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Daily Activity Related Quality of Life in Chronic Obstructive Pulmonary Disease in Adults	
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Abstract:	
<p>Background: The significant reason for anguish as well as incapacity is chronic obstructive pulmonary disease (COPD). Activities of daily living might be relentlessly curbed among patients with COPD and appraisal needs evaluation regarding influence of infirmity and detriments on day-to-day living. The primary objective was to know the daily activity associated quality of life in COPD adults. The secondary objective was to analyze demographical profile, such as gender and age of COPD subjects as well as evaluate the physical activity related breathlessness in COPD patients.</p> <p>Methodology: This study was executed at Gulab Devi Chest Hospital. We used cross sectional study design to collect the data. For collecting the statistics of 150 subjects aged 40-60 years of either gender Saint George's Questionnaire was liable. It included the patient's biodata, effect of COPD on physical activities and limitations in routine work.</p> <p>Results: The ages of 150 COPD patients selected were between 40 and 60 years. Patients were classified into two categories on the basis of disease severity according to GOLD criteria 71 (47.3%) were with moderate severity and 79 (52.7%) were with severe severity. 113 (75.3%) patients were smokers while 37 (24.7%) patients were non-smokers. 110 (73.3%) COPD patients were active smokers in comparison 40 (26.7%) COPD patients were passive smokers. COPD patients with current smoking status were 79 (52.7%) and with past smoking status were 71 (47.3%). 19 (12.7%) COPD patients felt breathlessness while sitting and lying. 53(35.3%) COPD patients felt breathless while getting washed or dressed. 85(56.7%) COPD patients felt breathless while walking around the home. 114 (96%) COPD patients discerned breathlessness while walking up a flight of stairs. 145 (96.7%) COPD patients had breathlessness while playing sports or games. 146 (97.3%) COPD patients experienced difficulty in breathing during activities like carrying load. 88 (58.7%) COPD patients discerned breathlessness during entertainment or recreation. 88 (58.7%) COPD patients discerned breathlessness during entertainment or recreation. 7 (4.7%) COPD patients felt breathlessness while moving from bed or chair.</p> <p>Conclusion: As with the progression of COPD impairment in activities become worse due to breathlessness causing decline in patient's ability making them unable to complete their task to fulfill the needs of life and ultimately become bed bound due to shortness of breath.</p> <p>Key Words: COPD, quality of life, physical activity, activities of daily livings.</p>	
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Introduction:

COPD is a primary community health crisis worldwide due to its increased frequency leading to **melancholy** and death (1). Tobacco smoking is the major hazard disclosure for COPD. As per estimation of WHO (World Health Organization), due to COPD three million people die each year making it principal reason of mortality within globe (2). Its predictable thus till two thousand and twenty COPD might possibly develop into 3rd primary basis of annihilation on the planet (3). It is well-known that about one person dies every six seconds owing to chronic tobacco usage. It has been predicted that more than 500 million people will ultimately die from the diseases caused by cigarette smoking. This adds an augmented risk and/or severity of diseases like sepsis, pneumonia, cerebrovascular accidents, delirium, and diverticulosis, myocardial infarction, and perioperative complexities after elective surgery. Cigarette smoking women have a higher chance of complexities in and after pregnancy, together with Sudden Infant Death Syndrome (SIDS). Second-hand smoking is furthermore of serious apprehension as non-smokers continuously breathe in the carcinogenic substances liberated in cigarette smoke, which amplifies on the whole risk of many of the aforesaid diseases in the wide-ranging population and establishes a serious risk to public health (4). Sign and symptoms include suffocation without activity or with activity, chronic expectoration amidst or devoid of phlegm yielding, or a history pertaining to wheezing (5). Chronic pain is general in COPD situated in the chest and upper back regions (6). Impartially deliberate exercise deterioration, evaluated via decrease in speed while promenading some distance (7). COPD

patients are subordinately substantially energetic and stroll deliberately as compared to non-diseased individuals (8). They note inability in completion of everyday tasks (like washing, playing and carrying heavy load) because of bodily restrictions (9). Peripheral skeletal muscle impairment, including deprivation of energy as well as vitality, hold a noteworthy part during exercise impediment and diminished aspect of being (10). It is a multi-factorial and assorted disease. Earlier researches about COPD exhibited certain COPD subjects accosted by decreased day-to-day activities, daily living constrains, and abridged HRQOL precipitating through remonstrates like shortness of breath, skeletal muscle debilitation, and additional disorders (11). They often tale shortness of breath affiliated to accustomed efforts (12).

