Medical Science

pISSN 2321–7359; eISSN 2321–7367

Effect of self-care module among chronic obstructive pulmonary disease (COPD) regarding home care management: A cross sectional study in Central Rural India

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To Cite:
Alnewar PM, Singh S, Wanjari MB, Kothe A, Ankar R. Effect of self-care module among chronic obstructive pulmonary disease (COPD) regarding home care management: A cross sectional study in Central Rural India. *Medical Science* 2023; 27: e103ms2601.
doi: https://doi.org/10.54905/disssi/v27i132/e103ms2601

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Peer-Review History
Received: 15 November 2022
Reviewed & Revised: 19/November/2022 to 13/February/2023
Accepted: 16 February 2023
Published: 20 February 2023

Peer-review Method
External peer-review was done through double-blind method.

URL: https://www.discoveryjournals.org/medicalscience

ABSTRACT

Disease awareness is an essential factor and has been defined as knowing about disease and being aware of preventive measures and the outcome as well as lifespan; all the informatics about the condition has to be provided. Evaluating the understanding of home care management among COPD patients and examining the impact of the self-care module on their knowledge, taking into account demographic factors. The research design used in the study is one group pretest-posttest research design—a hundred COPD patients, including fifty males and fifty females. Quantitative variables were described as percentage and frequency. A structured demographic sheet revealing age, gender, residence, occupation, nutritional patterns, habits, allergies, living near an industrial area and exposure to biogas, along with a self-care module on home care management, was given to the patients with COPD as an intervention. The analysis was done using inferential and descriptive statistics. A significant improvement in knowledge of home care management was observed from the pretest to the posttest scores, indicating the effectiveness of the self-care module for COPD patients. The calculated t-value, i.e., 39.83 and the p-value was 0.001. Therefore, it can be concluded that the self-care module had a statistically significant impact on increasing the knowledge of home care management among COPD patients. A considerable number of COPD patients had a deficiency in knowledge regarding the home care management of COPD. The self-care module on home care management for COPD showed remarkable effectiveness. As a result, promoting continuous health education programs can help enhance knowledge of home care management.

Keywords: Selfcare module, knowledge, home care management, COPD patients

1. INTRODUCTION

Globally, chronic obstructive pulmonary disease (COPD) is considered a major public health problem (Pauwels et al., 2001). The morbidity, mortality and prevalence are predicted to increase related to the aging population and the increase in the smoking rate (Mannino and Buist, 2007). Across the countries, the prevalence rate of COPD differs; likewise, it is the sixth most prevalent cause of death (Viegi et al., 2006). According to healthy people 2020, objectives aim to reduce hospital stays (Bolin et al., 2015).

COPD is described as chronic airflow obstruction of the air passage and has a huge effect on physical, psychological and social functioning (Foglio et al., 1999). COPD patients have a major symptom of dyspnea during a workout that causes passive way of living (Carlucci et al., 2012). Management of COPD is very complicated due to the heterogeneous concept of rapidly deterioration and a great alteration in symptoms, functional defect as well as wellness of patients experience with COPD (Houben-Wilke et al., 2018). Resources aimed at smoking to be ceased, COPD awareness of early detection and preventive measures also the better treatment could be beneficial to reduce the mortality and morbidity rate (Mannino, 2003). Home care management of COPD with the help of selfcare module would be effective in improving the quality of life and hospital stay of patients. Educating patients with COPD plays a very pivotal role and a pillar of self-management in chronic illness like COPD.

2. MATERIAL AND METHOD

Study setting and design and data collection

The cross-sectional study was conducted at a selected community in Wardha city from August 15, 2021, till August 25, 2022. COPD-diagnosed patients were taken as a study sample. A pre-experimental research design was used in this study. A purposive sampling technique was used in the study. A total of hundred COPD patients were selected as a study sample. The inclusion criteria for the study are one COPD patient who was taken from a family and who is willing to participate.

Data Collection and intervention

The most pivotal aspect of an investigation is collecting appropriate information as evidence that will help answer the question built in the study, which is the home care management among COPD patients. Self-made structured Questionnaires were used for detailed data collection. The researcher maintained a good therapeutic relationship.

On the first day, each participant was given a questionnaire and asked to fill in some self-structured questionnaire and demographic variable information like age, gender, residence, occupation, nutritional patterns, habits, allergies, living near an industrial area and exposure to biogas. On the same day after collecting the pre-test, the self-care module on home care management was given to the patients with COPD as an intervention. Then on the seventh day, the same self-structured questionnaires were collected from the patients.

Description of self-care module

The goal of the self-care module

To provide knowledge about home care management to patients diagnosed with COPD.

Content

The researcher developed the self-care module on the basis of knowledge related to COPD, covering topics such as the causes and risk factors of the disease, identifying signs and symptoms, diagnostic processes, quitting smoking, deep breathing exercises, stress management for weight control, mucous removal techniques, dietary guidelines, vaccinations, regular medication and follow-up care.

