Disease related knowledge and quality of life: a descriptive study focusing on hypertensive population in Pakistan

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Abstract

Objective: This study aims to evaluate the association between health related quality of life and disease state knowledge among hypertensive populations in Pakistan.

Methods: A cross sectional descriptive study was undertaken with a representative cohort of hypertension patients. Using prevalence based sampling techniques, a total of 385 hypertensive patients were selected from two public hospitals in Quetta City, Pakistan. The Hypertension Fact Questionnaire (HFQ) and the European Quality of Life scale (EQ-5D) were used for data collection. Statistical Package for the Social Sciences 16.0 was used to compute descriptive analyses of patients' demographic and disease related information. Categorical variables were described as percentages while continuous variables were expressed as mean ± standard deviation (SD). Spearman's rho correlation was used to identify any association between study variables.

Results: The mean (SD) age of the patients was 39.02 (6.59) years, with 68.8% being males (n=265). The mean (SD) duration of hypertension was 3.01 (0.93) years. Forty percent (n=154) had bachelor's degrees with 34.8% (n=134) working in the private sector. Almost forty one percent (n=140) had a monthly income of more than 15000 Pakistan rupees and 75.1% (n=289) resided in urban areas. The mean EQ-5D descriptive score (0.46±0.28) and EQ-VAS score (63.97±6.62) indicated lower health related quality of life (HRQoL) in our study participants. The mean knowledge score was 8.03 ± 0.42 while the correlation coefficient between HRQoL and knowledge was 0.208 (p< 0.001), indicating a weak positive association.

Conclusions: Results of this study highlight hypertension knowledge is weakly associated with HRQoL, suggesting that imparting knowledge to patients does not necessarily improve HRQoL. More attention should be given to identifying individual factors that affect HRQoL.

Keywords: Hypertension, Knowledge, Health Related Quality of Life, Correlation.

Introduction

Health Related Quality of Life (HRQoL) is defined as "a person's perceived quality of life representing satisfaction in those areas of life likely to be affected by health status" [1]. The concept of HRQoL has being used by health care professionals to describe factors other than illness affecting human health and its status [2]. These different health dimensions help healthcare professionals to understand patient perceptions of illness [2]. The development of chronic conditions with decreased life

expectancy can be disturbing for the patients [3]. The composite nature of diseases has a traumatic effect on social and economic status of patients. Although categorized as "controlled", the feeling of being ill heavily imbalances HRQoL in patients suffering from chronic illnesses. This in return, results in decreased patient satisfaction with daily life activities. HRQoL has become an important tool for the assessment of treatment outcomes from a patient perspective [4].

Within the context of chronic diseases, hypertension (HTN) in particular is counted as a major factor in decreasing life expectancy and disability-accustomed life years [5]. An estimated one billion of the world's population was diagnosed with HTN in year 2000 and this fraction is estimated to increase to 29% by the year 2025 [6]. It is also estimated that around 7.1 million people die each year due to complications of HTN [7]. This rising frequency of HTN is becoming a major public health challenge for both developed and developing countries [8]. Hypertension is apprehension significant chronic disease because of its high incidence and risk of developing associated cardiovascular disorders [9]. HTN adversely affects patients' every day activities and results in a decrease in self confidence [10], hence it is reported that hypertensive patients have reduced HRQoL scores [11-13].

In recent years, a growing demand to educate patients with chronic disorders has been reported in the literature [14-16]. Several methods have been utilized to improve patients' knowledge including; patient groups, published literature, specialist clinics, and the uptake of information technology [17]. Although the provision of disease-related information to patients has been considered good practice, it is not clear whether disease related knowledge has any impact on patients' HRQoL scores [17]. Therefore, the study aimed to examine the association between disease related knowledge and HRQoL in patients with HTN in Pakistan.

Methods

Design and settings

This study was designed as a descriptive cross sectional analysis. Patients being managed for HTN at the outpatient clinic of two tertiary care public hospitals of Quetta, Pakistan (Sandeman Provincial Hospital and Bolan Medical complex Hospital) were enrolled [18]. A prevalence based sample of 385 HTN patients was selected from May to July 2010 [19]. Patients 18 years of age and above, with confirmed diagnosis of essential HTN, who had been using antihypertensive agents for the previous six months and were fluent in the national language of Pakistan (Urdu) [20] were included in the study. Patients aged below 18 and above 80 years, having co-morbidities, immigrants from other countries and pregnant women were exclusion criteria.

