Original Article

Medication Adherence and its Associated Factors among COPD Patients Attending Medical OPD of Dhulikhel Hospital, Nepal

Abstract:

Introduction: Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of morbidity and mortality in developing countries. As with other chronic diseases, poor adherence to medication is common. Factors associated with medication adherence are not well known in COPD.

Objectives: The study was conducted to identify the rate of medication adherence and its associated factors among COPD patients.

Methods and Materials: Quantitative descriptive study was done among 100 COPD patients using purposive sampling technique in Medical Outpatient Department of Dhulikhel Hospital. Data were collected by face to face interview technique using structured questionnaire. For data analysis SPSS version 20.0 was used for descriptive as well as inferential statistics.

Results: Medication adherence rate was 83% among COPD patients. Regarding age, 39% of the respondents belonged to age group 60-69 years and majority of the respondents, i.e. 70% were illiterate. Patient prescriber communication (p=0.028), severity of symptoms (p=0.047), number of daily drugs (p=0.01), frequency of daily drugs (p=0.015) and medication cost (p=0.017) were significantly associated with medication adherence.

Conclusion: Medication adherence rate was found on satisfactory level.

Key Words: COPD patients, Medication adherence, Associated Factors , Medical OPD, Nepal.

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Introduction

Chronic obstructive pulmonary disease (COPD) is a preventable disease state characterized by air flow limitation that is not fully reversible. According to WHO estimates, 65 million people have moderate to severe chronic obstructive pulmonary disease (COPD). COPD is currently the fourth leading cause of death worldwide, with an overall prevalence rate between 4% and 10%.[1] In Nepal, COPD accounts for 43% of the non communicable disease burden, and 2.56% of hospitalizations. A greater prevalence is among those aged 60–69 years (37% of overall cases) in mid western region of Nepal.[2]

Medication Adherence is defined by WHO (2003), as "the extent to which a patient's behavior, with respect to taking medication, corresponds with agreed recommendations from healthcare providers." It determines the success of every drug therapy. Increasingly, our society relies upon medications to treat diseases and conditions, prevent hospitalization, and improve quality of life. Numerous studies have shown that medicines improve clinical outcomes and reduce illness, disability, and death. Despite such findings, many people do not realize the full potential benefits of their medications; too often this situation is the result of their failure to take some or all of the medications as prescribed.[3]

As with all chronic diseases, non-adherence in patients with COPD is common and contributes to adverse health outcomes, reduced quality of life and increased healthcare expenditures. COPD treatments are poorly adhered to, which can result in tremendous direct and indirect costs, thus putting a strain on national healthcare systems. Under-adherence to COPD prescription medications has been estimated to be almost half of all patients, about 48%. Indirect methods, such as self-reported adherence, can be useful in determining COPD adherence; identifying risk factors is key to informing which patient behaviors can be targeted to improve adherence .[4]

Several factors predispose COPD patients to non adherence. Barriers to the effective use of medicines specifically include inadequate knowledge about a drug and its use, not being convinced of the need for treatment, fear of adverse effects of the drug, long term drug regimens, complex regimens that require numerous medications with varying dosing schedules, cost and access barriers.[5]

Patients' acceptance of the disease process and recommended treatment, knowledge about and faith in the treatment and routinization of drug therapy are critical for optimal medication adherence in patients with COPD. Significant differences in health beliefs, experiences, and behaviors were observed between COPD patients with high medication adherence and suboptimal adherence .[5]

Improving adherence with medication regimens can make a difference. A recently published study found that for a number of chronic medical conditions, higher rates of medication adherence were associated with lower rates of hospitalization, and a reduction in total medical costs.[3]

The purpose of the study is to identify the rate of medication adherence and its associated factors among COPD patients attending Medical OPD of Dhulikhel Hospital. The study is also to determine the association between medication adherence and selected independent variables.

Methodology

Quantitative descriptive cross-sectional study design was used. The research was conducted in Medical OPD of Dhulikhel Hospital, who were under medication for COPD for at least 3 months. COPD patients as well as those diagnosed with co-morbid disease also included. If the COPD patients are severely ill those are excluded for the study. For data collection Morisky Medication adherence Scale (4 item) was used to collect data to determine the rate of medication adherence. The scoring scheme of 'Yes' = 0 and 'No' = 1 was employed. Patients scoring 3 or above were classified as 'adherent' and below 3 were classified as 'non adherent'. Other structured questionnaires were used to collect data to identify the factors affecting medication adherence. Ethical consideration was taken from concerned authority that is Institutional Review Committee of Kathmandu University School of Medical Sciences and Verbal consent was taken from the respondent prior to interview. Purposive sampling technique was used and face to face interview was taken with the respondents who meet the inclusion

criteria. Each respondent was asked the questionnaire for 15-20 minutes. The data was collected among the 100 respondents. Data were arranged and entered in SPSS version 20.0 for analysis. The finding was presented for both descriptive and inferential statistics.

