ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 09 | September - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"A COMPREHENSIVE STUDY TO EVALUATE THE CAUSES OF NON-COMPLIANCE TO TREATMENT IN COPD PATIENTS"

Respiratory Medicine

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ABSTRACT

Background: COPD is a chronic disease. It is usually caused due to exposure to noxious particles or gases. Like any other chronic disease, non-compliance to treatment is a phenomenon that is commonly encountered in this disease also. So to evaluate the probable reasons for non-compliance a comprehensive study was planned with a special focus on social and economical issues faced by the COPD patients.
Objective: The objective of this study is to study the causes for noncompliance to treatment in COPD patients in Indian setting and to study the catastrophic costs in COPD patients and socio-economic indices associated with it
Material and Method: The present study was conducted in the Department of Respiratory Medicine in MMIMSR, Mullana with 200 patients having confirmed diagnosis of COPD for a period of at least 5 years with no other unrelated co-morbidities
Results: It was found in the study that 72.5% participants stopped medicines prematurely and among these the main reason for stopping was relief in symptoms which was noted in 62.76% of participants followed by financial issues which was noted in 26.9% of participants
Conclusion: From the analysis of all the factors the study concludes that factors like patient level of education, income, family support, smoking habit, complexity and frequency of treatment regimen, costs incurred for treatment influence the compliance to treatment regimen of COPD

KEYWORDS

COPD, non-compliance, costs

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases COPD is a progressive respiratory illness requiring long term treatment, is a significant cause of mortality, morbidity and economic burden on the family as well as the country[1].

The prevalence of COPD worldwide is largely unknown, but estimates have varied from 7-19%. The Burden of Obstructive Lung Disease (BOLD) study found a prevalence of 10.1% globally[2].The global burden of disease study reports a prevalence of 251 million cases of COPD globally in 2016.Crude estimates suggest that there are 30 million COPD patients in India. India contributes a significant and growing percentage of COPD mortality which is the highest in the world (more than 64.7 estimated age standardized death rate per 100,000). This would translate to about 556,000 in case of India (>20%) out of a world total of 2,748,000 annually[3].

Adherence to treatment in COPD is essential for optimizing disease management. Though there are subtle changes in between the terms adherence and compliance, in clinical practice these terms are often used interchangeably.As with any other chronic disease non adherence/non-compliance to treatment is common in COPD and this results in increased morbidity, hospitalizations, healthcare expenditures, unnecessary therapy escalation, reduced quality of life and possibly mortality[4]

In this study subjective assessment method for compliance (patient's self-reporting) was applied. Not many studies are available to exactly explain the reasons for non-compliance to treatment in COPD patients particularly in India and through this study effort was made to try to find the possible reasons.

MATERIALS AND METHODS

This is a cross-sectional study where 200 patients with confirmed diagnosis of COPD for a minimum period of 5 years since diagnosis with no other unrelated co-morbid conditions were studied who presented to the OPD and IPD of Dept. of Respiratory Medicine, MMIMSR, Mullana from January 2019 to January 2020 Data was collected using a proforma meeting the objectives of the study. A systemic evaluation including history of the patient with special reference to co-morbid conditions, systemic manifestations of COPD, socioeconomic status, direct and indirect costs associated with treatment and causes of non-compliance to treatment was taken. Informed consent (in the language they best understand) was taken from each subject before collecting data. Only those individuals, who volunteer to participate in the study, were included Institutional and ethical clearance was taken from the concerned authorities of MMIMSR.

RESULTS

Table 1: Descriptive analysis of gender in the study population (N=200)

Gender	Frequency	Percentages
Male	163	81.50%
Female	37	18.50%

Among the study population, 163 (81.5%) participants were male and other 37 (18.5%) participants were female (table 1 & Graph 1)

Graph 1: Bar chart of descriptive analysis of gender in the study population (N=200)

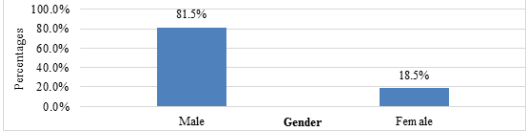
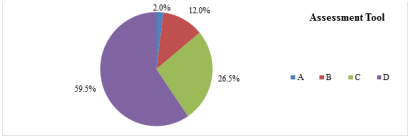


Table 2: Descriptive analysis of assessment tool in the study population (N=200)

Assessment Tool	Frequency	Percentages
A	4	2.00%
B	24	12.00%
C	53	26.50%
D	119	59.50%

