ORIGINAL RESEARCH

Assessment Of Blood Pressure and Health-Related Quality of Life Among Hypertensive Patients: An Observational Study

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ABSTRACT

Objective • Health-related quality of life (HRQoL) is an important tool in the assessment of treatment outcomes. Healthcare professionals use the concept of HRQoL to measure factors other than illness which affect human health and its status. Patient's everyday activities are adversely affected by hypertension (HTN) and results in decreased self-confidence. The present study was aimed to assess blood pressure and health-related quality of life (HRQoL) of hypertensive patients in Pakistan.

Methods • A questionnaire-based cross-sectional study was undertaken with 384 hypertensive patients attending a tertiary care public sector hospital in Islamabad, Pakistan. The assessment of HRQoL was done by using an EuroQol EQ-5D scale. Values derived from the UK general population survey were used to score HRQoL. The blood pressure of each patient was measured by using a calibrated sphygmomanometer. Data analysis was performed by using SPSS version 21 (SPSS Inc., Chicago, IL, USA). $P \leq .05$ was taken as significant.

Results • Two hundred and fifteen (56%) patients were male with 3.31 ± 2.13 years of history of hypertension. The majority (n = 138, 35.9%) was categorized in the age group of 41 to 50 years with mean age of 50.21 ± 9.51. Mean (SD) systolic BP and mean (SD) diastolic BP was measured as 140.39 ± 15.485 and 88.74 ± 10.683 in mmHg respectively. Poor HRQoL was measured among the study participants (0.6456 ± 0.2317). Age, gender, education, occupation and monthly income had a significant relation with HRQoL score.

Conclusion • Hypertension imposes an adverse effect on patient's HRQoL. Results from this study could be useful in clinical practice. Attention is required to highlight determinants of HRQoL and policies should be implemented for better management of HTN, particularly in early treatment phases where it is still possible to improve HRQoL. (*Altern Ther Health Med.* 2019;25(3):26-31.)

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INTRODUCTION

It is very distressing for the patients to develop chronic conditions with confirmed decreased life expectancies.[1] Stressful effect is exerted by the complex nature of diseases on social and financial condition of the patients.[2] The feeling of being ill, even in the "controlled status", profoundly imbalances the quality of life (QoL) resulting in decreased satisfaction of patients with daily activities of life.[3] It is considered that perception of patient of being ill as well as QoL can be improved by the promotion of health activities and supporting the health-related domains.[4] Therefore, in the assessment of treatment outcomes, health-related quality of life (HRQoL) is an important tool.[5]

Healthcare professionals use the concept of HRQoL to measure factors other than illness which affect human health and its status. This will help in anticipating different dimensions within the life of patient and helps to understand patient's perception of illness by health-care professionals.[6] HRQoL

discusses domains that are specific to health and are affected by some factors including economical, physiological, psychosocial, sociological and spiritual in comparison to QoL that focuses perceptions of position of people in life in the context of the culture and value systems in which they live and in relation to their expectations, goals, standards and concerns.[7] Health related Quality of life (HRQoL) is therefore, defined as perceived quality of life of a person, representing satisfaction in the areas which are likely to be affected by health status.[6]

So far as chronic diseases are concerned, hypertension (HTN) in particular is considered as a major factor in decreasing disability-adjusted life years and life expectancy.[8] In year 2000, one billion of the world's population was estimated to be diagnosed with HTN and by the year 2025, an increase to 29% is estimated in this fraction.[9] Around 7.1 million people were estimated to die each year because of complications of HTN.[10] This increasing frequency of HTN is arising as a major public health challenge for both developed and developing countries.[11] As a result of HTN, further cardiac abnormalities like stroke, heart failure, myocardial infarction and kidney failure are developed and thus the overall rate of morbidity and mortality is increased.[12] Patient's every day activities are adversely affected by HTN and results in decreased self-confidence,[13] hence reduced HRQoL scores of hypertensive patients are reported.[14,15,16] If these chronic diseases are early diagnosed in participants then it is of importance in clinical disease management as well as education of participant and empowerment which is aimed to improve their HRQoL.[17]

