Assessing health literacy among hypertensive patients attending primary healthcare clinics at King Abdulaziz Medical City, Riyadh, Saudi Arabia

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Abstract

Background: Inadequate health literacy is associated with worse health outcomes and carries high financial burden on both patients and healthcare system. There is insufficient data about health literacy among the hypertensive patients in Saudi Arabia. The aim of this study is to measure health literacy among hypertensive patients attending the primary health care clinics at King Abdulaziz Medical City, Riyadh (KAMC-R).

Methodology: This study is a cross-sectional study that aims to identify the effect of various factors on health literacy among hypertensive patients attending the primary health care clinic at KAMC-R. Data was collected using a self-administered questionnaire shortly before the patient encountered their treating physician. The questionnaire is comprised of two parts. The first part deals with the patient's characteristics and demographic data. The second part of the questionnaire assesses health literacy utilizing the Arabic version of the Single Item Literacy Screener (SILS).

Results: In this study 395 responses were obtained, of which, 55.7 % were female patients. The data were collected from 3 different centers (Health Care Specialty Center (HCSC) 39% , Iskan clinics 31% and Um-Alhamam center 30%). Of the participants, 34.2 % reported that they never needed help with reading drug leaflet and medical instructions, while 33.4 % reported always needing help, 11.9 % sometimes need help, 10.4 % usually need help and 10.1 % rarely need help. The study showed that males had higher level of good health literacy with about 64.1 %, compared with 45.1 % of females (P=0.00). The health literacy among hypertensive patients is affected proportionally by education level, monthly income, and level of exercise and affected inversely by age.

Conclusion: The study showed that a high percentage of hypertensive patients had low health literacy. Those who were females, less educated, old, and patients with sedentary lifestyle are more likely to have a low level of health literacy. We recommend that physicians should confirm that their patients have full understanding of the nature of the disease, and the correct timing and dosage of medications with frequent reassessment.

Keywords: Health literacy, hypertensive patients, primary healthcare, Riyadh, Saudi Arabia

Introduction

Healthcare is defined as the promotion or maintenance of people's health by treating or preventing physical or psychological impairment [1]. Providing proper healthcare requires a patient who is actively involved in the management plan and has the ability to look for, obtain and understand health-related information. However, inadequate health literacy remains a major obstacle that many physicians face when dealing with their patients. Health literacy is a concept which focuses on literacy in the healthcare field which includes numeracy, aural and spoken literacy, and written literacy [2]. The American Centers of Disease Control and prevention (CDC) has defined health literacy as "the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions" [3]. Inadequate health literacy is associated with worse health outcomes and leads to a high financial burden on both patients and the healthcare system. [4].

The 2014 global status report of non-communicable diseases published by the World Health Organization (WHO) showed that the prevalence of raised blood pressure in Saudi Arabia was approximately 26.6% among adults aged 18 and older [5]. Since patients with hypertension need long-term care, health literacy can play an important role in the quality of the provided care. Having a high level of health literacy is a key factor to better blood pressure control and is associated with better quality of life in patients with hypertension. Inadequate or marginal health literacy increases the 10-year risk of ischemic cardiovascular disease and incidence of artery stiffness in hypertensive patients [5].

Despite several studies showing that limited and inadequate health literacy is highly prevalent among certain populations of patients, there is still a need for studies to address this issue in Saudi Arabia [6]. There is a lack of data in regard to health literacy measurement among the hypertensive population in Saudi Arabia. Hence, research evaluating health literacy on a national level is needed and necessary for future implementation of educational interventions that target better outcomes and less financial burden on the healthcare system. The aim of this study is to measure health literacy among hypertensive patients attending the primary health care clinics at King Abdulaziz Medical City-Riyadh (KAMC-R).

