The Relationship Between Health Literacy And Quality Of Life Among Patients With Hypertension

Abstract

Introduction: Considering the increasing prevalence of hypertension and the adverse effects of this disease on the quality of life of individuals, and considering the role of health literacy in promoting personal responsibility for maintaining health, the present study aimed to determine the relationship between health literacy and quality of life among patients with high blood pressure.

Materials and Methods: In a cross-sectional descriptive-analytical study, 200 patients with hypertension referring to health centers in Qaen in 2024 were selected to participate in the study through one-stage cluster sampling. Data collection instruments included demographic and background characteristics, the short version of the Health Literacy Adult Questionnaire (HELIA-SF), and the Health-Related Quality of Life Questionnaire (SF-12). Data were analyzed using SPSS software version 23 and descriptive statistics and logistic regression test.

Results: The mean and standard deviation of the scores of quality of life and health literacy were 24.589±3.587 out of 48 and 55.37±3.147 out of 100, respectively, and both were at an unfavorable level. The results of logistic regression showed that education level, amount of physical activity per week, and health literacy were effective factors in having a favorable quality of life.

Conclusion: Quality of life was lower among illiterate patients, patients with lower levels of physical activity, and patients with insufficient health literacy. Therefore, it is suggested to pay more attention to such patients in designing educational programs to improve their quality of life.

Keywords: Health literacy, Quality of life, High blood pressure

Introduction

Chronic diseases cause 60% of mortalities worldwide. One of these chronic diseases is hypertension, which is known as a silent killer and often occurs without symptoms, and it is considered a global problem [1]. According to the Seventh Report of the Joint National Committee, hypertension is defined as a systolic blood pressure level <140 mmHg or a diastolic blood pressure level <90 mmHg [2]. Hypertension is a major risk factor for cardiovascular disease, ischemic stroke, hemorrhagic stroke, and chronic kidney disease [3].

Research by the Global Poverty Study Group showed that hypertension is the most important factor out of 67 risk factors which is the leading cause of death [4.9 million people worldwide] compared to other risk factors and is responsible for about 7% of disability-adjusted life years (DALYs) and more than half of deaths from ischemic heart disease [4]. The prevalence of hypertension in Iran, similar to many countries around the world, is increasing due to rapid social changes such as urbanization, changes in lifestyle, and the increase in life expectancy of patients due to advances in medical knowledge [5]. According to statistics, about 7.5 million deaths, or 12.8% of all annual deaths worldwide, occur due to hypertension [6]. This is expected to increase to 1.56 billion due to hypertension by 2025. In Iran, the number of adults with hypertension has increased from 1.8 million (882,000 in women) in 1990 to 13.6 million (2.7 million in women) in 2016 [7], and by 2021, we have witnessed an upward trend in the prevalence of hypertension in rural and urban areas [8].

Chronic hypertension requires specific self-care behaviors, including adherence to treatment, a low-salt diet, regular physical activity, weight management, regular blood pressure measurement, avoiding smoking, and lifelong alcohol abstinence [9]. One of the factors for accessing health-related information and awareness of health issues, and consequently better self-care, is health literacy [10]. Health literacy can be defined as the ability to access, understand, evaluate, and communicate information through promoting, maintaining, and improving health in various areas of life [11]. An acceptable level of health literacy enables people to interpret and analyze health-related issues appropriately and to protect better themselves and those around them from pathogens [12]. People with low levels of health literacy tend to have poorer health and a higher prevalence of chronic diseases. In addition, they tend to use preventive and screening services less and incur higher medical costs [13]. According to the results of the study by KIM et al., patients with hypertension are

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more at risk of the adverse effects of low health literacy [14]. In the study by Dehwan et al., the health literacy of patients with hypertension was at an average level [15]. In the study by Vazgazi et al., 49.5% of patients with hypertension had inadequate and not very adequate health literacy [16]. Also, according to the results of the study by Radhi and Balat, 67.8% of patients with hypertension suffered from a low level of health literacy [17].