Additional components like exercise bigotry, shortness of breath, skeletal muscle depletion and substantial lethargy are better predictors of mortality (13). It's recommended that COPD subjects may perhaps become progressively worse manifestation-cajoled indolence, persuading to debility and muscle fragility (14). COPD subjects having minimal substantial activeness along with poor standard of living may perhaps partially report regarding augmented menace of hospital admission as well as transience (15). Quantification of day-to-day activities in daily living requires relevant questionnaires to be used with the help of which the subject is interviewed concerning perpetuation along with persistence of walking, stair climbing, entertainment and sports played (16). The rationale of current research is to check the daily activity associated ideality of existence in COPD adults. Endeavor of this research was en route for observing breathlessness

during different daily physical activities related to routine life.

Material and Methods:

This study was **cross-sectional study design**. Data was taken from **Gulab Devi Hospital**, Lahore. Target population was patients with moderate and severe COPD. Research was completed in **6 months**. **150 cases** were taken sample size was calculated using $P=45.8\%$ (17), $d=8\%$ using the following **formula=** $Z^2_{1-\alpha/2} \frac{p(1-p)}{d^2}$. **Non-probability (purposive) sampling technique** was used to collect data. **Inclusion criteria** comprised of patients with ages 40-60 years, having moderate and severe staged COPD. **Exclusion criteria** consisted of patients with cardiac diseases, pulmonary diseases other than COPD, mental disability, other systemic illnesses, physical disabilities and congenital deformities.

Data Collection Method: Subjects that satisfied the assortment criterion had been recruited for research from pulmonology department of Gulab Devi Chest Hospital, Lahore. Informed consent of patients was obtained from all patients. All fundamental demographic information of each patient (name, age, sex, address and contact) was also taken. Patient's spirometry reports were interpreted to observe the disease severity and breathlessness resulting due to progression of disease. Data was composed by using components of Saint George's questionnaire.

Data Analysis: The entire statistics were recorded as well as analysed by means of statistical package for social sciences SPSS (16.00). All references were cited by EndNoteX6. Mean \pm S.D was used to analyse the quantitative data while qualitative data was analysed using appropriate graph and frequency tables along with its percentages.

Results:

Descriptive statistics of COPD patient on the basis of age is mentioned in Figure 2. Descriptive statistics of COPD patients on the basis of disease severity according to gold criteria is shown in Figure 3. Descriptive statistics of COPD patients on the basis of smoking is illustrated in Figure 4. Figure 5 is giving the information of descriptive statistics of COPD patients on the basis of exposure to smoke. Figure 6 is responsible for the descriptive statistics of COPD patients on the basis of their breathlessness while sitting and lying. Table 1 is showing the descriptive statistics of COPD patients on the basis of their breathlessness while getting washed or dressed. Descriptive statistics of COPD patients on the basis of their breathlessness while walking around the home is shown in Figure 7. Descriptive statistics of COPD patients on the basis of their breathlessness while walking up a flight of stairs is given in Figure 8. Descriptive statistics of COPD patients on the basis of breathlessness while playing sports or games is the factor mentioned in Figure 9. Figure 10 is showing descriptive statistics of COPD patients on the basis of their breathing difficulty during activities like carrying load. Figure 11 is the responsible for descriptive statistics of COPD patients on the basis of breathlessness during jobs such as housework. Figure 12 is showing the descriptive statistics of COPD patients on the basis of their breathlessness during mobilization from bed or chair affecting daily life and Table 2 is giving the detail of descriptive statistics of COPD patients on the basis of their breathlessness during entertainment or recreation affecting daily life.

