

Health-Related Quality of Life of Hypertensive Patients with Coronary Artery Disease

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Abstract

Hypertensive patients with coronary artery disease have low quality of life as assessed by General Health score. It is suggested that such patients may be made aware about need for early detection and intervention so as to lead achieve better outcomes.

Hypertension is defined as the 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 (Chobanian et al, 2003). Hypertension with Coronary Artery Disease (CAD) is the leading non-communicable disease having premature death and disability globally. One-third population of developing countries had hypertension with 22 percent prevalence rate in 2014 worldwide (WHO, 2014; Weber et al, 2013; Kearney et al, 2005). It is considered as a chronic condition which may influence the quality of life of the patient and has an important and adverse effect on Health Related Quality of Life (HRQOL) of the patients as well as the family members (Naik et al, 2019; Jacob, 2009). CAD is one of the most important risk factors of hypertension which can contribute to lowering the quality of life (QOL) of the patients by increasing the mortality, morbidity and disability throughout the world (Uchmanowicz et al, 2018)

World Health Organization defines QOL as “an individual’s perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns”. HRQOL includes factors that are part of an individual’s health (WHO, 1998).

Hypertension is considered as major risk factors for any cardiovascular diseases such as CAD. It has been shown that hypertensive patients’ scores are low in quality of life domains (Khalifeh et al, 2015; Gupta et al, 2016). Hypertensive patients having CAD also show to have a major impact in regards to their functional status, general health and overall different dimensions of HRQOL (Ulvik et al, 2008). Previous research has shown close association of hypertensive and CAD patients

with major influence in the HRQOL in regards to psychosocial factors such as stress, anger and depression leading to high mortality (Zhang et al, 2010).

Need of the study: There are increasing reports on CAD as the leading cause of death in Asian Indians and hypertension is the most prevalent risk factor for these deaths (Chobanian et al, 2003).

In Assam, studies show that the overall prevalence rate of hypertension was slightly greater among the tea workers than the general population. Also the multiple cardiovascular risk factor scores are higher in the general population of Assam (Kearney et al, 2005; WHO, 2014). Despite the increasing prevalence rate of hypertension with CAD population in Dibrugarh (Assam) a very few studies has been conducted regarding the HRQOL of hypertensive with CAD patients.

Review Literature

Adamu et al (2022) conducted an institution-based cross sectional study in Dessie city (Ethiopia) public health facilities with 376 hypertensive patients using simple random WHO sampling technique and health-related quality of life; 26 items were used to measure outcome variables. The result showed that the mean scores of physical, psychological, social and environmental domains were 42.93, SD (18.86), 51.78, SD (20.40), 57.31, SD (20.20) and 48.15, SD (16.26), respectively.

Cong et al (2022) conducted a cross sectional research study to survey the HRQOL and its associated factors among hypertensive patients at Cho Ray Hospital, Viet Nam using 300 hypertensive patients. Data was collected using the Vietnamese version of SF-36 questionnaire. The result showed the mean scores of four physical health domains. The physical functioning, role physical, bodily pain, and general health were 68.3; 57.2; 57.1, and 37.2, respectively. The mean scores of four mental health domains including vitality, social functioning, role emotional, and mental health were 55.5, 57.5, 58.7, and 48.8, respectively.

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Chantakeeree et al (2021) conducted a cross sectional study on 420 older adults living in urban and rural areas in Thailand. Data were collected using the WHOQOL-OLD and Health-Promoting Lifestyle Profile-II tools. Results showed that older adults in urban areas had higher quality of life scores than those in rural locations. A longer hypertension duration predicted higher quality of life in rural residents.

Objectives

- The objectives of the present study are:
- 1. To assess the HRQOL among hypertensive patients with CAD.
 - 2. To determine association of HRQOL with the demographic variables.
 - 3. To find out the correlation between HRQOL and physiologic and the psychosocial factors (anxiety and depression).

