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Health Related Quality of Life and Associated Factors among Adult Hypertensive Patients on Jimma University Specialized Hospital, South West Ethiopia, 2014 GC

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Abstract

Background: Worldwide, hypertension is common and now regarded as a major public health problem. Health related quality of life has gained increased attention as an outcome measure of interventions and treatments in patients with established cardiovascular diseases.

Objective: The aim of this study was to assess quality of life and factors associated among hypertensive patients following hypertension clinic of Jimma University specialized hospital.

Methods: An institution based cross sectional study was employed on 322 adult hypertensive patients using simple random sampling procedure between March to May, 2014. Data was analyzed using SPSS version 20.0. A P value <0.05 was considered statistically significant.

Result: Health related quality of life mean score were a little above average that showed physical functioning (58.58 ± 29.8), role physical (54.7 ± 43.7), role emotional (57.45 ± 44.82), vitality (57.01 ± 13.65), mental health (61.42 ± 13.19), social functioning (74.61 ± 24.12), bodily pain (74.67 ± 25.46) and general health (51.66 ± 15.12). Being female, farmer and presence of comorbid were related to lower physical, mental component summary and total quality of life score while better hypertension self-care practice were positively associated with physical, mental component summary and total quality of life score. Respondents encountered drug side effect had lower physical component summary whereas presence of complication had related to lower mental component summary and total quality of life score.

Conclusion and recommendation: This study identified that socio-demographic and clinical as well as self-care practices were strongly associated with health related quality of life. Healthcare provider should measure health related quality of life and introduce people to life style modification.

Abbreviations: BP: Bodily Pain; CVD: Cardiovascular Disorder; DASH: Dietary Approach to Stop Hypertension; GH: General Health; HBP: High Blood Pressure; HRQOL: Health Related Quality of Life; JUSH: Jimma University Specialized Hospital; MCS: Mental Component Summary; MH: Mental Health; PCS: Physical Component Summary; PF: Physical Functioning; QOL: Quality of Life; RE: Role Emotional; RP: Role Physical; SF: Social Functioning; SF-36: Short Form 36; TQOL: Total Quality of Life; VT: Vitality; WHO: World Health Organization

Introduction

Hypertension is systolic blood pressure greater than 140 mmHg and a diastolic blood pressure greater than 90 mmHg over a sustained period, taken in two or more contacts with the health care provider after an initial screening [1]. Worldwide, hypertension is common and now regarded as a major public health problem [2]. It is an overwhelming global challenge and analysis of the global burden of hypertension revealed that over 25% of the world's adult population had hypertension in 2000, and the proportion is expected to increase to 29% by 2025 [3].

Hypertension is usually a chronic disease which can lead to long term complications and it is the leading cause of death and the second leading cause of lost disability adjusted life-years worldwide [4]. Hypertension is a primary cause of mortality in developing countries. According to the World Health Organization, more than 80% of mortality from hypertension and associated cardiovascular diseases now occur in low and middle-income countries and this is particularly common among people of low income [5]. Such deaths occurring among economically productive age groups undermine socio-economic development of families in particular, and the country involved in general [6]. In Sub-Saharan Africa, the magnitude of hypertension has now assumed epidemic proportions. About 10-20 million people are affected with hypertension in this region [7].

Hypertension is a chronic disease that requires pharmacological and non-pharmacological management for life, and its chronicity affects patient's life [8]. Chronic diseases like hypertension may not kill but they consume a lot of health care resources and threaten the quality of life of the sufferers. The ultimate goal of modern health

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care for patients with chronic disease is not only to delay death but also to promote health and quality of life. It has also been found to be predictive of health service utilization and mortality [9].

Individuals with chronic diseases experience a complex array clinical features and physiologic impairments that may affect their day-to-day living and change in self-perception and perceptions of quality of life (QOL). The burden of one disease may be complicated by the burden of other health conditions. In addition, characteristics such as age, gender and socioeconomic status may attenuate or worsen the impact of chronic conditions upon QOL [10].

The rising of mortality in productive age has brought the attention that, longevity should be accompanied with correction in lifestyle. Some researchers showed that, rising life expectancy will lead to an increase in the proportion of people living in poor health with the consequent burden on country. The World Health Organization (WHO) has summarized these concerns, stating that, "adding years to life is an empty victory without adding life to years by improving quality of life" [11].

