

Research Article**IMPACT OF CLINICAL PHARMACIST INTERVENTION ON KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE**THOMAS REEMA¹, RAMESH ADEPU², THOMAS SABIN³

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ABSTRACT

The study assessed the knowledge, attitude and practice of patients with Chronic Obstructive Pulmonary disease (COPD) and the factors that influenced the therapeutic outcome. A total of 27 patients with COPD were enrolled, into the three months study. Knowledge, Attitude and Practice (KAP) of patients regarding COPD were assessed and recorded at baseline by using a suitably designed questionnaire. The baseline KAP result suggested that patients had a poor perception of their disease. Patients were educated about COPD and their medications by a clinical pharmacist on subsequent follow ups. At the end of the study, the KAP was again administered. Patient education improved the KAP of the patients and they were able to answer satisfactorily the same questions that were posed during baseline. The results showed significant improvement in KAP after counseling. Hence we conclude that for patients with COPD, health education provided by the clinical pharmacist can have a positive impact on treatment outcome.

Keywords: Chronic Obstructive Pulmonary Disease, Knowledge, Attitude and Practice, Forced Expiratory Volume in one second, Global initiative on Chronic obstructive lung disease

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a chronic lung condition which predominantly develops from long-term exposure to cigarette smoking, resulting in irreversible dilation and destruction of lung parenchyma¹. COPD causes progressive decline in lung function leading to increasing breathlessness, particularly on exertion². The obstruction is mainly due to bronchitis or emphysema. At the bronchitis stage, the disease affects the larger airways and in emphysema, it affects the distal part of the lung, in smaller airways and alveolar sacs. Although disease severity and psycho-social factors are well known contributors to asthma and COPD morbidity, the influence of education and patient knowledge have received less attention³.

COPD is largely precipitated by long term exposure to noxious gases and other agents such as tobacco smoking and industrial pollutants. Tobacco smoking is the most important risk factor for COPD⁴. Currently, COPD is the second most common non infectious disease in the world, causing some 2.7 million deaths annually, and global mortality is predicted to be more than double by 2030⁵. In India it is accounted for 2.8% of total deaths in 1990 and it is expected to rise to 6.5% deaths by 2020⁶. Almost 80 – 90 % of COPD cases are mainly due to smoking and the remaining cases are caused by exposure to industrial pollution. After the age of 35, non smokers experience a decline in forced expiratory volume in one second (FEV₁) of about 20 to 30 ml per year and in smokers this decline will be 50 to 120 ml per year. Hence discontinuation of smoking is one of the single most important interventions known to be effective in modifying the disease⁷.

Patient decisions to follow the recommended treatment are likely to be influenced by their beliefs about medicines as well as their beliefs about the illness that the medication is intended to treat or prevent⁸. It has become a matter of general agreement that medical knowledge alone cannot, and indeed does not, influence people's health. An equally important partner is the state of basic education and public knowledge about the disease that influence health and therapeutic outcome, and finally helps the patient to take the advice seriously rendered by a doctor. Hence chronic illness such as COPD requires recognition and identification of psychosocial components which will allow us for better treatment outcome. Several trials have now been conducted assessing the benefits of educational programs for the general COPD population. The study aimed at assessing the knowledge, attitude and practice of patients with COPD and the factors that influence the treatment outcome.

MATERIALS AND METHODS

Patients having more than 30 years of age with or without smoking history diagnosed to have stable COPD graded according to Global Initiative for Obstructive Lung Disease (GOLD) category, as mild to very severe were enrolled. A total of 27 patients participated and completed the questionnaire. Every patient who met the inclusion criteria was administered a standardized, structured questionnaire in the local language to assess their KAP. The demographic information like name, age, sex, smoking history (number of beedis or cigarettes per day and years of smoking), past medical history, family history, allergy history, duration of the disease, symptoms, diagnosis, inpatient/outpatient number, educational background and address were also collected.

In patients with chronic progressive diseases, it is important for the patients to know about their disease and its management for a better therapeutic outcome. Hence we analyzed the Knowledge, Attitude and Practice of COPD patients at the beginning of the study and at the end, after patient education. The questionnaire (table-2) was administered in order to get a picture of patient's perceptions about the disease, their attitude towards it and their practice of living with the disease. Patients were asked closed ended questions which allowed participants to choose from a pre existing set of answers (yes, no, don't know) which helped us to assess the KAP. All participants were allowed to express their feelings and attitudes about COPD, socio-economic status, educational background, family problems etc which might influence the therapeutic outcome.