The results of several studies have shown that health literacy affects health-related quality of life [18-20]. The World Health Organization defines quality of life as: an individual's perception of their position in life in the context of the culture and value systems in which they live, and about their goals, expectations, standards, and concerns [21]. Limited studies have been conducted on the level of quality of life among patients with hypertension. According to a study, middle-aged people with high blood pressure have lower quality of life scores [22]. In the study by Masroor Rudsari et al., the average quality of life among people with high blood pressure was 54.64%, accounting for almost half of the quality of life score [23]. Also, according to the study by Arvin et al., high blood pressure reduces the quality of life in the physical, psychological, and social areas [24].

Some studies have shown that low health literacy is associated with poor quality of life, which may be due to reduced access to medical care, increased stress due to increased daily life challenges, poor self-management of the disease, and reduced self-efficacy, i.e., the ability to exert control over one's life and environment [19,25].

Considering the increasing prevalence of hypertension in Iran [5], the adverse effects of this disease on the quality of life of individuals, and the role of health literacy in promoting personal responsibility in maintaining one's health [26], and given the contradictory results of studies conducted on estimating the level of health literacy [15-17] and quality of life among these patients [22-24], the present study aimed to determine the relationship between health literacy and quality of life among patients with hypertension.

Materials and Methods

This was a cross-sectional descriptive-analytical study among 200 patients with high blood pressure referred to health centers in Qaen in 2024. Sampling was conducted using a one-stage cluster sampling method, in which a list of all health treatment centers in Qaen was first prepared. Then, from all available centers, 4 centers were randomly selected, and all patients referring to these selected centers were selected and entered into the study.

The inclusion criteria were having a health record in health service centers, having high blood pressure, having a willingness to cooperate, being 30 to 65 years old, and having Iranian nationality. The exclusion criteria included not being satisfied with continuing the study and incomplete questionnaires.

To estimate the sample size, based on the results of a pilot study among 30 patients and considering r=0.15 for the correlation between health literacy and quality of life, as well as using the sample size table for correlational studies, the minimum required sample size was estimated to be 175 people [27]. Then, considering Design Effect=1.1, the sample size was estimated to be 192 people. Finally, considering the probability of a sample drop of 5%, 200 people entered the study.

A questionnaire with the following three parts was used in this study:

a) A checklist of demographic and contextual variables that included items about age, gender, education level, spouse's education, employment status, marital status, economic status, family history of hypertension, duration of hypertension, being under medical supervision, history of other diseases, nutritional status, body mass index, and weekly physical activity.

b) The short version of the Health Literacy for Adults-Short Form (HELIA-SF) questionnaire was used to measure health literacy. The short version of the Health Literacy for Adults-Short Form (HELIA-SF) questionnaire consists of 9 items and two domains of basic skills and decision-making skills. This version is suitable for measuring health literacy levels in different urban and rural population groups due to its short and concise nature and, as a result, its faster completion than the original version. The short version of the Health Literacy Assessment of Adults (HELIA-SF) is a reliable and valid instrument, and Cronbach's alpha and ICC coefficients were found to be acceptable for each of the two dimensions (0.84, 0.81 and 0.85, 0.82, respectively) and all items (0.91, 0.81, respectively). The content validity of the questionnaire items was also found to be qualitatively satisfactory [28]. It should be noted that before the study began, the reliability of this questionnaire was again assessed using Cronbach's alpha coefficient among 30 patients during a pilot study. The Cronbach's alpha coefficients of this instrument were 0.86, indicating a good internal consistency.