Methodology

This study is a cross-sectional study that intends to identify the effect of various factors on health literacy among hypertensive patients attending the primary health care clinic at KAMC-R which is a tertiary care center that began operating in May 1983. It has a capacity of 962 beds and approximately 3 million outpatient visits a year. The medical city comprises 4 healthcare centers distributed in Riyadh. Two residents visited the clinic and interviewed the patients after their encounter with their treating physician. The data collection was conducted over a two-month period. Roughly, in the last year, there were 410 thousand visits to the primary health care clinics at Um-Alhamam, Iskan, and Health care specialized center (HCSC) centers combined. As hypertension prevalence in general populations is 26.6%, this means that there are300 hypertensive patients visiting the targeted PCH per day. The sample size was calculated based on a 5% margin of error, 95% confidence interval, and a 50% estimated response rate. By using the Raosoft sample size calculator, the required sample size was 369. The sample was adjusted to 385 to compensate for incomplete survey forms. Inclusion criteria included all hypertensive patients aged 18 and above attending the targeted primary health care clinics on the day of the survey while exclusion criteria included patients with severe vision or hearing problems, patients with severe physical or mental illness and health care workers.

The sampling technique used in this study is convenient sampling technique. On each of the 3 targeted PHC centers, the samples were collected on 2 random days each week. We obtained data of 20 participants on each sampling session. The sampling continued for 10 weeks.

Data were collected using a self-administered questionnaire shortly before the patient encounters with their treating physician. The questionnaire is comprised of two parts. The first part deals with the patient's characteristic (age, gender, marital status, duration of diagnosis of hypertension, any other chronic diseases, family monthly income, employment status level of education, and family history of hypertension). In the data collection form, some variables are categorized, gender: male or female, marital status: married or not married or widow/widower or divorced, level of education: illiterate, elementary, intermediate, high school, diploma, or bachelor and above, family history of hypertension : yes or no. The second part of the questionnaire assesses health literacy utilizing the Arabic version of the Single Item Literacy Screener (SILS) which was translated and validated in Iraq [7].

The SILS was developed by Morris and colleagues, and consists of a single item question intended to identify adults in need of help with printed health material [8]. It was validated against the Test of Functional Health Literacy in Adults (TOFHLA) and the Rapid Estimate of Adult Literacy in Medicine (REALM) with an AUROC of 0.79 (95% CI = 0.74 to 0.83) [8]. The SILS asks, "How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?" Possible responses are 1-Never, 2-Rarely, 3-Sometimes, 4-Often, and 5-Always [8]. Each number corresponding to a response is a score in the SILS. Patients with a score of 2 or less were considered to have a good health literacy level, while a score of more than 2 indicated some difficulty with reading printed health related material and the patient was considered to have limited health literacy [8].

Table 1: Demographic factors of the participants (N=395)

Gender	Male	175	44.3%
	Female	220	55.7%
Center	Um-Alhamam	121	30%
	Iskan	121	31%
	HCSC	153	39%
Age	20-30	3	0.8%
	31-40	20	5.1%
	41-50	64	16.2%
	51-60	118	29.9%
	61-70	123	31.1%
	70 and above	67	17.0%
Social status	Single	21	5.3%
	Married	263	66.6%
	Divorced	34	8.6%
	Widow/Widower	77	19.5%
Income	Preferred not to tell	145	36.7%
	<3000	28	7.1%
	3000-10000	107	27.1%
	>10000	115	29.1%
Employment status	Student	3	0.8%
	Currently employed	114	28.9%
	Unemployed	170	43.0%
	Retired	108	27.3%
Education level	Illiterate	55	13.9%
	Primary	70	17.7%
	Intermediate	62	15.7%
	Secondary	115	29.1%
	Higher education	93	23.5%

