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Original Article

HEALTH-RELATED QUALITY OF LIFE AMONG PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AT A TERTIARY HOSPITAL IN BANGLADESH

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Abstract:

Background: *Patients with COPD may have significantly reduced health-related quality of life. The most prevalent cause of mortality worldwide, including in Bangladesh, is expected to be COPD. It is caused by long-term exposure to irritating gases or particulate matter, most often from cigarette smoke. People with COPD are at increased risk of developing heart disease, lung cancer and a variety of other conditions.*

Methods: *A descriptive cross-sectional study was conducted among 100 COPD patients who was selected from Shaheed Tajuddin Ahmed Medical College Hospital (STAMCH) Gazipur. Data was collected by using two self-administered questionnaires; including socio-demographic questionnaire and the clinical COPD questionnaire through face to face interview, observation and finding of review literature, thesis compilation, data collection from July 2024 to June 2025. The data was analyzed by using descriptive and inferential statistics. Results: The total number of COPD patients in the study was 100. Their mean age was 61.00± 11.880 years. The patients consisted of 76% men and 24% women. Overall, 70% of patients had low quality of life, and 30% reported high quality of life. This study found that age, gender, level of education, occupation, smoking status, feeling restless, and loss of interest in work were significantly associated with the quality of life among participants.*

Conclusion: *This study revealed that most of the COPD patients had low quality of life.*

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Introduction

Health-related quality of life (HRQoL) affecting physical, psychological and social domains of health among COPD patients, is associated with depression, cognitive dysfunction, severe hypoxemia and has shown relationships with age, social class, physiological well-being and social network.[1]

Chronic obstructive pulmonary disease (COPD) is defined as a preventable and treatable disease characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. [2] The term chronic obstructive pulmonary disease (COPD) refers to a group of long-term lung conditions, such as “chronic bronchitis” and “emphysema,” that compromise lung airflow. [3]

The estimated global prevalence of COPD in people was 10.1%[7]. Most of the COPD patients were within the age

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of 46-75 years and 83% of patients with COPD were not diagnosed based on spirometry. [4] COPD is currently the third most common cause of mortality worldwide. [5, 6] Almost 3 million people die from this illness each year and millions more are admitted to hospitals. [7]

In Bangladesh, the prevalence of COPD was 12.5% of the total population. [5] With an estimated 6.0 million individuals suffering from the disease in the year of 2020. The prevalence in population of 40 years and above was found to be 21.58% with a total of 60,42,400 people. Majority (45.13%) of the COPD patients were suffering in moderate stage of COPD. In general, males suffer more than females (62.47% vs. 37.26%). Prevalence in urban areas (61.52%) is higher than that of rural areas (38.48%). Interestingly, among the female COPD patients, these figures are almost equal (urban 50.21% vs. rural 49.79%), indicating higher prevalence of the disease in village women. [8] However poor living conditions also play a role in the rise in prevalence of this disease . [9]

Smoking is the primary causes and major risk factor of COPD, this includes smoke from cigarettes, pipes, cigars, water pipes and other tobacco products that are common in many nations, as well as smoke from the environment tobacco smoke (ETS). [10, 11, 12] It is a common disorder that affects around 5% of people worldwide. In Bangladesh 63% patient of COPD were current smoker. [6] One of the main causes of early death and disability, smoking is a significant public health concern. [13]

COPD can also occur in non-smokers. air pollution, biomass fuel exposure, crowded living conditions, malnutrition, illnesses, infection or other low socioeconomic status-related variables are examples of environmental risk factors of COPD. [9, 10]

Non-smokers are also at risk secondarily by air pollution due tobacco smoke, exposure to biomass fuel (open stove/wood burn) used for cooking and heating in homes with inadequate ventilation. Chemical agents, fumes and dusts, both organic and inorganic, are underappreciated risk factors for COPD. It also adds to the overall amount of particles that are inhaled by the lungs, albeit it seems to have little impact on the development of COPD. More than 42% COPD patients are exposed to biomass gas. [8, 10]

Physical symptoms in the early stages of the illness include wheezing, shortness of breath, copious sputum production, chest tightness and a persistent cough. As the illness progresses, dyspnea becomes more prevalent. [6, 14, 15]