Statistical analysis

Data was analyzed using IBM SPSS statistical software version 25.0. Demographic information was gathered using a self-administered questionnaire and the mean and standard deviation were computed and assessed.

3. RESULTS OF THE STUDY

Demographic characteristics of the study variable

This section deals with the percentage-wise distribution of patients with COPD. The data that describe the sample characteristics include age, gender, area of residence, occupation, nutritional pattern, habits, allergies, living near industrial areas and exposure to biogas**.**

Table 1 Percentage wise distribution of demographic variables of patients diagnosed with COPD

Demographic Variables	Frequency	Percentage (%)
Age(yrs.)		
31-40	0	0
41-50	28	28
51-60	36	36
>60	36	36
Gender		
Male	50	50
Female	50	50
Area of residence		
Urban	40	40
Rural	60	60
Occupation		
Labourer	22	22
Homemaker	26	26
Farmer	22	22
Factory worker	20	20
Business	10	10
Nutritional Pattern		
Vegetarian	30	30
Mixed Diet	70	70
Habits		
Smoking	26	26
Alcoholism	8	8
Tobacco Chewing	8	8
No Habit	58	58
Any Allergies		
Dust	8	8
Perfume	2	2
None	90	90
Living near the industrial area		
Yes	20	20
No	80	80
Exposure to biogas		
Yes	34	34
No	66	66

Assessment of self-care module in improving knowledge

The self-care module was evaluated in terms of its impact on improving knowledge of home care management among COPD patients using the categories of poor, average, good and very good. Before the intervention, the knowledge scores were: Poor (38%), average (50%) and good (12%). After the intervention, the scores improved to: Average (22%), good (36%) and very good (42%).

Table 2 Assessment with the level of pre-test and post-test knowledge.

Level of knowledge	Score Range	Pre-test Knowledge Score		Post-test Knowledge Score	
		frequency	(%)	frequency	(%)
Poor	0-25% (1-5)	38	38	0	0
Average	26-50% (6-10)	50	50	22	22

Good	51-75% (11-15)	12	12	36	36
Very Good	76-100% (16-20)	0	0	42	42

Effectiveness of self-care module on knowledge regarding home care management among COPD patients

The mean of the pre-test knowledge score was 6.78 ± 2.78 and the post-test knowledge score was 14.00 ± 3.73 intervention was effective in improving knowledge regarding home care management.

Table 3 Effectiveness of self-care module on knowledge regarding home care management among COPD patients.

Overall	Mean	SD	t-value	p-value
Before Intervention	6.78	2.78	39.83	0.001 S, p < 0.05
After Intervention	14.00	3.73		

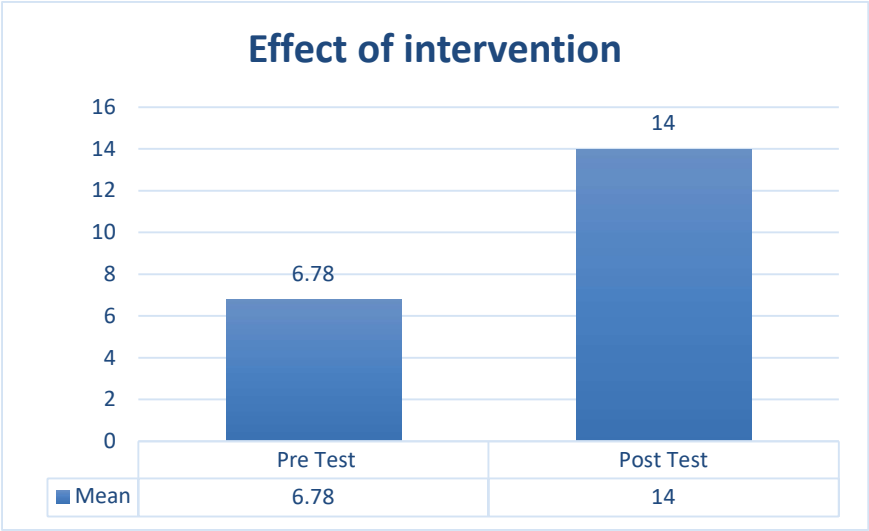

Figure 1 Shows the effect of the self-care module in improving the knowledge

Associate the findings with selected demographical variables

There are significant differences in the distribution of occupation (p=0.002) and habits (p=0.008) and there was no significant in age, gender, area of residence, nutrition, allergies, living near the industrial area and exposure to biogas.