Table 2: Medical characteristics of patients

Height	140-150	51	12.9%
	151-160	147	37.2%
	161-170	127	32.2%
	171-180	62	15.7%
	180 or taller	8	2.0%
Exercising	No	125	31.6%
	Rarely	87	22.0%
	Occasionally	78	19.7%
	Almost daily	71	18.0%
	Daily	34	8.6%
HTN drugs	1	222	56.2%
	2	131	33.2%
	3	34	8.6%
	4	8	2.0%
Clinic or ER visits for uncontrolled HTN	None	254	64.3%
	1	64	16.2%
	2	36	9.1%
	3	16	4.1%
	More than 3	25	6.3%
Compliance	0-25 %	17	4.3%
	26-50 %	27	6.8%
	51-75 %	78	19.7%
	Above 75 %	273	69.1%
Onset of diagnosis	I do not know	114	28.9%
	1 year	1	0.3%
	0-5 years	67	17.0%
	6-10 years	106	26.8%
	11-15	60	15.2%
	16-20	16	4.1%
	20 and above	31	7.8%
Family history of HTN	No	174	44.1%
	Yes	221	55.9%

The validated Arabic SILS was obtained by contacting Dr. Al-Ruthia who conducted a study on the relationship between health literacy and body mass index among Arab women with polycystic ovary syndrome using the validated Arabic SILS at a university hospital [9]. The data was entered and analyzed using SPSS v23. The descriptive statistics were presented as mean ± SD for the numerical variables (e.g. age, BMI) and as frequency (%) for the categorical variables (e.g. gender, level of education, family history of hypertension).

The main outcome variable is health literacy which was categorized into two categories (good health literacy/ limited health literacy) based on the scores of the SILS questionnaire. The Chi Square test was used to compare health literacy by demographical variables (e.g. gender, age, level of education). A p-value < 0.05 was considered to show a statistically significant association.

Results

In this study 395 responses were obtained. of which, 55.7 % were female patients. The data were collected from 3 different centers (Health Care Specialty Center (HCSC) 39%, Iskan clinics 31% and Um-Alhamam center 30%). Most of the participant were older than 40 (93.4%) (Table 1). Of the patients, only 8.6 % reported daily practicing of exercise. Almost half of the patients use only one medication and almost two thirds reported compliance above 75%. Moreover, 64.3 % of the patients reported no previous clinic or ER visits for uncontrolled HTN while 16.2 % reported one visit (Table 2).

In this study, 34.2 % of the patients reported that they never need help with reading drug leaflet and medical instruction, while 33.4 % reported they always need help, 11.9 % sometimes need help, 10.4 % usually need help and 10.1 % rarely need help (Figure 1).

This study found that males had a good level of health literacy (64.1%) where only 45.1% of females had good health literacy (P=0.00). Unsurprisingly, older patients had more difficulty with reading printed health related material (P=0.00) where 83.6 % of patients of age group of 70 or above always had limited health literacy. Significantly, we found that patients with lower monthly income or who were unemployed, and patients with lower education reported higher frequency of needing help in reading leaflets and other medical instructions The health literacy among hypertensive patients is affected proportionally by education level, monthly income, and level of exercise and affected inversely by age (P=0.00). No relation was found between ER visits and number of HTN and health literacy. (Tables 3, 4).