COPD are associated with a lower quality of life, less ability to exercise, a higher death rate and mental illness like anxiety and depression. [16] A leading causes of chronic morbidity & mortality worldwide by a slowly progressive disease like COPD. [1, 17] General clinical observation indicates that the prognosis for COPD is marginally poorer from western world than in and a developed Asian countries. Low socio-economic conditions, environmental pollution and childhood infections are not only responsible for the development of COPD, but also for early mortality, illness complications and a persistent deterioration in lung function. [4] Quitting smoking is the only treatment that can halt the advancement of COPD and alleviate respiratory symptoms, making it the most crucial therapeutic intervention for patients at all stages of the disease. [12, 18]

HRQoL is an important domain for measuring the impact of chronic disease like patients with COPD. [19] It is a big challenge to managing and controlling COPD disease. It is well recognized that pharmacological treatments and rehabilitation initiates patients prognosis and Quality of Life (QoL).[20] As lung function rapidly deteriorates, the HRQoL for people with COPD can be significantly compromised and worsens as the disease. The disease restricts people from socializing and enjoying their hobbies, which makes many feel frustrated and angry. Patients fight for air while doing simple tasks and struggle to stay physically active and risk early death. [3]

COPD is a disease with no definite cure and thus affects the HRQoL of such patients. HRQoL of COPD patients often depends on many co-morbidities like Diabetes Mellitus, Osteoporosis, Muscle weakness, Hypertension, Depression, Lung cancer. [21, 22, 23]

As per the latest guidelines, the treatment approach for individuals with COPD should priorities improving their HRQoL in addition to assessing their symptoms. Reduced exacerbation frequency, improved lung function and promotion of smoking cessation, body weight control and regular exercise can all lead to a higher quality of life. [22]

COPD patients have a lower HRQoL. Since there is typically no correlation between respiratory impairment and HRQoL, it is crucial to use clinical COPD questionnaires to assess HRQoL in COPD patients. [1]

A significant portion of COPD patients showed low HRQoL. They are associated with the presence of dyspnea and chest discomfort at the time of the survey. Thus, it is urgently necessary to raise community knowledge of COPD and to make doctors more aware of how it affects HRQoL. [1]

Patients with COPD experienced a decline in their HRQoL, which is a crucial indicator of the impact of chronic illness. The most important factor is mental functioning which means willing to participate in daily activities, activities of daily living (ADLs) and social activities such as relationship with society. [24]

This study focused on HRQoL and identify the factors associated with health related quality of life of in COPD patients.

Materials and Methods

Health Related Quality of Life Among COPD Patients a Tertiary Hospital in Bangladesh was evaluated using a cross-sectional study methodology from July 2024 to June 2025 was conducted in Shaheed Tajuddin Ahmed Medical College Hospital at Gazipur.

The study population consisted of 100 COPD patients of both indoor and outdoor department at the Shaheed Tajuddin Ahmed Medical College Hospital at Gazipur. The inclusion criteria were a. age-above 40 years, b. patient diagnosed with COPD and suffers more than 3 months, c. patient have severe respiratory problem and provide informed consent to participate in the study.

After selection of the subjects, the nature, purpose and benefit of the study were explained to each subject in details. They were encouraged for voluntary participation. The instruments or tools of this study had two parts. Part I: Socio-demographic characteristics questionnaire: The socio-demographic characteristics questionnaire included the details of patients' related information such as: age, sex, religion, education, occupation, number of children, monthly family income, and type of residence. Part II: Clinical COPD questionnaire. It is a widely used, internationally accepted, simple tool for assessing health status in patients with COPD. Total 10 questions are present in it. Which divided by 10 a value of 0.4 is consider as an optimal cut off point for assessing low vs high quality of life among COPD patients. [25]

After completion of data collection, data was checked and verified to identify the missing data and minimize the error. Data was analyzed in computer by using Statistical Package for the Social Sciences (SPSS) version 23. Descriptive statistics such as frequency, percentage, mean, and standard deviation was used to describe the socio demographic characteristics of COPD patients. Inferential statistics such as t-test and Pearson Product-Moment Correlation, ANOVA were used to examine the relationship between demographics characteristics and health related quality of life among COPD patients. Institutional ethical review board of East West Medical College approved the research work.