A study conducted by Wilson and Cleary identifies that functional changes due to diseases or treatment, lead to clinical features, which in turn influences physiological status that may affect patient perception of symptoms and changes in HRQOL [12].

Study reported that decreased quality of life in hypertensive patients might be secondary to the awareness of hypertension, the side effects of drugs, or the presence of co-morbidity, and not high BP perse [13,14]. Although hypertension is usually seen as an asymptomatic, its association with alterations in optimal health and health-related quality of life (HRQOL) is still a debating issue [15]. A studies of HRQOL among hypertensive individuals have been conflicting, with some studies finding worse HRQOL among hypertensive compared to the general population and some finding have no impact of hypertension on HRQOL in some or all domains [16]. Regarding HRQOL, limited studies have taken place in large populations of subjects with hypertension. Most studies focusing on hypertensive subjects describe the effect of antihypertensive drugs on various domains of HRQOL and, in most of the studies; the assessment of HRQOL was a secondary objective. Quality of life is determined by many variables [13].

Thus since there is no study conducted before in our country regarding this issue, the objective is primarily to identify quality of life among hypertensive patients and to assess factors that may affect HRQOL like socio-demographic factors, medical related factors, hypertension self-care practice and institutional care.

Methods

Study design, period and setting

An institution based cross-sectional study was conducted between March-May, 2014. The study was conducted in Jimma University Specialized Hospital which is found in Jimma town, Ethiopia.

Study population and sampling procedure

Diagnosed high blood pressure clients attending hypertension clinic of Jimma University Specialized Hospital who fulfil the inclusion and exclusion criteria will be used as a study population. The inclusion criteria was aged greater than18 years and put on treatment for at least 3 months. Convenient sampling technique was used for 3 months for patients on follow up with total sample of 322 patients.

Data collection

Data was collected using interviewer administered structured questionnaire. The structured interview questionnaire that takes 25 min was administered. The questionnaire has 5 parts, HRQOL instruments (SF-36), socio-demographic, medical factors, adherence to hypertension self-care and institutional care.

The Short Form-36 (SF-36) Health Survey was used to assess HRQOL. It is a well-validated instrument used in hypertension studies with a multidimensional questionnaire, composed of 36 items, and it covers eight domains (subscale) of health: physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, mental health and two summary score, physical and mental health summary scores. It can be administered in 5-10 min with a high degree of acceptability and data quality. Each scale is directly transformed into a 0-100 scale on the assumption that each question carries equal weight. Each of the subscale scores has a range of 0-100 with a score of zero equivalent to maximum disability or worst quality of life and a score of 100 equivalent to no disability or a high quality of life.

Physical, mental component summary and overall quality of life were obtained using principal component analysis. Physical component summary score were obtained from domains that contribute more like physical functioning, role physical, bodily pain and general health, while the mental component summary score were obtained by domains that contribute more like mental health, role emotional, vitality and social functioning. Total quality of life was obtained from all domains that contribute to health related quality of life [17].

Data management and analysis

Filled questionnaire was checked during the data collection period. Data collected was edited, coded, entered using Epidata 3.1, cleaned and was exported to SPSS version 20 for analysis. Frequency distribution was used to organize the data and present the responses obtained. After assumption, checking multiple linear regression analysis was used to determine factors which affect quality of life score (outcome variable) applying stepwise selection methods. Dummy variables were prepared for categorical variables for the purpose of the multiple linear regressions. Univariate and bivariate analysis was done followed by multivariate analysis. P-value ≤ 0.05 was considered statistically significant in multivariate analysis. Finally the result was displayed using charts, graphs and tables.

Ethical consideration

The study was consented by Jimma University, College of Health and Medical Sciences, Research and Ethical Review Committee (RERC). Oral consent was obtained from each patient before initiation of data collection. To maintain confidentiality of information collected from each study participant, names and other identifiers were not used in the questionnaire.

Results

A total of 322 hypertensive participants were involved in this study. Above half (54.7%) of the study participants were males. Regarding the educational status 78% of the patients were literate (Table 1).