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c) To measure health-related quality of life, the 12-item Quality of Life Questionnaire (SF-12), which is a shortened form of the SF-36, was used. This questionnaire is widely used in various studies [29]. Montazeri et al. in 2009 examined the validity and reliability of this questionnaire in Iran. The reliability of the 12 items of the physical and mental components was reported to be 0.73 and 0.72, respectively. This questionnaire has 8 subscales: general perception of one's health, physical performance, physical health, physical pain, emotional problems, social performance, vitality and vital energy, and mental health, of which the first 4 subscales constitute the physical component and the second 4 subscales constitute the mental component of quality of life. The scoring method is as follows: if the scores obtained are 12-24, the overall quality of life is considered poor, if they are 25-36, the overall quality of life is considered moderate, and if they are 37-48, the overall quality of life is considered good [30].

First, the study was approved by the Vice-Chancellor for Research and Technology of Birjand University of Medical Sciences (with ethics code IR.BUMS.REC.1403.172). The purpose of this study was also explained to the participants, and their written consent was obtained. In addition, the questionnaires were completed in a self-report manner, so that all patients were asked to answer the questionnaire questions with complete honesty. They were also assured that all information requested in the questionnaire would be used confidentially. Then, the data were entered into SPSS version 23 software and analyzed using descriptive statistics and a logistic regression test. In addition, the significance level was considered less than 0.05.

Results

200 patients were studied (response rate: 100%). Among them, 68.5% (137) of the samples were female, 85% (170) were married, and 60% (120) were urban residents. The mean and standard deviation of the age of the participating patients was 258.41±3.547 years. The mean and standard deviation of the quality of life score was 589.24±3.587 out of 48, which was at an unfavorable level. The mean and standard deviation of the health literacy score was 37.55±3.147 out of 100, which was at an unfavorable level. Also, 28.5% (57 people) had insufficient health literacy, 36.5% (73 people) had not very sufficient health literacy, 22.5% (45 people) had sufficient health literacy, and 12.5% (25 people) had excellent health literacy.

Table 1 shows the frequency of the variables studied and the results of logistic regression to determine the factors affecting the quality of life among the patients studied. As the results show, the variables of education level, weekly physical activity, and health literacy were among the factors affecting having a desirable quality of life:

-Education level was one of the factors affecting the quality of life, so that the chance of having a desirable quality of life among patients with "high school diploma or bachelor's degree" and "master's degree and higher" was 1.129 and 2.211 times more than that of illiterate patients, respectively.

-The amount of physical activity per week was one of the factors affecting the quality of life, so that the chance of having a desirable quality of life among patients with physical activity "most days" and "some days" was 0.175 and 0.115 times more than that of patients with physical activity "daily", respectively.

-Also, health literacy was one of the factors affecting having a desirable quality of life, so that the chance of having a desirable quality of life among patients with insufficient, sufficient, and excellent health literacy was 1.125, 2.101, and 3.145 times more than that of patients with insufficient health literacy, respectively. Meanwhile, other demographic and contextual variables had no effect on having a desirable quality of life (P<0.05).

Table 1- frequency of the variables studied and the results of logistic regression to determine the factors affecting the quality of life among the patients studied*

Variables	Frequency	Percentage	Odds (CI 95%)	P
Age	-	-	1.211 (0.147-1.589)	0.569
Gender				
Female	137	68.5	1.00 (ref.)	
Male	63	31.5	0.211 (0.124-0.713)	0.425
Marital status				
Married	170	85	1.00 (ref.)	
Single	30	15	0.452 (0.413-1.451)	0.528