Results:

The findings of the study including describes the socio demographic characteristics of COPD patients ; describes the level of HRQoL among COPD patients and finally explains the relationship between the socio demographic characteristics of COPD patients and their HRQoL.

Table-I

Distribution of respondents by age group (n=100)

Variables	Categories	Frequency	Percentage	M ± SD
Age (Years) (min-41, max-80)				60.51±11.644
Age group				
	41-50	26	26.0	
	51-60	23	23.0	
	61-70	29	29.0	
	71-80	22	22.0	

N.B. M= Mean, SD = Standard Deviation

Table I with in 100 COPD patients,their mean age were 60.51 ± 11.644 years with range from 41 to 80 years. Again were (26%) in year range 41-50, (23%) in 51-60 range, (29%) in 61-70 and (22%) in 71-80 year range.

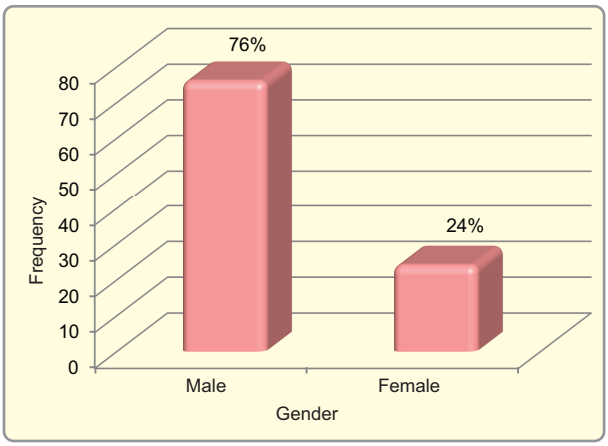

Figure 1: *Distribution of respondents by gender (n=100)*

Figure 1 Shows that out of 100 participants majority 76% of them were male and rest of the participants 24% were female.

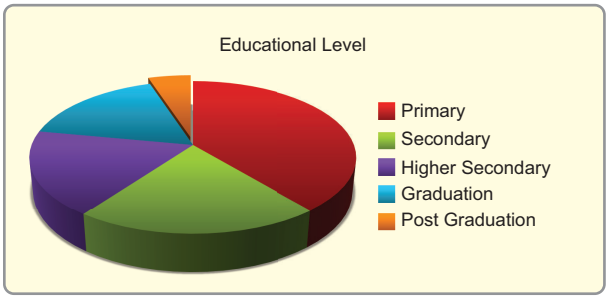

Figure 2: *Distribution of respondents by level of education (n= 100)*

Figure 2 Shows that out of 100 participants, 39% primary, 21% Secondary, 18% Higher Secondary, 17% Graduation and 5% Post Graduation.

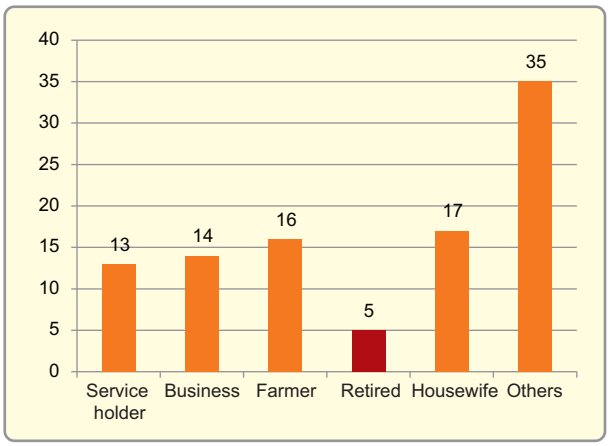

Figure 3: *Distribution of respondents by occupation (n= 100)*

Figure 3 Showed that a total of 100 COPD patients, were 13% Service Holder, 14% Business, 16% farmer, 5% Retired, 17% Housewife and 35% Others.