Discussion:

According to this study from the total of 150 COPD 110 (73.3%) COPD patients were active smokers while 40 (26.7%) COPD patients were passive smokers. COPD patients with current smoking status were 79(52.7%) and patients with past smoking status were 71(47.3%). The results of this study are supported by another research conducted in 2017 by Ding and his colleagues they collected samples from the prime cohorts of China (23, 6%), USA (19.1%) and Germany (16.8%) out of 21, 66 patients with COPD (18).

COPD patients with current smoking status were 79(52.7%) and patients with past smoking status were 71(47.3%) is in correspondence to another research in which majority of the patients (29.2%) were current and (57.2%) were ex-smokers respectively (19).

Besides, among disease severity and HRQL in COPD only some studies have favored an affiliation. A report reinforces our results by exhibiting GOLD stages of COPD severity vary fundamentally in Saint George's Questionnaire (20).

Present study shows strong impact of COPD on day-to-day activity associated transcendence of life .53(35.3%) COPD patients felt breathless while getting washed or dressed. 85(56.7%) COPD patients felt breathless while walking around the home.114 (96%) COPD patients discerned breathlessness while walking up a flight of stairs. Patients cannot walk or climb stairs or take bath as they felt breathlessness in carrying out their moderate activities. These outcomes are in contrast with a study conducted by S.PERUZZA and his colleagues in 2003 (21). Pursuant to which in another research it was reported that deterioration in daily activity related quality of life with advancement of disease restricted the patients in their works of daily routine (22).

In line with this study 145 (96.7%) COPD patients had breathlessness while playing sports or games.114 (96%) COPD patients sensed breathlessness while walking up one flight of stairs. This is in accordance with another study a 2 year follow up study of COPD patients at Spain (23).

Pursuant to this study 146 (97.3%) COPD patients experienced difficulty in breathing during activities like carrying load, these results are also favoured by another study conducted by Domingo and his colleagues in 2007 (24).

In accordance to this study patients had difficulty in doing moderate and exertional activities due to breathlessness which impaired their daily activities. The outcomes are in contrast with researches demonstrating that dyspnoea has moderate-to-strong interaction besides impairments in daily activity correlated value of living in COPD subjects (21, 25, 26).

Conclusion:

COPD impacts on patient's daily activity associated eminence of being. Due to disease succession impairment in activities become worse due to breathlessness causing the decline in patient's ability to perform even routine activities of one's self grooming like washing, dressing and so on influencing patient's standard of existence. Due to disease worsening through passage of time the patient's turn out to be unable to complete their task to fulfill the needs of life and ultimately become bed bound due to shortness of breath.

Conflict of Interest Statement: This research is free of conflict of interest.
Statement of Informed Consent: The data was collected after informed consent.
Statement of Human and Animal Rights: This research did not harm self-respect/rights of human and animals.

