International Journal of Research in Medical Sciences
Sharma MK et al. Int J Res Med Sci. 2016 May;4(5):1604-1608
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20161234

Research Article

Effectiveness of self-instructional module on knowledge of self-care management of chronic obstructive pulmonary disease among patients with chronic obstructive pulmonary disease

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Received: 03 March 2016
Revised: 05 March 2016
Accepted: 09 April 2016

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ABSTRACT

Background: Chronic obstructive pulmonary disease is a lung disease that makes it hard to breathe and patient education is integral to the care of patients with chronic obstructive pulmonary disease (COPD), also cornerstone of self-management in chronic illness. This study was aimed to improve the knowledge of COPD patients regarding self-care management of COPD.
Methods: Quasi experimental (pre-test and post-test with control group) research design was used. Sixty COPD patients were selected by Purposive Sampling technique who was admitted in hospital. A semi structured interview schedule was used to assess the effect of self-instructional module on self-care management of COPD patients.
Results: Pre-test knowledge score was 20% in experimental group and 19% in control group. Post-test knowledge score was 80% in experimental group and 23% in control group. This was significant improvement (60%) in knowledge after SIM in experimental group & mean difference was 19.01. The demographic variables like age & suffering years from COPD was significantly associated ($p < 0.001$) with post-test knowledge score.
Conclusion: Most of the COPD patients had inadequate knowledge regarding self-care management of COPD. Self-Instructional Module was highly effective in increasing knowledge among COPD patients. Therefore the knowledge of the COPD patients can be further improved by providing on-going teaching and health education programmes.

Key words: COPD, Knowledge, Patients, Self-care management

INTRODUCTION

The respiratory system brings oxygen through the airway of the lung into alveoli. Where it diffuses into the blood for transportation to all the tissues, this process is so vital. Difficulty in breathing is experienced as a threat of life, whether death is real possibility or not. People with respiratory system disorder are often very anxious and fearful that they may die perhaps agonizingly.[1]

The worldwide prevalence of COPD was estimated to be 9.34/1000 in men and 7.33/1000 in women. The prevalence of COPD is highest in countries where cigarettes smoking has been, or still is very common, whereas the prevalence is lowest in countries where smoking is less common or total tobacco consumption per individual is low.[2]

In India 4-10% of adult populations are having COPD.[3] In South India Karnataka State has the first position in the incidence of COPD among total population.[4]

Self-care management is helpful to control and alleviate as much as possible the symptoms and Pathophysiologic

complication of respiratory impairment and teach the patient how to achieve optional capability for carrying out activities of daily life.

The self-care management includes pulmonary rehabilitation, activity and exercise, diet, smoking cessation, infection control, personal hygiene and maintain normal sleeping pattern.[5]

Objectives of the study was to assess the knowledge of COPD patient regarding self-care management; To compare the level of knowledge of COPD patients regarding self-care management before and after self-instructional module in control and experimental group; To study the association between knowledge score regarding self-care management of COPD among patients with COPD with their selected demographic variables.

Hypotheses

H1: There will be significant difference between pre and post test knowledge score of COPD patients regarding self-care management.

H2: There will be significant association between the post-test score of knowledge and selected demographic variables.

METHODS

A quasi experimental research approach with experimental design was applied to explain the effect of independent variable on the dependent variable. Sixty COPD patients was selected by Purposive Sampling technique who was admitted to selected hospitals in southern state of India.

A semi structured interview schedule tools was used to assess the effect of self-instructional module on self-care management of COPD patients. Ethical permission was taken from the ethical committee and informed consent was obtained from the study participants.

RESULTS

Table 1: Frequency and percentagewise distribution of study participants according to their demographic variables.