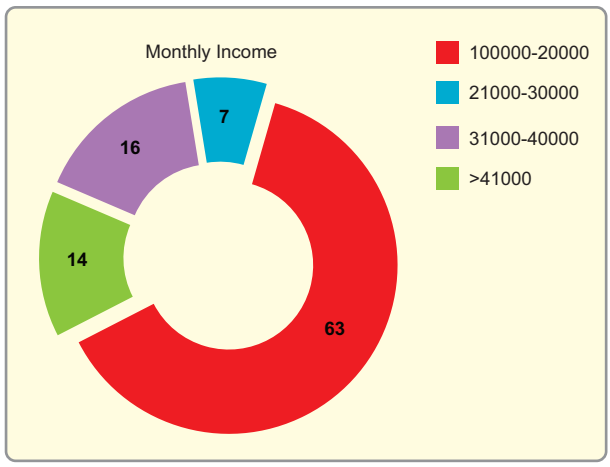

Figure 4: *Distribution of respondents by monthly family income (n=100)*

Figure 4 figure shows distribution of study population, their mean monthly income was 21150.00 ± 10771.61 taka, which was ranged from 10,000->41,000 taka and more than half 63% of their monthly income was 10,000-20,000 taka, 14% of their monthly income was 21,000-30,000, 16% of their monthly income was 31,000-40,000 and 07% of their monthly income was >41,000.

Table-II

Distribution of respondents by residence (n=100)

Variables	Categories	Frequency	Percentage
Place of residence	Rural	29	29.0
	Urban	49	49.0
	Semi-Urban	22	22.0

Table II Showed in the study participants, 29% of them reside in rural area, rest 49% of the participants reside in urban area and 22% live in semi-urban area.

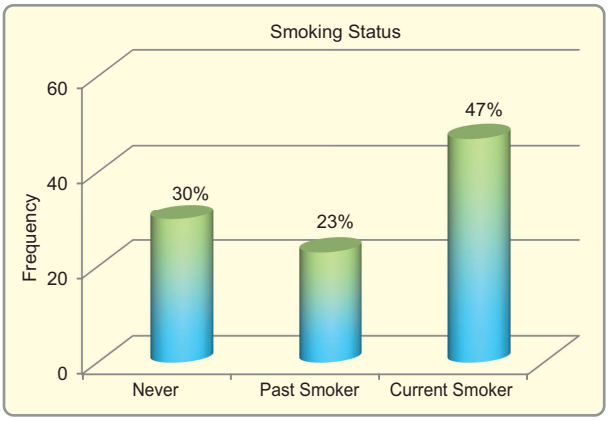

Figure 5: *Distribution of respondents by smoking status (n=100)*

Figure 5 Showed the smoking status of the study group, 30% of the participants never smoking, 23% of the participants past smoker and 47% of the participants current smoker.

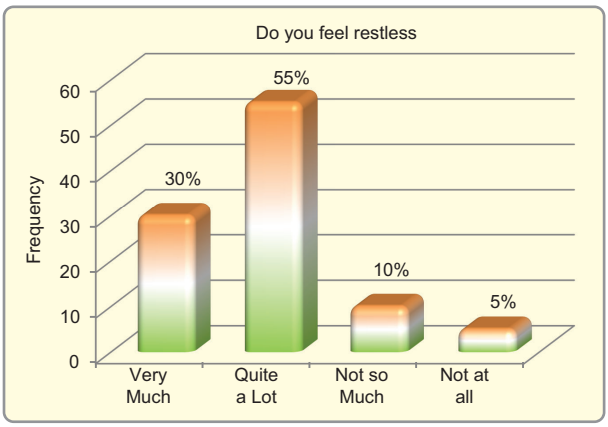

Figure 6: *Distribution of respondents by feel restlessness (n=100)*

Figure 6 Showed in the study participants, 30% of the participants was fell restlessness very much, 55% of the participants was fell restlessness quite a lot, 10% of the participants was fell restlessness not so much and 05% of the participants was fell restlessness not at all.