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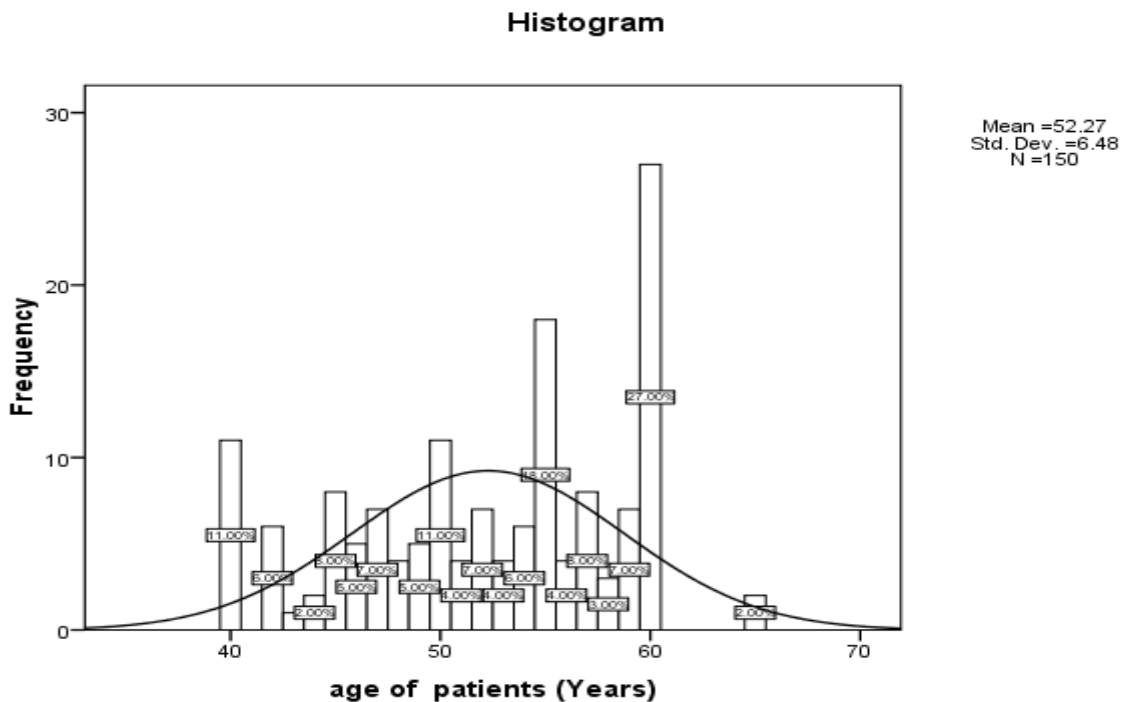


Figure 2. Descriptive Statistics of COPD Patient on the Basis of Age

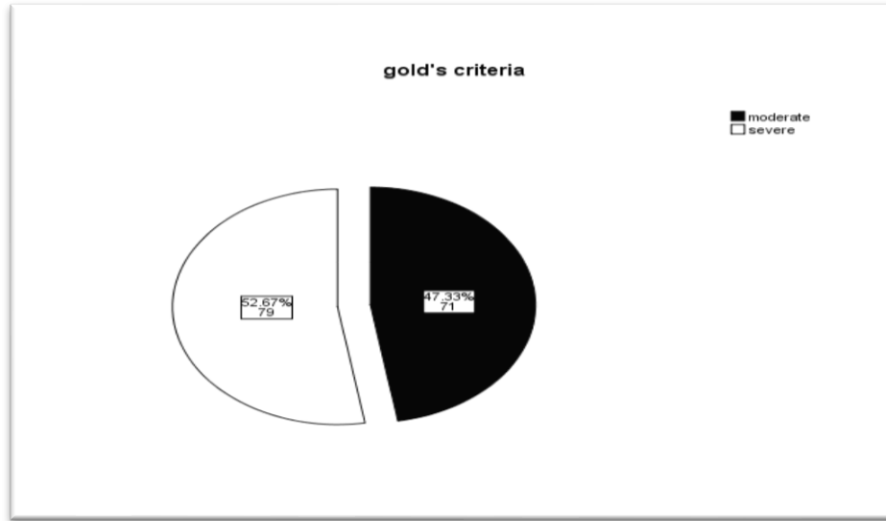


Figure 3. Descriptive Statistics of COPD Patients on the Basis of Disease Severity According to Gold Criteria