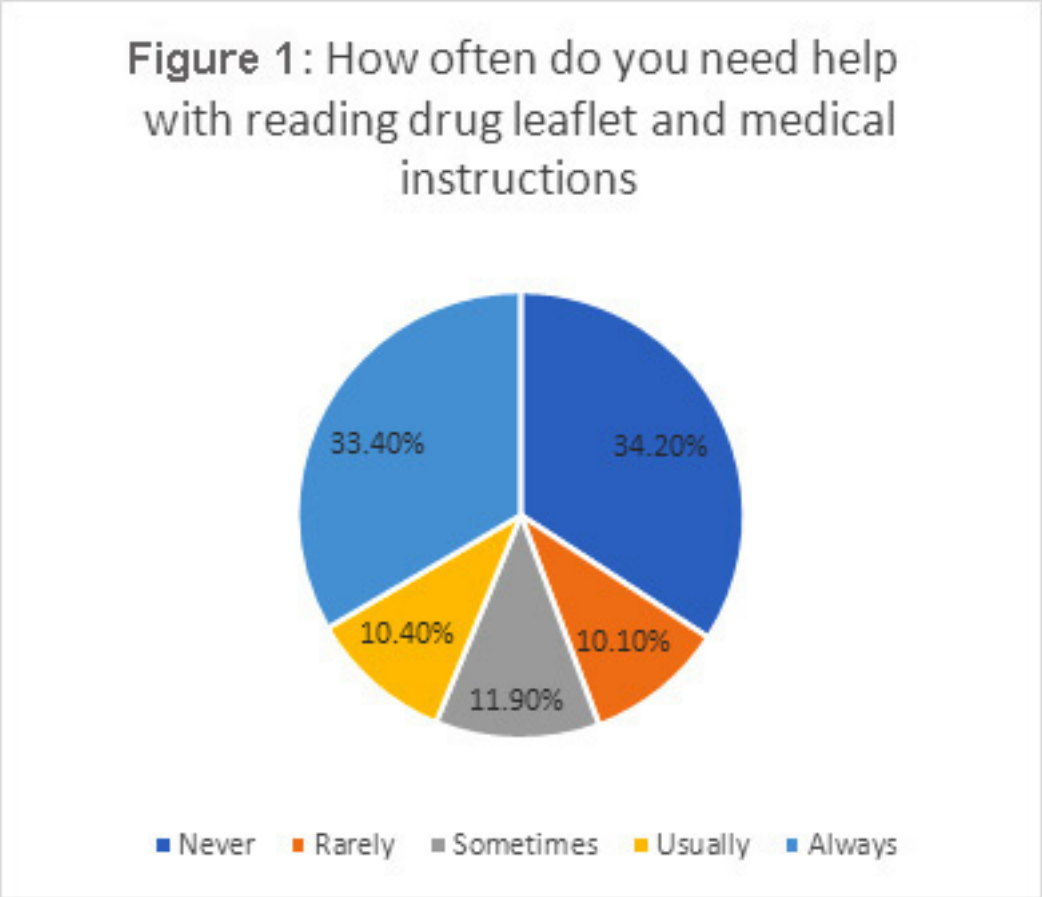

Table 3: The relation between need for help in reading drug leaflet and medical instructions and demographic factors of the participants

		Good health literacy		Limited health literacy		P-value
		N	N %	N	N %	
Gender	Male	96	54.9%	79	45.1%	0.00*
	Female	79	35.9%	141	64.1%	
Age	20-30	3	100.0%	0	0.0%	0.00*
	31-40	19	95.0%	1	5.0%	
	41-50	45	70.3%	19	29.7%	
	51-60	56	47.5%	62	52.5%	
	61-70	41	33.3%	82	66.7%	
	70 and above	11	16.4%	56	83.6%	
Social status	Single	16	76.2%	5	23.8%	0.00*
	Married	130	49.4%	133	50.6%	
	Divorced	21	61.8%	13	38.2%	
	Widow/Widower	8	10.4%	69	89.6%	
Income	<3000	6	21.4%	22	78.6%	0.00*
	3000-10000	32	29.9%	75	70.1%	
	>10000	71	61.7%	44	38.3%	
Employment status	Student	1	33.3%	2	66.7%	0.00*
	Currently employed	98	86.0%	16	14.0%	
	Unemployed	32	18.8%	138	81.2%	
	Retired	44	40.7%	64	59.3%	
Education level	Illiterate	2	3.6%	53	96.4%	0.00*
	Primary	5	7.1%	65	92.9%	
	Intermediate	10	16.1%	52	83.9%	
	Secondary	69	60.0%	46	40.0%	
	Higher education	89	95.7%	4	4.3%	

Table 4: The relation between need for help in reading drug leaflet and medical instructions and medical characteristic of patients

