

*Original/Research Paper***Effect of video and pamphlet-based educational program on the quality of life of patients with chronic obstructive pulmonary disease: A quasi-experimental study**Mohammad Reza Jani ^a  | Hoda Salehi ^b | Mohammad Hadi Sarvari ^c  | Seyed Mostafa Mohsenizadeh ^{d*}

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Abstract

The present study aims to determine the effect of two educational methods of pamphlets and videos on the quality of life (QoL) of patients with chronic obstructive pulmonary disease (COPD). This study is quasi-experimental. Patients with COPD who are admitted to and treated at the internal department of Shohada Qaen Hospital make up the population of this study. Giving an informative pamphlet was used as the training intervention's first group while showing an instructional video (CD) was used as its second group. The patients were given educational pamphlets or educational CDs throughout their hospital stay, and they were instructed to implement the educational materials at home. With the use of the SF-36 tool, the QoL of both groups of patients was assessed at the time of discharge and served as a baseline for comparison one month later. A total of 80 COPD patients participated in this study. Among 80 participants, 40 of them were in the educational pamphlet group and 40 of them were in the educational videos group. According to the SF-36 questionnaire, the mean score of QoL before and after the intervention in the educational videos group was 37.84 (SD=11.35) and 59.97 (SD=11.31), respectively, which indicated a significant difference after the intervention ($P \leq 0.001$). The mean score of QoL before and after the intervention in the educational pamphlet group was 31.93 (SD=13.50) and 45.63 (SD=14.27), respectively, which indicated a significant difference after the intervention ($P < 0.001$). Overall, based on the obtained results, self-care education through video content and pamphlet improves the level of QoL in patients with COPD. Therefore, medical staff, especially nurses, can improve QoL in patients with COPD by using video and pamphlet self-care educational methods.

Keywords: Education, Training, Pamphlets, Chronic Obstructive Lung Disease.**1 | Introduction**

The respiratory condition known as a chronic obstructive pulmonary disease (COPD) is preventable, curable, and slowly progressing. Airflow obstruction that affects the airways, the lung parenchyma, or both is the primary cause of COPD. With COPD, airflow obstruction or restriction is only partially reversible [1]. Symptoms of COPD include coughing up phlegm, a reduced capacity for exertion, wheezing, shortness of breath, and extended exhalation. One of the most typical symptoms in affected individuals is shortness of breath [2]. COPD is the fourth leading

cause of death in the world and affects more than 10 million people in the USA [3]. According to estimates, there are 105 COPD patients in Iran in the 15–49 age range for every 100,000 individuals, and 1057 in the 50–plus age group for every 100,000 people. Moreover, the majority of the infected were urban dwellers and males [2].

The term "quality of life (QoL)" refers to a broad concept that is intricately linked to aspects such as one's physical and mental well-being, level of independence, social connections, personal views, and the environment [4]. QoL is a relative,

multidimensional concept that is influenced by geography, time, and both personal and societal values [5]. A person's level of self-satisfaction, family, social, and economic circumstances, as well as their emotional and psychological health, are all factors that determine their QoL [6].

The patient's performance, physical and general health, as well as the patient's emotional, psychological, and social status, can all be improved and role restrictions can be reduced with the best possible education about the disease, the treatment technique, and self-care. Self-care activities are typically regarded as one of the key objectives in the treatment of chronic patients since they can improve QoL [7]. There is ample evidence to suggest that patients are released with inadequate knowledge of their illness and self-care. Giving patients educational programs and learning how to give patients educational programs are two issues that improve the QoL for patients. Enhancing self-care practices can aid patients in taking charge of their lives and adjusting to the problems brought on by their sickness, which enhances patients' QoL [8].

Home care has recently played a role in the speedy discharge of patients from hospitals, and it is also effective at lowering costs of care, preventing infection, persuading and motivating patients to engage in their care, and enhancing patients' QoL and satisfaction [9]. The application of these training methods, which are primarily verbal and face-to-face, can often be challenging because of the lack of time, which is one of the reasons nurses frequently provide patients with minimal training [10, 11].

Patient education, which includes a variety of themes, is a crucial component of lung rehabilitation. While not all patients have access to official rehabilitation programs, nurses can be very helpful in educating patients and their families and arranging for specialized treatments for patients, like physical therapy for exercise, breathing exercises, and occupational therapy [1]. Educating the patient results in significant improvements in behaviors like smoking, increasing tolerance levels, physical activity, and following medical advice [12]. As a result, given that the QoL index can thoroughly assess the impact of the care given, the goal of this research is to examine the effect of education through pamphlets and educational videos on the QoL of patients with COPD.

