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Original Research Article

Socio-demographic and clinical patterns of patients with obstructive airway disease

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ABSTRACT

Background: Obstructive airway disease (OAD) includes two entities that share many common characteristics. Those are asthma and chronic obstructive pulmonary disease (COPD). On the other hand, in our regular practice, we observe that psychiatric symptoms of anxiety, depression, and cognitive dysfunction often occur in patients suffering from such diseases which are also associated with their socio-demographic and clinical status. Aim of the study: The aim of this study was to determine the socio-demographic and clinical status of patients with OAD.
Methods: This was a cross-sectional observational study which was conducted at the department of respiratory medicine in the national institute of diseases of the chest and hospital, Dhaka, Bangladesh during the period from March 2018 to February 2019 in collaboration with the department of pathology, radiology, and respiratory laboratory. A total of 160 cases of asthma or COPD were enrolled in this study. Statistical analyses of the results were obtained by using Windows-based computer software devised with statistical packages for social sciences (SPSS-23.0).
Results: A total number of 160 patients were selected and the mean age of the total participants was 53.0±14.0 years. In this study, the male-female ratio of the study people was 1.13:1. The majority (91.2%) of patients were married. Almost three fourth (73.7%) of patients were from rural areas. Almost one-third (31.9%) of patients completed primary education level. The majority (27.5%) of the patients were service holders. The average monthly income was 1871.9±4888.8 taka. Almost two-thirds (66.3%) of patients were smokers. In total 98 (61.3%) patients had COPD and 62 (38.7%) had asthma. In this study in total 98 (61.3%) patients had COPD and 62 (38.7%) had asthma. Among 98 COPD patients 10 (10.2%) had mild, 29 (29.6%) had moderate, 40 (40.8%) had severe and 19 (19.4%) had very severe COPD. Among 62 asthmatic patients 22 (35.5%) had mild, 16 (25.8%) had moderate, 11 (17.7%) had severe and 13 (21.0%) had very severe asthma.
Conclusions: According to the findings of this study we can conclude that the frequency of OAD is higher among aged, smokers, married male people than others. The ratio of COPD patients may be higher than asthmatic patients among the rural population of Bangladesh. The mean depression inventory score was found to some higher among asthmatic patients than that of COPD patients.

Keywords: Socio-demographic, Clinical status, COPD, Asthma, HADS score

INTRODUCTION

Obstructive airway disease (OAD) includes two entities that share many common characteristics. Those are asthma and COPD. On the other hand, in our regular practice, we observe that psychiatric symptoms of anxiety, depression, and cognitive dysfunction often occur in patients suffering from such diseases which are also associated with their socio-demographic and clinical status. COPDs and asthma are two common presentations of pulmonary obstructive

diseases. The prevalence of asthma has been increased in recent decades as a major cause of disability and death.[1] COPD is the fourth cause of death in some parts of the world.[2] Fifteen percent of the population aged 55 to 64 suffer from at least a moderate obstructive pulmonary disease and this increases to 25% after 75 years of age.[3] According to WHO 2015 global data, 3.6% of global people suffer from anxiety whereas depression occurs in 4.4%. In Bangladesh according to WHO 2017, 4.4% of people suffer from anxiety whereas depression 4.1% of people. Almost 75% of people with mental disorders remain untreated. COPD and asthma significantly affect mental health because they impact on sleep, activities and social life of patients. On the other hand, for exacerbation of these pulmonary disorders, psychological factors may be a risk factor. These coexisting psychiatric disorders should be diagnosed and treated as soon as possible, to improve patient outcomes, but unfortunately, they often remain undiagnosed without psychiatric assessment. The criteria applied to define socioeconomic differences include education, income, and occupation.[2] The life of people with a chronic disease changes dramatically and leads to significant deterioration in its quality.[4] The influence of socioeconomic factors on QOL has been demonstrated in worldwide studies in patients with bronchial asthma, cerebral stroke, prostate cancer, and chronic renal failure.[2] The impact of socioeconomic factors on QOL in COPD, and they present various reports assess only a few publications. Some authors confirm, while others completely deny, their influence on QOL.[3] Asthma remains a concern even into older ages, where COPD comorbidity is more often overlaid.[5] Asthma is a chronic inflammatory disorder of the airways characterized by bronchoconstriction and mucus plugs that limit airflow.[6] Asthma development is linked to complex interactions between genetic and environmental factors.[7]

Objectives

General objective was to determine the socio-demographic and clinical status of patients with OAD.

Specific objectives were to determine the socio-demographic statue of patients with OAD, to collect information regarding the clinical status of patients with OAD and to determine the severity status of both COPD and asthmatic patients.