Ethical approval

There is no human ethical committee for non clinical studies in the institutes where the research was conducted. Therefore, permission from the respective medical superintendent was obtained in-order to conduct the study (EA/FS/1021-2).Written consent was obtained from participants prior to data collection.

Data abstraction

The Hypertension Fact Questionnaire (HFQ) and the European Quality of Life scale (EQ-5D) were used for data collection. Demographic and disease related information was also collected. All instruments were pre-tested for reliability and validity. Data from the pre-test evaluation was not included in the final analysis. Four pharmacists were trained by the principal researcher in how to administer the HFQ and EQ-5D. Group discussions were held among the pharmacists and principal researcher to ensure trustworthiness of the data collection process. The data obtained were verified and scrutinized for completeness and accuracy.

Assessment of Health related quality of life (HRQoL)

EQ-5D is a standardized instrument for use as a measure of health outcome and provides a simple descriptive profile and a single index value for health status [21]. It is composed of two portions. The EQ-5D tool consists of five domains (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression). Three levels of severity (no problems/some or moderate problems/extreme problems) are able to be selected from within a particular EQ-5D dimension. The second portion of the EQ-5D consists of a 20 cm health virtual analogue scale with two distinct end points, the best imaginable health state (score of 100) and the worst imaginable health state (score of 0) and is known as the VAS (visual analog scale) [21]. The translated Urdu version of EQ-5D was provided by Euroqol and the study was registered with Euroqol.

Assessment of knowledge about HTN

The HFQ was originally constructed in English and translated into Urdu by an independent professional translator. As the process of development and validation was completed, the final version was reviewed and approved by the researchers. The HFQ consists of 15 items which was used to assess patients' knowledge towards causes, treatment and management of HYT. The instrument was constructed after an intensive literature review [22, 23] and measured knowledge with a cut off scores of < 8 as poor, 8-12 average and 13-15 as an adequate knowledge [24]. The mean knowledge of the cohort was calculated for the final analysis.

Statistical analysis

SPSS version 16.0 (SPSS Inc., Chicago, IL) [25] was used to compute the descriptive analysis of patient demographics and disease related information. Categorical variables were measured as percentages, while continuous variables were expressed as mean ± standard deviation. The EQ-5D was scored using values derived from the United Kingdom (UK) general population survey from 1995 [26]. Spearman's rank correlation was used to explore any correlations between knowledge and HRQoL. Correlations were interpreted using the following criteria: 0–0.25 = weak correlation, 0.25–0.5 = fair correlation, 0.5–0.75 = good correlation and greater than 0.75 = excellent correlation [27].

Results

The demographic characteristics of the study patients are presented in table 1. The mean age (SD) of patients was 39.02 (6.59) years, with 68.8% of the study population being male. The mean (SD) duration of hypertension was 3.01±0.93 years. Forty percent (n=154) had bachelor's degrees and 75% (n=289) resided in urban areas. Forty one% (n=160) had a monthly income of more than 15000 Pakistan rupees.

Table 2 reports the HRQoL scores among study patients. The mean EQ-5D descriptive score was 0.46±0.28 and EQ-Vas score 63.97±6.62. A total of 29 different EQ-5D health states were described by the patients. The largest single group of participants (n=112, 29.1%) indicated no problems in the second and third domain while moderate problems in first, fourth and fifth. There was not a single patient who stated no problem in all five domains as shown in Table 3.

Table 1: Characteristics of survey respondents (n=385)

Characteristics	Frequency	Percentage
Age (39.02 ±6.59 years)		
18-27	48	12.5
28-37	186	48.3
38-47	128	33.2
>48	23	6.0
Gender		
Male	265	68.8
Female	120	31.2
Education		
Illiterate	9	2.3
Religious	62	16.1
Primary	7	1.8
Matric	51	13.2
Intermediate	51	13.2
Bachelors	154	40.0
Masters	51	13.2
Occupation		
Jobless	97	25.2
Govt. Job	78	20.3
Private Job	134	34.8
Businessman	76	19.7
Income*		
Nil	97	25.2
< Pk Rs. 5000	2	0.5
5000-10000	22	5.7
1000-15000	104	27.0
> 15000	160	41.6
Locality		
Urban	289	75.1
Rural	96	24.9
Duration of disease (3.01±0.939 years)		
< 1 year	26	6.8
1-3 years	89	23.1
3-5 years	124	32.2
> 5 years	146	37.9
> 15000	160	41.6