The questionnaire assessed patients' knowledge and attitude about COPD, its symptoms, causes and risk factors. Patients were required to answer questions such as "Is COPD contagious?", "Is it life threatening?" and "Can it be completely cured?". Practice of patient's medication use was assessed by questions such as whether COPD patients should receive regular medication, how often patients took medication, whether patients with COPD should stop smoking, the ease of use of inhaler device and proper use of inhalers by patients. Based on information collected at baseline, patients were educated about COPD and their medications, on regular follow up ie; on 15th day, 30th day, 60th day of enrollment by a clinical pharmacist both verbally and with the help of patient information leaflet. On the 90th day of the study the questionnaire was readministered.

Study approval

The study protocol was approved by the ethics committee of JSS Medical College Hospital, Mysore and all patients gave written informed consent.

RESULTS AND DISCUSSION

A total of 27 patients completed the questionnaires who were having a mean age of 61 years. The mean pack years and smoking duration in years were 44 and 8.42 respectively. There were more male patients (81%) than females. Most of the patients were of middle or lower income group and most had agriculture as their

occupation. This was reflected in their educational level. Most of the patients had little exposure to formal education. Out of the patients surveyed who completed the study, 56% had no formal education at all, 41% had education anywhere between class 1 and class 10, and only 3.7% had education beyond class 10. The demographic details of the patients are shown in table 1.

Table 1: Demographic detail of the study patients

Demographic Data	
Age (Yrs)	61.26± 13.5
Gender Male	81.45%
Female	18.52%
GOLD grading	Grade 3
Smoking history (Pack Yrs)	44 ± 44.90
Duration of COPD (Yrs)	8.42 ± 10.41

At entry level, the KAP analysis found that patients had a poor perception about their disease. Their attitude and practice were also below the mark. Patients had a fair idea of the symptoms of COPD and whether it is contagious or not. More than half the patients thought that COPD is completely curable. A few smokers were unaware that smoking is a risk factor for COPD. Smoking was common among the patients, and most people smoke beedis (local cigarette), especially the villagers. Most patients were not on regular treatment and took medication only during acute exacerbations. Twenty percentage of the patients perceived that medications are necessary only for an exacerbation. This is probably due to ignorance or may be attributed to the low socio-economic problem. Most patients could not afford to buy medication for daily use due to high cost. Therefore only 14% patients were on inhaled therapy. Although all the patients shook the canister before using the medication none of them had proper inhalation technique. Among these 11% of patients found the inhalers easy to use.

Patient education and counselling was provided during follow-ups. Apart from verbal messages, a patient information leaflet in the local language, i.e. Kannada, was provided to patients. Though many patients could not read, they took the leaflet so that someone in their

house or neighborhood could read and let the patient know its contents. At the end of the study it was observed that patient education improved their knowledge as reflected by the higher percentage of correct answers to the same questions which were posed during baseline. Sixty five percent of the patients answered that smoking is a risk factor for COPD and 96% answered that a COPD patient should stop smoking. All the patients knew that COPD is non-contagious. Medication practice improved and 90% answered that COPD patients should take medicine regularly; and 90% practiced regular medicine use. Thus improvement in the knowledge and attitude of patients influenced the practice of medication use. Towards the end of the study, 80% of the patients on inhalers found them easy to use.

The baseline KAP result suggested that patients had a poor perception of their disease. Most patients were not on regular treatment and took medication only during acute exacerbations. Patient education improved the KAP of the patients and they were able to answer satisfactorily the same questions that were posed during baseline. The result showed a significant improvement after counseling. The graphical representation for the response to KAP questions before and after education is shown in (figure-1).