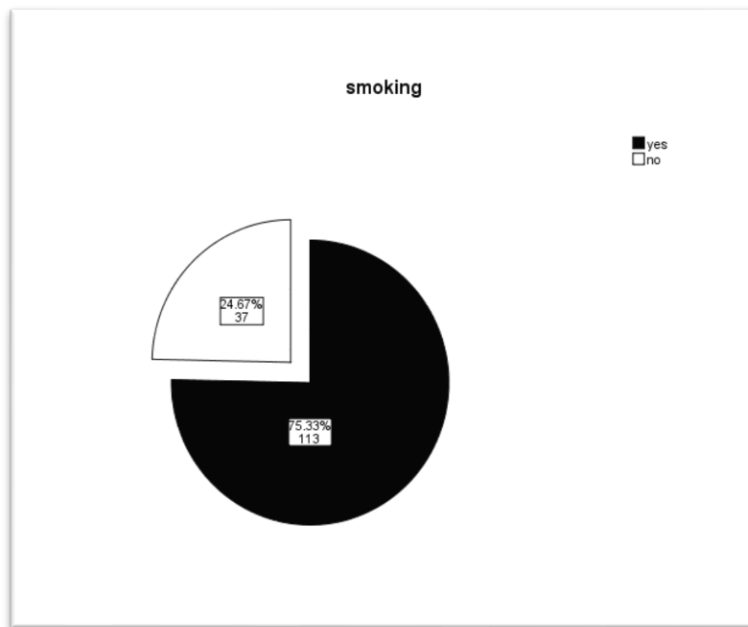


Figure 4. Descriptive Statistics of COPD Patients on the Basis of Smoking

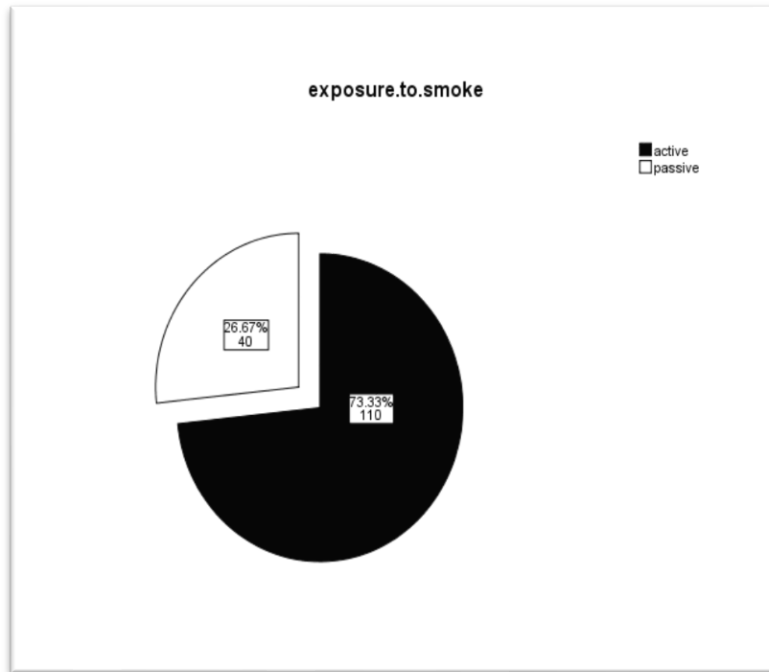


Figure 5. Descriptive Statistics of COPD Patients on the Basis of Exposure to Smoke

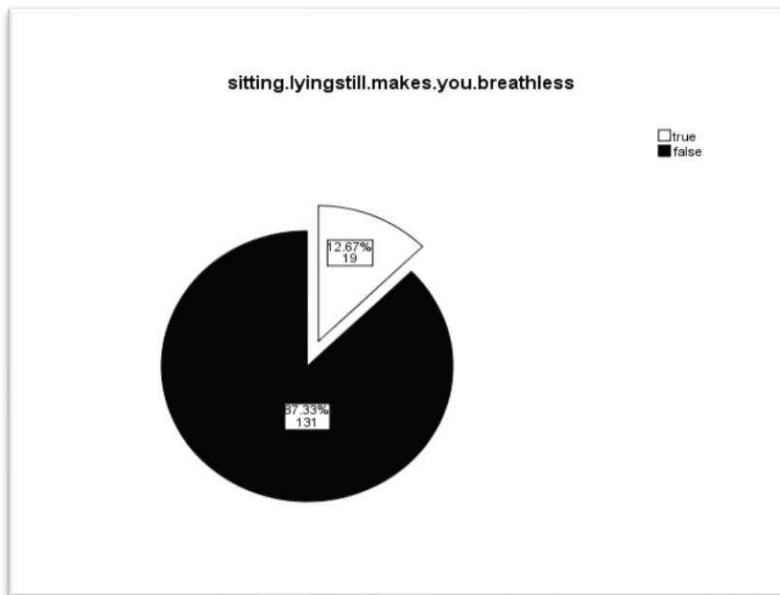


Figure 6. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness While Sitting and Lying