Among the study population, 4 (2%) participants assessment tool was 'A', 24 (12%) participants assessment tool was 'B', 53 (26.5%) participants assessment tool was 'C' and remaining 119 (59.5%) participants assessment tool was 'D' (table 2 & graph 2)



Graph 2: Pie chart of descriptive analysis of assessment tool in the study population (N=200)

Table 3: Descriptive analysis of stopped medication prematurely in the study population (N=200)

Stopped medication prematurely	Frequency	Percentages
Yes	145	72.50%
No	55	27.50%

Among the study population, 145 (72.5%) participants stopped medication prematurely (table 3 & graph 3)

Graph 3: Bar chart of descriptive analysis of stopped medication prematurely in the study population (N=200)

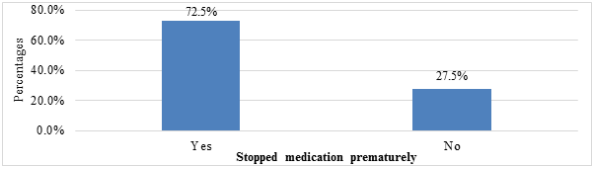


Table 4: Descriptive analysis of stopped medication prematurely reason in the study population (N=145)

Stopped Medication Prematurely Reason	Frequency	Percentages
Relief in symptoms	91	62.76%
Financial issues	39	26.90%
No relief in symptoms	8	5.52%
Others	7	4.83%

Among the study population, 91 (62.76%) participants stopped medication prematurely due to relief in symptoms. 39 (26.9) due to financial issues, 8 (5.52%) participants due to no relief in symptoms and 7 (4.83%) participants due to other reasons (table 4 & graph 4)

Graph 4: Pie chart of descriptive analysis of stopped medication prematurely reason in the study population (N=145)

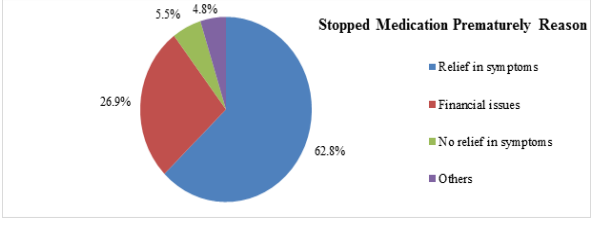


Table 5: Correlation between total days hospital stay and cost of hospital admissions till now to patient in the study population (N= 168)

Parameter	Spearman's rank correlation (rs)	P value
What is the cost of hospital admissions till now to patient	0.779	<0.001

There was a strong positive correlation between cost of hospital admissions till now to patient stay at the hospital (days) (r value: 0.779, p value: <0.001). (table 5 & graph 5)

Graph 5: Scatter plot for correlation between total days hospital stay and cost of hospital admissions till now to patient in the study population (N= 168)

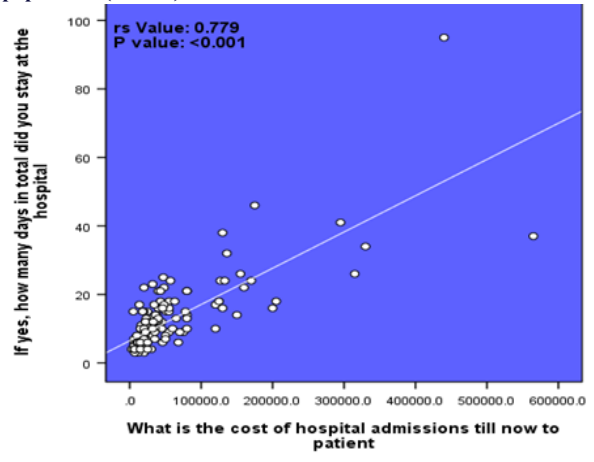


Table 6: Comparison of median what is the cost of hospital admissions till now to patient between GOLD assessment tool in study population (N=168)

Parameter	Assessment tool		Mann Whitney u test (P value)
	C (N=51)	D (N=117)	
What is the cost of hospital admissions till now to patient (median IQR)	12000 (9000 to 20000)	34200 (18000 to 64000)	<0.001

The median of the cost of hospital admissions till now to patient, was 12000 (9000 to 20000) for GOLD assessment tool 'C' and it was 34200 (18000 to 64000) for assessment tool 'D'. The difference between two groups was statistically significant (p value < 0.001)

DISCUSSION

Effectiveness of a treatment depends not alone on efficacy[5] of medication but also on degree of compliance of patient to treatment regimen.

A total of 200 subjects were included in the final analysis. The mean of age was 63.67 ± 7.68 in the study population, minimum age was 45 years and maximum age was 90 years in the study population, 81.5% participants were male and other 18.5% participants were female. Among the study population, 50% participants were illiterates, 26.5% participants highest level of education was primary education, 20.5% participants highest level of education was secondary education and 3% participants highest level of education was graduation.