Clinical characteristics of study participants

As displayed in Table 2 the mean ± standard deviation of duration of illness of the respondents were 5.09 and 5.9 with median of 3

Variables	Status	Frequency	Percent
Sex	Male	176	54.7
	Female	146	45.3
Age	18-40	69	21.4
	41-60	171	53.1
	>61	82	25.5
Ethnicity	Oromo	214	66.5
	Amhara	49	15.2
	Dawuro	9	2.8
	Yem	14	4.3
	Others*	36	11.2
Marital status	Married	284	88.2
	Single	10	3.1
	Divorced	7	2.2
	Widowed	21	6.5
Religion	Orthodox	120	37.3
	Muslim	183	56.8
	protestant	15	4.7
	Others	4	1.2
Occupation	Government employee	54	16.8
	Farmer	111	34.5
	daily laborer	8	2.5
	merchant	43	13.4
	housewife	72	22.4
	Others	34	10.6
Educational level	Un educated	71	22
	Educated	251	78
Family income	≤200 ETB	102	31.7
	>200 ETB	220	68.3

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Table 1: Biographic characteristic of hypertensive patients attending chronic illness clinic of JUSH, March-May 2014 (n=322).

Variables		Frequency	Percent
Duration of illness in years	0.25-0.99	14	4.3
	1-1.99	56	17.4
	2-2.99	52	16.1
	3-3.99	58	18
	4-4.99	37	11.5
	>5	105	32.6
BMI category	<18	19	5.9
	18-24	228	70.8
	25	75	23.3
Comorbidity	Yes	216	67.1
	No	106	32.9
Complication	yes	132	41
	No	190	59
Drug side effects	yes	52	16.1
	No	270	83.9

Table 2: Clinical variables of the respondents following chronic illness clinic of JUSH, March to April 2014 (n=322).

respectively. Out of our study participants 105 (32.6%) of respondents had follow up for more than 5 years of duration which is followed by 58 (18%) for 3-3.99 years of duration. Majority 216 (67.1%) of respondents do have co morbidities. Among 322 study subjects 132 (41%) have complication. Majority 270 (83.9%) of them do not have drug side effects (Table 2).

Description of domains of quality of life among hypertensive patients

Domains of health related quality of life mean ± standard deviation was obtained as physical functioning (58.58 ± 29.8), role physical (54.7 ± 43.7), role emotional (57.45 ± 44.82), vitality (57.01 ± 13.65), mental health (61.42 ± 13.19), social functioning (74.61 ± 24.12), bodily pain (74.67 ± 25.46) and general health (51.66 ± 15.12) respectively (Table 3).

Factors associated with health related quality of life among hypertensive patients

Factors associated with HRQOL using multiple linear regression: MLR was used aiming at identifying associated factors of health related quality of life. Most factors of HRQOL like age, gender, marital status, level of education, occupation, income, comorbidity, and duration of illness, drug side effect, self-care practice and patient satisfaction as covariates were considered in a multiple linear regression model as independent variables applying stepwise selection method for PCS and MCS summary scores.

The multiple linear regression for physical component summary score

MLR for PCS score showed that those patients who encountered drug side effects had significantly lower PCS score with (b=-0.66), [95% CI: -0.83 to -0.48] at P<0.0001. Hypertension self-care practice was significantly associated with higher PCS score with (b=0.35), [95% CI 0.27 to 0.43] at P<0.0001. Regarding occupation of respondents farmers had significantly lower PCS score as compared to those who were government employee (b=-0.60), [95% CI: -0.78 to -0.43] at P <0.001. Respondents with comorbidity had lower PCS score with (b=-0.29), [95% CI: -0.47 to -0.11] at P <0.05. Concerning gender of the respondents female respondents had lower PCS score with (b=-0.25), [95% CI: -0.41 to -0.08] (Table 4).

The multiple linear regression for mental component summary

MLR for MCS score showed that hypertension self-care practice was significantly associated with higher MCS score with (b=0.38), [95% CI 0.30 to 0.47] at P<0.0001. Those respondents who have complication had significantly lower MCS score (b=-0.47), [95% CI: -0.66 to -0.28] at P<0.0001. Respondents with co morbidity had lower MCS score at (b=-0.36), [95% CI: -0.56 to -0.17] at P<0.001. Concerning occupational status farmers had significantly lower MCS score as compared to government employee with (b=-0.39), [95% CI: -0.58 to -0.20] at P<0.001. Regarding gender of respondents similar results were obtained as to PCS score that was female respondents had lower MCS score with (b=-0.25), [95% CI: -0.43 to -0.07] (Table 5).

