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Gowthami BN
Assistant Professor, Department of Medical Surgical Nursing Cauvery College of Nursing, Mysore, Rajiv Gandhi University of Health Sciences, Karnataka, India

Maitra BM
Department of Psychiatric Nursing, Principal, Associate Professor, Akash Global College of Nursing, Bangalore, Rajiv Gandhi University of Health Sciences, Bangalore Karnataka, India

Tejashwini R
Assistant Professor, Department of Psychiatric Nursing, Vidyaratna College of Nursing, Udupi, Rajiv Gandhi University of Health Sciences, Karnataka, India

Corresponding Author:
Gowthami BN
Assistant Professor, Department of Medical Surgical Nursing Cauvery College of Nursing, Mysore, Rajiv Gandhi University of Health Sciences, Karnataka, India

Effectiveness of video assisted teaching programme on life style modifications on the knowledge among patients with chronic obstructive pulmonary disease (COPD) admitted in Sri Chamarajendra hospital, Hassan

Gowthami BN, Maitra BM and Tejashwini R

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Abstract
Background: Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of morbidity and mortality worldwide. The disease, primarily caused by tobacco smoking and environmental pollutants, is characterized by airflow limitation and respiratory distress. Patient education plays a vital role in improving disease outcomes.
Objective: This study aimed to evaluate the effectiveness of a Video Assisted Teaching Programme (VATP) on lifestyle modifications in improving knowledge among COPD patients admitted at Sri Chamarajendra Hospital, Hassan.
Methods: A quasi-experimental, one-group pre-test post-test design was employed. Forty COPD patients were selected through convenience sampling. A structured interview schedule was used for data collection. VATP was administered after pretest, and post-test was conducted after seven days. Data were analyzed using descriptive and inferential statistics.
Results: Pre-test knowledge mean percentage was 41.67% and post-test knowledge mean percentage was 92.27%, indicating a significant improvement. The calculated t-value (t=25.10) was statistically significant ($p<0.05$). No significant association was found between post-test knowledge scores and socio-demographic variables.
Conclusion: The VATP was effective in enhancing knowledge regarding lifestyle modifications among COPD patients. Health education strategies such as VATP should be integrated into routine care to promote self-management and reduce exacerbations.

Keywords: COPD, lifestyle modification, video assisted teaching programme, patient education

Introduction
COPD is a preventable and treatable disease characterized by persistent respiratory symptoms and airflow limitation due to airway and/or alveolar abnormalities, often caused by exposure to noxious particles or gases [1]. Globally, COPD is the third leading cause of death, and its burden continues to rise, especially in developing countries due to indoor air pollution, smoking, and lack of awareness [2].
In India, biomass fuel exposure and passive smoking significantly contribute to the disease burden (WHO, 2017) [3]. COPD affects quality of life and leads to frequent hospitalizations, loss of productivity, and psychosocial stress. Patient education has been found to improve self-management, reduce hospital visits, and enhance treatment adherence [4].
This study focuses on assessing whether a VATP can significantly improve COPD patients' knowledge about lifestyle changes required for disease management.

Need for the Study
Multiple Indian and international studies underscore the high prevalence of COPD and the gap in patient knowledge regarding its management [5, 6]. In rural India, biomass exposure and inadequate ventilation are major risk factors. Studies reveal a lack of awareness among COPD patients about diet, breathing exercises, smoking cessation, and other lifestyle factors [7].

Educational interventions have shown positive outcomes in chronic disease management, especially when delivered through interactive media such as videos [8]. Hence, a VATP was designed in the regional language (Kannada) for easy comprehension among patients.

Objectives

1. To determine the existing knowledge regarding life style modifications among patients with COPD.
2. To evaluate the effectiveness of video assisted teaching program regarding life style modifications on the knowledge among patients with COPD.
3. To find the association between post-test level of knowledge among patients with COPD and their selected socio demographic variables.

Hypotheses of the study

H_1: There will be a significant difference between mean pre-test and post-test knowledge scores regarding life style modifications among patients with COPD.

