Research Article

Assessment of Health-related Quality of Life in Patients with Chronic Disease

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ABSTRACT

Aim: To assess Health-related Quality of Life (HRQOL) in patients with chronic disease.

Method: A community-based prospective, observational, multicentre study was conducted by home-to-home survey for 4 months. Subjects ageing 35 years or more and suffering from either Hypertension, Angina, Coronary Artery Disease, Myocardial Infarction, Hyperlipidaemia, or Diabetes Mellitus were enrolled. This data was collected by face-to-face interviewing participants using the SF-36 questionnaire.

Result: In our study 300 participants were enrolled. The majority of participants belonged to the age group of 55-64 years. Nearly half of the them belonged to the rural area (58.33%), and cardiovascular disease was highly prevalent among our study participants (56.67%). The Physical functioning (PF) domain had the lowest (67.08 ± 25.73) and the social functioning (SF) domain had the highest mean score (90.47 ±15.60). HRQOL scores declined with the increase in age.

Conclusion: Chronic diseases impairs physical health, and mental health was good in our study participants. As the duration of the disease increased the HRQOL score decreased and comorbidities deteriorates HRQOL.

Keywords: Health-related Quality of life, SF-36, Chronic disease, Diabetes mellitus, cardiovascular disease.

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INTRODUCTION

The four leading chronic diseases in India are: Cardiovascular diseases (CVDs), Diabetes mellitus, Chronic Obstructive Pulmonary Disease (COPD), and cancer[1].

Non-communicable diseases (NCDs) have been found to take a staggering death toll of 38 million HRQOL becomes an important outcome and tracking it helps in providing valuable insights regarding the kind of disability and injuries caused by the disease. Chronic disease holds the potential to deteriorate HRQOL given the lifelong nature of the disease as the cure is unlikely and most of them sharing common risk factors are often coexistent which can have adverse outcomes on the health because inadequate management of these diseases may lead to the development of complications and can cause end-organ damage. HRQOL is a multidimensional concept that takes physical, mental/ emotional, and social well-being into consideration. According to the world health organization's definition of health, quality of life must be considered a substantial health outcome in every disease management. Health-Related Quality of Life (HRQOL) measurement provides an acceptable and valid method for assessing the impact of disease on patients' function, activity, and well-being[2]. The present study evaluates HRQOL to identify the socio-demographic factors affecting HRQOL and impairment which are specific to these diseases and will pave a way for developing strategies in a specific direction to promote health and improve the Health-related Quality of life of the patients with chronic disease.

MATERIALS AND METHODS

Ethical considerations

This study was approved by K.B. Institutional Ethics Committee (KBIEC/2020/149) for conducting research. Before the study, participants were informed, and written consent was obtained.

This was a community-based prospective, observational, multi-center study carried out by home-to-home survey in four cities (Dahod, Rakhiyal, Anandpura, and Gandhinagar). Subjects with age 35 years or more suffering from at least one of the following conditions: Hypertension, Angina, CAD, MI, Hyperlipidaemia, DM, and who gave consent were enrolled in the study. Pregnant, lactating women and patients with psychiatric diseases were excluded.

Data collection

A case record form was designed which consists of demographic details (Name, Age, Gender, Locality), the Kuppuswamy scale to assess Socioeconomic status (SES)[3],

and the SF-36 questionnaire[4] to assess HRQOL. The questionnaire was filled out through face-to-face interviews.

Statistical analysis

The data were subjected to statistical analysis using Microsoft Excel 2019 version. t-test and single-factor ANOVA were performed to compare the mean scores. p-value ≤ 0.05 was said to be statistically significant.

RESULTS AND DISCUSSION

In this study 300 participants were enrolled, among them 152 (50.67%) were male and 148 (49.33%) were female. 100 (33.33%) belonged to the age group of 55-64 years, 69 (23%) belonged to 65-74 years, 61 (20.33%) participants belonged to the age group of 45-54 years, 37 (12.33%) had age ≥ 75 years and 33 (11%) had an age between 35-44 years. Locality-wise distribution showed that 175 (58.33%) participants belonged to the rural area while 125 (41.67%) were from urban areas. 148 (49.33%) belonged to the upper-middle class, 91 (30.33%) belonged to the Lower middle class, 39 (13%) belonged to the Upper class and 22 (7.33%) belonged to the Upper Lower Class. Most of our study participants 170 (56.67%) suffered from Cardio-vascular diseases, 49 (16.33%) suffered from Diabetes Mellitus and 81 (27%) had both CVD and DM.