Result

Table 1:Sociodemographic Distribution of respondents   n=100

Variables	Percentage
Age in years:	
40-49	11
50-59	22
60-69	39
≥70	28
Gender:	
Male	41
Female	59
Education level:	
Illiterate	70
Able to read and write	18
Primary level	7
Lower secondary	4
Secondary	1
Current smoking status:	
Smoker	21
Non-smoker	79

Table 1 demonstrates that, 39% of respondents belonged to age 60-69 years, more than half (59%) were female and majority of the respondents (70%) were illiterate and only (1%) had completed their secondary level. Regarding current smoking status, majority of the respondents (79%) were non smokers at present.

Table 2: Responses on MMAS-4* by the Respondents   n = 100

MMAS questions	Yes (%)	No (%)
Do you ever forget to take your COPD medicine?	14	86
Do you ever have problems remembering to take your COPD medicine?	13	87
When you feel better, do you sometimes stop taking your COPD medicine?	22	78
Sometimes if you feel worse when you take your COPD medicine, do you stop taking it?	15	85

Note: (*=Morisky Medication Adherence Scale - 4 items)

Table 2 shows that 14% of the respondents forgot to take their COPD medicine, 13% of the respondents had problems remembering to take their medicine, 22% stopped taking their medicine when they felt better and 15% stopped taking medicine when they felt worse. Since, 22% is the highest percentage among all, stopping to take respiratory medicine when the respondents felt well was the most common cause for non adherence.

Considering health care services related factors, majority of the respondents i.e. 83% had health care facility available in their wards. Duration of travel to reach health care facility by 42% of the respondents was 1-2 hours. Similarly, majority of the respondents i.e. 89% had easy availability of COPD medicine. Regarding patient prescriber communication, most of the respondents (89%) were explained about the importance of regularity of medicine by health care provider and 89% were explained about when and how to take those medicines. Altogether 83% of the respondents were provided both the instructions from the health care provider.

Regarding therapy related factors among respondents, half of the respondents (50%) took 2 drugs for COPD daily and 52% took the drugs 2 times daily. About one third of the respondents (30%) only thought the cost of COPD medicine was affordable and almost all respondents (95%) were supported by their family in the expenses for medicine. Regarding use of rotahalers, majority of the respondents, i.e. 76% used rotahelers and among them only 23.7% found it difficult to use.

Table 3: Distribution of Disease Related Factors among Respondents n =100

Variables	%
Disease duration	
4months - 1 year	20
1-3 years	26
4-6 years	24
> 6 years	30
Presence of comorbidity	
Yes	41
No	59
Severity of symptoms (MRC grading of dyspnoea)	
Grade 1 (Breathlessness on walking on slight hill)	27
Grade 2 (Walks slower than people of same age because of breathlessness)	16
Grade 3 (Stops for breath after walking for a few minutes on the level)	42
Grade 4 (Too breathless to leave the house or breathless when dressing)	15

Table 3 shows that duration of disease of 30% of respondents was more than 6 years. Comorbidity was present among 41% of the respondents, among which Corpulmonale was the commonest (61%), followed by Hypertension (19%), Diabetes Mellitus (10%) and Ischemic Heart Disease (10%). Severity of symptoms present in 42% of the respondents was grade 3 ie, stopping for breath after walking for a few minutes on the level.

Similarly patient related factors, 54% of the respondents had the belief that disease will be cured. Majority of the respondents (85%) had the belief that medicines are working. Less than half i.e. 37% had the belief that they are on too many medications while majority of the respondents i.e. 90% had the belief that the doctors knew their illness well. Regarding health behaviour, only 14% of the respondents were confused about their medication while majority of the respondents i.e. 70% had strict routines for using their regular medicine. All of the respondents kept their medicine close to where they need to use them and 60% ensured that they had enough medications so that they didn't run out in the future.