* 1 Pk Rs = 0.0118 US$

Table 2: HRQoL scores in hypertensive patients

Description	N	Mean EQ-5D Score	Standard Deviation	Mean EQ-VAS Score	Standard Deviation
Age					
18-27	48	0.5913	0.18401	66.81	5.652
28-37	186	0.5007	0.25706	64.68	5.862
38-47	128	0.4104	0.31491	59.87	7.160
>48	23	0.2576	0.28444	63.97	6.621
Gender					
Male	265	0.4677	0.28194	64.03	6.466
Female	120	0.4669	0.29107	63.84	6.978
Education					
Illiterate	9	0.2543	0.33554	59.44	6.521
Religious	62	0.3005	0.34637	60.63	6.744
Primary	7	0.5583	0.18048	63.57	2.992
Matric	51	0.4371	0.28744	64.59	7.245
Intermediate	51	0.5231	0.25906	65.06	5.774
Bachelors	154	0.5293	0.23171	64.84	6.130
Masters	51	0.4835	0.28105	64.59	7.119
Occupation					
Jobless	97	0.4337	0.29882	63.24	7.077
Govt. Job	78	0.4796	0.27688	64.44	7.011
Private Job	134	0.5295	0.23761	65.16	5.503
Businessman	76	0.3886	0.32602	62.36	7.080
Income					
Nil	97	0.4337	0.29882	63.24	7.077
< Pk Rs 5000	2	0.4210	0.33234	65.00	7.071
5000-10000	22	0.5628	0.19853	65.68	6.549
1000-15000	104	0.5231	0.23856	65.25	5.841
> 15000	160	0.4392	0.30643	63.34	6.735
Locality					
Urban	289	0.5113	0.25466	64.97	6.156
Rural	96	0.3356	0.32713	60.98	7.089
Duration of disease					
< 1 year	26	0.5885	0.18203	67.04	4.976
1-3 years	89	0.5158	0.25582	65.33	6.335
3-5 years	124	0.4738	0.26777	64.35	6.106
> 5 years	146	0.4110	0.31733	62.28	7.074
> 15000	160	41.6			
Total Sample	**385**	**0.4674**	**0.28444**	**63.97**	**6.621**

The mean HRQoL score was 46.74 ± 28.44 with VAS score 63.97 ± 6.621 indicting poor status of life in our study respondents

Table 3: Frequency of self-reported (EQ-5D) Health States

Health State	N	% Total	Health State	N	% Total
11112	1	0.3	21222	37	9.6
11122	21	5.5	21223	13	3.4
11123	4	1.0	21232	18	4.7
11222	39	10.1	21233	9	2.3
11223	8	2.1	22122	11	2.9
11232	2	0.5	22123	5	1.3
11233	1	0.3	22212	1	0.3
12122	12	3.1	22222	17	4.4
12222	6	1.6	22223	8	2.1
21112	6	1.6	22231	1	.3
21121	1	0.3	22232	11	2.9
21122	112	29.1	22233	18	4.7
21123	12	3.1	22322	1	0.3
21132	8	2.1	22323	1	0.3
21212	1	0.3	**Total**	**385**	**100**

Table 4: Responses to HTN knowledge questions

HTN knowledge item	Yes (%)	No (%)	Don't know (%)
Do you know the normal values of blood pressure?	77.9	22.1	0.0
Elevated BP is called HTN.	52.2	17.7	30.1
HTN is a condition which can progress with age.	27.8	70.1	2.1
Both men and women have equal chance of developing HTN.	20.3	79.	0.8
HTN is a treatable condition.	30.4	68.1	1.6
The older a person is, the greater their risk of having HTN.	67.3	31.2	1.6
Smoking is a risk factor for HTN.	96.4	3.4	0.3
Eating fatty food affects blood cholesterol level which is a risk factor for developing HTN.	41.0	48.6	10.4
Being overweight increases risk for HTN.	92.5	7.5	0.0
Regular physical activity will lower a person's chance of getting HTN.	42.1	56.4	1.6
Eating more salt has no effect on blood pressure.	86.5	13.5	0.0
Dietary approaches to reduce HTN do no good.	20.5	78.7	0.8
White meat is as good as red meat in HTN.	23.6	75.6	0.8
Medication alone can control HTN.	39.2	59.0	1.8
HTN can lead to other life-threatening diseases.	85.7	11.7	2.6

Within 29 different health states, majority (n=112, 29.1%) stated moderate difficulty in the first, fourth and fifth domain respectively, where as they stated no difficulty in the second and third domain*.

