Original Research Article

Health related quality of life in COPD patients: a cross-sectional study

Nilam C. Gaude, Archana M. Dessai*

Department of Preventive and Social Medicine, Goa Medical College, Goa, India

*Correspondence:
Dr. Archana M. Dessai,
E-mail: archanadesai205@gmail.com

ABSTRACT

Background: Chronic obstructive pulmonary disease (COPD) is a progressive lung disease that causes breathlessness (initially with exertion) and predisposes to exacerbations and serious illness. COPD is not curable, improvement of quality of life of such patients is thus of importance. The aims and objective of the study was to assess health related quality of life and its determinants in patients with COPD.
Methods: Cases were first identified from the medical records of Department of RHTC, Mandur. Eligible cases were then interviewed by home visits. Health Related Quality of Life (HRQL) of participants was assessed using St. George's Respiratory Questionnaire (SGRQ). ANOVA, student's t test and correlation were used to interpret the data.
Results: This study shows an impaired quality of life in COPD patients. Quality of life was impaired in all the domains. However, activity domain was the most affected while impact domain was least affected. Age, sex, smoking, BMI, socioeconomic status, occupation did not impact quality of life in significant manner.
Conclusions: This study shows an impaired quality of life in COPD patients. As COPD is slowly progressing disease with no specific cure, we should focus more on treatable aspects of quality of life.

Keywords: Chronic obstructive pulmonary disease, Health related quality of life, St. George's respiratory questionnaire, Breathlessness

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease that causes breathlessness (initially with exertion) and predisposes to exacerbations and serious illness. According to WHO estimates, 65 million people have moderate to severe chronic obstructive pulmonary disease (COPD).[1] COPD is estimated to become the third leading cause of death worldwide by 2030.[1] It is a disabling disease with no definite cure and thus affects the quality of life (QOL) of such patients. Analyzing the mental, physical and social aspects of this disease is beneficial to improve the quality of life of COPD patients. Thus the following study is conducted to assess health related quality of life and its determinants in patients with chronic obstructive pulmonary disease.

METHODS

Study design: Cross-sectional study

Study setting: Mandur village, field practice area under RHTC Mandur, Goa

Study participants

Cases of COPD diagnosed by Pulmonary Medicine Department of Tertiary Hospital of Goa were included in the study. Cases were first identified from the medical

records Department of RHTC, Mandur. Eligible cases were then interviewed by home visits.

Study period

October 2016 – November 2016.

Exclusion criteria

Participants who doesn't give consent to participate in the study. Patients with acute exacerbation of COPD

Ethics

Ethical approval was taken from Institutional Ethics Committee prior to the conduct of the study. Informed consent was obtained from the study participants.

Data collection methods

Participants were interviewed regarding socio-demographic information, smoking history and their weight and height was recorded.

Study instrument

Health related quality of life was assessed using St. George's respiratory questionnaire (SGRQ).[2] It is a standardized disease-specific instrument designed to measure impact on overall health, daily life, and perceived well-being in patients with obstructive airway disease.

It consists of 3 domains:

Part 1: Symptoms component (frequency and severity)

Part 2: Activity component (activities that cause or are limited by breathlessness.

Part 3: Impact component (social functioning, psychological disturbances resulting from airway disease)

Scores range from 0 to 100. A total score of 100 indicates a poor health status while score of zero indicates the best.

Data analysis

SGRQ was statistically analyzed using the excel-based scoring calculator.[2] Data was analyzed using SPSS version 22.0. ANOVA, student's t test and correlation were used to interpret the data.

RESULTS

A total of 44 patients participated in this study. There were total of 16 (36.4%) males and 28 (63.6%) females among the study participants. Mean age of the study population was 66.55 years with standard deviation of 10.01.

Table 1: Socio-demographic profile of study participants.

Variable	Category	Male (n=16) (%)	Female (n=28) (%)	Total (n=44) (%)
Age group (in years)	<50	0	1 (2.3)	1 (2.3)
	50–60	5 (11.4)	9 (20.5)	14 (31.8)
	>60	11 (25.0)	18 (40.9)	29 (65.9)
Occupation	Employed	9 (20.5)	6 (13.6)	15 (34.1)
	Housewife	0	19 (43.2)	19 (43.2)
	Retired	10 (22.7)	0	10 (22.7)
Socioeconomic status	I	0	0	0
	II	6 (13.6)	8 (18.2)	14 (31.8)
	III	7 (15.9)	9 (20.5)	16 (36.4)
	IV	3 (6.8)	11 (25.0)	14 (31.8)
	V	0	0	0
Smoking	Yes	10 (22.7)	17 (38.6)	27 (61.4)
	No	6 (13.6)	11 (25.0)	17 (38.6)
Body mass index	Normal	12 (27.3)	16 (36.4)	28 (63.6)
	Underweight	0	3 (6.8)	3 (6.8)
	Overweight	1 (2.3)	4 (9.1)	5 (11.4)
	Obese	3 (6.8)	5 (11.4)	8 (18.2)

Table 1 shows socio-demographic profile of study participants. Out of 44 diagnosed cases of COPD, majority 29 (65.9%) were of more than 60 years of age. Among males, 10 (22.7%) were retired servants whereas 15 (34.1%) were employed at the time of the study. Among females, all were housewives 19 (43.2%).