In developing countries, the concept of HRQoL is often neglected when patients are treated for chronic diseases. Within this context, Pakistan being one of the highest populated countries in the world has more than 24% of the population living below the national poverty line.[18] In Pakistan, various factors have a serious impact on HRQoL such as shortage of health-care facilities, health-care professionals, living status and income disparity between the population subgroups. Besides that, lack of recourses and basic health facilities inversely affect population's health status and HRQoL in general and specifically patients with hypertension like chronic diseases. By taking into consideration all the above arguments, the present study was aimed to assess blood pressure and HRQoL of hypertensive patients in Pakistan.

METHODS

Study Design, Settings And Recruitment Of Subjects

A questionnaire-based cross-sectional study was adopted to assess blood pressure and HRQoL of hypertensive patients. Hypertension has a prevalence rate of 33% in Pakistan,[19] therefore, a prevalence-based sample of 384 patients[20] was selected from Federal Government Polyclinic (Post Graduate Medical Institute). It is the second largest tertiary care hospital in Islamabad, Pakistan and provides diagnostic and treatment facilities to the poor and middle-income classes. The study was conducted from August to November 2017.

Inclusion And Exclusion Criteria

Patients aged 30 years and above, with a confirmed diagnosis of essential hypertension, taking medication for hypertension for the last 6-months and patients that can write or speak Urdu (the official language of Pakistan) were included in the study. Patients aged less than 30 and greater than 70 years, dementia, pregnant women, co-morbid patients and immigrants were excluded from this study.

Ethical Approval

The permission from the ethical committee of the hospital was taken to conduct the study (approval No. FGPC.1/12/2016/Ethical Committee).

Consent From Study Patients

Patients who agreed to participate were explained the nature and objectives of the study before data collection and were assured of the confidentiality of the information. Patients were informed that they can withdraw from study without any effect on treatment or penalty. Prior to data collection, written consent was also taken from the patients.

Data Abstraction

The European Quality of Life scale (EQ-5D) was used for data collection. Demographic data and disease related information was also collected. The EQ-5D instrument was pre-tested for reliability and validity.

Assessment of Health-related quality of life (HRQoL)

HRQoL was measured in hypertensive patients by using an EuroQol EQ-5D scale. It is a frequently used generic HRQoL instrument which was developed by the EuroQol group. It consists of two parts and provides a simple descriptive profile and a single index value for health status.[21] The first part is descriptive system (EQ-5D) which comprises of five dimensions of health including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has further three levels such as no problem, some or moderate problem and extreme problem as level 1, 2, and 3 respectively[22] as shown in Table 1.

EQ-5D is applicable to a wide range of health index values for health status. For Pakistani population, the EQ-5D preference weight was not available for each health state, therefore, as EQ-5D Index score, these were derived from TTO tariff of preference weights of UK general population.[18,23] Second part of EQ-5D consists of visual analogue scale (VAS). It records self-rated health status of respondent on a graduated (0–100) scale, score of 100 as the best imaginable health stateand score of 0 as the worst imaginable health state, with higher scores for higher HRQoL. The obtained information was used in terms of a quantitative measurement of health outcome assessed by an individual respondent. Patientswere asked to mark their present health state on this scale. EQ-5D index score and EQ-5D VAS were estimated for each patient. The Urdu (national language of Pakistan) version of EQ-5D was provided by EuroQol upon request, and the study was also registered with EuroQol.