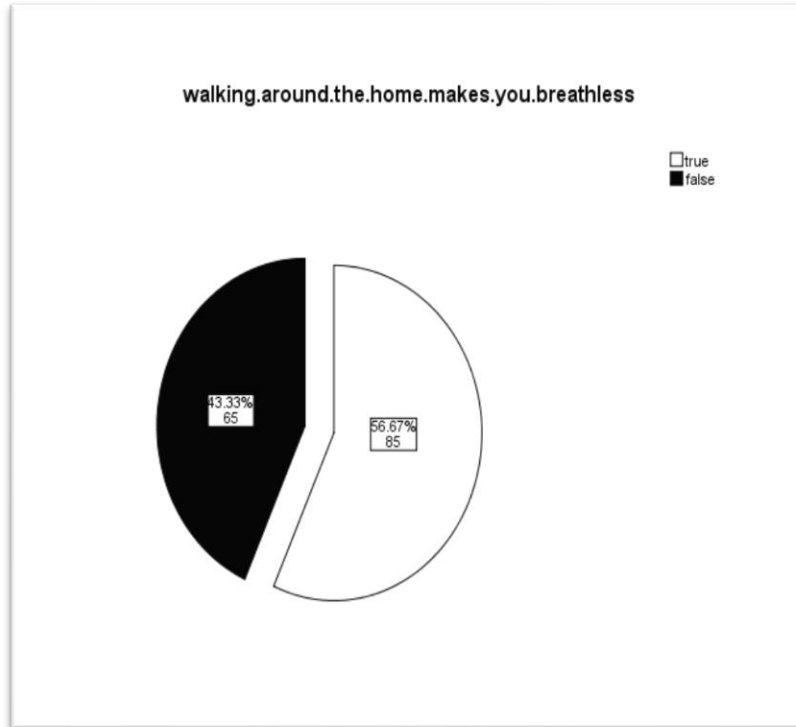


Figure 7. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness While Walking Around the Home

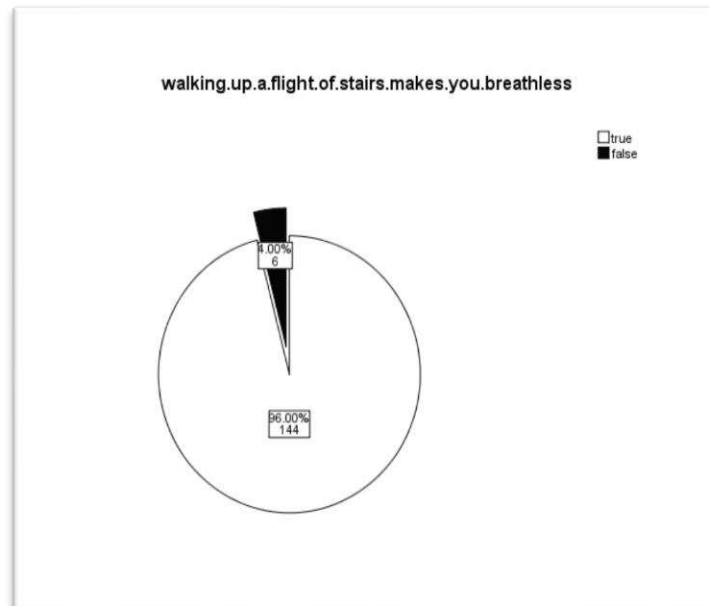


Figure 8. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness While Walking up a Flight of Stairs



Figure 9. Descriptive Statistics of COPD Patients on the Basis of Breathlessness While Playing Sports or Games