The participants level of education is low and this can be one of the factors for non-compliance to treatment regimen because it has been reported in some studies like study by Incorvaia, C., et al. [6] that patient education is able to greatly improve compliance and adherence to the prescribed drugs in patients with COPD.

Among study population 97% participants' expenditure was out of pocket. Among study population 45.5% participants had incurred catastrophic costs. The main reason for this may be hospitalization as it was noticed that 85% of participants were hospitalized before or during COPD treatment with mean stay at hospital at 11+_10 days.

Hospitalization was found to account for 45 to 50% of total direct costs incurred by COPD patients in study by Guarascio, et al. [7] In the present study also cost of hospital admission was found to be high and it was also noticed that it increased with each additional hospital admissions which may be due to increase in severity of disease.

There is a direct relationship between severity of COPD and overall costs incurred at patient level. With each progressive stage of COPD defined by GOLD guidelines the direct costs incurred will increase. This similar observation was noticed in another study by YS. Punekar, et al. [8] on COPD management costs in relation with COPD exacerbations and it was found that cost of expenditure increased proportionately with increase in number of exacerbations.

Among study population 7.5% participants are salaried employees and 40% has to use their paid and unpaid leaves due to their illness, 3.5% participants changed their job due to COPD, 7.5% participants felt they might lose their job, 48% of participants felt illness as a reason for their abstinence from work. These observations are similar to that noticed in two studies one by Guarscio., et al. [7] where 51% of COPD patients felt their illness hindered their ability to work.

CONCLUSION

The study analyzed various factors which might be the causes for non-compliance to treatment regimen in COPD resulting in increased morbidity, hospitalizations, healthcare expenditure and overall reduced quality of life. The main factors for noncompliance to treatment according to this study was the relief in symptoms followed by financial reasons. From the analysis of all the factors the study concludes that factors like patient level of education, income, family support, smoking habit, complexity and frequency of treatment regimen, costs incurred for treatment influence compliance to treatment regimen of COPD. All these factors must be collectively modified to increase compliance to treatment regimen. Education about daily compliance to medication is of paramount importance and this should be stressed each and every time the patient presents to the hospital in view of the risk it poses for an exacerbation to occur,

thereby increasing the costs to patient and further progression of the disease thereby causing a vicious cycle to ensue. There is a need for coordination between patient care, patient education and patient cost control to achieve better compliance to treatment regimen. For increased compliance patients' behavioral change is important and this requires multifactorial intervention focusing on various factors mentioned above.

Conflict of Interest: None
Source of Funding: Self
Ethical Clearance: Ethical Clearance was obtained from the Institutional Ethics Committee (IEC), Maharishi Markandeshwar (deemed to be university) Mullana, Ambala.

REFERENCES

1. Sarkar A, Javia A, Pithadia P, Parmar D. Why do Patients undergoing Chronic Obstructive Pulmonary Disease Treatment Turn Defaulters? A Follow up Study in a Tertiary Care Hospital in Jamnagar, India. J Clin Diagn Res JCDR. 2017 Jul;11(7):LC04–6.
2. Halbert RJ, Natoli JL, Gano A, Badamgarav E, Buist AS, Mannino DM. Global burden of COPD: systematic review and meta-analysis. Eur Respir J. 2006 Sep;28(3):523–32.
3. Koul PA. Chronic obstructive pulmonary disease: Indian guidelines and the road ahead. Lung India Off Organ Indian Chest Soc. 2013;30(3):175–7.
4. Bourbeau J, Bartlett SJ. Patient adherence in COPD. Thorax. 2008 Sep;63(9):831–8.
5. Jimmy B, Jose J. Patient medication adherence: Measures in daily practice. Vol. 26, Oman Medical Journal. Oman Medical Specialty Board; 2011. p. 155–9.
6. Incorvaia C, Riario-Sforza GG. Effect of patient education on adherence to drug treatment for chronic obstructive pulmonary disease. Vol. 6, Annals of Thoracic Medicine. Wolters Kluwer -- Medknow Publications; 2011. p. 242–3.
7. Guarascio AJ, Ray SM, Finch CK, Self TH. The clinical and economic burden of chronic obstructive pulmonary disease in the USA. Vol. 5, ClinicoEconomics and Outcomes Research. Dove Press; 2013. p. 235–45.
8. YS P, A S, H M. COPD management costs according to the frequency of COPD exacerbations in UK primary care. Int J Chron Obstruct Pulmon Dis. 2014;9.