Original article

Assessment of the health related quality of life in patients suffering from hypertension and diabetes mellitus: A cross sectional study.

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Abstract:

Background: Diabetes mellitus and hypertension are chronic disorders, inadequate management of these two disorders leads to several complications and end organ damage that can impair health related quality of life (HRQoL) in these individuals. Several studies in hypertensive patients concluded that hypertension reduced HRQoL and participants with diabetes also reported comparably decreased HRQoL. The data on HRQoL in patients suffering from both hypertension and diabetes is limited hence we designed this study to assess health related quality of life in patients suffering from hypertension and diabetes mellitus. ***Methodology:*** This single centre, cross-sectional study was conducted for 2 months between April and August 2013 in patients with hypertension and diabetes mellitus. Patients suffering from hypertension were recruited in study and were divided into two groups, Group 1 consisted of patient suffering from hypertension and diabetes mellitus whereas Group 2 consisted of patients suffering from hypertension. Patients were assessed on Short form health Survey (SF-36) and the WHOQOL – Bref scores. **Results:** A total of 85 patients were screened out of which 41 patients were enrolled in the study, 21 patients in Group 1 and 20 patients in group 2. The SF-36 Scores showed significantly ($p < 0.05$) worse pain scores in patients in Group 2. Patients in Group 1 had a better quality of life as compared to other group as evident by higher scores in most of the parameters of SF-36 and WHO-QOL Bref Score, though it was not statistically significant. **Conclusion**: Both groups had compromised quality of life; patients with hypertension and diabetes had a better quality of life.

Keywords: hypertension; diabetes mellitus; quality of life; emotional

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Introduction:

Hypertension is a major public health problem in India and its prevalence is rapidly increasing among both urban and rural populations[1, 2]. The prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among rural adults. The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025, with nearly equal numbers of men and women[3, 4]. According to WHO Health statistics 2012, the prevalence of hypertension in India was 23.1% in men and 22.6% in women in population in the age group of 25 or more than 25 years of age. It caused approximately 51% of death from

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strokes and 45% from coronary artery disease in 2004; and was considered responsible for about 12.8 percent of the total of all global deaths[5].

Recent studies show that for every known person with hypertension there are two persons with either undiagnosed hypertension or pre hypertension [6]. A reduction in blood pressure can decrease cardiovascular risk and this can be achieved by lifestyle measures in mild cases and this should be the initial approach to hypertension management in all cases. This includes dietary interventions weight reduction, tobacco cessation, and physical activity [1]. But unlike in Western countries, stress management is often not given greater emphasis in India [4].

India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the "diabetes capital of the world". According to the Diabetes Atlas 2006 published by the International Diabetes Federation, the number of people with diabetes in India currently around 40.9 million is expected to rise to 69.9 million by 2025 unless urgent preventive steps are taken, World Health Organization (WHO) reports show that 32 million people had diabetes in the year 2000[7].

In chronic diseases such as hypertension and diabetes, health-related quality of life (HRQoL) is an especially important outcome, given their lifelong nature and the need for daily self-management[8]. Inadequate management of these two disorders leads to several complications and end organ damage that can impair the HRQoL in the individuals [9].

A systematic review and meta-analysis of observational studies of HRQoL in hypertensive patients concluded that hypertension reduced HRQoL; this was secondary to the awareness of hypertension, adverse drug effects, newly diagnosed type 2 diabetes mellitus or obesity [10]. Participants with diabetes and those with hypertension reported comparably limited HRQoL [8] similarly; another study done to assess the quality of life in American Indians showed that respondents with both diabetes mellitus and hypertension have lowest HRQoL [11]. Hypertensives exhibit higher depression scores, more semantic memory problems and less satisfactory sex lives; they feel less fit physically, less in control of their lives, more tense and score lower on a hardiness scale in comparison with their normotensive counterparts [12]. Diabetes, also seriously affect the HRQoL of the patient and it is seen self confidence is most commonly affected by diabetes and all aspects of family life was more negatively impacted [13].