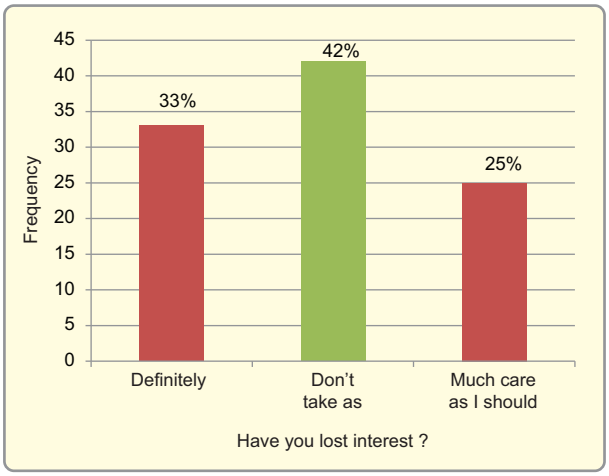

Figure 7: *Distribution of respondents by lost of interest for work (n=100)*

Figure 7 Showed in the study participants, 33% of the participants was lost interest for work definitely, 42% of the participants was lost interest for work don't take as and 25% of the participants was lost interest for work much care as I should.

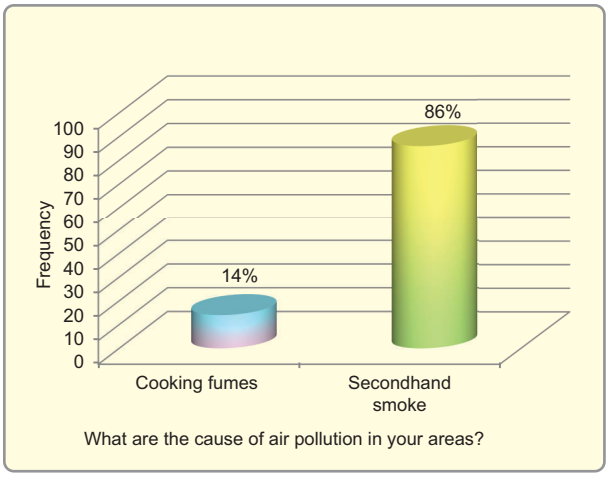

Figure 8: *Distribution of respondents by causes of air pollution (n=100)*

Figure 8 Showed in the study participants, 14% of the participants was causes of air pollution cooking fumes and 86% of the participants was Causes of air pollution secondhand Smoke.

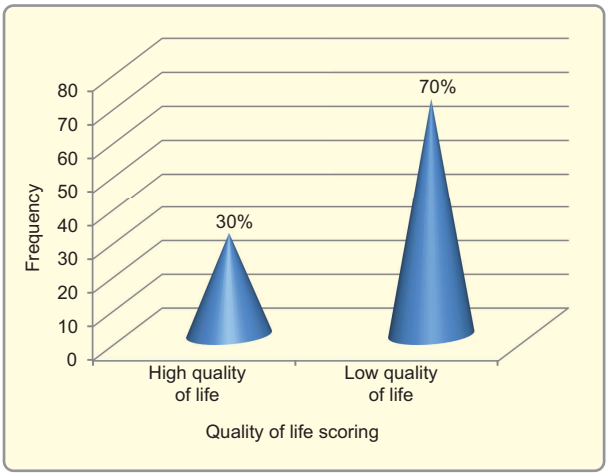

Figure 9: *The level of health related quality of life among COPD patients (n= 100)*

Figure 9 Showed a total of 100 COPD patients were enrolled in this study. The majority (70.0%) of participants have low quality of life and 30.0% have high quality of life.

Table-III

Relationship /Correlation between the socio-demographic characteristics of COPD patients and health related quality of life (n=100)

Variables	r	*P* value
AGE (Years)	.671	<.001
Gender	-.266	.007
Smoking Status	.612	<.001
Smoking Status	.612	<.001
Do you feel Restless	-.509	<.001
Have you lost interest ?	-.562	<.001
Variables	F	*P* value
Level of Education	18.491	<.001
Occupation	13.865	<.001

N.B. M = Mean, SD = Standard Deviation, r = Pearson Product Moment Correlation Coefficient Test, F = F test, done by ANOVA (Analysis of Variance), p = 0.05 Significant Value.

Table III Findings revealed that, age, male, level of education, occupation, smoking status, restless & lost interest were found to be significant associated with the quality of life among participants and causes of air pollution not found to be significant associated with the quality of life among participants.

Clinical COPD Questionnaire.