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Variables	Frequency	Percentage	Odds (CI 95%)	P
Place of residence				
City	120	60	1.00 (ref.)	
Rural	35	17.5	0.426 (0.359-1.498)	0.258
Suburb	45	22.5	0.512 (0.481-1.479)	0.359
Occupation				
Employee	75	37.5	1.00 (ref.)	
Worker	45	22.5	0.547 (0.875-1.204)	0.414
Freelance	50	25	0.257 (0.425-0.897)	0.115
Retired	30	15	0.313 (0.478-1.124)	0.278
Spouse's occupation				
Employee	45	22.5	1.00 (ref.)	
Worker	35	17.5	0.426 (0.359-1.498)	0.258
Freelance	80	40	0.411 (0.317-1.358)	0.218
Retired	40	20	0.369 (0.311-1.214)	0.125
Education level				
Illiterate	42	21	1.00 (ref.)	
Undergraduate	48	24	0.258 (0.451-1.014)	0.091
Diploma	50	25	0.313 (0.459-1.101)	0.089
Postgraduate Diploma and Bachelor's Degree	30	15	1.129 (0.657-2.217)	0.026
Master's Degree and above	30	15	2.211 (0.712-4.547)	0.031
Spouse's education level				
Illiterate	46	23	1.00 (ref.)	
Below diploma	58	29	1.201 (0.897-2.211)	0.414
Diploma	48	24	1.204 (0.879-2.103)	0.259
Post-diploma and bachelor's degree	24	12	1.128 (1.129-2.123)	0.429
Post-diploma and higher	24	12	1.414 (1.269-3.212)	0.525
Family economic status				
Unfavorable	88	44	1.00 (ref.)	
Average	70	35	1.231 (0.899-2.259)	0.112
Favourable	42	21	1.451 (1.258-2.948)	0.089
Weekly physical activity				
Every day	38	19	1.00 (ref.)	
Most days	42	21	0.175 (0.325-0.843)	0.024
Some days	50	25	0.115 (0.214-0.743)	0.032
Rarely	40	20	0.319 (0.587-0.998)	0.119
Never	30	15	0.441 (0.589-1.219)	0.214
Smoking				
No	170	85	1.00 (ref.)	
Yes	30	15	0.419 (0.659-1.014)	0.251
Hookah usage				
No	180	90	1.00 (ref.)	
Yes	20	10	0.458 (0.599-1.214)	0.328
BMI				
Underweight	28	14	1.00 (ref.)	
Normal	52	26	1.258 (0.989-1.948)	0.217
Overweight	65	32.5	0.587 (0.876-1.489)	0.359
Obese	55	27.5	0.459 (0.589-1.313)	0.456
Referring to health centers in a month				
Once	84	42	1.00 (ref.)	
Twice	86	43	1.254 (0.788-1.998)	0.123
More than twice	30	15	1.417 (0.841-2.125)	0.254
Ways to obtain information about blood pressure				

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Variables	Frequency	Percentage	Odds (CI 95%)	P
Healthcare workers	44	22	1.00 (ref.)	
Internet	42	21	0.258 (0.475-1.123)	0.355
Radio and television	40	20	0.325 (0.649-1.214)	0.412
Friends and acquaintances	25	12.5	0.319 (0.589-1.147)	0.369
Books, newspapers and magazines	24	12	0.786 (0.712-1.459)	0.415
Other	25	12.5	0.696 (0.812-1.945)	0.159
Health literacy				
Insufficient	57	28.5	1.00 (ref.)	
Not very sufficient	73	36.5	1.125 (0.858-2.491)	0.012
Sufficient	45	22.5	2.101 (1.478-4.452)	0.009
Excellent	35	12.5	3.145 (1.359-5.258)	0.003

Discussion

This study aimed to determine the relationship between health literacy and quality of life among patients with hypertension. The results showed that health literacy was at an undesirable level among the participants. The reason for the low health literacy could be due to their low level of education, because the level of education affects the level of health literacy of individuals (16,19,31). Considering the effect of economic status on the level of health literacy of individuals (16), it can be said that another reason could be due to the economic status of the individuals studied, because only 21% of the individuals in the present study had a favorable economic status. This finding was consistent with the results of the studies of Vazgazi et al. (16), Radhi and Balat (17), and Kilic et al. (32). In addition, this finding from the present study was not consistent with the results of the study by Dehvan et al. (15). The possible reason for this discrepancy is the difference between the two studies in terms of health literacy measurement tools, because Dehvan's study used the Iranian health literacy tool. Another possible reason could be the difference between the two in terms of location, because location can affect the level of health literacy of individuals (33). In the present study, 40% of the people lived in non-urban areas, but in the study, 10.8% lived in rural areas.