Domains	Mean ± Std. Deviation
Physical functioning	58.58 ± 29.80
Role physical	54.73 ± 43.71
Role emotional	57.45 ± 44.82
Vitality	57.01 ± 13.65
Mental health	61.42 ± 13.19
Social functioning	74.61 ± 24.12
Bodily pain	74.67 ± 25.46
General health	51.66 ± 15.12

Table 3: Description of Mean and standard deviation of domains of Quality of Life among hypertensive patients following JUSH March-April, 2014.

PCS score	Unstandardized Coefficients	Beta	Sig.	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	0.79		0	0.62	0.96
Drug side effect	-0.66	-0.32	0.000**	-0.83	-0.48
Absence of drug S/E*					
Hypertension self-care practice	0.35	0.35	0.000**	0.27	0.43
Farmer	-0.6	-0.28	0.000**	-0.78	-0.43
Government employee*					
Presence of co morbidity	-0.29	-0.13	0.002**	-0.47	-0.11
Absence of co morbidity*					
Female	-0.25	-0.12	0.003**	-0.41	-0.08
Male*					

NB. *Reference variable, **Significant at <0.05, Adjusted R^2=50.4%, Maximum VIF=1.27.

Table 4: Multiple Linear Regression Model showing associated factors with Physical Component Summary Scale among Hypertensive patients attending JUSH, March-April 2014.

MCS score	Unstandardized Coefficients	Beta	Sig.	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	0.69		0	0.51	0.87
Hypertension self-care practice	0.38	0.38	0.000**	0.3	0.47
Complication present	-0.47	-0.23	0.000**	-0.67	-0.28
Absence of complication*					
Presence of comorbidity	-0.36	-0.17	0.000**	-0.56	-0.17
Absence of comorbidity*					
Farmer	-0.39	-0.18	0.000**	-0.58	-0.2
Government employee*					
Female	-0.25	-0.13	0.005**	-0.43	-0.07
Male*					

NB. *Reference variable, **Significant at <0.05 Adjusted R^2=41.6%, Maximum VIF=1.27.

Table 5: Multiple Linear Regression Model showing associated factors for Mental Component Summary Scale among Hypertensive patients attending JUSH, March-April 2014.

Multiple linear regression model for total quality of life

This model revealed that factors which were significantly associated with both summary scores were obtained in this model. In TQOL model those respondents with higher hypertension self-care practice score had significantly higher TQOL score with (b=0.37), [95% CI 0.29 to 0.46] at P<0.0001. Those respondents who have complication and comorbidity had significantly lower TQOL score with (b=-0.64), [95% CI: -0.82 to -0.47] and [b=-0.31, 95% CI: -0.49 to -0.14] respectively. Farmers had significantly lower TQOL score (b=-0.55), [95% CI: -0.72 to -0.38] at P<0.001as compared to government employee. Being female was negatively associated with lower score of TQOL with (b=-0.27) [95% CI: -0.43 to -0.10] (Table 6).

Discussion

The current study was undertaken to highlight the profile and associated factors of HRQOL in a hypertensive population. There have been few quantitative assessments of HRQOL of hypertensive patients in Africa including Ethiopia. This study has tried to address this issue. It has analyzed components quality of life of hypertensive patients as judged by different socio-demographic, clinical, patient and service related factors in addition to the comparison with other studies.

The profile of eight HRQOL domain mean score of the study population in this study showed that physical functioning, role physical, general health, role emotional, vitality and mental health were a little above average while social functioning and bodily pain were far above average and this is comparable with studies done in Nigeria [18] but lower than that of the study conducted in Sweden [15]

possible explanation for the discrepancy may be study in Sweden was a population based study whereas this study is an institutional based study and it might be differences in per capital of the study populations, but this study did not identify this issue.

Results from multiple linear regression analysis showed that drug side effect, self-care practice, gender, occupational status, marital status, complication and comorbidity were significantly associated with physical, mental component summary score and total quality of life score in hypertensive.

Patients that encountered drug side effects had significantly lower PCS score compared to those who had not encountered and this finding is consistent with a study conducted in Netherland [19,20], Poland [13], Egypt [21], reported that the unfavourable consequences of hypertensive drug side-effects on quality of life and this finding along with other study suggests that health professional have to give emphasis on drug side effect to improve quality of life of hypertensive population.