Demographic Variables		Groups				Significance
		Experiment		Control		
		f	%	f	%	
Age(in yrs)	41-50	11	36.7%	7	23.3%	$\chi2$=1.27 P=0.26
	51-60	19	63.3%	23	76.7%	
Sex	Male	23	76.7%	20	66.7%	$\chi2$=0.74 P=0.39
	Female	7	23.3%	10	33.3%	
Marital status	Married	28	93.3%	29	96.7%	$\chi2$=0.35 P=0.55
	Widow	2	6.7%	1	3.3%	
Education	Primary	23	76.7%	22	73.3%	$\chi2$=0.89 P=0.77
	Secondary	7	23.3%	8	26.7%	
Occupation	Unemployed	4	13.3%	2	6.7%	$\chi2$=0.85 P=0.65
	Self employed	16	53.3%	16	53.3%	
	Private employee	10	33.3%	12	40.0%	
Income	< Rs.1000	14	46.7%	8	26.7%	$\chi2$=2.94 P=0.23
	Rs.1001-2000	11	36.7%	13	43.3%	
	Rs.2001-3000	5	16.7%	9	30.0%	
Religion	Hindu	25	83.3%	25	83.3%	$\chi2$=0.40 P=0.82
	Muslim	2	6.7%	3	10.0%	
	Christian	3	10.0%	2	6.7%	
Residence	Urban	16	53.3%	11	36.7%	$\chi2$=1.68 P=0.19
	Rural	14	46.7%	19	63.3%	
Diet	Vegetarian	8	26.7%	9	30.0%	$\chi2$=0.08; P=0.77
	Mixed	22	73.3%	21	70.0%	
Information Source	Family members	2	6.7%	3	10.0%	$\chi2$=0.48; P=0.79
	Neighbours	2	6.7%	3	10.0%	
	Health personnel	26	86.7%	24	80.0%	
Suffering years	1-5 yrs	27	90.0%	26	86.7%	$\chi2$=0.16 P=0.69
	5-10 yrs	3	10.0%	4	13.3%	
Hospitalization	Yes	30	100.0%	30	100.0%	$\chi2$=0.00 P=1.00
	No	0	0.0%	0	0.0%	
Reasons	COPD	17	56.7%	16	53.3%	$\chi2$=0.07 P=0.79
	Associated symptoms	13	43.3%	14	46.7%	
Duration of stay	< 7 days	21	70.0%	25	83.3%	$\chi2$=1.49 P=0.22
	7 - 10 days	9	30.0%	5	16.7%	

Table: 2 Domain wise pre-test knowledge score of the experimental group.

Domains	No. of items	Min-Max Score	Mean ± SD	Mean percentage
Anatomy and Physiology	4	0-4	1.30± 0.60	32.5%
Disease aspects of COPD	3	0-3	1.00±.0.59	33.3%
Self care management of COPD	25	0-25	4.17±1.15	16.7%
OVER ALL	32	0-14	6.47±.1.28	20.2%

Table 3: Domain wise pre-test knowledge score of the control group.

Knowledge aspects on	No. Of questions	Min-Max Score	Mean ± SD	% Of knowledge
Anatomy and Physiology	4	0-4	1.57± 0.50	39.2%
Disease aspects of COPD	3	0-3	0.93± 0.52	31.0%
Self-care management of COPD	25	0-25	3.63± 1.10	14.5%
Overall	32	0-14	6.13± 1.25	19.2%

Table 1 illustrates that majority of patients 19(63.3%) in experimental group & 23 (76.7%) in control group was 51-60 year age, 23 (76.7%) in experimental group & 20 (66.7%) in control group were male, marital status reveals that 28(93.3%) married in experimental group whereas 29 (96.7%)in control group, regarding education 23 (76.7%) had primary educated & 7 (23.3%) patients having secondary education in experimental group, in control group 22 (73.3%) primary educated & 8 (26.7%) secondary educated. 13.3% were unemployed in experimental group & 6.7% in control group, 53.3% self-employed in experimental group & 33.3% in private job.

The sample distribution inferential statistics shows both experimental and control groups were homogeneous in demographic variables at the level of significance p <0.05.

The table 2 shows the pre test knowledge in experimental group, before administration of self-instructional module knowledge score of the COPD patients was 20.2% and Mean ± SD was 6.47 ±1.28.

The table 3 shows the pre test knowledge in control group, before administration of self -instructional module knowledge score of the COPD patients was 19.2% and Mean ± SD was 6.13 ±1.25.

The table 4 shows that in posttest knowledge score in experimental group, after administration of self-instructional module, the mean percentage is 80% and Mean± SD 25.57±1.28. It shows that there is significant difference of knowledge in experimental group.

Table 5 shows the post test knowledge score in control group, mean percentage 23% and Mean±SD was 7.4 ±3.53. It shows that there was no significant difference of knowledge in control group.

Table 6 shows the obtained mean score percentage in the experimental group was 59.3% and in control group was 3.96%. The calculated t value was 41.13, p <0.001.It shows there is the significant increase in the knowledge score after the administration of self-instructional module in the experimental group than the control.

Table 4: Effectiveness of structured teaching program among COPD patients in experimental group.

Domains	No. Of questions	Min-Max Score	Mean ± SD	Mean percentage
Anatomy and Physiology	4	0-4	3.30± 0.60	82.5%
Disease aspects of COPD	3	0-3	2.57±.0.50	85.7%
Self-care management of COPD	25	0-25	19.70±1.29	78.8%
Overall	32	0-14	25.57±1.28	79.9%

Table 5: Post-test knowledge score among patients in control group.

Domains	No. of questions	Min-Max Score	Mean ± SD	Mean percentage
Anatomy and Physiology	4	0-4	1.80±0.71	45.0%
Disease aspects of COPD	3	0-3	1.10±0.71	36.7%
Self care management of COPD	25	0-25	4.50±2.80	18.0%
OVERALL	32	0-14	7.40±3.53	23.1%

Table 6: The mean difference in the level of knowledge between the experimental and control group.