The data on Health related quality of life in patients suffering from both hypertension and diabetes is limited in this region and most of the studies have been done on western population hence we designed this study to assess the health related quality of life in patients suffering from hypertension and diabetes mellitus.

Material and Methods:

This cross-sectional study was conducted in the Department of Internal Medicine, Gian Sagar Medical College and Hospital, Patiala for 2 months between April and August 2013. Patients with hypertension and diabetes mellitus were recruited in the study. The study was approved by the Institutional Ethics Committee and patients were recruited after they gave written informed consent. Patients between the ages of 18 to 60 years, with a known history of hypertension (Blood Pressure $>$ 140/100 mmHg), and registered with diabetes mellitus at any particular centre for 12 months were included in the study. Patients with chronic renal disease or end stage renal disease, history of heart or respiratory failure, recent myocardial infarction (MI), shock, liver disease, chronic alcohol use, pregnant or lactating females were excluded from study.

Procedure: The participants were divided into two groups, Group 1 consisted of patient suffering from hypertension and diabetes mellitus whereas Group 2 consisted of patients suffering from hypertension. A detailed history was also taken and the participants underwent a thorough medical examination, they were also given counselling for life style modifications. The patients were given questionnaire of SF-36 and WHO-QOL Bref; they were given time to fill up the questionnaire in a separate room without any interference from the treating physician

Parameters:

Short form health Survey (SF-36): This questionnaire contains 36 items integrated in multi-item scales measuring eight generic health concepts: physical functioning (PF), social functioning (SF), role physical (RP), bodily pain (BP), mental health (MH), role emotional (RE), vitality (VT), and general health (GH). Scoring included transformation of raw scores for each subscale to a 0-100 scale and a higher scores representing better quality of life[14].

The WHOQOL–Bref was monitored at visit.

This is a 26-item self-administered generic questionnaire, a short version of WHOQOL-100 scale. It can be analyzed from perspective of either six domains (physical health, psychological health, level of independence, social relationships, environment, & spiritual) or four domains (physical health, psychological health, social relations, and environment) [15]. The QOL index of each domain and their associations with demographic factors were assessed, a higher score indicated a better quality of life [16-18].

Statistical Analysis: The data was tabulated as mean ± standard deviation (SD). Results were analyzed using non parametric tests (Chi-Square Test), parametric tests (two tailed student t-test) and correlation (Pearson correlation coefficients) analysis. A $p<0.05$ was considered statistically significant.

Results:

A total of 85 patients suffering from hypertension visiting the OPD in a period of 2 months were screened for enrollment in the study, 32 patients were not enrolled in the study as they did not fulfill the eligibility criteria for enrollment in the study. Around 12 patients were not included because they did not give the informed consent. A total of 41 patients participated in the study, 21 patients suffering from hypertension and diabetes were included in Group 1 and 20 patients suffering for hypertension only were included in Group 2. All the patients gave informed consent and were included in the analysis of result. The baseline characteristics of the patients are shown in Table 1. Both the groups were comparable at baseline except for random blood sugar which was significantly higher ($p<0.05$) in patients in Group1 (180.35 ± 65.64 vs. 121.25 ± 13.96) as compared to group 2. The patients in Group 1 were of lower age group (55.65 ± 9.79 vs. 58.3 ± 12.82) and had slightly higher systolic and diastolic blood pressure though it was not statistically significant. Table 1 shows the Baseline characteristic of both groups.

SF-36 Scores

The SF-36 Scores in both groups are shown in Figure 1. There were significantly ($p<0.05$) worse pain scores in patients in Group 1 (52.03 ± 33.6 vs. 75 ± 22.24) as compared to Group 2. The Group1 had better aspect of physical functioning (50 ± 20.46 vs. 47.5 ± 29.0), role limitation due to physical health (31.25 ± 40.54 vs. 20 ± 35.91), role limitation due to emotional problem (46.67 ± 48.85 vs. 35 ± 46.49), energy/fatigue (37.5 ± 22.09 vs. 34 ± 19.97) as compared to Group2. Whereas, Group2 had better aspect of social functioning (73.75 ± 25.62 vs. 60 ± 28.56) and general health (46.75 ± 21.54 vs. 43.25 ± 15.58) as compared to Group 1. The emotional well being score was comparable in both groups (51.2 ± 22.72 and 51.4 ± 15.86).