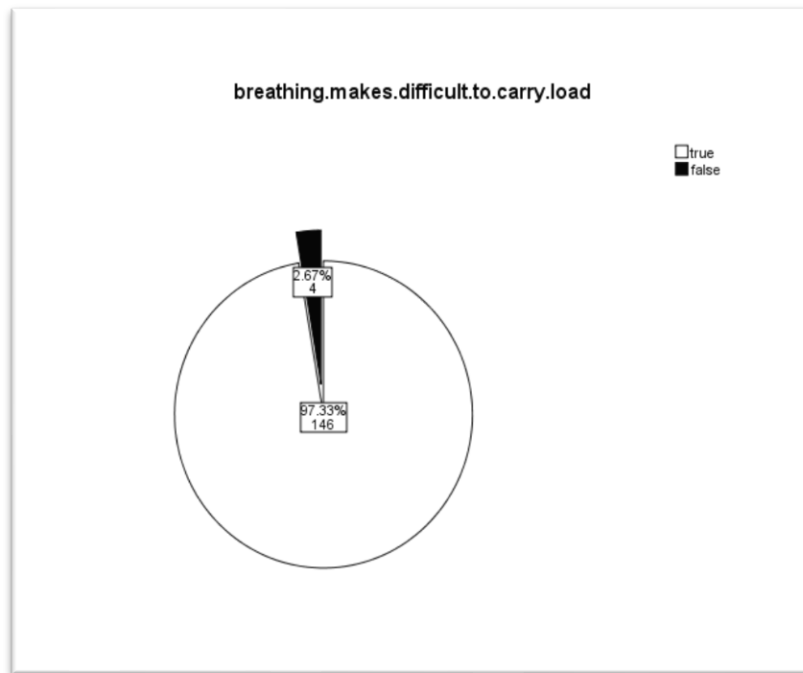


Figure 10. Descriptive Statistics of COPD Patients on the Basis of their Breathing Difficulty During Activities like Carrying Load

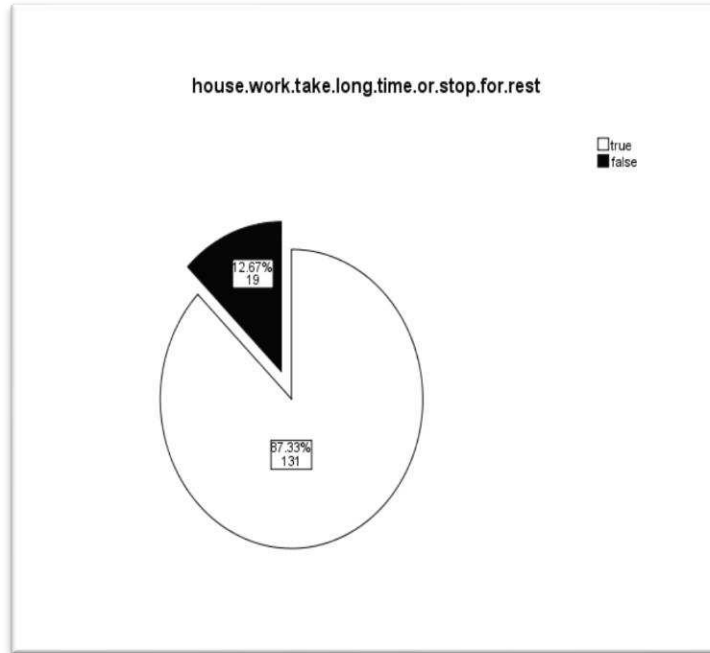


Figure 11.Descriptive Statistics of COPD Patients on the Basis of Breathlessness During Jobs such as Housework