METHODS

This is a cross-sectional observational study. The study was carried out in the department of respiratory medicine in collaboration with the respiratory laboratory of the national institute of diseases of the chest and hospital (NIDCH), Dhaka, Bangladesh during the period from March 2018 to February 2019. In total 160 stable cases of asthma or COPD attended both outdoor and indoor of NIDCH, Dhaka, Bangladesh during the study period were selected as the study people. According to the inclusion criteria of this study, only COPD and asthma patients defined as per GOLD and GINA guidelines were included as the study people. On the other hand, according to the exclusion criteria of this study, known cases of other major psychological illnesses, unconscious patients, acute exacerbation of COPD, severe acute asthma, cases of respiratory failure, and other patients with long standing co-morbidities were excluded. In this study, age, sex, occupation, smoking, education, nutritional status, socioeconomic status, and employment status were considered as the demographic variables. On the other hand, the outcome variables of obstructive airways disease were beck depression inventory score, anxiety rating scale score, and HADS score. The basic principle of research ethics according to the 52nd WMA declaration of Helsinki' 2000 and CIOMS guidelines was maintained during the research processes. An ethical clearance certificate was taken from the concerned authorities of the institute. In case, information about patients was obtained after getting consent. Consent from the patient was obtained after discussing with the patient about the study procedure. Data were recorded by a standard proforma. In the first phase, written informed consent was obtained from the patients with OADs fulfilling the inclusion and exclusion criteria. Spearman's rank correlation coefficient was used for beck depression inventory score, anxiety rating scale score with COPD severity, and asthma severity. A $p>0.05$ was considered significant. All data were analyzed by using SPSS-23.0 Data were presented in frequency, percentage and mean, and standard deviation as applicable. ANOVA test was used for continuous variables as shown cross-tabulation.

RESULTS

A total number of 160 patients were selected and the mean age of the total participants was 53.0±14.0 years. In this study, the majority of the participants were male which was 53% (n=85) and the rest 47% (n=75) were female. So, the male-female ratio of the study people was 1.13:1. The majority (91.2%) of patients were married. Almost three fourth (73.7%) of the patients were from rural areas. Almost one-third (31.9%) of the patients completed primary education level. The majority (27.5%) of patients were service holders. The average monthly income was 1871.9±4888.8 taka. Almost two-third (66.3%) of the patients were smokers. In this study, among a total of 160 participants, 61% were with COPD whereas 39% were with asthma. The highest number of patients were with 'normal' BMI which was 44%. Only 3% were obese whereas 38% were with the underweight status of BMI. The highest number of COPD patients had the severe condition which was 41%. Besides this, 10.2%, 29.59%, and 19.39% of patients were with mild, moderate, and very severe COPD respectively. On the other hand, the highest number of asthmatic patients of this study had mild conditions which were 35%. Besides this, 25.81%, 17.74%, and 20.97% asthmatic patients were with moderate, severe, and very severe asthma respectively. Among a total of 160 participants, the mean (±SD) depression inventory, anxiety rating, and HADS scores

were 88.8±12.4, 67.4±10.3, and 12.6±1.7 respectively. But, among a total of 98 COPD patients, the mean (±SD) depression inventory, anxiety rating, and HADS scores were 95.6±12.6, 61.0±11.7, and 12.1±1.5 respectively. On the other hand, among a total of 62 asthmatic patients, the mean (±SD) depression inventory, anxiety rating, and HADS scores were 99.9±10.7, 57.1±10.7, and 11.8±1.3 respectively.

Table 1: Socio-demographic status of participants, (n=160).

Variables	N (%)
Age (Years)	
Mean age in years	53.0±14.0
Sex	
Male	85 (53.1)
Female	75 (46.9)
Marital status	
Married	146 (91.2)
Unmarried	14 (8.8)
Location	
Urban	42 (26.3)
Rural	118 (73.7)
Education	
Primary education	51 (31.9)
Service holder	44 (27.5)
Others	65 (40.6)
Monthly family income (Taka)	
Mean monthly income	4888.8±1871.9
Smoking habits	
Smoker	106 (66.3)
Non smoker	54 (33.7)