Group	Difference in mean			Student independent T test value
	Mean	SD	Percentage	
Experimental Group	19.1	1.47	59.3%	t = 41.13; p < 0.001 Significant
Control Group	1.27	3.78	3.96%	

Table 7: Association of the knowledge score among COPD patients with their demographic variables in experimental group N=30.

Demographic variables		Level of knowledge				Significance
		Moderate		Adequate		
		N	%	N	%	
Age (years)	41-50	3	27.2%	8	72.8%	α^2=5.76; P=0.02 Significant
	51-60	0	0.0%	19	100%	
Sex	Male	2	17.4%	21	82.6%	α^2=0.19; P=0.66 Not significant
	Female	1	14.3%	6	85.7%	
Marital status	Married	2	7.4%	25	92.8%	α^2=2.02; P=0.15 Not significant
	Widow	1	33.3%	2	66.7%	
Education	Primary	3	13.0%	20	87.0%	α^2=1.01; P=0.33 Not significant
	Secondary	0	0.0%	7	100.0%	
Occupation	Unemployed	2	50.0%	2	50.0%	α^2=1.25; P=0.53 Not significant
	Self employed	1	6.3%	15	93.7%	
	Private employee	0	0.0%	10	100.0%	
Income	< Rs.1000	2	14.2%	12	86.8%	α^2=0.85; P=0.65 Not significant
	Rs.1001-2000	1	9.1%	10	81.9%	
	Rs.2001-3000	0	0.0%	5	100.0%	
Religion	Hindu	2	8.0	23	92.0%	α^2=2,25; P=0.32 Not significant
	Muslim	0	0.0%	2	100.0%	
	Christian	1	33.3%	2	66.7%	
Residence	Urban	2	12.5%	14	87.5%	α^2=0.24; P=0.62 Not significant
	Rural	1	7.1%	13	92.9%	
Diet	Vegetarian	2	25.0%	6	75.0%	α^2=0.93; P=0.33 Not significant
	Mixed	1	4.5%	21	95.5%	
Information Source	Family members	0	0.0%	2	10.0%	α^2=0.51; P=0.77 Not significant
	Neighbours	0	0.0%	2	10.0%	
	Health personnel	3	11.5%	23	88.5%	
Suffering years	1-5 yrs	2	66.6%	1	33.3%	α^2=5.93; P=0.01 Significant
	5-10 yrs	1	3.7%	26	92.3%	
Hospitalization	Yes	3	100.0%	27	100.0%	α^2=0.00; P=1.00 Not significant
	No	0	0.0%	0	0.0%	
Reasons	COPD	2	11.1%	16	87.9%	α^2=0.06; P=0.81 Not significant
	Associated symptoms	1	7.6%	12	92.4%	
Duration of stay	< 7 days	2	9.5%	19	81.5%	α^2=0.28; P=0.59 Not significant
	7 - 10 days	1	11.1%	8	88.9%	

Table 7 depicts the demographic variables like age; duration of disease is significantly associated with the post test knowledge score.

Other demographic variables like sex, marital status, education, occupation, income religion, diet, information

source & duration of stay not significantly associated with the post test knowledge score.

DISCUSSION

The study findings highlighted that most of the COPD patients had less knowledge regarding self-management of COPD. These finding consistent with Hernandez P, Balter M, Bourbeau J, Hodder R study findings that COPD patients knowledge score was poor regarding the cause of their condition, the consequences of inadequate therapy and the management of exacerbation'[6] Scott AS, Baltzan MA, Dajczman E, Wolkove N study findings reported that there was need for more information, and that a knowledge gap was identified in self-management strategies.[7]

The education program significantly improved the knowledge of the COPD Patients regarding self-care management. These findings were correlated with Gullick J, Stainton MC study results that the self - instructional module was highly effective. Early education and support has also been identified as important when adjusting to a new diagnosis of COPD, further stressing the importance of the health care relationship.[8] Lorig KR, Holman H study findings reported that it is important to determine if the self-care experiences of those with milder levels of the disease share the same priorities for disease management. It has been stated that self-management should focus on solving what the patient perceives to be problematic.[9]

CONCLUSION

The result from this study reveals that the knowledge regarding self-care management among COPD patients were inadequate. Also, the structured teaching program significantly improved the knowledge of COPD patients regarding self-care management. Educating the COPD patients about self-care management will help to prevent the progression of COPD.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Sharma MK, Kumar A, Venkateshan M. Effectiveness of self-instructional module on knowledge of self-care management of chronic obstructive pulmonary disease among patients with chronic obstructive pulmonary disease. Int J Res Med Sci 2016;4:1604-8.