Table 1. EQ-5D Questionnaire

Dimension	Level	Description
Mobility	1	I have no problems in walking about
	2	I have some problems in walking about
	3	I am confined to bed
Self-Care	1	I have no problems with self-care
	2	I have some problems washing or dressing myself
	3	I am unable to wash or dress myself
Usual Activities	1	I have no problems with performing my usual activities
	2	I have some problems with performing my usual activities
	3	I am unable to perform my usual activities
Pain/Discomfort	1	I have no pain or discomfort
	2	I have moderate pain or discomfort
	3	I have extreme pain or discomfort
Anxiety/ Depression	1	I am not anxious or depressed
	2	I am moderately anxious or depressed
	3	I am extremely anxious or depressed

Blood pressure measurement

The Blood pressure of each patient was measured by using a calibrated sphygmomanometer and mean systolic blood pressure (SBP) and diastolic blood pressure (DBP) of patients were determined.

Statistical analysis

Demographic data and disease characteristics of the patients were described by using descriptive statistics. For categorical variables, percentages and frequencies were used, while for continuous variables, means and standard deviations were calculated. The characteristics of the whole sample were presented. Mann–Whitney and Kruskal–Wallis tests were performed to test the statistical significance among the variables, and $P < .05$ was considered as significant. All the data was statistically analyzed by using Statistical Package for Social Sciences (SPSS) version 21.0 Software (SPSS Inc., Chicago, IL, USA).

Results

Patients' Demographics

The internal consistency of the EQ-5D questionnaire was ensured. A pilot study was conducted with hypertensive patients for reliability and validity (the Cronbach's alpha value being 0.712). Three hundred and eighty-four HTN patients were included in this study. Table 2 shows the description of sociodemographic variables as well as frequency distribution of hypertensive patients.

The mean age (SD) of the patients was 50.21 (9.51) years, with 56% males. Three hundred and eighty-three (99.7%) of the patients were married. The mean (SD) duration of hypertension was 3.31 ± 2.13 years. One hundred and one (26.3%) patients had matriculation level of education with 156 (40.6%) were housewives/house makers. Two hundred and twenty-one (57.6%) had monthly income of more than 15 000 per month Pakistan rupees with 220 (57.3 %) resident of urban area.

Table 2. Characteristics of survey respondents (n = 384)

Characteristics	Frequency	(%)
Age Years (mean ± SD) = 50.21 ± 9.51		
30 to 40	61	15.9
41 to 50	138	35.9
51 to 60	125	32.6
61 to 70	60	15.6
Gender		
Male	215	56.0
Female	169	44.0
Marital Status		
Married	383	99.7
Unmarried	0	0.00
Widow	1	0.30
Education		
Illiterate	87	22.7
Primary	37	09.6
Middle	58	15.1
Matriculation	101	26.3
Intermediate	29	07.6
Graduate	47	12.2
Postgraduate	25	06.5
Occupation		
Private Job	47	12.2
Government Job	121	31.5
Businessman	0	0.00
Housewife/House Maker	156	40.6
Retired	60	15.6
Jobless	0	0.00
Monthly Income (Pakistan Rupees)[a]		
0	157	40.9
5000 to 10000	2	0.50
10001 to 15001	4	1.00
>15001	221	57.6
Location		
Urban	220	57.3
Rural	164	42.7
Duration of Disease Years (mean ± SD) = 3.31 ± 2.13		
<1	80	20.8
1 to 3	164	42.7
3 to 5	26	6.8
>5	114	29.7

[a]1 $US = 111.70 Pk Rs

Abbreviation: SD, Standard Deviation

Blood pressure

Mean (SD) systolic BP and mean (SD) diastolic BP of hypertensive patients (n = 384) were measured as 140.39 ± 15.485 and 88.74 ± 10.683 in mmHg respectively.

EQ-5D health status

Table 3 shows the HRQoL scores of patients. The mean EQ-5D score was 0.6456 ± 0.2317and EQ-VAS score was 66.83 ± 5.832. Table 3 also shows the relationship between HRQoL and the demographic characteristics.