WHO-QOL Bref Scores

WHO-QOL Bref scores are shown in Figure 2. Group 1 had higher scores in all the 4 domains that is, physical health (49.85 ± 14.47 vs. 48.95 ± 18.81), psychological (51.65 ± 16.26 vs. 47.85 ± 14.28), social relationship (69.6 ± 13.2 vs. 64.7 ± 16.62) and environment (68.2 ± 14.03 vs. 62.95 ± 16.39) but it was not statistically significant. As the questionnaires were to be filled up by patients only, hence there was a possibility of interpretation bias based on understanding of the patients.

Correlation

Estimates of correlation for SF-36 Scores with WHO-QOL Bref Scores along with their significant levels among patients in Group 1 and 2 are presented in Table 2. It has been observed that SF-36 Score has significant ($p<0.05$) correlation with physical health, psychological and social relationship in both groups; with environment in Group 1. Table

Table1. Baseline characteristic of both groups

Characteristic	Group 1 (n=21)	Group 2 (n=20)	p value
Age (years) (Mean±SD)	55.65±9.79	58.30±12.82	0.46#
Sex(M:F)	11:9	12:8	1.00¤
Random Blood Sugar (mg/dl) (Mean±SD)	180.35±65.64	121.25±13.96	**<0.05*#**
Systolic Blood Pressure (mmHg) (Mean±SD)	149.3± 13.48	148.3± 18.19	0.84#
Diastolic Blood Pressure (mmHg) (Mean±SD)	96.9±10.31	96.1±12.72	0.82#
*$p<0.05$ and statistically significant			
#using student 't' test			
¤using Chi Square Test			