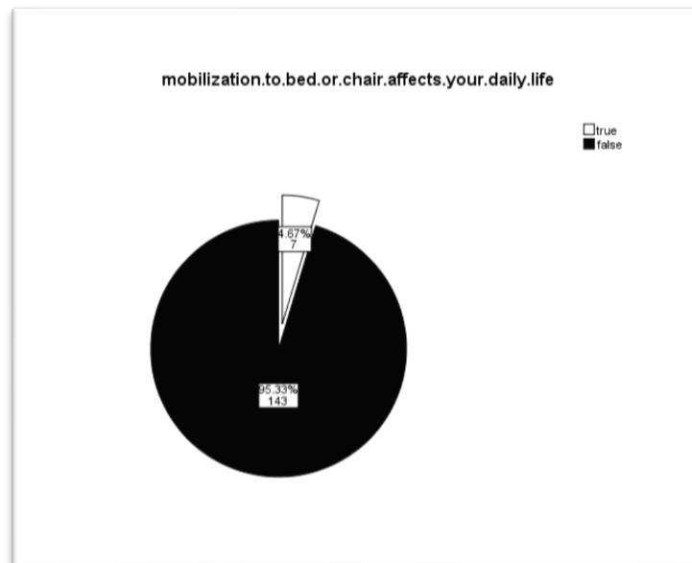


Figure 12. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness During Mobilization from Bed or Chair affecting Daily Life

Table 1. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness While Getting Washed or Dressed

GETTING WASHED OR DRESSED MAKES YOU BREATHLESS	FREQUENCY	PERCENT
True	53	35.3
False	97	64.7
Total	150	100.0

Table 2. Descriptive Statistics of COPD Patients on the Basis of their Breathlessness During Entertainment or Recreation Affecting Daily Life

BREATHLESSNESS DURING ENTERTAINMENT OR RECREATION AFFECTING DAILY LIFE	FREQUENCY	PERCENT
True	88	58.7
False	62	41.3
Total	150	100.0

Supplementary File 1:
Study Questionnaire

DAILY ACTIVITY RELATED QUALITY OF LIFE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Saint George Questionnaire

Patient Name: _____

Age: _____

Gender: M/F

MR #: _____

Hospital: _____

Duration of disease _____

Monthly income _____

GOLD classification of COPD disease severity

Stage I (mild)	FEV₁/FVC < 70%	FEV ₁ 80% predicted	With or without chronic symptoms (cough, sputum production)
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stage II (moderate)	FEV₁/FVC<70%	<80% predicted and ≥50% predicted	With or without chronic symptoms (cough, sputum production) <input type="checkbox"/>
Stage III (severe)	FEV₁/FVC<70%	FEV ₁ <50% predicted and ≥30% predicted	With or without chronic symptoms (cough, sputum production). <input type="checkbox"/>
Stage IV (very severe)	FEV₁/FVC<70%	FEV ₁ <30% predicted or FEV ₁ <50% predicted plus chronic respiratory failure	PaO ₂ <8.0kPa with or without PaCO ₂ >6.7kPa while breathing air at sea level

- Smoking: Yes
- No
- Active
- Passive
- Past
- Current

PART-1

Questions about what activities usually make you breathless.	True	False
Sitting or lying still		
Getting washed or dressed		
Walking around the home		
Walking outside on the level		
Walking up a flight of stairs		
Walking up hills		
Playing sports or games		

PART- 2

Questions about how activities may be affected by your breathing	True	False
I take a long time to get washed or dressed		
I cannot take a bath or shower, or I take a long time		
I walk more slowly than other people, or I stop for rests		

Jobs such as housework take a long time, or I have to stop for rests		
If I walk up one flight of stairs, I have to go slowly or stop		
If I hurry or walk fast, I have to stop or slow down		
My breathing makes it difficult to do things such as walk up hills, carry things up stairs, light gardening such as weeding, dance, play bowls or play golf		
My breathing makes it difficult to do things such as carry heavy loads, dig the garden or shovel snow, jog or walk at 5 miles per hour, play tennis or swim		
My breathing makes it difficult to do things such as very heavy manual work, run, cycle, swim fast or play competitive sports		

PART-3

We would like to know how your chest trouble usually affects your daily life.	True	False
I cannot play sports or games		
I cannot go out for entertainment or recreation		
I cannot go out of the house to do the shopping		
I cannot do housework		
I cannot move far from my bed or chair		