Table 4 reflects the knowledge of patients about HTN. The mean knowledge score was 8.03±0.42 and median score was 8. From the cohort, 146 (37.9%) were within a poor knowledge range, 236 (61.3%) moderate and 3 patients (0.8%) demonstrating adequate knowledge about HTN. Poor knowledge was evident in responses to questions relating to onset, management (questions 3 and 5) and dietary control of HTN (questions 11, 12 and 13). Correct answers to these questions were reported as 27.8, 30.4, 13.5, 20.5 and 23.6 %, respectively.

Knowledge was assessed by giving 1 to correct answer and 0 to the wrong answer. The "don't know "response was also taken as 0. The scale measured knowledge from maximum 15 to minimum 0. Scores < 8 were taken as poor, 8 - 12 average, and 13 - 15 adequate knowledge of hypertension. Mean knowledge was 8.03 ±0.415.
Spearman's rank correlation was used to measure the association between study variables. The correlation coefficient between HRQoL and knowledge was 0.208 (p< 0.001), indicating a weak yet significant association between quality of life and knowledge.

Discussion

Results from the present study highlight that HTN knowledge is weakly associated with HRQoL. To the best of our knowledge, and from extensive literature review, the relationship between HTN knowledge and HRQoL has not been explored. In other disease conditions such as inflammatory bowel disease (IBD), it has been reported that even though 64% of study patients were well informed about their disease, over 90% had some impairment in their reported Quality of Life (QOL) [17]. The authors reported no significant correlation between disease-related patient awareness and QOL scores (r=0.3). This is supported by the current study where despite having average knowledge, HRQoL in the study population was poor.

A number of studies have reported significant reduction in HRQoL with HTN [28-30], however there has been no attempt to associate the relationship between HTN knowledge and HRQoL. In the present study, the correlation between knowledge and

HRQoL is 0.208 which is less than what was reported by Verma et al. in their study among IBD patients [17]. The current study suggests that knowledge towards disease has little or no impact on HRQoL in patients suffering with hypertension.

The reasons for this assumption are multi-factorial. It is hypothesized that an increase in disease related knowledge can decrease HRQoL. It is a logical hypothesis that as patients are informed about their conditions, the apprehension of developing further abnormalities especially in cases of chronic conditions like HTN and diabetes affects psychological domains which disturbs the overall HRQoL. Unfortunately, after an extensive literature review, there was no data available from HTN patients supporting our hypothesis. However, Borgaonkar et al. concluded that the provision of educational booklets to IBD patients during an educational intervention decreases the HRQoL scores [31]. In a similar study of IBD patients with high anxiety levels, patients declared no benefit in terms of reduced

* [(Mobility, self-care, usual activities, pain/discomfort and anxiety/depression) Domains of HRQoL in order]

anxiety or improved HRQOL after participating in an educational program partially supporting the earlier hypothesis [32].

Within the context of developing countries like Pakistan, the HRQoL has been underused as one example of a tool borrowed from the social sciences and applied to this sort of work. Pakistan faces a severe shortage in numbers of professionals and health care facilities [33]. Furthermore, there is a huge gap in income disparity and living status between population subgroups [34]. All these factors may have a profound impact on patients HRQoL scores [17]. Besides that, lack of basic health facilities and recourses inversely affect health status and HRQoL of the population in general and specifically for patients suffering from chronic diseases like HTN.

Conclusion

The current study reported a weak yet positive association between disease-related knowledge and HRQoL scores. Adding to current knowledge, this is the first study that has been reported from Pakistan. The weak association between knowledge and quality of life is likely to be influenced by the many other factors which this study suggests. Studies focusing on in depth psychosocial profile using either an in depth qualitative exploration or multivariate analysis are recommended to get a clearer view of individualized factors affecting HRQoL.

Authors' contributions

Fahad Saleem and Noman ul Haq conducted the survey and drafted the initial manuscript. Mohamed Azmi Hassali and Asrul Akmal Shafie designed and supervised the study. Muhammad Atif and Hisham Aljadhey helped in statistical analysis, interpretation and manuscript revision. All authors read and approved the final manuscript.

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Conflict of interest

The authors declare no conflict of interest.

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