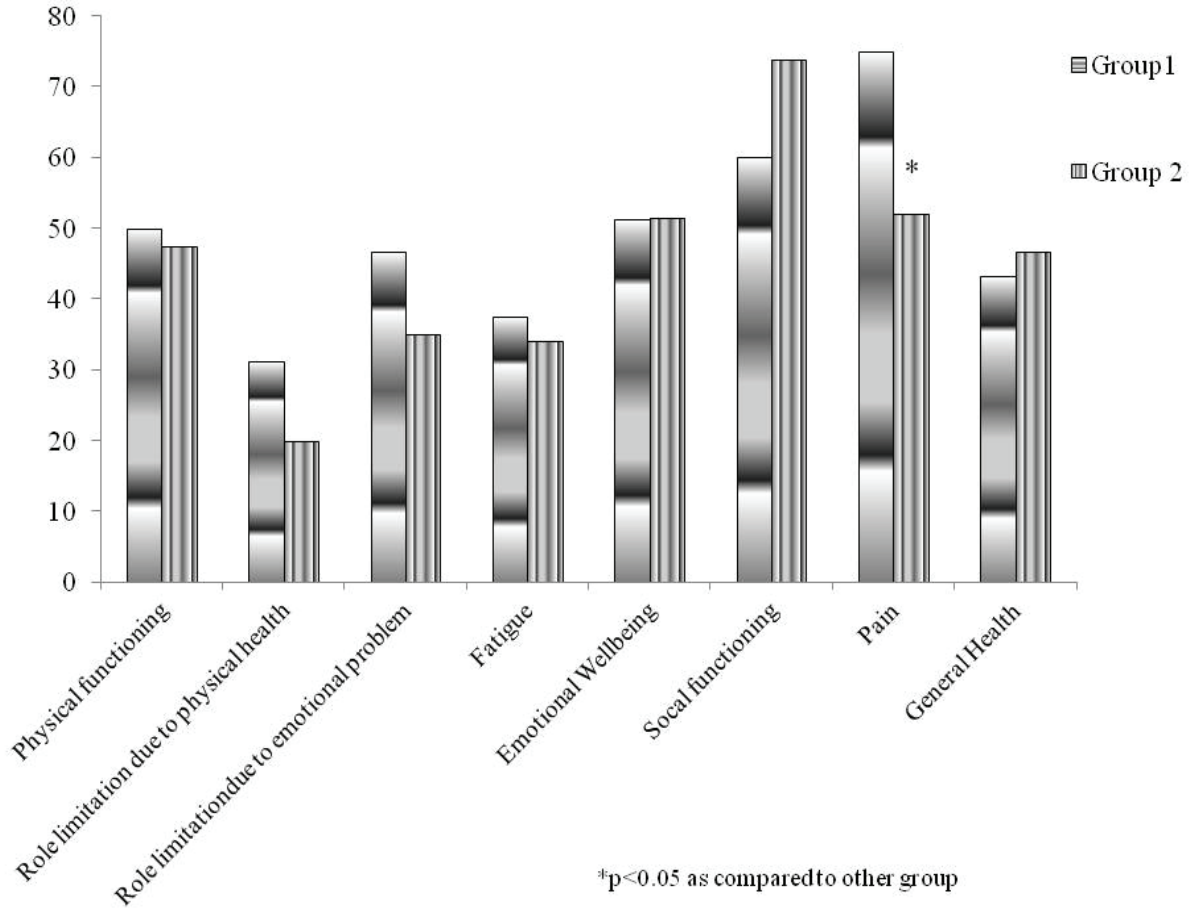

Figure 1. SF-36 scores in both groups

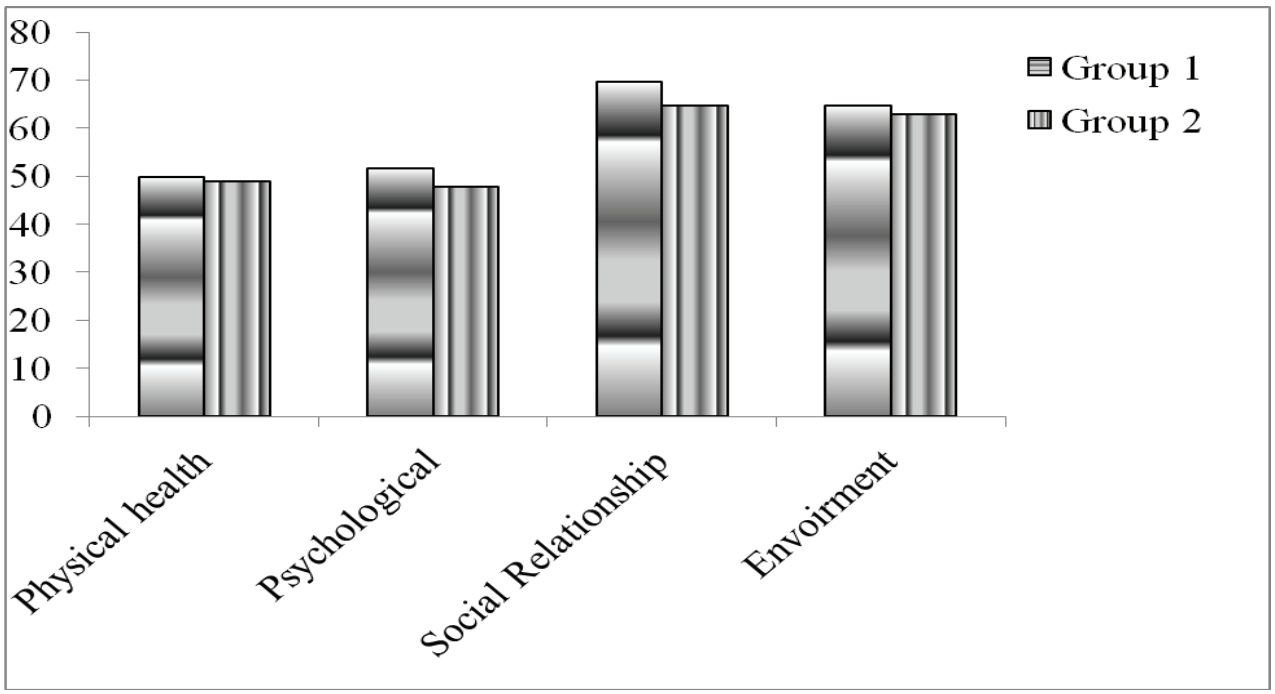

Figure 2. WHO-QOL Bref scores in both groups

Table 2. Correlation coefficients for SF-36 scores with WHO-QOL Bref Scores among patients in both groups.