Hypertensives' patients who had better self-care practice was significantly associated with higher PCS, MCS and TQOL score and this finding is compatible with a study done in Palestine [22], showed that adherent patients to physical exercise, low level of stress, diet are important factors for enhanced QOL. Therefore, hypertensive patient's non-pharmacological therapy including lifestyle had better control of their blood pressure, absence of complication and comorbidity that results in improved quality of life.

Regarding gender of respondents this finding showed that female

MCS score	Unstandardized Coefficients	Beta	Sig.	95% CI for B	
				Lower Bound	Upper Bound
(Constant)	0.79		0	0.62	0.96
Hypertension self-care practice	0.38	0.37	0.000**	0.29	0.46
Complication present	-0.64	-0.31	0.000**	-0.82	-0.47
Absence of complication*					
Presence of comorbidity	-0.56	-0.26	0.000**	-0.73	-0.38
Absence of comorbidity*					
Farmer	-0.31	-0.15	0.001**	-0.49	-0.14
Government employee*					
Female	-0.27	-0.13	0.001**	-0.43	-0.1
Male*					

NB. *Reference variable, **Significant at <0.05 Adjusted R^2=41.6%, Maximum VIF=1.27.

Table 6: Multiple Linear Regression Model showing associated factors for Total quality of life score among Hypertensive patients attending JUSH, March-April 2014.

respondents had lower PCS, MCS and TQOL score and this finding is compatible with study conducted Palestinian [11], Netherland [20], Sweden [15] which reported that women showed decreased health and quality of life than men. This might be due to the fact that males have the opportunity to go out visiting friends, the vast majority of males work and earn money, even if they are not working they are keeping the money which represents to them a source of power and satisfaction, spending too much time outside the house which is in most times is the source of tension and anxiety, which will improve their life.

This finding showed that respondents with co morbidity had lower PCS, MCS and TQOL score and its similar with finding in Nigeria [18], Malasia [23], Poland [24], concluded that SF-36 scores in the presence of co-morbidity were decreased and significant decreased HRQOL than absence of co-morbidities.

According to this finding, patients who develop complication had significantly lower MCS and TQOL score and this is consistent with study done in Brazil [25]. These findings suggest that early diagnosis, effective treatment and prevention of chronic diseases reduce occurrence of co morbidity and complication that helps to improve life.

This study also showed that being farmers had significantly lower PCS, MCS and TQOL score as compared to those who were government employee related to study done in Pakistan [19] reported that QOL of respondents with private jobs had significant relation with those who were jobless and government officials. Other study conducted in Palestine [26] concluded that specific biographic data and clinical data of hypertensive patients as well as drug related factors were strongly associated with HRQOL.

In general mean score of domain of quality of life among hypertension were little above average. The finding of this study suggests that the importance of considering associated factors of HRQOL for improvement of quality of life of hypertensive population.

Conclusion and Recommendation

In summary, this finding revealed that profile of eight domains of health related quality of life mean score were little above average. According to this finding mental, physical component and total HRQOL were associated with socio-demographic factors like gender, occupation, marital status, clinical factors like comorbidity, complication and drug side effects and high blood pressure self-care practice.

Patients encountered drug side effect, farmer, female, and patient with other diseases were associated with lower physical component summary score while better hypertension self-care practice were related with higher physical component summary score.

Respondents having complication and comorbidity, being female and farmer were related with lower mental component summary score while better hypertension self-care practice were associated with higher mental component summary score.

Finally total quality of life model female, farmer, complication and co morbidity were associated with lower score of TQOL while better hypertension self-care practice were associated with higher score of total quality of life.

1. Health care providers are encouraged to measure HRQOL among hypertensive patients who have follow up in chronic illness clinic. This would facilitate to provide holistic care and improve the quality of services provided by physicians.

2. To enhance clients to practice life style change in terms of physical activity, diet, refreshment.

3. As chronic illness is rising from time to time due to different factors this study recommends that the Ministry of Health adopts measuring of HRQOL among hypertensive patients as one component of health goals.

4. Including other variables another study is encouraged to improve quality of life, especially on life style and its effect on the quality of life.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Author's Contribution

Anwar Abdulwahed took part in the design of the study, performed the data collection, analyzed the data and interpretation of the results. Ibrahim Yimam participated in the design of the study and interpretation of results. Anwar Seid participated in preparation and reviewing of manuscript. All the authors read and approved the final manuscript.

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