Material and Methods

A cross sectional study was conducted on cardiology department of Assam Medical College and Hospital, Dibrugarh (Assam) which is a multispecialty teaching tertiary hospital providing services to the people of Assam and also the northeast. The study population consisted of 30 numbers hypertensive patients with CAD selected through consecutive sampling. The data was collected after approval from the Institutional Ethics Committee (IEC) using three standardised tools. Written informed consent was acquired from the patients participating in the study. The data were collected from September to November 2021. It covered patients admitted in the cardiology and medicine department with hypertension and CAD during the study period. Inclusion criteria for the present study is both group of patients with CAD and hypertension with or without intervention, patients above 18 years of age and patients who were willing to cooperate and participate. The exclusion criteria consisted of patients who were not admitted in the cardiology ward during the study period, patients who were unstable and had physical discomfort while talking and patients with less than 3 post-operative days after any coronary intervention.

Tools used : A brief structured proforma was given to obtain demographic data. The SF-36 health survey, version 2.0, Beck Depression inventory and Beck anxiety inventory questionnaires were used to collect data. The SF-36 instrument consisted of 36 items that are scored to measure eight domains of health such as physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (V), social functioning (SF),

role emotional (RE), and mental health (MH). The eight domains are further divided into two sections namely Physical Component Summary (PCS) consisting of 4 domains namely PF, RP, BP, GH and Mental Component Summary (MCS) consisting of the remaining four domains namely, RE, VT, MH, SF. Scores range from 0 (poorest health) to 100 (optimal health) and a mean score of 50 was articulated as a normative value for all scales.

Statistical Analysis

Data was analysed using Statistical Package for the Social Sciences (SPSS) software. The data were analysed in terms of mean, standard deviation (SD), and percentage, and Fisher’s Exact Test. The confidence interval has been kept at standard 95%. The p value of <0.05 was considered as significant.

Table 1: Characteristics of demographic profile

Demographic variable	Frequency (n=30)	Percentage
Age (in years)		
30-39	1	3.3
40-49	5	16.7
50-59	9	30.0
≥60	15	50.0
Gender		
Male	23	76.7
Female	7	23.3
Literacy		
Illiterate	4	13.3
Primary to higher secondary	18	60.0
Graduate and above	8	26.7
Marital status		
Married	29	96.7
Unmarried	1	3.3
Type of work		
Active	12	40.0
Heavy	4	13.3
Sedentary	14	46.7
Alcohol intake		
Nil	24	80.0
200-600 ml	5	16.7
>600 ml	1	3.3
Extra salt intake		
None	19	63.3
One fourth teaspoon or more	11	36.7

Results

Table 1 shows that majority of the participants (50%) belonged to the age group of 60 years or above; 76.7 percent of the participants were male and 60 percent had completed primary to higher secondary schooling; 13.3 percent of them were

illiterate; 96.7 percent was married and 46.7 percent lead a sedentary lifestyle; 80 percent of the participants had no alcohol intake. Majority of the patients did not take alcohol; 16.7 percent and 3.3 percent had 200-600 ml and more than 600 ml of alcohol intake data and 63.3 percent had no extra salt intake, and only 36.7 percent used to take one-fourth or more salt intake.

Table 2: Mean and SD of the domains of HRQOL

Domain of HRQOOL	Mean	SD
Physical function (PF)	51.73	21.013
Role limitation due to physical health (RP)	25.00	34.740
Role limitation or due to emotional problem (RE)	24.44	34.942
Energy/fatigue (VT)	50.17	17.640
Emotional well-being (MH)	52.80	12.968
Social function (SF)	54.58	17.209
Pain (BP)	48.83	26.819
General health (GH)	54.67	15.753

The HRQOL domains, PF, VT, MH, SF, GH had mean average of more than the mean score for HRQOL i.e 50. RE and RP had the least mean score of 24.44 and 25.00 respectively whereas GH domain (54.67) had the highest mean score of all of the other domains of the present study (Table 2).