H_2: There will be a significant association between post-test level of knowledge among patients with COPD and their selected socio-demographic variable.

Methodology

Research Approach and Design: An evaluative research approach was used with a quasi-experimental one-group pre-test post-test design. This design was chosen to assess the effectiveness of the intervention without a control group.

Setting: The study was conducted in the general medical wards of Sri Chamarajendra Hospital, a 650-bedded tertiary care government hospital located in Hassan, Karnataka.

Population and Sample: The population included all COPD patients admitted to the general medical wards during the study period. The sample consisted of 40 COPD patients who met the inclusion criteria.

Sampling Technique: Convenience sampling was used to select the study participants.

Inclusion Criteria

- Patients aged 30 years and above.
- Diagnosed with COPD by a physician.
- Able to understand Kannada.
- Willing to participate in the study.

Exclusion Criteria

- Patients with cognitive impairment.
- Critically ill patients.

Development of Tool and Intervention: A structured interview schedule was developed to assess knowledge regarding lifestyle modifications in COPD. The questionnaire included items on causes, symptoms, complications, and prevention strategies. The tool was validated by experts in medical-surgical nursing and pulmonology, and its reliability was established using test-retest method.

The intervention—a video-assisted teaching programme (VATP)—was developed in Kannada and covered topics such as smoking cessation, diet, breathing exercises, medication adherence, and preventive care. The video duration was approximately 20 minutes.

Data Collection Procedure

- On Day 1, the pre-test was conducted using the structured questionnaire.
- Immediately after the pre-test, the VATP was administered in a quiet room.
- On Day 7, a post-test was conducted using the same questionnaire to measure knowledge gain.

Ethical Considerations

- Ethical clearance was obtained from the institutional ethical committee.
- Written informed consent was taken from each participant.
- Confidentiality and anonymity were maintained throughout the study.

Statistical Analysis: Data were analyzed using descriptive statistics (mean, standard deviation, frequency, percentage) and inferential statistics (paired t-test to assess the effectiveness of VATP, and chi-square test to find the association with socio-demographic variables).

Results

The collected data was entered into a master sheet for tabulation and statistical processing. The data was analyzed and interpreted using both descriptive and inferential statistical methods. The results of the data analysis are presented under the following headings:

Section I: Analysis of Socio-demographic characteristics of study participants under the study.

Section II: Analysis of pre-test and post-test knowledge scores of study participants.

a) Analysis of pre-test knowledge scores of study participants.
b) Analysis of post-test knowledge scores of study participants.
c) Comparison of pre-test and post-test knowledge of study participants.

Section III: Analysis of association between pre-test knowledge scores and selected demographic variables of study participants

Section 1: Socio-demographic characteristics of study participants

Table 1: Classification of study participants by socio-demographic variables. N=40

Sl. No	Socio Demographic variables	Categories	Frequency	Percentage of frequency
1	Age in years	21-30	5	12.5%
		31-40	9	22.5%
		41-50	15	37.5%
		61 and above	11	27.5%
2	Gender	Male	24	60.0%
		Female	16	40.0%
3	Religion	Hindu	24	60.0%
		Muslim	10	25.0%
		Christian	6	15.0%
		Others	0	0.0%
4	Marital status	Single	1	2.5%
		Married	37	92.5%
		Divorced	2	5.0%
5	Type of the family	Nuclear	15	37.5%
		Joint	20	50.0%
		Extended	5	12.5%
6	Educational status	Primary	25	62.5%
		Secondary	9	22.5%
		PUC	2	5.0%
		Graduate and above	0	0.0%
7	Occupation	Unemployed	7	17.5%
		Self employed	16	40.0%
		Private sector employee	17	42.5%
		Government employee	0	0.0%
8	Family income in rupees	5,000 and below	24	60.0%
		5,001-10,000	10	25.0%
		10,001- 15,000	4	10.0%
		15,001- 20,000	2	5.0%
		20,001 and above	0	0.0%
9	Duration after the diagnosis of COPD	Less than 1 year	9	22.5%
		1-3 years	31	77.5%
		4 years and above	0	0.0%
10	Source of information related to COPD	Journals and news papers	25	62.5%
		Television and internet	15	37.5%
		Friends and relatives	0	0.0%
		Health care personnel	0	0.0%
		None	0	0.0%