		Good health literacy		Limited health literacy		
		N	N %	N	N %	
Exercising	No	30	24.0%	95	76.0%	0.00*
	Rarely	36	41.4%	51	58.6%	
	Occasionally	44	56.4%	34	43.6%	
	Almost daily	39	54.9%	32	45.1%	
	Daily	26	76.5%	8	23.5%	
HTN drugs	1	110	49.5%	112	50.5%	0.05
	2	51	38.9%	80	61.1%	
	3	13	38.2%	21	61.8%	
	4	1	12.5%	7	87.5%	
Clinic or ER visits for uncontrolled HTN	None	115	45.3%	139	54.7%	0.881
	1	30	46.9%	34	53.1%	
	2	14	38.9%	22	61.1%	
	3	6	37.5%	10	62.5%	
	More than 3	10	40.0%	15	60.0%	
Onset of diagnosis	1 year	1	100.0%	0	0.0%	0.00*
	0-5 years	48	71.6%	19	28.4%	
	6-10 years	63	59.4%	43	40.6%	
	11-15	23	38.3%	37	61.7%	
	16-20	5	31.3%	11	68.8%	
	20 and above	5	16.1%	26	83.9%	
Family history of HTN	No	54	31.0%	120	69.0%	0.00*
	Yes	121	54.8%	100	45.2%	

Discussion

Poor hypertension management has many multifaceted causes including obesity [10], medical adherence [11], and poor dietary and other lifestyle habits management [12]. According to previous systematic reviews, individuals' health literacy is one of the contributing factors in controlling hypertension [13]. Health literate patients seem to have better control of their hypertension [14–20] knowledge of hypertension [21,22] and sodium restriction [19,22]. Therefore, it is important to assess and improve the patient's health literacy. In this study, we aimed to measure health literacy among hypertensive patients attending the primary health care clinics at KAMC-R.

Today, patients are able to access a huge range of medical information using smartphones, regardless of their skills, where many patients may be able to gain health information and make it available to others through social media [23]. However, this could make patients feel overwhelmed when they have to make well-informed decisions about their medical regimen. They may also be at higher risk of making judgments that could be harmful to their health in extreme circumstances [24]. Most instruments used to assess health literacy depend on assessing of functional health literacy skills as one's ability to locate, read and understand health information [25]. Assessing health literacy is different from the well-known KAP studies in which authors aim to assess the patients' knowledge, attitudes and practice toward specific medical conditions. However, KAP studies are not able to assess the extent of health literacy which covers the aspect of one's ability to access, understand, appraise and apply health-related information in healthcare, disease prevention, and health promotion, which has been proven to be a critical health determinant and may have been overlooked until recent years.

In this study, we found that 55.7 % of hypertensive patients had limited health literacy where 33.4 % of them reported that they always need help in reading medical instructions. In a study conducted by McNaughton C et.al, the authors found that 45 % of hypertensive patients had low health literacy [20] while Shi et al. used the Chinese Health Literacy Scale for Hypertension where authors found that more than half of their study subjects (55.3%) had low health literacy [26]. Good health literacy was found significantly higher in males, younger age, higher income population, employed and higher educated population. In another study, authors reported that better health literacy was reported in patients younger than 40 years old, among men, higher level of education and employee patients [14]. Sun et al, reported that education has a positive and direct

effect on prior knowledge and health literacy [27]. One research study showed that men had limited health literacy [28,29]. However, the authors explained that as result of the men who participated in their study had low education.

Other factors affecting patients' health literacy included exercising, duration of hypertension and family history of hypertension. Many studies showed that there is association between bad lifestyle, low level of health literacy and low control of hypertension [25,30–33]. Low level of health literacy means that patients didn't comprehend the needed information regarding the importance and how to control the disease, as exercising. Having family history of hypertension is associated with better health literacy which is expected as patients had previous basic information.

This study had some limitations including depending of self-reported questionnaire which could lead to some personal bias in reporting some information. Moreover, the study was conducted in primary care centers where the majority of hypertensive patients were of an essential type which mostly affects old patients whereas patients with secondary hypertension, who are usually younger, follow up in specialized clinics.

In conclusion, this study found a high percentage of hypertensive patients had low health literacy, which correlated with female gender, low education level, older age, family history of hypertension and practicing exercise. We recommend that physicians should confirm that their patients have full understanding of the nature of the disease, and the correct timing and dosage of medications with frequent reassessment.

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