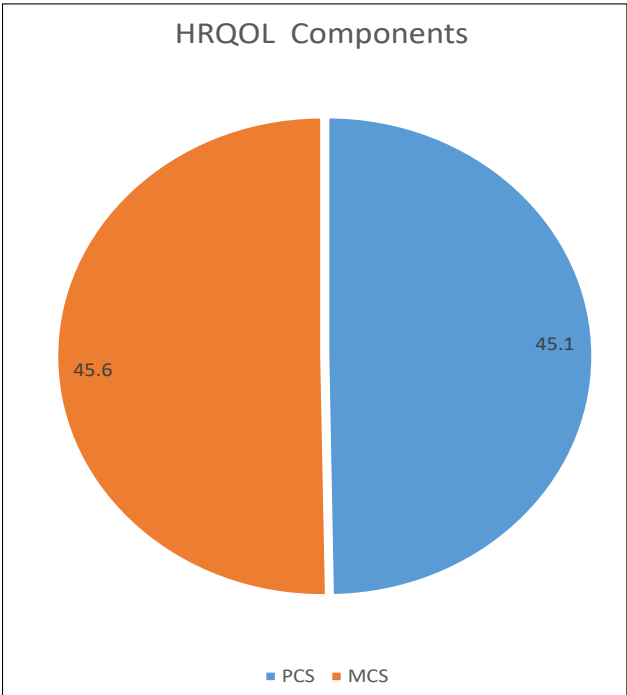


Fig 1: Distribution of PCS and MCS scores of HRQOL.

Figure 1 shows that MCS mean score (45.6) is slightly more than PCS mean score (45.1), but both had still lower average mean score than the normal score. Figure 2 shows that in BAI

mean score is 20.13. Majority of the participants 60% had very low anxiety, 23.3 percent and 16.6 percent had moderate to severe anxiety, respectively.

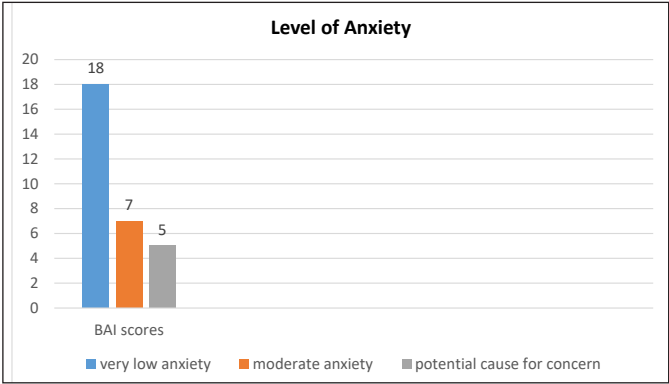


Fig 2: BAI score.

Fig. 3 shows that in BDI, mean score is 16.20. Majority of the participants (33.3%) had considered normal ups and downs of life and only 6.6 percent had borderline clinical depression;

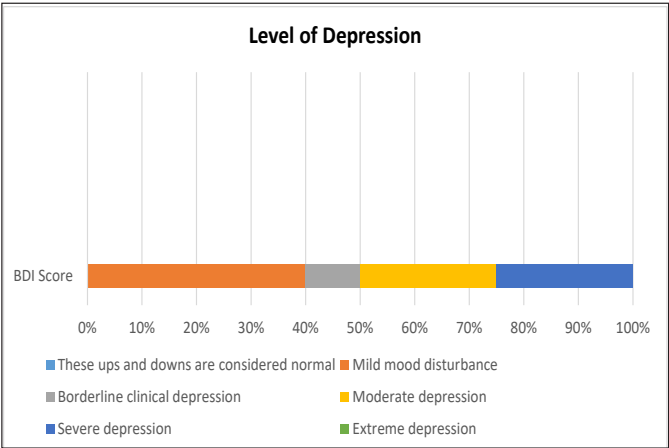


Figure 3 shows the BDI score.

26.6 percent had mild mood disturbance and 16.6 percent had moderate to severe depression.

Table 3 shows that there has been no association between the HRQOL domains and variables namely, age, marital status, type of work and extra salt intake. Association is seen between gender and RP domain. RP and RE domains also had association with literacy. Also, BP domain has association with alcohol intake.

Table 4 shows that the physiological and psychological variables, systolic BP have positive correlation with PF domain of HRQOL. GH domain also has positive correlation with weight and hip circumference. RP, RE and VT domains had negative correlation with depression (BDI). No correlation has been seen with anxiety (BAI) and any domains of HRQOL.