This table outlines the socio-demographic distribution of COPD patients. The majority were aged 41-50 years (37.5%), followed by those aged 61 and above (27.5%). Most participants were male (60%), Hindu (60%), and married (92.5%). In terms of family structure, 50% lived in joint families. Educationally, 62.5% had primary education, while none were graduates. Occupationally, 42.5% worked in the private sector, and 40% were self-employed. Most families (60%) had an income of ₹5,000 or less. Regarding COPD diagnosis, 77.5% had been diagnosed 1-3 years ago. The primary sources of information about COPD were journals and newspapers (62.5%), followed by television and the internet (37.5%).

Section II: Pre-test and post test knowledge regarding life style modifications among patients with COPD

This Section describes the findings of analysis of Pre-test and Post-test knowledge scores regarding life style modifications among patients with COPD.
The stated research hypothesis is,

H_1: There will be a significant difference between mean pre-test and post-test knowledge scores regarding life style modifications among patients with COPD.
Hence the null hypothesis is,

H_{01}: There will be no significant difference between mean pre-test and post-test knowledge scores regarding life style modifications among patients with COPD.

A. Pretest knowledge among patients with COPD.

Table 2: Aspect wise and overall Mean, Mean %, SD, and CV of pre-test knowledge scores regarding life style modifications among patients with COPD (N=40)

Aspects	No. of Items	Minimum	Maximum	Range	Mean	Mean%	Standard Deviation	Co-efficient of variation
Aspect 1: General information and causes of COPD	5	0	4	4	2.5	50.00%	0.78	31.20%
Aspect 2: Signs and symptoms, and complications of OPD	5	0	4	4	2.15	43.00%	1.19	55.35%
Aspect 3: Dietary management of COPD	5	0	4	4	2.35	47.00%	0.98	41.70%
Aspect 4: Life style modifications of COPD	15	3	8	5	5.5	36.67%	1.18	21.45%
pretest overall knowledge scores	30	9	17	8	12.5	41.67%	1.89	15.12%

This table details the pre-test knowledge in four domains. The highest pre-test mean score was for general information and causes of COPD (50%), followed by dietary management (47%), signs and symptoms (43%), and lifestyle modifications (36.67%). The overall mean knowledge score was 41.67%. The highest variability (CV) was observed in knowledge related to signs and symptoms (55.35%), indicating inconsistency in patient understanding in that area.

B. Post-test knowledge scores among patients with copd

Table 3: Aspect wise and overall Mean, Mean %, SD, and CV of post-test knowledge scores regarding life style modifications among patients with COPD (N=40)

Aspects	No. of Items	Minimum	Maximum	Range	Mean	Mean%	Standard Deviation	Co-efficient of variation
Aspect 1: General information and causes of COPD	5	3	5	2	4.55	91.00%	0.60	13.19%
Aspect 2: Signs and symptoms, and complications of COPD	5	3	5	2	4.75	95.00%	0.49	10.32%
Aspect 3: Dietary management of COPD	5	3	5	2	4.58	91.60%	0.55	12.01%
Aspect 4: Life style modifications of COPD	15	9	15	6	13.8	92.00%	1.60	11.59%
Posttest overall knowledge scores	30	21	29	8	27.68	92.27%	2.15	7.77%

In the post-test, knowledge scores significantly improved across all domains. The highest post-test mean percentage was observed for signs and symptoms (95%), followed by lifestyle modifications (92%), dietary management (91.6%), and general information (91%). The overall post-test mean score was 92.27%, and the coefficient of variation decreased across all aspects, indicating more consistent knowledge among participants after the intervention.

Comparison of pre-test and post-test knowledge regarding life style modifications among patients with COPD.

