

Effectiveness of Care Bundle on Health Practices among Patients with Chronic Obstructive Pulmonary Disease

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Abstract: *The present study investigated the effectiveness of care bundle on health practices among patients with chronic obstructive pulmonary disease in a selected tertiary care hospital, Kottayam. A quantitative approach with quasi experimental pretest posttest control group design was used for the study. The study was theoretically supported by Roy's adaptation model. A total of 70 patients, each 35 in control and experimental group, were selected for the study using non probability purposive sampling technique. The data were collected using socio personal and clinical data sheet and rating scale to assess the reported health practices. The purpose of the study was explained to the subjects as well as to the informant and informed consent was obtained on the day 1. Socio personal and clinical data were collected on the same day after establishing a rapport with the informants. Pretest was conducted by using health practice rating scale when the condition become stable. Patients in the control group received routine care. Post test was conducted in control group after which 35 subjects for the experimental group were selected. The intervention, care bundle was given to the experimental group. After two weeks of pretest, post test was conducted for both control experimental group by using health practice rating scale. The data was analyzed using descriptive and inferential statistics. The results of the study revealed that the care bundle had significant effect on improving health practice ($p < 0.01$) among patients with chronic obstructive pulmonary disease.*

Keywords: Care bundle, health practices, patients with COPD

1. Introduction

Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable disease, with a worldwide prevalence of 10.1% in people aged 40 years or older. According to the global burden of disease (GBD) 2019 study, COPD is the most common non communicable respiratory condition leading to death with 3.2 million deaths worldwide¹. Patients should receive personalized education and training to empower them in their own care and report any changes to their clinicians to prevent symptom exacerbation and further disease progression². Care bundles usually take the form of a list of evidence-based interventions that, when grouped together, represent high quality of care for a specific condition³. A COPD care bundle focused on optimizing care for patients with an acute exacerbation of COPD has been shown to reduce ED revisits and hospital readmissions⁴.

2. Objectives

- 1) To assess the health practices among patients with COPD.
- 2) To evaluate the effectiveness of care bundle on health practices among patients with COPD.
- 3) To find out the association of health practices among patients with COPD and selected variables.

3. Materials and methods

The quantitative approach was adopted for the study. Research design selected for the study was quasi experimental pretest posttest control group design. Non probability purposive sampling technique was used in this study. In this study sample consisted of 35 subjects in control and 35 subjects in experimental group who were the patients with COPD

admitted in the medical and pulmonology wards of Govt Medical College Hospital, Kottayam.

Inclusion criteria of the present study was patients with COPD who are within the age group of 40-70 years, able to comprehend and communicate Malayalam and with stable respiratory parameters which include SPO₂ more than 90% and respiratory rate 16-24 breaths/min. Those who excluded from the study were patients with COPD who are critically ill. Tools and techniques used to collect data in the present study were the following: Socio personal and clinical data sheet and rating scale to assess the reported health practices. Seventy patients with COPD were selected as per inclusion and exclusion criteria, 35 each in control group and experimental groups from medical and pulmonology wards. Purpose of the study was explained to the participants and informants and informed consent was obtained. Pretest was done in control group using socio personal data sheet, clinical data sheet and health practice rating scale. After two weeks of pretest, post test was conducted for control group. Then experimental group was selected and pretest was done in the experimental group using the same tool. Care bundle was administered to the experimental group daily, each session lasts for thirty minutes twice a day along with routine care. Post test was carried out after two weeks for the experimental group. The obtained data was tabulated and analyzed in terms of objectives of the study using descriptive and inferential statistics.

4. Results

4.1 Socio-personal data of patients with COPD

Among 70 subjects, majority of the patients in control group (65.7%) and experimental group (62.8%) belonged to the age

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group of 61-70 years. Data showed that most of the subjects in the control group (68.6%) and in experimental group (82.9%) were males. Data pointed out that greater percentage of subjects in the control group (45.7%) and experimental group (42.8%) were having primary education. Among the 70 subjects in control group 54.3% and in experimental group 57.1% were manual labors. The data showed that most of the patients in the control group (91.4%) and in experimental group (82.9%) were married. Majority of subjects in control group (51.4%) and experimental group (54.3%) were supported by their children. Data showed that all patients in both control and experiment group are non-vegetarian. Data depicts that nearly half of the patients in control group (40%) had no unhealthy habits.