No statistically significant differences were observed when marital status, location and duration of disease were kept into consideration. Whereas, significant differences were reported when age, gender, education, occupation and

Table 3. Description of Health-related Quality of Life Scores

Description	n	Mean EQ-5D Score	SD	EQ-VAS	SD	*P* Value
Age Years[a] (50.21 ± 9.51)						
30 to 40	61	0.6754	0.2024	72.97	3.4540	.000
41 to 50	138	0.6773	0.2211	68.73	5.1920	
51 to 60	125	0.6337	0.2387	64.38	4.5630	
61 to 70	60	0.5669	0.2525	61.30	3.3260	
Gender[b]						
Male	215	0.6910	0.1725	66.68	5.1760	.000
Female	169	0.5877	0.2801	67.01	6.5850	
Marital Status[a]						
Married	383	0.6453	0.2320	66.82	5.8380	.765
Unmarried	0	0.0000	0.0000	00.00	0.0000	
Widow	1	0.7250	0.0000	70.00	0.0000	
Education[a]						
Illiterate	87	0.60818	0.2854	66.17	6.3600	.036
Primary	37	0.5962	0.2651	65.41	6.7020	
Middle	58	0.5898	0.2748	65.36	5.9520	
Matriculation	101	0.7005	0.1494	68.39	4.8850	
Intermediate	29	0.6290	0.2455	68.28	6.0290	
Graduate	47	0.6841	0.1664	66.68	5.3490	
Postgraduate	25	0.7032	0.1676	66.88	5.1990	
Occupation[a]						
Private Job	47	0.6706	0.2167	67.72	5.5510	.000
Government Job	121	0.7357	0.1159	68.66	4.6000	
Businessman	0	0.0000	0.0000	00.00	0.0000	
Housewife/ House Maker	156	0.5872	0.2810	67.18	6.4160	
Retired	60	0.5960	0.2202	61.50	2.9770	
Jobless	0	0.0000	0.0000	00.00	0.0000	
Monthly Income (Pakistan Rupees)[a]						
0	157	0.5863	0.2800	67.05	6.4780	.001
5000 to 10000	2	0.2720	0.6406	56.00	8.4850	
10001 to 15001	4	0.7083	0.0669	65.00	3.8300	
>15001	221	0.6899	0.1736	66.80	5.2700	
Location[a]						
Urban	220	0.6431	0.2313	66.33	5.8230	.609
Rural	164	0.6489	0.2329	67.49	5.7960	
Duration of Disease (Years)[b] (3.31 ± 2.13)						
<1	80	0.6588	0.2256	68.84	5.5690	.545
1 to 3	164	0.6408	0.2361	67.23	5.6140	
3 to 5	26	0.6840	0.1912	66.58	7.6010	
>5	114	0.6343	0.2392	64.89	5.4050	

[a]Kruskal-Wallis test
[b]Mann-Whitney test

Abbreviations: SD, Standard Deviation; VAS, Visual Analogue Scale.

monthly income were analyzed ($P = .000$, $P = .000$, $P = .036$, $P = .000$ and $P = .001$ respectively). The Pearson correlation between EQ-5D Index Score and VAS was measured. The value of correlation coefficient was measured as 0.559 which indicated a positive correlation ($P = .000$).

A total of 15 different EQ-5D health states was described by the patients. No problems/difficulties in the first, second and third domain were pointed out by the majority of the patients (n = 169, 44%) whereas moderate problems/difficulties in the fourth and fifth domain. There was not a single patient who pointed out no problem in all five domains as shown in Table 4.

Table 4. Frequency of Self-reported (EQ-5D) Health States

Health State					Frequency	(%)
Mobility	Self-care	Usual activities	Pain/ discomfort	Anxiety/ depression		
1	1	1	1	2	27	7.00
1	1	1	1	3	6	1.60
1	1	1	2	1	43	11.20
1	1	1	2	2	169	44.00
1	1	1	2	3	10	2.60
2	1	1	1	2	1	0.30
2	1	1	2	1	5	1.30
2	1	1	2	2	90	23.40
2	1	1	2	3	4	1.00
2	1	1	3	2	1	0.30
2	1	1	3	3	7	1.80
2	2	1	3	3	1	0.30
2	2	2	2	2	2	0.50
2	2	2	2	3	4	1.0
2	2	2	3	3	14	3.0