Variables	SF-36 Scores			
	Group 1 (n=21)		Group 2 (n=20)	
	r	p	r	p
Domain I/ Physical Health	0.41	<0.05*	0.42	<0.05*
Domain II/ Psychological	0.42	<0.05*	0.29	<0.05*
Domain III/ Social Relationship	0.35	<0.05*	0.26	<0.05*
Domain IV/ Envoirment	0.36	<0.05*	0.12	0.13
*p<0.05 and statistically significant				

2 shows Correlation coefficients for SF-36 scores with WHO-QOL Bref Scores among patients in both groups.

Discussion:

Diabetes mellitus and hypertension are chronic disorders which are emerging as major health problems with increasing morbidity and mortality. The prevalence of hypertension is double among diabetics as compared to non-diabetics in the western world [9]. Recent guidelines agree on the need for early, aggressive reduction of blood pressure and fasting blood sugar in patients with diabetes [18]. In chronic diseases such as hypertension and diabetes, health-related quality of life (HRQoL) is an especially important outcome, given their lifelong nature and the need for daily self-management [10]. Inappropriate management of these two disorders leads to several complications and end organ damage that can impairs the health related quality of life (HRQoL) in the individuals [9].

The present study was undertaken to assess the HRQoL in patients suffering from hypertension and diabetes mellitus. The results showed that patients with hypertension and diabetes were of lower age group and had higher systolic and diastolic blood pressure and had significantly higher random blood sugar. The QOL was impaired in both groups as evident by low scores in both SF-36 and WHO-QOL Bref Scores. The patients suffering from hypertension alone had more compromised HRQoL. A cross-sectional population-based study demonstrated that patients who were aware of their hypertension had lower scores in physical functioning and general health than patients without hypertension then patients who were unaware of hypertension. The results of our study are in similarity with this study as our results showed that patients had a compromised QOL, the only difference being that in our study patients with both diabetes and hypertension had slightly more compromised QOL [10].

A study done to assess health-related quality of life (HRQoL) among people with diabetes or hypertension in the Croatian Adult Health Survey demonstrated that participants with diabetes and those with hypertension reported comparably limited HRQoL in all dimensions of SF-36, compared with healthy individuals. The results of our study agrees with this study as our results showed that patients with both diabetes and hypertension had comparable compromised QOL with most significant effect on pain component in SF-36 scores in hypertensive patients[8].

Another article focusing on the literature published since 2000, on HRQoL in elderly hypertensive individuals as well as hypertensive's with co-existent diseases, including chronic kidney disease (CKD), cardiovascular disease and diabetes mellitus showed that most studies found that hypertensive individuals with co-existent co-morbidities tend to have lower HRQOL than those with hypertension alone with the most pronounced effect was noted in the physical function domains of HRQOL. The results of our study are in contrary with this study as our results showed that patients with both diabetes and hypertension had slightly less compromised QOL with most significant effect on pain component in SF-36 scores in hypertensive patients [19].

There are certain limitations in our study, firstly the sample size could have been larger but, the duration of study was only two months hence we tried to include patients who fulfilled the eligibility criteria. Secondly, a comparison with the intervention arm could be done, but any intervention could have prolonged the duration of study and we would not have been able to complete the study in the allotted 2 months.

To conclude it was observed in our study that both groups had compromised quality of life, patients suffering from hypertension alone had a worse quality of life as pain was significantly more in patients with hypertension only as per SF-36 Score, physical functioning, role limitation, fatigue was more compromised in patients with hypertension only and social functioning, general health less

compromised in patients with hypertension only. Patients with both hypertension and diabetes had less compromised QOL as per WHO-QOL Bref scores.

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