2 | Methods

2.1 | Study design

This study is quasi-experimental. Patients with COPD who are admitted to and treated at the internal department of Shohada Qaen Hospital make up the population of this study.

2.2 | Ethics consideration

This study has been registered at Birjand University of Medical Sciences with code IR.BUMS.REC.1395.269. Ethics-related considerations, such as securing information confidentiality and obtaining written informed permission, were taken into account.

2.3 | Sample size

The sample size was computed using the formula for comparing the mean and standard deviation with a confidence level of 95% and a power of 80%. 21 people were calculated for each group and with the possibility of dropping samples on a large scale, 40 people were considered in each group and 80 people in total.

2.4 | Participants

In this study, convenience sampling was used. Following the receipt of written informed consent, the research units were divided into two educational groups of pamphlets and videos randomly. Inclusion criteria included the following: COPD diagnosed by an internal medicine specialist and confirmed by clinical symptoms, presence of lung sounds and breathing tests, age between 20 and 99 years, reading and writing literacy, admission to the ward during the implementation of the training and preparation program for discharge, physical and mental readiness for training, absence of known mental disorder, and presence of a caregiver at home. Exclusion criteria included the following: a major change in life such as the death of a loved one, suffering from a mental illness, inability to make phone calls after discharge, and refusing to continue participating in the research.

2.5 | Data collection

Data collection tools included demographic characteristics and the SF-36 QoL questionnaire. The data included gender, age, marital status, and education. After obtaining official permission from the Qaen College of Nursing and Midwifery, the researcher went to the officials of Shohada Qaen Hospital and after obtaining their consent, the researcher started collecting data in the internal department of the hospital. Patients with COPD who qualified as a research sample were chosen by the researcher. The demographic information form was then filled out based on the patient interview and the patient's file after the researcher had discussed the research's goals and procedures with the participants. The researcher then used the interviewing technique to complete the SF-36 QoL questionnaire.

Giving an informative pamphlet was used as the training intervention's first group while showing an instructional video (CD) was used as its second group. The patients were given educational pamphlets or educational CDs throughout their hospital

stay, and they were instructed to implement the educational materials at home. With the use of the SF-36 tool, the QoL of both groups of patients was assessed at the time of discharge and served as a baseline for comparison one month later. One month after being discharged, both groups (pamphlet and CD) had their QoL once more assessed by telephone interview to evaluate the training.

2.5.1 | SF-36

The SF-36 questionnaire evaluates the QoL in eight sections and includes 36 questions. This questionnaire contains 8 parts, which include physical function (10 questions), role limitation related to the physical problem (4 questions), role limitation related to the mental problem (3 questions), physical pain (2 questions), social function (2 questions), emotional health (5 questions), energy and fatigue (4 questions), general health (5 questions) and one question that was not present in any of the scales and is added to the total score. Each part is scored between 0 and 100. A score of zero indicates the lowest level and 100 indicates the highest level of a person's QoL. The QoL was classified into three categories: unfavorable (scores 0-50), relatively favorable (scores 50-75), and favorable (scores above 75). Also, this questionnaire includes two parts of physical and mental dimensions, the standard average of physical and mental dimensions is 50, which is higher and lower than 50, respectively, indicating high and low average performance. This tool has been translated and validated by Montazeri *et al.* Also, Cronbach's alpha coefficient of this tool was from 0.77 to 0.90 [13, 14].

2.6 | Statistical analysis

The data were examined using SPSS software (version 16.0, SPSS Inc., Chicago, IL, USA). The means, standard deviations

(SD), and frequencies (percentages), respectively, for continuous and categorical variables, were provided. Mann-Whitney U tests were used to compare the QoL score before and after the intervention in two groups, and Wilcoxon tests were used for each group. In all tests, a significance level of 0.05 was considered.

3 | Results

3.1 | Participants

As shown in Table 1, a total of 80 COPD patients participated in this study. Among 80 participants, 40 of them were in the educational pamphlet group and 40 of them were in the educational videos group. Among the participants, 53.75% were male, 68.75% were single, 82.98% were illiterate, and 47.50% of the patients were self-employed. There was no significant difference in demographic variables between the two groups ($P>0.05$).

3.2 | QoL in educational videos and educational pamphlet groups

As shown in Table 2, according to the SF-36 questionnaire, the mean score of QoL before and after the intervention in the educational videos group was 37.84 (SD=11.35) and 59.97 (SD=11.31), respectively, which indicated a significant difference after the intervention ($P\leq 0.001$). The mean score of QoL before and after the intervention in the educational pamphlet group was 31.93 (SD=13.50) and 45.63 (SD=14.27), respectively, which indicated a significant difference after the intervention ($P<0.001$). Also, there was a significant difference in both groups pre- and post-intervention average scores across all SF-36 dimensions ($P\leq 0.001$).