Table 3: Association of the demographic variables with the domains of HRQOL

	PF	RP	RE	VT	MH	SF	BP	GH
Age								
x ²	47	10.9	11.8	26.6	22.1	17.4	36	39.4
df	51	9	9	30	27	15	42	36
p value	0.63	0.28	0.23	0.65	0.73	0.30	0.72	0.32
Gender								
x ²	17.9	8.6	1.6	13.4	14.1	11.1	15	14
df	17	3	3	10	9	5	14	12
p value	0.40	0.36*	0.66	0.20	0.12	0.05	0.40	0.31
Literacy								
x ²	31.1	12	13	24.1	24.2	13.1	35.2	28.2
df	34	6	6	20	18	10	28	24
p value	0.61	0.06*	0.05*	0.22	0.14	0.21	0.16	0.25
Marital status								
x ²	9.3	0.90	0.69	6.7	4.13	5.2	5.2	5.1
df	17	3	3	10	9	5	14	12
p value	0.93	0.82	0.88	0.75	0.90	0.40	0.98	0.95
Work								
x ²	31.8	6.2	3.5	25.4	22	3.1	32.2	24.2
df	34	6	6	20	18	10	28	24
p value	0.57	0.41	0.74	0.12	0.24	1	0.3	0.5
Alcohol								
x ²	28.1	9	6.54	23.2	15.6	7.65	51.3	43.9
df	34	6	6	20	18	10	28	24.8
p value	0.8	0.19	0.37	0.28	0.62	0.66	0.005*	0.008
Salt intake								
x ²	14.5	1.92	4.55	6.68	11.9	4.84	19.01	9.04
df	17	3	3	10	9	5	14	12
p value	0.63	0.59	0.21	0.76	0.21	0.44	0.16	0.68

*p significant at 5% level of significance (p < 0.05)

Table 4: Correlation of the physiological and psychological variables with the domains of HRQOL

	PF	RP	RE	VT	MH	SF	BP	GH	Mean	SD
Systolic BP									123.13	14.13
Pearson's correlation	0.44*	0.18	0.18	-0.09	-0.12	-0.16	0.10	0.08		
p value	0.02	0.35	0.34	0.65	0.53	0.40	0.61	0.66		
Diastolic BP									81.17	11.69
Pearson's correlation	0.11	0.06	0.23	0.09	0.08	0.06	0.21	0.17		
p value	0.55	0.74	0.23	0.63	0.67	0.75	0.27	0.93		
Weight									61.87	12.68
Pearson's correlation	0.02	0.27	0.32	0.27	-0.15	-0.15	-0.05	0.39*		
p value	0.91	0.15	0.08	0.16	0.42	0.42	0.79	0.03		
Height									158.5	21.49
Pearson's correlation	-0.13	-0.08	0.07	0.15	0.04	0.17	-0.06	-0.002		
p value	0.50	0.67	0.71	0.45	0.83	0.36	0.74	0.99		
Waist circumference									82.33	15.12
Pearson's correlation	0.01	0.30	0.29	0.29	-0.19	0.16	0.14	0.47*		
p value	0.96	0.10	0.13	0.12	0.31	0.40	0.46	0.01		
Hip circumference									89.67	16.47
Pearson's correlation	0.03	0.32	0.26	0.31	-0.26	0.15	0.10	0.48*		
p value	0.86	0.09	0.16	0.10	0.17	0.43	0.60	0.01		
Beck anxiety inventory									20.13	11.74
Pearson's correlation	0.20	-0.25	-0.30	-0.05	-0.25	-0.14	0.03	-0.23		
p value	0.30	0.18	0.11	0.85	0.18	0.47	0.88	0.22		
Beck depression inventory									16.20	8.87
Pearson's correlation	0.22	-0.37*	-0.47*	-0.52*	-0.13	-0.25	0.00	-0.12		
p value	0.26	0.05	0.01	0.00	0.49	0.19	1	0.54		

*Correlation is significant at 5% level of significance (p<0.05)

Discussion

The present study was conducted on 30 number of hypertensive patients with CAD, with General Health domain score (54.67) slightly above the average score. The Role limitation or due to emotional problem (RE) and Role limitation due to physical health (RP) had the least mean score of 24.44 and 25.00, respectively. These domain scores, except for general health, are far lower than those presented by Abdulwahed, et al. (2018), where general health (51.66), role emotional (57.45), role physical (54.73). Ogunlana et al (2009) showed Role physical mean of 54.7 and role emotional mean of 51.1 (Abdul wahed et al, 2018; Bardage & Isacson, 2001). In contrast to the domain scores presented by Bardage & Isacson (2001) where Role physical mean was 66.50, the Role emotional mean, 77.20 are far greater than the scores of the present study.