Discussion

The present study was aimed to assess blood pressure and impact of HTN on HRQoL of patients. Reduced HRQoL were reported by Patients with HTN. Our study showed poor results of HRQoL in comparison to results reported by Akhtar et al.[24] Our claim is also supported by similar results from other areas. Taichman et al. reported impaired HRQoL in patients suffering from pulmonary hypertension.[25] In another study, patients having diabetes and those with hypertension showed limited HRQoL when compared to healthy individuals.[17] Similar results of HRQoL were reported in patients with diagnosed essential hypertension.[14,26] Furthermore, our study concluded that HRQoL had a statistically significant relationship with age, gender, education, occupation and monthly income of our study participants. When our results were compared with other studies of same nature then mixed results were obtained. A significant relationship of education and monthly income with HRQoL was reported.[27] A study reported that age is the only factor having significant relationship with HRQoL.[28] Baune et al. concluded that gender and income were the only variables in significant relationship with HRQoL.[29] Goins et al. highlighted that age, gender, education, employment status, annual household income, obesity and hypertension were significant to HRQoL.[30]

So far as a developing country like Pakistan is concerned very limited data is available regarding HRQoL. Adding to the current knowledge, two studies reported HRQoL profile of hypertensive patients in Pakistan but from different healthcare settings. Moreover, patients suffering from other chronic diseases from different areas of Pakistan reported a decreased HRQoL, showing that chronic diseases have negative impact on HRQoL of patients.[31,32,33]

A number of challenges are faced by developing countries while providing optimal health care to whole of population. Pakistan, within this context, is the 6th most populous country of the world and round about 40 million

still live below national poverty line. 50% of adult population is illiterate. More important is that across regions, differences in income per capita have persisted or increased.[33] It was reported that that prevalence of hypertension is 33% in Pakistan. Every 3rd individual aged above 40 years becoming increasingly susceptible to different diseases. It was also stated that only fifty percent of the hypertensive individuals were diagnosed and only half of these diagnosed patients were ever treated. Correct medication was prescribed to half of those patients who were treated for hypertension in order to control the condition effectively. Therefore, only 12.5 % cases of hypertension were controlled adequately.[33] Health services in Pakistan are very expensive. Patients have to pay the majority of health care cost by themselves. Lack of health care facilities, shortage of health care professionals and insufficient allocation of health budget are major barriers to delivery of optimal and quality health care. Most often the patient is unable to afford the high cost of treatment.[34,35] Majority of the patients, in turn tend to visit other healthcare providers like Hakeems and Homeopaths (Unani-Tib) before consulting certified practitioners. HRQoL is affected by prevalence of such factors to an extent more than it is believed to be and hence, HRQoL is affected by increased cost of therapy.[18]

CONCLUSION

Results of assessment of blood pressure and HRQoL of 384 hypertensive patients attending a tertiary care public sector hospital in Islamabad, Pakistan showed that hypertension imposes an adverse effect on patient's HRQoL. Mean systolic and mean diastolic BP of hypertensive patients were measured as 140.39 ± 15.485 and 88.74 ± 10.683 in mmHg respectively. We also found that age, gender, education, occupation and monthly income had marked impact on HRQoL of patients. Results from this study could be useful in clinical practice, particularly in early treatment phases where it is still possible to improve HRQoL. One of the suitable choices to improve HRQoL is educating the patient. Enhanced information and education of the patient can result in better HRQoL in patients suffering from chronic diseases. The health care system should be provided with sufficient facilities by the concerned authorities.

Limitations

A small number of hypertensive patients were selected from a tertiary care public sector hospital in Islamabad, Pakistan to conduct the study and hence the results cannot be generalized to whole hypertensive patients of the country.

FUNDING

No funding was available to conduct the study.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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