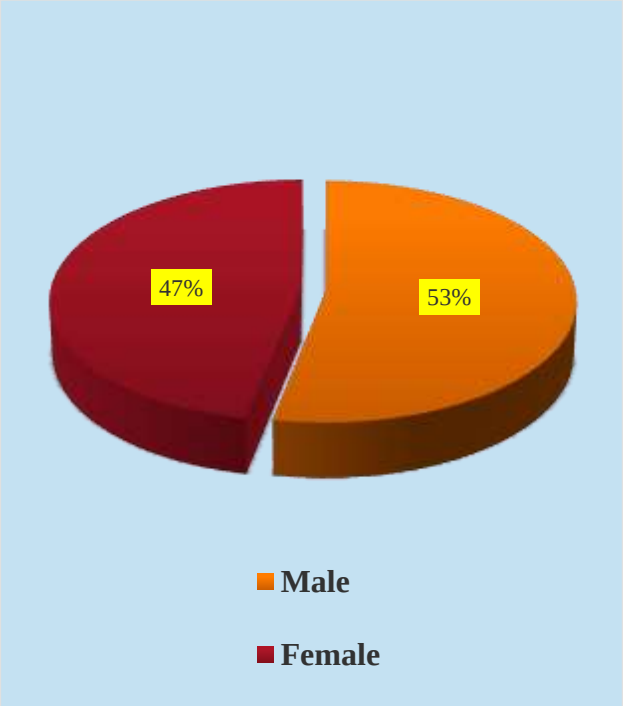

Figure 1: Patient's sex wise distribution, (n=160).

Table 2: Clinical status of the participants, (n=160).

Variables	N	Percentage (%)
BMI (kg/m^2) distribution		
≤18.5 (underweight)	61	38.1
Normal (18.5-24.9)	70	43.8
Over weight (25.0-29.9)	24	15.0
Obese (≥30)	5	3.1
Mean ± SD	20.5±4.2	
Severity status of COPD patients, (n=98)		
Mild	10	10.2
Moderate	29	29.59
Severe	40	40.82
Very severe	19	19.39
Severity status of asthma patients, (n=62)		
Mild	22	35.48
Moderate	16	25.81
Severe	11	17.74
Very severe	13	20.97
Mean scores COPD patients, (n=98)		
Mean depression inventory	95.6±12.6	
Mean anxiety rating	61.0±11.7	
Mean HADS score	12.1±1.5	
Mean scores of asthma patients, (n=62)		
Mean depression inventory	99.9±10.7	
Mean anxiety rating	57.1±10.7	
Mean HADS score	11.8±1.3	
Mean scores of all patients, (n=160)		
Mean depression inventory	88.8±12.4	
Mean anxiety rating	67.4±10.3	
Mean HADS score	12.6±1.7	

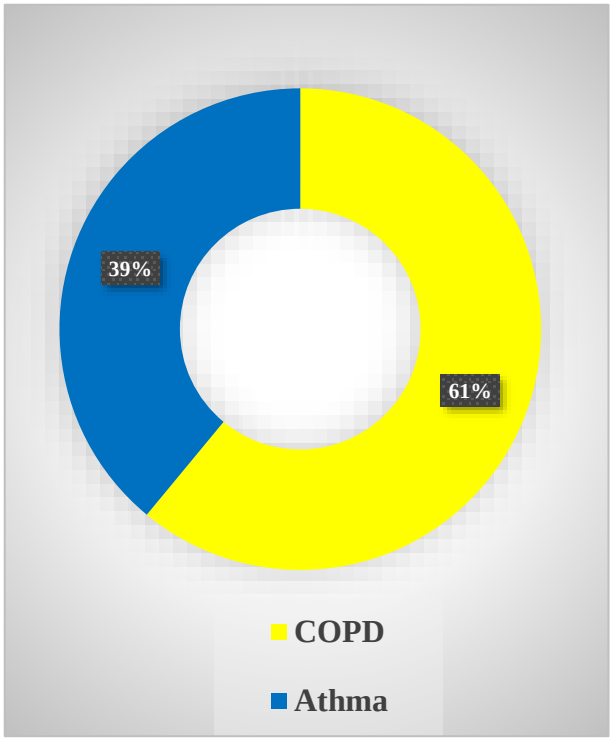

Figure 2: Patient's disease wise distribution (n=160).

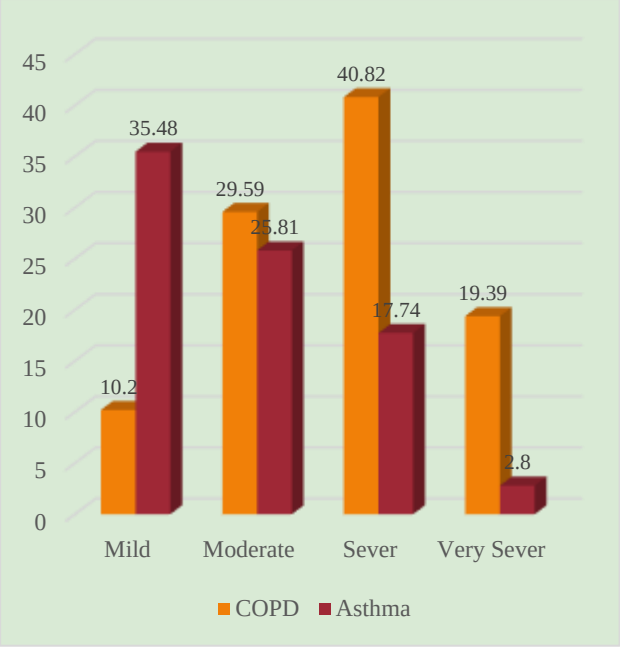

Figure 3: Severity of COPD and asthma among patients, (n=160).