Table 4: Comparison between pre-test and post-test levels of knowledge regarding life style modifications among patients with COPD (N=40)

Level of knowledge	Percentage of knowledge scores	No. of study participants.		Percentage of frequency	
		pre test	post test	pre test	post test
Inadequate	**≤50%**	35	0	87.5%	0.0%
Moderate	**50-75%**	5	4	12.5%	10.0%
Adequate	**>75%**	0	36	0.0%	90.0%
Total		40	40	100.0%	100.0%

This comparison reveals a dramatic shift in knowledge levels. In the pre-test, 87.5% were in the inadequate category, which dropped to 0% in the post-test. Adequate knowledge increased from 0% to 90%. This marked improvement demonstrates the high effectiveness of the video-assisted teaching programme on lifestyle modifications for COPD.

Table 5: Mean and Mean% of pre-test, post-test, and Enhancement knowledge scores regarding life style modifications among patients with COPD (N=40)

Aspects	Mean			Mean%			calculated paired t-test value
	Pre test	Post test	Enhancement	Pre test	Post test	Enhancement	
Aspect 1: General information and causes of COPD	2.5	4.55	2.05	50.00%	91.00%	41.00%	13.51 (S)
Aspect 2: Signs and symptoms, and complications of COPD	2.15	4.75	2.6	43.00%	95.00%	52.00%	11.81 (S)
Aspect 3: Dietary management of COPD	2.35	4.58	2.23	47.00%	91.60%	44.60%	13.41 (S)
Aspect 4: Life style modifications of COPD	5.5	13.8	8.3	36.67%	92.00%	55.33%	28.07 (S)
Overall knowledge scores	12.5	27.68	15.18	41.67%	92.27%	50.60%	37.92(S)

(S)= Significant at 0.05 level
t (0.05, 39df) = 2.04

The table illustrates the average knowledge gains in each domain. The highest improvement was seen in lifestyle modifications (from 36.67% to 92%; enhancement of 55.33%). Overall, knowledge improved from 41.67% to 92.27% (enhancement: 50.6%). All calculated t-values were highly significant ($p < 0.05$), confirming that the educational intervention was statistically effective across all aspects.

Table 6: Mean, Mean%, SD and CV of Overall pre-test, post-test and enhancement knowledge scores regarding life style modifications among patients with COPD. (N=40).

	Minimum	Maximum	Range	Mean	mean%	Std. Deviation	co-efficient of variance	Paired t Test Value
Pretest	9	17	8	12.50	41.67%	1.89	15.12%	37.92
Posttest	21	29	8	27.68	92.25%	2.15	7.77%	(S)
Enhancement	9.00	20.00	11.00	15.18	50.58%	2.53	16.68%	df=39

(S)= significant at 0.05 level
t (0.05, 39df) =2.04

This table summarizes the overall improvement. The mean pre-test score was 12.5 (41.67%), which increased to 27.68 (92.27%) post-intervention. The enhancement was 15.18 (50.58%). The paired t-test value was 37.92, which is highly significant at the 0.05 level, confirming the efficacy of the intervention. The reduction in CV from 15.12% to 7.77% post-test suggests greater consistency in knowledge post-intervention. Hence the stated null hypothesis H_{01} is rejected and alternative hypothesis H_1 is accepted.

Section III: Association between the selected demographic variables and the post test knowledge scores regarding life style modifications among patients with copd

This section explains the findings of analysis of association of pre-test knowledge scores regarding life style modifications among patients with COPD.
The stated research hypothesis is,

H_2: There will be a significant association between post-test level of knowledge among patients with COPD and their selected socio-demographic variables.
Hence the null hypothesis,

H_{02}: There will be no significant association between post-test level of knowledge among patients with COPD and their selected socio-demographic variables.