Majority 27 (61.4%) were smokers and 28 (63.6%) had normal body mass index.

Table 2 shows quality of life scores of COPD patients in all three domains. The mean symptom, activity, impact and total score observed were 45.10, 50.19, 23.17 and

35.96 respectively. All domains showed significant impairment when compared to reference values.[2] Table 3 shows correlation of variables with SGRQ scores. Age, sex, occupation, socioeconomic status, BMI and smoking status did not have statistically significant effect on quality of life in the present study.

Table 2: Quality of life scores of COPD patients.

Score	Number	Minimum	Maximum	Mean score	SD
Symptoms	44	6.70	93.86	45.10	24.05
Activity	44	0.00	100	50.19	24.15
Impact	44	0.00	53.85	23.17	17.19
Total score	44	3.20	68.48	35.96	19.30

Table 3: Correlation of categorical variables with SGRQ scores.

Variable	Symptoms score Mean (SD)	Activity score Mean (SD)	Impact score Mean (SD)	Total score Mean (SD)
Sex				
Male	43.01 (22.99)	46.98 (25.23)	20.28 (16.15)	33.03 (21.07)
Female	46.29 (24.98)	52.03 (23.78)	24.83 (17.83)	37.64 (18.41)
Test of significance	t=-0.431	t=-0.662	t=-0.840	t=-0.758
	df=42	df=42	df=42	df=42
	p=0.669	p=0.512	p=0.406	p=0.452
Age group (yrs)				
<50	49.70	60.26	51.60	53.67
50–60	46.66 (23.04)	48.63 (24.78)	21.19 (15.12)	35.60 (17.06)
>60	44.19 (25.29)	50.60 (24.61)	23.17 (17.83)	35.53 (20.63)
Test of significance	F=0.065	F=0.115	F=1.446	F=0.419
	P=0.937	P=0.891	P=0.247	P=0.661
Socioeconomic status				
II	51.42 (27.24)	52.68 (22.38)	28.03 (18.36)	40.54 (20.29)
III	42.69 (23.15)	51.08 (26.11)	23.87 (19.38)	35.51 (20.38)
IV	41.54 (22.13)	46.69 (24.92)	17.53 (12.13)	31.90 (17.35)
Test of significance	F=0.706	F=0.224	F=1.347	F=0.698
	P=0.499	P=0.801	P=0.271	P=0.503
Occupation				
Employed	55.08 (28.09)	50.36 (20.47)	27.72 (16.37)	40.07 (16.84)
Housewife	44.09 (22.69)	54.48 (23.26)	23.97 (17.66)	37.68 (18.85)
Retired	33.18 (16.92)	37.10 (29.81)	13.99 (15.35)	24.63 (22.15)
Test of significance	F=2.144	F=1.596	F=1.634	F=1.810
	P=0.130	P=0.215	P=0.208	P=0.177
BMI				
Normal	40.66 (20.79)	46.80 (26.84)	20.78 (17.52)	32.88 (19.93)
Underweight	60.28 (14.39)	62.39 (17.52)	31.36 (4.05)	46.91 (3.54)
Overweight	35.00 (35.96)	51.93 (15.82)	20.46 (20.66)	32.36 (19.15)
Obese	61.27 (23.25)	56.43 (20.42)	30.19 (16.42)	44.87 (18.83)
Test of significance	F=2.437	F=0.609	F=0.886	F=1.201
	P=0.079	P=0.613	P=0.456	P=0.322
Smoking				
Yes	43.41 (23.42)	51.08 (26.37)	21.06 (16.26)	35.66 (19.91)
No	47.78 (25.52)	48.79 (20.84)	26.53 (18.58)	36.44 (18.89)
Test of significance	t=-0.582	t=0.302	t=-1.028	t=-0.130
	df=42	df=42	df=42	df=42
	p= 0.564	p=0.764	p=0.310	p=0.897

DISCUSSION

This study showed an impaired quality of life among 44 COPD patients using St. George's respiratory questionnaire (SGRQ). Quality of life was impaired in all the domains as compared to healthy subjects.[2] However, activity domain was the most affected while impact domain was least affected. Mean total score for SGRQ in the patients was 35.95±19.30. Ahmed et al also showed impairment of QOL across all domains.[3] Symptom domain was found to be most affected while impact domain was the least affected. Negi et al also found marked impairment of HRQL.[4] When compared to studies done in other countries, it was found that Indian COPD patients suffer somewhat same reduction in QOL as from other countries.[5,6]

Socio-demographic variables such as age, sex, socioeconomic status and occupation were not found to have significant effect on quality of life in COPD patients in the present study. Previous studies have shown varied results in this regard.