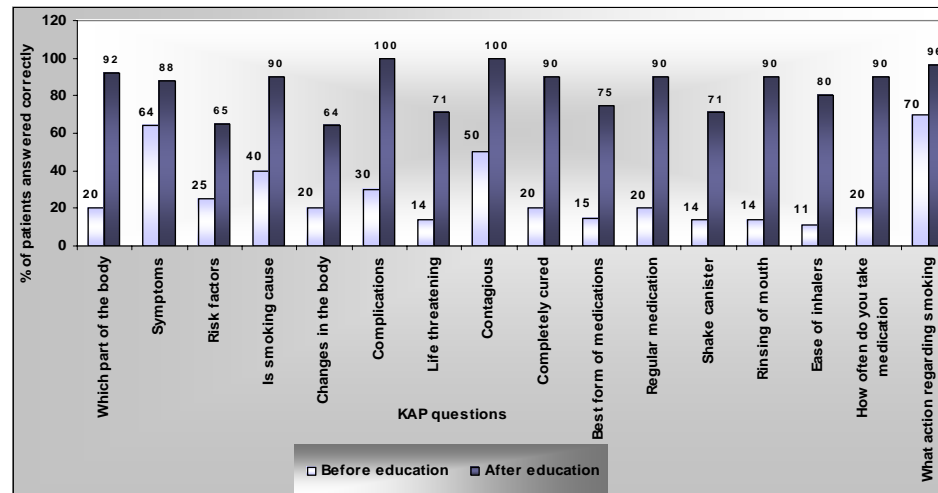


Fig. 1: Changes in knowledge attitude and practice before and after patient education

Educational interventions can improve patients' compliance with their medication regimen and medical follow-up care. Understanding the disease will minimize the chances that the patient will discontinue therapy without first contacting their physician. Life style interventions like smoking cessation will reduce number of acute exacerbation of COPD among patients. In our study, the improvement in patients' knowledge resulted in better medication use, which in turn helped patients to reduce their symptoms. Patients were better able to cope with their disease and this resulted in improvement in quality of life. Patients, due to lack of knowledge about the hazards and complications of smoking, ends up with COPD which is a common and important disease causing considerable morbidity.

In this study we have identified certain factors which may influence COPD treatment outcomes and affect the way patients perceive their disease. Knowledge of these factors may be useful to help understand the way patients feel about their disease and its management. Among this, illiteracy was considered as one of the important factor. Two general principles in improving the treatment adherence are patient counselling (to ensure that patients understand the treatment plan) and motivation (encouraging the patient to adhere to the therapy). Majority of COPD patients (81%) in our study were illiterate. Lack of knowledge about the disease condition and treatment will definitely be reflected in the treatment outcome. Adequate health literacy implies problem-solving and decision-making skills that enable a person to apply new information in order to navigate the health care system and function successfully as a health care consumer⁹. A person with adequate health literacy can read, understand, and act appropriately on health information.

Researchers have shown that health literacy is a stronger predictor of health status than is socioeconomic status, age, or ethnic background¹⁰. People with inadequate health literacy have difficulty understanding written and oral health care information. Many studies have found that education on COPD self-management program resulted in positive economic benefit¹¹.

Poverty was another major reason responsible for the patients to take medicines during exacerbation only. As for those on inhaled treatment, expensive refilling often resulted in discontinuation of the therapy which usually led to repeated hospitalizations and

emergency ward visits. Dependency was considered as another factor. Most of the patients who were enrolled into the study were more than 60 years of age and were not able to work because of their poor health status. As a result, they had to depend on others for their medications. Since their disease had a poor prognosis, they often felt that they were burden to their family.

Nearly all the patients were identified to be past smokers while 18% of the patients who took part in the study were current smokers. Majority of them had failed to stop smoking and repeated exacerbations eventually forced them to quit smoking. However, some patients who were on drugs and gained benefit from them chose to continue smoking; a habit which usually cannot be rectified. Advice to cessation of smoking is an essential part of management of COPD and should be offered to patients at every outlet.

The majority of the surveyed patients preferred oral tablets or parenteral medications to inhalers because they were cheaper. Cost of the medication is the main barrier in adherence⁸. Most of the patients preferred oral steroids because they were less expensive and made them feel better for at least two weeks. This was mainly due to the fact that the patients had not experienced the benefits of use of regular inhaled medications, as their local doctors prescribed them with oral drugs like steroids on regular basis. Factors like forgetfulness, improvement in symptoms, side effects of the drugs, complexity of the therapy, dependency, and financial problems were the main reasons identified for poor adherence to medications.