Table 7: Association between post-test level of knowledge of study participants and their socio-demographic variables. (n=40)

Sl. No	Demographic Variables	Categories	Post Test Knowledge Level		Calculated χ^2 Value	Df
			Median and below	Above median		
1	Age in years	21-30	3	2	0.09 (NS)	3
		31-40	6	3		
		41-50	10	5		
		61 and above	7	4		
2	Gender	Male	14	10	1.17(NS)	1
		Female	12	4		
3	Religion	Hindu	16	8	0.15 (NS)	2
		Muslim	6	4		
		Christian	4	2		
4	Marital status	Single	0	1	2.93 (NS)	2
		Married	24	13		
		Divorced	2	0		
5	Type of the family	Nuclear	11	4	0.73 (NS)	2
		Joint	12	8		
		Extended	3	2		
6	Educational status	No formal education	3	1	0.83 (NS)	3
		Primary	17	8		
		Secondary	5	4		
		PUC	1	1		
		Graduate and above	0	0		
7	Occupation	Unemployed	4	3	3.13 (NS)	2
		Self employed	13	3		
		Private sector employee	9	8		
		Government employee	0	0		
8	Family income in rupees	5,000 and below	15	9	0.55 (NS)	3
		5,001-10,000	7	3		
		10,001- 15,000	3	1		
		15,001- 20,000	1	1		
		20,001 and above	0	0		
9	Duration after the diagnosis of COPD	Less than 1 year	6	3	0.01 (NS)	1
		1-3 years	20	11		
		4- 6 years	0	0		
		7 years and above	0	0		
10	Source of information related to COPD	Journals and news papers	16	9	0.03 (NS)	1
		Television and internet	10	5		
		Friends and relatives	0	0		
		Health care personnel	0	0		
		None	0	0		

(NS)= not significant
(S) = significant at 0.05 level

This table explored associations between post-test knowledge levels and demographic variables using Chi-square tests. None of the variables, including age, gender, religion, marital status, family type, education, occupation, income, COPD duration, or information sources, showed a statistically significant association ($p > 0.05$). This indicates that the improvement in knowledge was independent of socio-demographic factors and likely due to the intervention itself. Hence the stated null hypothesis H_{02} is accepted and the research hypothesis H_2 is rejected with regard to all the selected socio-demographic variables and post-test level of knowledge of study participants.

Discussion

The present study aimed to evaluate the effectiveness of a Video Assisted Teaching Programme (VATP) on lifestyle modifications among COPD patients. The findings of the study revealed a significant improvement in the post-test knowledge scores (92.27%) compared to the pre-test scores (41.67%), indicating that VATP was highly effective in enhancing patients' knowledge.

These findings are consistent with a study conducted by Thomas *et al*. (2021) [9], where interactive video lessons significantly improved knowledge retention among COPD patients. In that study, participants exposed to video-based education demonstrated a mean post-test knowledge improvement of over 40% compared to traditional methods [9].

Another similar intervention study by Gupta and Singh (2020) [8] reported that multimedia-based health education showed an improvement of 60% in knowledge retention among patients with chronic diseases, supporting the effectiveness of audiovisual learning tools in low-literacy settings [8].

A study by Bourbeau *et al*. (2003) [4] emphasized the role of structured self-management education in COPD and found that educational interventions could significantly reduce hospital admissions and improve quality of life [4]. This supports the notion that improved patient knowledge translates into better health outcomes, consistent with the current study's conclusion.

The findings of this study are further substantiated by research conducted by Salvi and Agrawal (2012) [5], which highlights the critical need for a national COPD education and control program in India due to widespread lack of awareness [5]. The current study's use of a culturally appropriate VATP in Kannada addresses this need effectively.

In contrast to some studies that found socio-demographic factors like education and income to be significantly associated with knowledge improvement, this study did not find a statistically significant relationship between knowledge scores and demographic variables. This may be attributed to the uniform delivery of the teaching content through video, which helps bridge educational and literacy gaps. Overall, the results align with national and international findings that suggest VATPs and other structured teaching interventions are valuable tools in chronic disease education. The use of native language, visual content, and structured questionnaires contributed to the success of this intervention.

Conclusion

The Video Assisted Teaching Programme significantly improved COPD patients' knowledge regarding lifestyle modifications. Incorporating such educational strategies in clinical settings can empower patients, reduce disease burden, and improve health outcomes.

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