Table4. Association between Medication Adherence and Selected Independent Variables n=100

Variables	Adherence score		p value
	Adherent %	Non adherent %	
Age in years			
<65	81.5	18.5	0.661
≥65	84.8	15.2	
Literacy			
Literate	80	20	0.601
Illiterate	84.3	15.7	
Current Smoking status			
Smoker	90.5	9.5	0.305
Non Smoker	81	19	
Patient Prescriber Communication			
Present	86.7	13.3	0.004[*]
Absent	64.7	33.7	
Number of Daily Drugs			
≤2 drugs	93.2	6.8	
>2drugs	68.3	31.7	0.01[*]
Frequency of daily drugs			
≤2 times	91.9	8.9	0.016[*]
>2 times	72.7	27.3	
Medication Cost			
Affordable	96.7	3.3	0.012[*]
Non Affordable	77.1	22.9	
Presence of Comorbidity			
Present	85.4	14.6	0.6
Absent	81.4	18.6	
Severity of symptoms			
Grade I-Grade II	74.4	25.6	0.047[*]
Grade III- Grade IV	89.5	10.5	

Note: (*= Significant association)

Table 4 shows that that medication adherence is significantly associated with patient prescriber communication, number of daily drugs, and frequency of daily drugs, medication cost and severity of symptoms while there was no statistically significant relationship between age, literacy, current smoking status and presence of comorbidity among the respondents.

Discussion

The present study shows that 39% respondents belonged to age 60-69 years. More than half of the respondents (59%) were female and majority of the respondents (70%) were illiterate and only 1% had completed their secondary level education. Regarding current smoking status, majority (79%) were non smokers at present. The present study indicates that high level (83%) of adherence to COPD medication. The finding is consistent with the study done in India by Gupta A. et al where the overall medication adherence was 74%. [6]

In this study, there is no statistically significant relationship between medication adherence and age (p = 0.661), literacy (0.601), current smoking status (p=0.305). This finding contradicts to previous study done by Agh.T. et al in Hungary where medication adherence was associated with the age (p =0.001), current smoking status was negatively associated with medication adherence (p=0.004).[7]

This study shows that there is positive association of medication adherence with patient prescriber communication (p=0.028). Similarly the prescribed number of drugs is inversely associated to adherence,(p=0.001). Adherence rate is higher in patients who had to take medicines ≤ 2 times a day than those who had to take > 2 times a day also and adherence is significantly associated with medicine cost (p=0.017).This finding is supported by a study conducted by Agh.T. et al in Hungary where medication adherence was inversely associated with number of daily drugs p (≤0.001), daily drug doses (p≤0.001), medicine cost (p≤0.001) [7]. It can be assumed that medication adherence in COPD patient decreased with the increase in complexity of medicine regimen. Similar to this finding, another previous study done also concluded that inability to pay has negative influence on medication adherence.[10]

The findings of this study shows that there is no significant association between medication adherence and presence of comorbidity (p=0.6). But severity of symptoms was positively associated with medication adherence (p=0.047). This finding contradicts to the study conducted in Northern Ireland where adherence was significantly associated with presence of comorbidity with (p = 0.01).[8] Similarly the previous study done by National Health and Wellness Survey in France, Germany, Italy, Spain, and UK showed that adherence was positively associated with severity of COPD (p<0.001).[4] Thus it can be assumed that the patients are not serious towards their medication until the severity of the disease increases.

Conclusion

The study showed that more than three fourth of the COPD patients were adherent to their COPD medicines. Likewise, regarding therapy related factors less than half of the respondents found the cost of COPD medication affordable. Comorbidity was present among nearly half of the respondents and among the comorbidities corpulmonale was the commonest. Similarly regarding patient related factors, most of the respondents had positive health beliefs and responsible health behaviours. There was association between medication adherence and factors of medication adherence such as patient prescriber communication, number of daily drugs, and frequency of daily drugs, medication cost and severity of symptoms. However there was no association between medication adherence and age, literacy, current smoking status and presence of comorbidity.

Recommendation

On the basis of findings of the study as the main cause of non adherence was found to be stopping the medicine when one feels better, the patients should be informed and convinced that regular medicine should not be stopped at any cost even when the symptoms are under control. Patients with complex medication regimen should be given extra importance while providing instruction about the medication and adherence aids such as written instruction can be used.

Acknowledgement

Ethical consideration

Ethical consideration was taken from concern authority that is Institutional Review Committee of Kathmandu university school of Medical Sciences and verbal consent was taken from the respondents prior to interview.

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