HRQOL was assessed using the SF-36 questionnaire which consists of eight domains: Physical Functioning (PF), Role limitation due to physical health (RL-PH), Role limitation due to emotional health (RL-EH), Energy/Vitality (VT), Emotional well-being, Social functioning (SF), Bodily Pain (BP), General health (GH). Domain-wise mean SF-36 scores are shown in ***Table 01***, This shows that the most affected domain was PF while SF was the least affected. The comparison of the mean HRQOL score according to various socio-demographic variables and its statistical significance is shown in ***Table 02.***

Table 1: Domain-wise mean SF-36 scores

Domain	Mean ± SD	Range
Physical functioning	67.08 ± 25.73	0-100
Role limitation due to physical health	69.94 ± 36.67	0-100
Role limitation due to emotional health	89.99 ± 26.78	0-100
Energy/ fatigue	80.32 ±17.95	10-100
Emotional well being	88.48 ± 13.18	32-100
Social functioning	90.47 ±15.60	12.5-100
Bodily pain	80.71 ± 20.29	0-100
General health	78.19 ± 16.33	15-100

Age gradient was observed concerning HRQOL scores in all the HRQOL Domains (PF, RL-PH, Energy/Fatigue, Emotional well-being, SF, Pain, GH) except for the RL-EH domain. As reported in the study carried out by *Medhi et al.2019*[5] showed that mean HRQOL progressively declined with advancing age in all physical components (PF, RL-PH, VT, and BP), with statistically significant differences in PF and RL-PH domains, Our findings showed deviation from the earlier study as age-related decline in HRQOL score was observed in all the domains except RL-EH. This is because of physical decline in health because of aging while the difference was statistically significant for all the domains (PF, RL-PH, VT, Emotional well-being, BP, and GH) except RL-EH and Social functioning.

Table 2: Comparison of mean SF-36 scores and salient characteristics of subjects

Variable	Sub Group	Domains							
		PF	RLPH	RL-EH	VT	Emotional Well being	SF	BP	GH
Age	35-44, 45-54, 55-64, 65-74, ≥ 75 years	*	*		*	*		*	*
Gender	Male, Female	*	*		*	*		*	
Locality	Rural, Urban			*	*	*			*
SEC	UC, UMC, LMC, ULC	*			*	*			*
Duration of disease	0-5 years, 6-10 years, >10 years	*			*	*			*
Disease condition	DM, CVD, Both (DM+CVD)	*	*		*	*		*	*

Gender-wise comparison of mean HRQOL scores showed lower mean scores for females. The difference in the mean scores was statistically significant for PF, RL-PH, VT, Emotional well-being, and BP. These findings correspond with that of the study conducted by *Gautam et al. 2009*[6] on diabetic patients which showed overall males had higher QOL scores than females. The gender differences are widespread, however, there are several women-specific factors such as menopause which is a transition period it brings several biological changes in the endocrine system. Endocrine disorders like PCOS which cause insulin resistance can make them prone to have Type 2 DM.

Pregnancy complications like pregnancy-induced Hypertension may be short term but their effect on CVS and over health is long-term, These types of complications are resultant of the incapability of women to cope with the metabolic and vascular changes. Thus, Gender specificity should be kept in mind while considering prevention and diagnosing the disease.

Analysis of mean scores for HRQOL according to the locality showed higher mean scores for rural areas in PF, RL-EH, VT, Emotional well-being, and GH domains while we observed higher mean scores for RL-PH, SF, and BP in urban areas. RL-EH, VT, Emotional wellbeing, and GH domain showed statistical significance. The sedentary lifestyle and unhealthy eating habits could be reasonable for compromised HRQOL in the urban area. In regards to HRQOL with socio-economic classes, the Lower middle class showed the highest mean score for all the domains except for RL-PH. Participants belonging to the Upper lower class have compromised HRQOL in all domains except the RL-EH domain which was most affected in those belonging to the upper class. There was a significant difference in the mean scores of PF, VT, Emotional wellbeing, and GH.

A gradual decrease in the mean HRQOL score was observed with the increasing duration of the disease. Mean HRQOL scores were highest for those who had their disease condition since 0-5 years for PF, RL-PH, VT, Emotional well-being, BP, and GH while these domains were most affected for the participants who had their disease over 10 years. Statistical significance was observed in PF, VT, Emotional well-being, and GH. Chronic conditions require long-term therapy and self-monitoring, If not done adequately it can lead to disease progression thus after a few years patient may present with complications that can deteriorate HRQOL, Thus presenting with impaired HRQOL in later stages.

In disease-specific analysis, it was found that participants with both the disease conditions (DM + CVDs) had the lowest mean scores for all the domains as compared to those having only diabetes mellitus or only cardiovascular disease and was also statistically significant for all the domains except two (RL-EH and SF). Thus, comorbidity further deteriorates the HRQOL among the patients, this was consistent with the findings of the study previously reported by *Kaliyaperumal et al. 2016*[7] which shows people with both HTN and DM had reduced HRQOL and comorbidity further deteriorates HRQOL, while that conducted by *Khaw et al. 2011*[8] also reported similar findings, however, *Mann et al.*[9] showed contrast findings that people having both (HTN+DM) had better QOL. the mean HRQOL scores were lower for those having only CVD than those having only DM. However, in our study decline in HRQOL of patients with CVDs was mainly because of the physical components which were in line with the findings of *Khaw et al. 2011*[8] conducted among hypertensive patients and in contrast with that of *Kaliyaperumal et al.2016*[7] which showed impairment in HRQOL mainly due to mental components.

CONCLUSION

Chronic conditions markedly impair physical functioning. With the increase in the duration of disease, HRQOL decreases. People suffering from either CVD or DM have better HRQOL than those having both, thus comorbidity further deteriorates HRQOL. Quality of life can be improved if complications are detected at an early stage and with proper education, this can be prevented and will help in extending the life expectancy of the patients with chronic disease.

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