Patient number:

Date:

Clinical COPD Questionnaire
Please circle the number of the response that best describes how you have been feeling during the past week(Only one response for each question)

On average, during the past week, how often did you feel:	never	hardly ever	a few times	several times	many times	a great many times	almost all the time
1. Short of breath at rest?	0	1	2	3	4	S	6
2. Short of breath doing physical activities?	0	1	2	3	4	5	6
3. Concerned about getting a cold or your breathing getting worse?	0	1	2	3	4	5	6
4. Depressed (down) because of your breathing problems?	0	1	2	3	4	5	6
In general, during the past week, how much of the time:							
5. Did you cough?	0	1	2	3	4	5	6
6. Did you produce phlegm?	0	1	2	3	4	5	6
On average, during the past week, how limited were you in these activities because of your breathing problems	not limited at all	very slightly limited	slightly limited	moderately limited	very limited	extremely limited	totally limited/or unable to do
7. Strenuous physical activities (such as climbing stairs, hurrying, doing sports)?	0	1	*2*	3	4	5	6
8. Moderate physical activities (such as walking, housework, carrying things)?	0	1	*2*	3	4	5	6
9. Daily activities at home (such as dressing, washing yourself)?	0	1	*2*	3	4		6
10. Social activities(such as talking, being with children, visiting friends/ relatives)?	0	1	*2*	3	4	5	6

Discussion

In this study the mean age was 60.51 ± 11.644 years of study group which is consistent with some studies conducted in India, Canada and KSA. [1,3,24,26] and the majority of the participants were male which is similar with some studies conducted in Egypt and Korea.[19,23,27]

In this current study most of the participants level of education are primary. But in some studies had highest number of participants have no formal education and some up to secondary level study conducted in Bangladesh [5,7] and most of the participants had no occupation due to disease condition which is consistent with some previous studies conducted in Bangladesh and India. [3,7] Another study most of them had occupation which exposed them to fine dust (89.2%) conducted in India.[1] Other study most of the participants were currently employed (motor vehicle mechanics, cleaners and motor driver Conducted in Bangladesh. [28]

Most of the participants monthly family income was 10000-20000 taka. which is consistent with the study in conducted in India and Jordan. [1,29]

In the present study , most of the participants lived in urban areas which is similar with another study where 86.9% participants lived in urban area conducted in Canada.[26]

In this study most of the participants were current smoker which is consistent with other studies conducted in Hungary. [22] Another several studies between male and female were almost equal in both groups in smokers, current smokers 58% conducted in Malaysia, Greece and Canada. [5,12,26]

In this study less patients feel very much restless which is dissimilar with another study were the participants found severe restlessness conducted in Bangladesh [4] and less participants were lost interest for work, which is another study is dissimilar study conducted in Nepal. [30]

In this study most of the participants were causes of air pollution is secondary smoke, another study which is similar with this study were 48.8% exposure to biomass fuel and 69.9% exposure from incense sticks conducted in India. [1]

The current study presented that majority of the participants have low quality of life which is constant

with the findings of previous several studies in India, Pakistan and Jordan.[1, 24, 26, 29] However, a study where HRQoL poorer in female conducted in Hungary. [22]

Another findings is dissimilar from this study were HRQoL improving conducted in Tunishia.[31] One of the study was no difference in symptoms or air flow obstruction and HRQol between rural and urban participants conducted in Maryland.[32]

Conclusion

This study demonstrated a high prevalence of low quality of life among patients with COPD. Additionally, some factors such as: Age, level of education, occupation, monthly income, smoking status, feel restless and lost work interest was found significant association with low quality of life among patients with COPD. Healthcare policymakers and clinicians should take these factors into consideration to take timely and effective measures, aimed at managing the COPD disease and improve HRQoL among COPD patients.

Strengths of the study

Findings would be considered as a baseline for further research and collection of data from the participants by face to face interview and will clearly explain all information .

Limitations of the study

Cross-sectional design would be considered as weak study and sample size was not more enough to generalize the result.

Conflict of interest: The authors declare no conflict of interest.

Ethical approval: The study was approved by the Institutional review board - Shaheed Tajuddin Ahmed Medical College Hospital at Gazipur.

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