4.2 Clinical data of patients with COPD

Among the 70 subjects, in control group 51.4% and in the experimental group 34.3% are diagnosed as chronic obstructive pulmonary disease since less than or equal to 4 years. It is found that 37.1% of patients both in control group and experimental group had no comorbidities. Half of the patients (51.4%) in control group and less than half of patients (31.4%) in experimental group had smoke, dust and climate changes as the trigger for exacerbation of disease. Nearly three fourth of patients in control group (77.1%) and in experimental group (71.4%) are currently nonsmokers. Regarding the past smoking history, in control group 45.7% patients and in experimental group 34.3% patients were nonsmokers. It is found that 34.3% patients both in control group and experimental group consume more than 10 cigarettes per day. More than half of the patients (57.1%) in the control group are taking regular treatment for COPD whereas in the experimental group 60% are not taking treatment regularly for COPD. Among the 70 subjects in control group 25.7% and in experimental group 45.7% had been hospitalized once in last one year due to respiratory illness whereas, in control group 34.3% and in experimental group 25.7% had hospitalized twice in last one year due to respiratory illness.

4.3 Health practices among patients with COPD

Table 1: Frequency distribution and percentage of patients with COPD in control group and experimental group based on health practices (n=70)

Health practices	Control (n=35)		Experimental (n=35)		df	χ ²	p
	f	%	f	%			
Poor (0-19)	5	14.3	8	22.9	2	0.86	0.64
Moderate (20-36)	27	77.1	24	68.6			
Good (37-56)	3	8.6	3	8.6			

Table 1 reveals that in the control group 14.3% and in the experimental group 22.9% had poor health practices. It is also evident that in the control group 77.1% subjects and in the experimental group 68.6% had moderate health practices. Chi square value shows that there is no statistically significant difference between control and experimental groups in terms of health practices. Hence both groups were homogenous in terms of health practices.

4.4 Effectiveness of care bundle on health practices among patients with COPD

H₀₁: There is significant difference in health practices among patients with COPD between control group and experimental group

Table 2: Median and IQR of pretest and post test scores of health practices among patients with COPD in control and experimental group, (n=70)

Test	Health practices			
	Control (n=35)		Experimental (n=35)	
	Median	IQR	Median	IQR
Pretest	27	9	27	11
Post test	28	11	41	11

Table 3: Mean rank, sum of ranks and U value of health practices among patients with COPD in control and experimental group, (n=70)

Group	Health practices		U	p
	Mean rank	Sum of ranks		
Control (n=35)	22.14	775	145	0.00
Experimental (n=35)	48.86	1710		

Table 2 depicts that the median posttest health practice score in control group and the experimental group was 28 and 41 respectively. Table shows that U value obtained for health practice score among patients with COPD in the control and experimental group was 145 which was significant at 0.01 level. Hence null hypotheses was rejected. Hence it can be interpreted that the care bundle was effective in improving health practices among patients with COPD.

4.5: Association between health practices among patients with COPD and selected variables

H₀₄: There is no significant association between health practices among patients with COPD and selected variables

Table 4: Chi square value and degree of freedom of health practices among patients with COPD and selected variables, (n=70)

Selected variables	df	χ ²	p
Age	4	3.18	0.528
Gender	2	1.81	0.404
Occupation	6	14.90	0.021
Unhealthy habits	8	12.00	0.148
Duration of illness (in years)	6	2.88	0.823
Presence of comorbidity	6	5.35	0.499
Treatment for COPD	2	2.55	0.279
Hospitalization due to respiratory illness	8	4.25	0.833

Table 4 depicts that there was significant association between health practices and occupation. Chi square value obtained was significant at 0.05 level. There was no significant association found out between health practices and other selected variables.

5. Conclusion

The number of patients with COPD are increasing drastically. Many patients face poor health practices and low functional ability along with their physical conditions. Such issues are a challenge to patients and their care givers and for the health

care systems. Nurses play an important role in providing necessary information about disease condition, disease management and self management strategies in prognosis and prevention of complications. Care bundle will help the patient to cope up with the disease process and lead a better quality of life. Findings of the study can be used to improve the patient care in the clinical as well as public health settings. The educational settings can be in the inpatient and outpatient departments, patients home and COPD clinics.

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