Original Article

Adherence to Therapeutic Regimen among Patients with Chronic Obstructive Pulmonary Disease Attending at Medical OPD of BPKIHS

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ABSTRACT

Background Chronic obstructive pulmonary disease (COPD) is a major health issue, associated with mortality and morbidities. The effective treatment of COPD requires long-term adherence to a therapeutic regimen. The objectives of this study were to assess the adherence to therapeutic regimens among patients with COPD and to find out the association of medication adherence with different factors.

Methods The study used a descriptive cross-sectional research design. A total, 91 samples were chosen using a convenience sample method. An interview questionnaire was used for data collection. SPSS version 20 was used for data analysis. The level of confidence was set at 0.05.

Results A high adherence rate was found in 60.4%. A significant association was found between mean adherence score with occupation, income to run family, opinion regarding the use of an inhaler, satisfaction with the time given by the physician during follow-up, presence of co-morbidity, interference in daily activities by the effect of medicine, perception about the need of medicine, presence of co-morbidity, family support in the treatment, stressful situation in the family affecting medication taking habit, stigmatization due to illness, support by social insurance, disease curability and feeling of susceptibility to illness or its complications. The study found a significant correlation between the mean adherence score and the frequency of total drugs (r= -0.221).

Conclusion The finding of the study concluded that nearly two-thirds of the subjects had a high adherence rate to therapeutic regimens.

Keywords: Adherence, COPD, Therapeutic Regimen

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a substantial health hassle, related to mortality and morbidities. Globally, it is a giant public health issue, the second-largest cause of loss of life. An estimated 328 million human beings worldwide have COPD. In 15 years, it is expected to surpass all other causes of mortality.[1, 2]

In addition to having a significant financial impact on the patient and the healthcare system, COPD has expenditures that are two to four times higher than those associated with ischemic heart disease and asthma.[3,4] By 2030, it is predicted to be the third most common cause of death (8.6%) and to have the seventh-highest global disease burden.[5,6 ,7]

Respiratory disorders are increasingly a leading cause of morbidity and mortality as the world's population ages and the environment gets worse, especially in nations with limited resources like South East Asia and Africa.[8, 9, 10] The prevalence of COPD in Africa ranged from 9.4 to 22.1% according to spirometry data.[11] In Latin America, the prevalence of COPD varied from 7.8% in Mexico City to 19.7% in Montevideo. [12, 13]

According to a questionnaire-based nationwide survey, the prevalence of COPD in India is 3.49 %, with variations from 1.1% in Mumbai to 10% in

Thiruvananthapuram. COPD prevalence ranged from 23% to 43% in Nepal.[14, 15] In Nepal, the prevalence of COPD varied from 23% to 43%. According to a thorough analysis of Global Burden of Disease 2015, Nepal, Papua New Guinea, India, and Lesotho were among the top four nations with the highest age-standardized disability-adjusted life year level owing to COPD.[16] As a result, the goal of the current study was to evaluate how well COPD patients adhered to their treatment plan.

METHODS

The study used a descriptive cross-sectional research design with the objective of assessing COPD patient adherence to therapy regimens. The study was conducted at Medical OPD of BPKIHS, Dharan in period of four weeks i.e. 24 June to 24 July, 2021. The study was conducted among the patients diagnosed with COPD for more than or equal to three months under medication. A total of 91 calculated samples were included in the study using Cochrane's formula z^2pq/d^2 with adherence rate 83%. The subjects were chosen using a convenience sample method.

For data collection, a self-structured interview questionnaire was used, based on the objective of the study through an extensive literature review, available research tools [17, 18] and consultation with experts. The questionnaire has three parts, part I consisted of information on socio-demographic characteristics whereas part II consisted of questions related to factors associated with adherence to therapeutic regimens such as disease-related factors, therapy-related factors, patient-physician relationship-related factors, patient-centered factors, beliefs and motivation-related factors, healthcare system-related factors and social factors and part III consisted of the self-structured checklist. The study tool's content validity was determined by subject-matter experts and a thorough literature review. By consulting with an English subject expert, the study tool was created in English and translated into Nepali. The same English subject expert again back-translated the tool to English. The study tool was pre-tested in 10% of the calculated sample size i.e. in 10 samples at Medical OPD of BPKIHS. The subjects in the pre-test were excluded from the study. Cranach's alpha (0.776) was calculated for adherence to therapeutic regimen tool from total calculated sample size after data collection by consultation with a bio-statistician.