In the present study, age was not found to have significant effect on QOL in COPD patients. Other studies also reported no correlation between age and QOL while some have reported worsening of SGRQ scores with increasing age.[3,7,8]

Sex did not impact QOL in significant manner in the present study. Some studies have reported that females have poor QOL as compared to males.[8,9] However, some have reported no correlation between sex and QOL.[3] Some studies have reported poor QOL in patients with poor socioeconomic status while in this study; socioeconomic status was not found to be significantly associated with impaired QOL.[3] This may be due to the distribution of study participants in the present study wherein all the participants were from the middle socioeconomic class and no participant from lower socioeconomic class.

Smoking was not found to have significant impact on QOL in the present study. Other studies reported that smoking significantly affects QOL in COPD patients.[8-10] This aspect needs detailed research with regard to pack years of smoking, passive smoking and patterns of use of biomass fuel especially in females.

BMI was not found to have significant impact on QOL in the present study. Some have shown that underweight patients have worse health status than patients of normal weight; some have mentioned no association which is similar to found in our study while others have shown that being underweight or obese to be consistently associated with worse HRQOL as compared to normal weight patients.[4,11,12]

Limitations of this study were its small sample size. Spirometry was not done at the time of the study to assess the severity of the disease. We also didn't study other co-morbidities which might have an impact on QOL.

CONCLUSION

This study shows an impaired quality of life in COPD patients. As COPD is slowly progressing disease with no specific cure, we should focus more on treatable aspects of quality of life. Further research needs to be done to assess the patterns of use of biomass fuel and effect of passive smoking. Also the impact of social and family support and pulmonary rehabilitation programme should be assessed to improve the QOL of COPD patients in India.

REFERENCES

1. World Health Organization. Chronic obstructive pulmonary disease. Burden of COPD. Available at: http://www.who.int/respiratory/copd/burden/en/. Accessed on 13 January 2017.
2. Jones PW, Forde Y. Division of Cardiac and Vascular Science. UK: St George's, University of London; St George's Respiratory Questionnaire for COPD Patients (SGRQ-C) Manual 2009. Available at: http://www.healthstatus.sgul.ac.uk/SGRQ_download/SGRQ C%20Manual%202009.pdf. Accessed on 01 December 2016.
3. Ahmed M, Neyaz A, Aslami A. health-related quality of life of chronic obstructive pulmonary disease patients: Results from a community based cross-sectional study in Aligarh, Uttar Pradesh, India. Lung India. 2016;33:148-53.
4. Negi H, Sarkar M, Raval A, Pandey K, Das P. Health-related quality of life in patients with chronic obstructive pulmonary disease in North India. J Postgrad Med . 2014;60(1):7.
5. Obaseki DO, Erhabor GE, Awopeju OF, Obaseki JE, Adewole OO. Determinants of health related quality of life in a sample of patients with chronic obstructive pulmonary disease in Nigeria using the St. George's respiratory questionnaire. Afr Health Sci. 2013;13(3):694–702.
6. Halvani A, Pourfarokh N, Nasiriani K. Quality of life and related factors in patients with chronic obstructive pulmonary disease. Tanaffos. 2006;5(3):51–6.
7. Shavro SA, Ezhilarasu P, Augustine J, Bechtel JJ, Christopher DJ. Correlation of health-related quality of life with other disease severity indices in Indian chronic obstructive pulmonary disease patients. Int J Chron Obstruct Pulmon Dis. 2012;7:291–6.
8. Gobartt E, Lucas P De, Group S. Health-related quality of life in outpatients with COPD in daily

practice: the VICE Spanish study. Int J Chron Obstruct Pulmon Dis. 2008;3(4):683–92.

9. Wijnhoven H a, Kriegsman DM, Hesselink AE, Penninx BW, de Haan M. Determinants of different dimensions of disease severity in asthma and COPD : pulmonary function and health-related quality of life. Chest. 2001;119(4):1034–42.

10. Zamzam MA, Azab NY, El Wahsh RA, Ragab AZ, Allam EM. Quality of life in COPD patients. Egypt J Chest Dis Tuberc. 2012;61(4):281–9.

11. de Miguel Díez J, Izquierdo Alonso JL, Rodríguez González-Moro JM, de Lucas Ramos P, Bellón Cano JM, Molina París J. Quality of Life With Chronic Obstructive Pulmonary Disease: the Influence of Level of Patient Care. Arch Bronconeumol. 2004;40(10):431–7

12. Moy ML, Reilly JJ, Ries AL, Mosenifar Z, Kaplan RM, Lew R, et al. Multivariate models of determinants of health-related quality of life in severe chronic obstructive pulmonary disease. J Rehabil Res Dev. 2009;46(5):643–54.