DISCUSSION

The aim of this study was to determine the socio-demographic and clinical status of patients with OAD. In this study, it was observed that almost three fourth (71.9%) of the patients were male and 45 (28.1%) patients were female. The male-female ratio was 1.13:1. A similar study was conducted by Safa et al where they reported 32 individuals (22%) were female and 111 (78%) were male.[11] Cooper et al found in their study a higher proportion of responses regarding women 38.3% of respondents were male and 61.7% female.[12] Asnaashari et al performed study with 100 participants, including 59 (59.0%) women and 41 (41.0%) men.[13] Bratek et al demonstrated in their study that males were 67% in COPD patients and 53.0% in asthma patients.[14] Another study conducted by Mahajan et al where observed males were 63.23% in COPD patients and 63.23% in asthma patients.[15] In this current study, it was observed that the majority (91.2%) of the patients were married and 14 (8.8%) patients were unmarried. Asnaashari et al consisted of similar patients in their study, married people were found 76.9% in COPD patients and 82.4% in asthma patients.[13] Safa et al found that 127 (89%) patients were married in their study.[11] In this series, it was observed that almost three fourth (73.7%) of patients live in rural areas and 42 (26.3%) in urban areas. Mahajan et al documented in their study, urban people were found 34.49% in COPD patients and 23.52% in asthma patients.[15] Rural people were included 64.70% and 76.47% in COPD and asthma patients respectively. In this present study, it was observed that more than almost one third (31.9%) of the patients completed primary education level followed by 36 (22.5%) secondary, 3 (1.9%) SSC, 14 (8.8%) HSC, 47 (29.4%) graduate and 9 (5.6%) illiterates. Asnaashari et al showed illiterate patients were found 23.1% in COPD patients and 23.5% in asthma patients.[13] Elementary level education was present in 30.8% and 23.5% in COPD and asthma patients respectively. More than elementary level present in 34.6% in COPD patients and 52.9% in asthma patients. Dursun et al found in their study patients, primary school graduation was 24.5%, secondary school graduation 37.7%, high school graduation 28.3% and college graduation 9.4%.[15] Another study was done by Safa et al where they observed 51% of patients were illiterate and 3.5% had a university education.[11] In this study, it was observed that 44 (27.5%) patients were service holders followed by 25 (15.6%) were housewives, 16 (10.0%) were businessmen and 21 (13.1%) were farmers. Safa et al demonstrated their study 54 (38%) were self-employed; 40 (28%) were unemployed, and 26 (18%) were day laborers.[11] In my study, it was observed that mean monthly income was found 11871.9±4888.8 taka with a range from 5000 to 25000 taka. Afari et al observed in their study, more than one-half of patients (56%) reported an average household yearly income of $5,000 or greater.[17] In this current study, it was observed that almost two-thirds (66.3%) of the patients were smokers and 54 (33.7%) were non-smokers. Bratek et al consisted of their study, smokers were 96.0% in the COPD group and 47% in the asthma group.[14] Also, up to 30% of patients with asthma were smokers (Gibson and Simpson). Dursun et al found in their study, non-smokers were 39.6%, ex-smokers were 39.6% and smokers were 20.8%.[16] Schneider et al showed smokers were 25.4%.[18] Another study by Safa et al showed 102 (72%) patients had a history of smoking.[11] In this series, it was observed that the majority (43.8%) of the patients had normal (18.5-24.9 kg/m^2) BMI. The mean BMI was found 20.5±4.2 kg/m^2 with a range from 13.3 to 37.6 kg/m^2. Marco et al found in their study, mean BMI was 26.3±0.3 kg/m^2.[19] In this present study, it was observed that 98 (61.3%) patients had COPD and 62 (38.7%) had asthma. A similar study was done by Asnaashari et al where they found the prevalence of general psychopathology in COPD patients was 42.3%.[13] Mahajan et al have found that 32.4% of COPD patients had psychiatric comorbidities compared to only 20.6% of asthma patients and both were statistically significant ($p<0.001$).[15] In another study from South India, 96% of COPD patients and 56% of asthma patients were regarded as having definite psychopathological abnormality on CPRS (Comprehensive psychopathological rating scale) score.[20]

Limitations

This was a single center study. Multicenter study should be done to know the exact situation in Bangladesh.

CONCLUSION

According to the findings of this study, we can conclude that the frequency of OAD is higher among aged, smokers, married male people than others. The ratio of COPD patients may be higher than asthmatic patients among the

rural population of Bangladesh. The mean depression inventory score was found to some higher among asthmatic patients than that of COPD patients.

Recommendations

For getting more reliable information we would like to recommend conducting more studies in several places with large sample sizes.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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