Prior to the data collection, approval from Institutional Review Committee of BPKIHS was obtained. For data collection process, permission was obtained from the Head of the Department of Internal medicine as well as Pulmonary and Sleep Medicine. Each subject provided written consent after being fully informed. Interview questions were used to conduct interviews with the subjects. The participants were informed about objective and methodology of the study. The subjects were reassured that their participation was completely voluntary and that they might discontinue at any time. The primary informants were the patients while the attendants served as the secondary informants. Primarily, Information was obtained from the patient. The attendants were interviewed only if patient was unable to respond to any of the questions. Privacy, confidentiality and autonomy of participation was maintained throughout and after the study by interviewing the subjects separately in a separate room in OPD and using information for research purpose only. The interview lasted on average for roughly 20 minutes. The data were collected over a four-week period, from 24 June to 24 July 2021.

Data was checked and organized every day after collection for maintaining completeness. Frequency, percentage, mean, standard deviation, range, and graphical methods, such as pie charts, were used in descriptive statistics. Collected information was entered in SPSS version 20 for analysis. For Inferential statistics, for inferential statistics, Spearman's correlation test was used to determine correlation, while Mann-Whitney and Kruskal-Wallis tests were used to determine associations. A p-value of 0.05 or less was deemed significant in the 95% confidence interval. The budget required for the study was taken care of by the investigator.

Scoring criteria

The calculation of adherence score was based on 16 items, dichotomous type with Yes (scored as 0 which means frequently felt or acted in the way described during last three months) and No (scored as 1 which means not felt or acted that way since last three months). The scoring was reversed for the positive

statement. A total score was given to each respondent from 0 to 16. High adherence was considered as having a total adherence score above the mean (Mean ± SD: 11.9 ± 3.19), whereas low adherence was considered as having a total adherence score below the mean

RESULT

Socio-demographic Variables

Nearly one-fourth (24.1%) of the respondents were from the age group 61-65 years. More than half (58.2%) of them were female. About two-third (65.9%) were Hindu. Near to half (43.9%) of them could read and write. About half (43.9%) of them belonged to dependent population. Moe than half (63.7%) of them felt that their income is difficult to run family round the year.

More than one-third (36.3%) of them forgot to take medicine when they were busy at home as well as when there was no-one to remind. One-third (33%) of them forgot to take medicine while travelling. Almost all (97.8%) did not stop to take when they felt sick. One-third (33%) were confused to time schedule of medication. Mean score of adherence to therapeutic regimen was 11.9 with standard deviation of ±3.19

Nearly two-third of the respondents (60.4%) had total adherence score greater than the mean of the total adherence score i.e. they had high adherence rate whereas more than one–third of the respondents (39.6%) have total adherence score lesser than the mean i.e. they had low adherence rate.

Table 1: Association between Different Variables and Adherence to Therapeutic Regimen (n= 91)

Characteristics	Category	P-value
Occupation*	Dependent Others(farmer, homemaker, service holder, business, daily wage worker, retired, unemployed)	0.010
Income sufficient to run family round they ear*	Yes, sufficient Difficult to run	0.001
Opinion regarding use of inhaler*	Difficult to use Easy to use	0.012
Satisfaction with the time given by the physician during follow-up*	Yes, satisfied Not satisfied	0.019
Presence of co-morbidity*	Yes No	0.008
Have thought that the need of medicine is intermittent and has stopped taking medicine with own idea**	Yes (incorrect response) No (correct response)	0.001
Daily activities has been interfered by the effect of medicine**	Very often Sometimes Not at all	0.014
Family supports in the treatment*	Usually Sometimes	0.002
Medication taking habit is affected by stressful situation in the family	Usually Sometimes Not at all	0.002
Have been through or felt stigmatization from others due to your illness*	Yes No	0.014
Support being provided by social insurance is adequate**	Adequate Inadequate **Have not done yet**	0.044

*Mann-Whitney Test **Kruskal-Wallis Test

Table 1 depicts that the mean adherence score was significantly ($p<0.05$) associated with occupation, family income, opinion regarding use of inhaler, satisfaction with the time given by the physician during follow-up, presence of co morbidity, interference in daily activities by the effect of medicine, perception about need of medicine, presence of co-morbidity, family support in the treatment, stressful situation in the family affecting medication taking habit, stigmatization due to illness and support by social insurance.