Table 1. Individual characteristics of the participants (N=80).

	Total (N=80)	Groups		P-value
		Educational videos (N=40)	Educational pamphlet (N=40)	
Sex				
Male	43 (53.75)	19 (47.50)	24 (60.00)	0.37
Female	37 (46.25)	21 (52.50)	16 (40.00)	
Marital status				
Single	55 (68.75)	31 (77.50)	24 (60.00)	0.09
Married	25 (31.25)	9 (22.50)	16 (40.00)	
Level of education				
Illiterate	52 (65.00)	25 (62.50)	27 (67.50)	0.63
Literate	28 (35.00)	15 (37.50)	13 (32.50)	
Occupation				
Housewife	17 (21.25)	8 (20.00)	9 (22.50)	0.36
Unemployed	25 (31.25)	10 (25.00)	15 (37.50)	
Self-employment	38 (47.50)	22 (55.00)	16 (40.00)	

Values are given as a number (percentage) for categorical variables. P-value was obtained with a chi-square test.

Table 2. QoL in educational videos and educational pamphlet groups (N=80).

	Educational videos			Educational pamphlet		
	Before intervention	After intervention	P-value	Before intervention	After intervention	P-value
<i>Dimensions of QoL</i>						
Physical performance	49.00 (SD=13.64)	63.00 (SD=14.75)	≤0.001	32.75 (SD=24.44)	40.75 (SD=21.10)	≤0.001
Role disorder due to physical health	22.06 (SD=21.87)	52.50 (SD=28.75)	≤0.001	27.85 (SD=20.00)	56.25 (SD=33.85)	≤0.001
Role disorder due to emotional health	34.55 (SD=31.66)	65.83 (SD=26.67)	≤0.001	27.92 (SD=20.83)	52.25 (SD=40.75)	≤0.001
Energy/fatigue	39.37 (SD=16.53)	56.37 (SD=14.93)	≤0.001	30.37 (SD=13.74)	34.87 (SD=12.32)	≤0.001
Vitality	52.60 (SD=17.43)	67.00 (SD=11.83)	≤0.001	39.20 (SD=15.90)	44.30 (SD=14.39)	≤0.001
Social Performance	37.75 (SD=13.80)	60.00 (SD=13.33)	≤0.001	45.00 (SD=22.61)	60.93 (SD=19.85)	≤0.001
Physical pain	36.75 (SD=17.58)	63.56 (SD=10.58)	≤0.001	43.37 (SD=13.29)	58.75 (SD=13.03)	≤0.001
General Health	36.25 (SD=11.69)	51.62 (SD=13.41)	≤0.001	25.25 (SD=16.63)	29.87 (SD=15.70)	≤0.001
Physical dimension	35.96 (SD=10.46)	57.67 (SD=12.43)	≤0.001	30.34 (SD=14.87)	46.40 (SD=15.08)	≤0.001
Psychological dimension	40.59 (SD=15.74)	63.30 (SD=12.01)	≤0.001	33.85 (SD=15.56)	48.15 (SD=16.79)	≤0.001
<i>Total score</i>	37.84 (SD=11.35)	59.97 (SD=11.31)	≤0.001	31.93 (SD=13.50)	45.63 (SD=14.27)	≤0.001

Values are given as a mean for continuous variables.

P-value was obtained with a Mann-Whitney U test.

4 | Discussion

This research was conducted to compare the effect of two educational pamphlets and educational videos on the QoL of COPD patients. The average score of the total QoL, mental and physical dimensions, and all eight dimensions of QoL, before and after the intervention, showed a significant difference in both groups. Several studies have shown that participating in educational programs improves the QoL. In the study of Davoudi et al., which investigated the effect of self-care program training on the QoL of gastric cancer patients after gastrectomy surgery, it showed that after one month, the total QoL score before and after the training had a significant difference, which was in line with our study [15]. In the study of Baraz-Pardenjani et al., which conducted the effect of self-care training through video on the QoL and physical problems of hemodialysis patients, it showed that after two months, the total score of the QoL before and after the intervention had a significant difference [16]. Also, in the study of Vatandoust et al., which showed the effect of an educational film on the QoL of tracheostomy patients, it was shown that after 2 months of using the educational film, it can improve the QoL of the patients [17]. Although the study of Jokar et al., showed that the home-based pulmonary rehabilitation program had a lesser effect on improving the QoL, this study is not consistent with the current research [2]. This inconsistency can be due to the difference in the type of education.