Only 14% of the study population had used inhalers before participating in the study. All the patients found inhalers easy to use, but their inhalation technique was not appropriate. Skilled use of inhalers is an important factor in determining treatment outcome. Effective counselling to ensure proper use of aerosol will be an effective way to control the symptoms. Identifying patients with early stages of COPD, reducing the risk factors for developing COPD such as smoking cessation and managing the disease are potential roles for the pharmacist in the pharmaceutical care of the patient. Studies have shown that patients who perceive themselves as being well educated by their physician or another health care professional are more likely to be satisfied with their health care experience. Frode Gallefoss concluded that patient education improved patient outcomes and reduced costs as well¹².

Table 2: Knowledge, attitude and practice (KAP) questionnaire

1. Which part of the body is affected when a person is affected with COPD?			
<input type="checkbox"/> Heart	<input type="checkbox"/> Lungs	<input type="checkbox"/> Any other (specify)	<input type="checkbox"/> Don't know
2. What are the common symptoms of COPD?			
<input type="checkbox"/> Shortness of breath	<input type="checkbox"/> Cough	<input type="checkbox"/> Sputum production	<input type="checkbox"/> Wheezing
<input type="checkbox"/> All the above	<input type="checkbox"/> Don't know		
3. What are the risk factors for COPD?			
<input type="checkbox"/> Smoking	<input type="checkbox"/> Age	<input type="checkbox"/> Gender	
<input type="checkbox"/> Exposure to air pollution	<input type="checkbox"/> Impaired lung functions	<input type="checkbox"/> Alcoholism	
<input type="checkbox"/> Nutritional status	<input type="checkbox"/> Lung infections	<input type="checkbox"/> Family history	
4. Is smoking is an important cause of COPD?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	
5. What changes takes place in body when you have COPD?			
<input type="checkbox"/> Always get inflamed and swollen	<input type="checkbox"/> Thick mucous secretion	<input type="checkbox"/> Spasm/narrowing of artery	<input type="checkbox"/> Don't know
6. What complications can COPD lead to?			
<input type="checkbox"/> Heart problem	<input type="checkbox"/> Chest infections	<input type="checkbox"/> Both	<input type="checkbox"/> Don't know
7. Is COPD a life threatening disease?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	
8. Is COPD contagious?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	
9. Can COPD be completely cured?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	
10. Which is the best form to take medications to take medications in COPD?			
<input type="checkbox"/> Tablet / capsule	<input type="checkbox"/> Inhaler	<input type="checkbox"/> Nebuliser	<input type="checkbox"/> Injections
<input type="checkbox"/> Don't know			
11. Should you take your medications regularly to control COPD?			
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	

12. If you are using a metered dose inhaler, do you shake the canister just before taking a puff?			
<input type="checkbox"/> Sometimes	<input type="checkbox"/> Not at all	<input type="checkbox"/> Every time	<input type="checkbox"/> Not applicable
13. If you are using steroids by inhalation, do you rinse your mouth before after inhalation?			
<input type="checkbox"/> Sometimes	<input type="checkbox"/> Not at all	<input type="checkbox"/> Every time	<input type="checkbox"/> Not applicable
14. If you are using inhalers, how do you feel about the ease of use of your inhalers ?			
<input type="checkbox"/> Very difficult to use	<input type="checkbox"/> Difficult to use	<input type="checkbox"/> Easy to use	<input type="checkbox"/> Not applicable
15. How often do you take your medication?			
<input type="checkbox"/> Regularly as advised	<input type="checkbox"/> When I get a slight attack	<input type="checkbox"/> When I get a severe attack	<input type="checkbox"/> irregularly
16. What actions should a patient with COPD take with regard to smoking?			
<input type="checkbox"/> Stop smoking	<input type="checkbox"/> Decrease smoking	<input type="checkbox"/> Continue smoking	<input type="checkbox"/> Don't know

CONCLUSION

For patients with COPD, health education focusing on disease and need for long term treatment provided by the clinical pharmacist plays an important role in improving the ability to cope up with illness and health status. It is also effective in accomplishing certain goals, including smoking cessation. Pharmacists are in an ideal position to provide patient education and optimize patient care. Greater understanding about the illness and a change of attitude and practice would in turn results in a better therapeutic outcome.

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