Table 2: Association between Beliefs and Motivation Related Factors and Adherence to Therapeutic Regimen (n= 91)

Characteristics	Category	P value
Believes that disease is curable**	Yes No Don't know	0.001
Feels prone to disease or its consequences *	Yes No/don't know	0.009
Believes that disease or its consequences can have serious detrimental effects on health *	Yes No/don't know	0.094
Believes that ongoing therapy benefits*	Yes No/don't know	0.001
Seeks assistance from traditional healer*	Yes No	0.018
Feels that medicine interferes thinking, understanding or decision making capacity**	Yes No Don't know	0.001

*Mann-Whitney Test **Kruskal-Wallis Test

Table 2 depicts that the mean adherence score was significantly ($p<0.05$) associated with belief and motivation factors such as disease curability, feeling of susceptibility to illness or its complications, belief that ongoing therapy benefits them, seeking assistance from traditional healer and feeling that medicine interferes thinking, understanding or decision making capacity.

Frequency of total drugs prescribed since last three months was negatively correlated ($r= -0.221$) and was significant ($p<0.05$) with mean adherence score.

DISCUSSION

Nearly one-fourth (24.1%) of the respondents were from the age group 61-65 years. More than half (58.2%) of them were female. This findings by Prajapati where more than one-fourth respondents in the age group 60-69 years and 60-70 years respectively were inconsistent with the present study. [22] More than one-third (36.3%) of them graded their breathing difficulty as Grade 3 which was consistent with the finding by Acharya which showed more than one-third (35.5%) had Grade 3 breathing difficulty. [25] More than two-third (73.6%) of them felt easy to use inhaler which was inconsistent with the findings by Acharya. [25]

Few (6.6%) respondents believed that their disease is curable which was inconsistent with the study by Prajapati that revealed more than half (54%) believed that disease will be cured. [22] More than half (53.8%) of the respondents medication taking habit were affected sometimes by the stressful situation in their family. Nearly two-third of the respondents (60.4%) had total adherence score greater than the mean of the total adherence score i.e. they had high adherence rate which is inconsistent with the finding by Acharya.[25]

The medication adherence was significantly ($p<0.05$) associated with occupation whereas Wisniew's finding contradicts the present finding as medication adherence did not show a significant ($p>0.05$) association with occupation. [24] Khdour's finding was congruent with the present finding as medication adherence was significantly associated with co-morbidity. [20] Greenfield reported that lesser the belief on prescribed treatment lesser was the adherence which is consistent with the present finding. [23]

Likewise, family support increases therapy compliance as reported by Shrestha which was congruent with the present finding. [19] In this study, frequency of total drugs prescribed was negatively correlated (r= -0.221) and showed significance ($p<0.05$) with mean adherence score. This finding was supported by Agh which showed significant ($p<0.05$) association between total drugs prescribed and adherence pattern. [21]

CONCLUSION

Nearly two-third of the respondents had total adherence score greater than mean of the total adherence score i.e. they have high adherence to therapeutic regimen whereas more than one-third of the respondents had total adherence score lesser than the mean i.e. they have low adherence to therapeutic regimen. The study revealed the peculiar factors among the respondents that had significant association with therapeutic regimen were family income, occupation, inhaler use, frequency of drugs, physician-patient relationship, presence of co-morbidity, perception and belief about disease and ongoing treatment and family support. Hence, the co-operative and collaborative approach is needed while planning and implementing therapeutic regimen among the patients with COPD to enhance quality of life.

RECOMMENDATIONS

The study can be used to fill gap between adherence pattern of patient and those involved in care of patient such as family, society as well as health care providers. Education aid such as standard information manual and visual aids showing medication administration demonstration can be used among COPD patients to improve adherence.

LIMITATIONS

Single-centered study may limit in generalization of the findings.

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