that knowledge is a predictor of self-care among hypertension infected elders. Therefore, there is a direct relation among knowledge, education and self-care practice. That is

why, the practice requires knowledge. Knowledge is the necessary condition but not enough for adopting self-care behaviors; because the study shows that men with equal knowledge level with women practice better in a significant way. Seemingly, knowledge and other factors such as self-efficacy and the perceived barriers have more predictive power for conducting self-care behaviors among the hypertension patients. The other important point is that people with lower level of education may not perceived some health educations soundly(51); therefore it is necessary for health trainers and sanitarium nurses to pay more attention to health education principle when they are teaching illiterate people or people with primary educations.

Marital status as a demographic factor affects the self-care practice. At the present study, the percent of single and divorced elders was low and this is a restriction. Moreover, self-care practice was higher among the married individuals, which is in conformity with Barati's study (14). According to the earlier studies, married individuals have better self-care and self-regulatory practice, because of the family role in valued sentimental and information supports (14, 30).

Generally, results of the present research showed that variables of self-efficacy, perceived barriers and perceived benefits can predict 29% of the self-care practice variance among the hypertension infected elders, and self-efficacy is more efficient in predicting the practice changes. According to our findings and with regard to the other studies, the perceived barriers affect significantly the self-care behavior adoption by the hypertension infected elders. More studies on the perceived barriers among the elders as well as women and men barriers are suggested for future researches.

Moreover, the amounts of knowledge, self-efficacy, perceived barriers and perceived benefits should be measured and evaluated to reduce mortality of lack of hypertension control among the elders.

One of the most protruding restrictions of the study was that the age group was limited to below 65 years old. So it was not possible to determine the predictive power of age factor and it is necessary to concentrate on the problem in future studies. The other restriction was that all subjects were among the urban population and the results may not be extended to the rural population moreover, the number of variables related to the self-care practice such as income, life style, number of children etc. are limited. Finally, we suggest comparison of self-care predictive power of the HBM constructs with that of other models to determine best predictors of self-care practice for the hypertension infected elders.

CONCLUSION

The self-care practice among the hypertension infected elders was in favorable some demographic factors such as gender, marital status and education level had a direct and significant relation with the practice. Also, knowledge and health beliefs including self-efficacy, perceived barriers and perceived benefits are powerful predictors of the self-care behaviors among which self-efficacy is the strongest one. Therefore, mere health services are not sufficient, but the elders' care takers in the houses and sanitarium may step toward promotion of the controlled behaviors among the hypertension infected individuals through a sound perception of the health beliefs. In addition, the health authorities must pay more attention to the present barriers.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest with respect to the research, Authorship, and/or publication of this article.

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