Although many studies have analysed HRQOL of patients with hypertension and CAD using generic instruments in the developed countries but very few studies can be seen in developing countries like India where the health scenario related to disease awareness and access to treatment modalities are completely different which may be the leading cause of the variation of the HRQOL scores of the present study (Khalifeh et al, 2015; Bhandari et al, 2016; Korhonen et al, 2011).

In terms of MCS and PCS, the present study had almost similar scores (45.6 and 45.1 respectively) whereas studies presented by Khalifeh et al (Korhonen et al. 2011) show that MCS has a better (2015) and scoring compare to PCS. Similar studies shows MCS scoring lower than PCS scoring (38.4 and 48.22 respectively. It may be because of the association of chronic condition like CAD, hypertensive patients were equally affected in the mental and physical domain.

In the present study no association is seen between age, marital status, type of work and extra salt intake but gender, literacy and alcohol intake variable affect the HRQOL whereas many similar studies show that age, marital status are associated with the HRQOL (Al-Mandhari et al, 2011; Erickson et al, 2004). Women are more prone to physical exhaustion and tiredness as compared to male person hence they will have lower scores in HRQOL scales. A person's education status will define his awareness about the disease conditions and the ability to seek early intervention. As hypertension with coronary artery complication can be prevented and controlled with early detection and intervention, educational status of the person has a major influence in the HRQOL factors. In northeastern regions like Assam, consuming locally prepared alcohol is most often accepted and considered a

part of cultural practice which overall affects the HRQOL scoring. Alcohol intake is considered as an important risk factor for hypertension (Tulika et al, 2013; Hazarika et al, 2002).

In the present study, systolic BP, weight and hip circumference had positive correlation between the physical domain which is similar to the findings of the previous studies showing higher body mass index, waist circumference and high systolic blood pressure to be mainly associated with higher scores in physical domain (Zhang et al, 2016).

Depression is correlated to both the physical (positive correlation) and mental (negative correlation) domains of the present study whereas anxiety has no correlation in either of the domains. This result is in contrast with other studies where age, gender, occupational status and marital status influence the physical domains while the factors of gender, marital status influence the mental domain (Al-Mandhari et al, 2011; Erickson et al, 2004). Depression is seen to be correlated with both the physical and mental domains according to some study findings (Zhang et al, 2016; Katsi et al, 2017; Thrall et al, 2007). Studies show that anxiety has a positive correlation in the HRQOL of hypertensive patients with CAD in contrast to the present study (Katsi et al, 2017; Thrall et al, 2007).

Recommendations

1. HRQOL domain is below average in the present study. The findings indicate the necessity for the importance of HRQOL by the health professionals seeking changes in the caring and therapeutic approach in general.
2. The studies need to be conducted on much larger scale for better generalisation of the result.
3. Further studies can be done to identify the factors influencing the HRQOL score and implications can be recommended to minimise the negative impact.

Implications

1. HRQOL score can provide useful information for nursing care providers as they can be used it for screening and monitoring patients for psychosocial problems which is overall affecting the health of the patients or when auditing healthcare practices.
2. HRQOL score can be used by nursing care regulatory bodies to help their assessments of new technologies.
3. HRQOL score can be used for population surveys of hypertension and CAD patients to see the effectiveness of any given health services or to evaluate the research conducted based on it.

Conclusion

The patients with hypertension and CAD have low HRQOL especially in aspect of General Health score. Although depression seems to influence the overall HRQOL of patients, anxiety plays no role in the present study. HRQOL can be improved by lifestyle modification like reducing stress, weight control, and sodium restricted diet. General awareness programmes related to early detection and intervention of hypertension and its associated complication like CAD can improve the overall HRQOL in patients. However further studies need to be carried out with larger sample size.

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