Also, the quality of life among the participants was at an undesirable level. It could be because low health literacy was associated with poor quality of life [18-20]. Therefore, considering the undesirable level of health literacy, it was expected that the quality of life would also be at an undesirable level. In addition, high blood pressure in affected individuals reduces the quality of life in physical, psychological, and social areas [24], that is consistent with the results of the studies of Masroor Rudsari et al. [23] and Zhou et al. [22] in which the quality of life among patients with hypertension was at an undesirable level.

The results also showed that the level of education was one of the factors affecting quality of life. It can be said that science and knowledge play a role in the growth of the intellectual excellence of individuals. It also affects the way people behave, especially regarding health-related issues. Therefore, it can increase the quality of life for patients. Also, the level of education can probably affect the improvement of the quality of life of individuals by increasing their health literacy [19,31]. These results are consistent with the results of various studies [20,34,35].

Moreover, the results showed that physical activity was one of the factors affecting the quality of life. It can be argued that one of the most important self-care behaviors among patients with high blood pressure is physical activity. Various studies have shown that physical activity among patients with high blood pressure could have a major impact on reducing and maintaining a desirable blood pressure and a higher quality of life in these individuals [36,37]. This finding was consistent with the results of the study by Niazi et al. [37]

In addition, the results showed that health literacy was one of the factors affecting quality of life. In fact, health literacy is a set of skills, capabilities, and capacities in various dimensions of health. These skills and capacities can sometimes be manifested in accessing health-related information, sometimes in reading it, sometimes in understanding it, sometimes in evaluating and analyzing it, and sometimes in applying this information (20,38,39) which in these ways they affect quality of life in the individuals (20). Another reason could be the role of health literacy in controlling stress levels, disease self-management, and self-efficacy of individuals (19, 25). This finding is consistent with the results of studies by Panahi et al. (19,20), Kooshyar et al. (40), Wang et al. (18), and Song et al. (41).

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To our knowledge, the present study is the first study to assess the relationship between health literacy and quality of life of patients with hypertension in Qaynat. Among the limitations of the present study, we can mention the self-reporting by the patients when completing the questionnaire, which might not have provided the research team with accurate information. Also, the small number of samples and lack of access to patients who do not refer to health centers were other limitations of the study. Other limitations of the present study include ignoring other dimensions related to health literacy, such as self-efficacy, communication, calculation, speaking, listening, and having background and cultural knowledge of individuals, because if these dimensions were present, a broader and more comprehensive study of health literacy would have been possible. Given that the present study was conducted only among patients with hypertension referring to health centers in Qaynat, the results cannot be generalized to all patients in other parts of the country. Therefore, it is recommended to conduct this study on a larger scale of patients in other parts of the country.

Conclusion

Overall, the results of the study showed that quality of life and health literacy were at an undesirable level among the participating patients. Also, education level, amount of physical activity per week, and health literacy were among the factors affecting the quality of life of the patients. The quality of life was lower among illiterate patients, patients with lower levels of physical activity, and patients with insufficient health literacy. Therefore, it is suggested to pay more attention to the patients in designing educational programs to improve their quality of life.

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Availability of data and materials

The data sets used and/or analyzed during the current study was available from the corresponding author on reasonable request.

Conflict of interest

The authors declare that they have no competing interests.

Consent for publication: Not applicable.

Ethical approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Research Ethics Committee of Birjand University of Medical Sciences (IR.BUMS.REC.1403.172). First, the aims of the study were explained to the participants, and their written informed consent was obtained.

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Author's contributions

Rahman Panahi: Methodology, data analysis, writing, and discussion. Sakineh Ghorbani: Collecting Data, Data analysis and final draft. Mohammad Hadi Sarwari: Introduction writer, assistant researcher. Mohieddin Amjadian: Methodology, data analysis, and discussion.

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