Table 4 Association of demographic variables with knowledge score

Demographic variable	Frequency	Mean ± SD	F value / t value	p-value
Age (yrs)				
31-40	0	0	1.205	0.304 NS
41-50	22	3.273±0.63		
51-60	36	3.11±0.82		
>60	42	2.95±0.85		
Gender				
Male	50	3.34±0.71	1.81	0.072 NS
Female	50	3.06±0.81		
Area of residence				
Urban	40	3.30±0.723	1.049	0.424 NS
Rural	60	3.13±812		
Occupation				
Labourer	22	3.36±0.658	4.632	0.002 S

Homemaker	26	3.38±0.637		
Farmer	22	2.73±0.883		
Factory worker	20	3.50±0.688		
Business	10	2.80±0.789		
Nutrition				
Vegetarian	30	3.07±0.868	1.760	0.188 NS
Mixed Diet	70	3.26±0.736		
Habit				
Smoking	26	3.62±0.496	4.20	0.008 S
Alcoholism	8	3.00±0.756		
Tobacco Chewing	8	2.75±0.886		
No ill Habits	58	3.10±0.810		
Allergies				
Dust	8	3.50±0.535	1.827	0.16 NS
Perfume	2	4.00±0.00		
None	90	3.16±0.792		
Living near the industrial area				
Yes	20	3.00±0.795	0.575	0.450 NS
No	80	3.25±0.771		
Exposure to Biogas				
Yes	34	3.18±0.797	0.014	0.906 NS
No	66	3.21±0.775		

4. DISCUSSION

Patients with chronic obstructive pulmonary disease (COPD) must understand their condition and its management to achieve a better therapeutic outcome. Patients' awareness improves their self-management skills and quality of life. In the present study, the self-care module on knowledge regarding home care management among COPD patients was effective. The analysis found that the mean value of the pre-test was 6.78 and the post-test was 14.00. The calculated value was 39.83 and the p-value was 0.001.

The study was supported by a quasi-experimental research design on the effect of educational programs on the knowledge and self-management of patients with COPD at Tanta university Hospital. The results found a significant association between a reduction in signs of sputum and breathlessness immediately but no significant difference to other signs after two months of the self-care management program. The existing knowledge score of patients (95%) had poor knowledge levels and all of them were unsatisfied with the practice regarding the self-care management program. The education program was conducted after the existing knowledge was assessed, showing highly statistically significant improvement in which, many patients had adequate knowledge and good practice. Thus, the study concluded that the awareness program regarding self-care management among COPD patients are very effective in raising their self-management skills and needs to beef up (Ibrahim and Abd El-Maksoud, 2018).

The descriptive survey design of the study was used to evaluate the understanding of self-care management among individuals diagnosed with COPD. The result found that seventy percent had moderate knowledge and thirty percent had average knowledge of self-care management. Thus, it is essential to conduct an awareness program on home care management to improve the quality of life and the lifespan of COPD-diagnosed patients (I and Vayalil, 2019).

This study revealed that a more studied sample was from rural areas. According to Egyptian research conducted by Badway, the prevalence of COPD is higher among rural populations than urban. This could be because patients in rural areas were exposed to rice-grass burning and the use of wood and crop residues from agriculture, which causes more significant airway destruction and increased chest symptoms. Besides that, they live in houses with a high population density, which might enable infections to spread among family members. All of these are major risk factors for COPD (Badway et al., 2016). This result aligns with the findings of who reported that exposure to smoke from wood-burning stoves was acknowledged as a risk factor for COPD among the participants (De Queiroz et al., 2014).

The majority of the subjects studied in the current study were smokers. According to National Heart, Lung and Blood Institute, people with a smoking history are more inclined to develop COPD (COPD). Another study conducted by them in Spain found a high prevalence of COPD in males, likely due to smoking habits. Tobacco is regarded as a major risk factor and a key diagnostic

factor for COPD (Leiva-Fernández et al., 2014). Self-care helps to improve the lifespan and reduce aggravation and mortality risk in patients diagnosed with COPD. The present study's goal was to develop an educational self-care intervention designed to enhance the knowledge of patients diagnosed with COPD regarding home care management, including smoking cessation, breathing exercises, stress management, dietary management, maintenance of healthy weight, medication, vaccination and follow up.

Limitations of the study

This study was a pre-experimental community-based study. Hence there existed a limitation regarding the generalisability of results found: limited area of sample collection.

5. CONCLUSIONS

The current study found a significant improvement in the pre and post-test knowledge scores, suggesting that the understanding of home care management among COPD patients was initially inadequate. Also, the self-care module significantly improved the knowledge regarding home care management of COPD. There is a significant association of knowledge score with demographic variables such as habits and occupation. The study recommended that an awareness program on self-care management among patients with COPD can help to improve the knowledge and also helps to prevent the complications and progression of the disease as well as improve quality of life.

Acknowledgments

We thank Laxmikant Umate for supporting the study design and statistics plan.

Author Contributions

The authors appreciate the contributions of the participants. Author's contributions: I carried out the methodology and the manuscript's creation and writing. The MW, AK and RA carried out sample collections. MW and AK directed and participated in the study's planning, statistical analysis and manuscript writing processes. All authors reviewed and approved the final manuscript.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Ethical approval

Written informed consent was obtained from every participant included in the study after a brief explanation of the concept and purpose of the study. The study participant affirmed of privacy and confidentiality of the data gathered. The study protocol was reviewed and approved by the DMIMS (DU)/IEU/2021/281.

Funding

This study has not received any external funding.

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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