In another study conducted by Yu et al. on patients with COPD, the results showed that following self-management training, dimensions of QoL improved significantly [18]. The study of Al-sheyab et al. also showed that education improves the QoL, which is consistent with the current research [19]. In other studies that were conducted on the evaluation of the lung rehabilitation program on the QoL of COPD patients, it was shown that the

rehabilitation program improves performance and improves QoL [20-22].

The average general health score for COPD patients before and one month after the educational intervention reveals a significant difference between the groups that received educational pamphlets and educational videos before and after the intervention, according to the findings. "Assessment of the effectiveness of patient care training on the QoL of caregivers of stroke patients" was the study title conducted by Gholizadeh et al. In the intervention and control groups, there was a significant difference in how education affected general health, proving that education has a positive impact on patients' general health [23].

In determining and comparing the average score of physical performance before and one month after the educational intervention in two groups of COPD patients, the results show that there is a significant difference between the two groups before and after the intervention. In the study of Narimani entitled "investigation of the effect of self-care training on the QoL of hemodialysis patients", the effect of training on physical performance was significant between the intervention and control groups, which is consistent with the present study [24].

The average score of role limitation caused by psychological problems before and one month after the educational intervention in two groups of COPD patients shows that there is a significant difference between the two groups before and after the intervention. In the study of Vatandoust et al., the effect of training on role limitations caused by psychological problems was significant between the intervention and control groups, which is in line with the present study [17].

The average score of social activity before and one month after the educational intervention in two groups of COPD patients shows that there is a significant difference between the two

groups before and after the intervention. In the study of Baraz-Pardenjani *et al.*, the effect of education on social activity was significant between the intervention and control groups, which is consistent with the present study [16].

The average pain score before and one month after the educational intervention in two groups of COPD patients shows that there is a significant difference between the two groups before and after the intervention. In the study of Vatandoust *et al.*, the effect of training on pain was significant between the intervention and control groups, which is consistent with the present study [17]. Although in the study of Baraz-Pardenjani *et al.*, the effect of training on physical pain in both intervention and control groups was not significant [16].

The average score of role limitation caused by physical problems before and one month after the intervention in two groups of COPD patients shows that there is a significant difference between the two groups before and after the intervention. In the study of Vatandoust *et al.*, the effect of training on role limitations caused by psychological problems was significant between the intervention and control groups, which is consistent with the present study [17].

The average score of energy and fatigue before and one month after the educational intervention in two groups of COPD patients shows that there is a significant difference between the two groups before and after the intervention. The study of Saeidi *et al.* showed that the effect of training on the average score of energy and fatigue between the intervention and control groups was significant, which is consistent with the present study [25]. The average score of vitality before and one month after educational intervention in two groups of COPD patients shows that there is a significant difference in the two groups of pamphlets and educational videos before and after the intervention. In the study of Heidari *et al.*, which was carried out under the title "Investigation of the effect of the self-care training program on the QoL of the elderly", the effect of education on vitality and vitality was significant, which is consistent with the present research [26].

The average score of physical and mental dimensions before and one month after the educational intervention in two groups of COPD patients shows that there is a significant difference between the two groups before and after the intervention. In the study of Salimi *et al.*, the results showed that the effect of training on the average score of physical and mental dimensions in the intervention group before and after the intervention was significant and consistent with the present study [27].

4.1 | Limitations

As with any study, there were some limitations to this study as well, as there are to all studies. One of the limitations of this study was the lack of a control group for each of the educational pamphlets and educational video groups. Another limitation of this study has been conducted the study in a treatment center, which can reduce the generalizability of the study results.

4.2 | Recommendations for future research

It is suggested that future experimental studies investigate each method separately with more samples and a control group. It is also suggested that other self-care training methods should be used to improve the QOL of patients with COPD.

5 | Conclusions

Overall, based on the obtained results, self-care education through video content and pamphlet improves the level of QoL in patients with COPD. Therefore, medical staff, especially nurses, can improve QoL in patients with COPD by using video and pamphlet self-care educational methods.

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Authors' contributions

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work: MRJ, HS, MHS, SMM; Drafting the work or revising it critically for important intellectual content: MRJ, HS, MHS, SMM; Final approval of the version to be published: MRJ, HS, MHS, SMM; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: MRJ, HS, MHS, SMM.

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Ethics approval and consent to participate

This study has been registered at Birjand University of Medical Sciences with code IR.BUMS.REC.1395.269. Ethics-related considerations, such as securing information confidentiality and obtaining written informed permission, were taken into account.

Competing interests

We do not have potential conflicts of interest with respect to the research, authorship, and publication of this article.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on request.

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