

Enteral feeding video training for the relatives of head and neck cancer patients: evaluation of its impact on knowledge and practice

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ABSTRACT

Purpose: The purpose of the study was to examine the effect of using videos during enteral feeding training on the level of relevant knowledge and practice.

Materials and methods: A randomized controlled quasi-experimental, post-test research design was used. We included 33 patients and relatives in the video group while 31 patients their relatives in the control group. In video group, the video recording was shown to the relatives in addition to verbal training however only verbal training was given in the control group. The relatives' level of knowledge and practice score was evaluated.

Results: Mean enteral feeding knowledge scores of patient relatives were found to be 76.7 ± 7.97 in the

video group and 42.1 ± 12.57 in the control group. Mean enteral feeding practice scores were as follows: 19.64 ± 3.3 for the video group and 13 ± 3.63 for the control group.

Conclusions: It was concluded that the enteral feeding training provided by using the video method increased the knowledge and practice levels of patient relatives.

Implications for Practice: Video material prepared for the clinic will be a guide for clinical nurses and help them in their enteral feeding training and care planning.

Keywords: enteral feeding; head and neck cancer; patient; patient relatives; video training

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INTRODUCTION

The surgical operation used in the treatment of head and neck cancer (HNC) causes loss of specific functions such as breathing, speaking, chewing and swallowing. Enteral feeding is started in HNC patients in order to regulate nutrition after surgery. Enteral feeding refers to a method of feeding via nasogastric, gastrostomy, jejunostomy tracts and it is used for patients who have problems with swallowing or chewing for various reasons and cannot be fed orally. While there are advantages in enteral feeding such as its physiological aspect and scarcity of septic complications, enteral feeding may cause many complications that include aspiration pneumonia, diarrhea and hyperglycemia among others. It is crucial to administer enteral feeding with the appropriate technique to prevent the mentioned complications and ensure regular nutrition [1,2].

Enteral feeding in patients with HNC cancer is important in maintaining the nutritional status both in hospital and at home after discharge [3]. Nursing care for patients that require enteral feeding includes providing adequate amount of nutrition and monitoring the patient in terms of possible complications. This can only be achieved with good quality nursing care. Today, the number of patients who continue enteral feeding at home is increasing and their care includes provision of the necessary materials and training on enteral feeding at home [4,5].

Relatives of patients that require enteral feeding have an important role in home care and need information about both technical care services and the implementation of nutrition, possible complications and what to do in case of complications [6]. Relatives of patients encounter difficulties and experience stress in regards to acquiring knowledge and skills about enteral feeding procedures and tube management [7,8]. Vickery et al. [9] found in a comparative study that relatives of patients with HNC cancer had higher levels of anxiety compared to patients. It is crucial that patients and their caregivers receive training on the correct application techniques of enteral feeding and possible complications and prevention methods before discharge from the hospital to increase the quality of care and reduce important complications such as aspiration [8]. Relatives of patients emphasized the importance of support and education to administer tube feeding [7].

Education about enteral feeding increases the knowledge of patients and their relatives. Increased knowledge reduces anxiety and help develop better attitudes and behaviors. In addition, patient relatives feel less care burden high level of knowledge on enteral feeding. This type of training shortens the length of hospital stay and helps

decrease the hospitalization of patients due to nutritional complications. It also reduces costs due to reduced hospitalizations and reduced potential complications [10].

Training that will be given to patient relatives should be well planned. Planned training should be provided as soon as the patient starts enteral feeding and should include written, verbal information, face-to-face explanations and use of video and demonstrations. Video training is more effective than verbal training and/or use of brochures [3,11]. Well-prepared videos provide permanent and consistent information. It also attracts the attention of learners with real-life images provided by the trainer [12].

While videos are widely used in health education and the health system, video training uniquely provided to improve the knowledge/skills of caregivers of patients who need enteral feeding is rather limited. Enteral feeding training for patient relatives was normally provided verbally by nurses at the hospital where the study was planned. This study aimed to ensure that relatives of the patients who required enteral feeding have more permanent, consistent information about nutrition and administer enteral feeding with more accurate techniques by adding video training to the regular training provided verbally. Thus, the study aimed to ensure safe administration of enteral feeding the prevention of possible complications.

This study aimed to examine the effect of using videos during enteral feeding training on the level of relevant knowledge and practice. In addition, the study also set out to prepare video material that will be further used in training patients' relatives about enteral feeding in the clinic.

MATERIALS AND METHODS

Study design

A quasi-experimental, post-test research design was used in this study.

Participants

The study was conducted between September 2018 and March 2019 in the Otolaryngology clinic, caring around 50 patients a day, of a 2000-bed capacity university hospital located in the province of İzmir in Turkey.

The sample of the study was composed of patients and their relatives requiring enteral feeding and their relatives selected using improbable sampling method (n = 64).

The power of the study in post power analysis was found to be 99%.

Inclusion criteria for patients' relatives were being over 18 years of age, having no experience in enteral feeding, caring for patients

who were on their first day of enteral feeding and agreeing to participate in the study.

Data Collection

The study data were collected by the researcher himself in patients' own rooms with the help of a questionnaire and via observations. The procedures followed during data collection are described below.

Preparation phase:

Step 1: Simple randomization was used to determine the groups and 33 patients, and their relatives were assigned to the video group while 31 patients and their relatives were assigned to the control group.

Randomization: Based on the order of arrival of the patients, simple randomization was used. Control group and video group were formed in the following manner: The patients in the 1st, 3rd, 5th and 67th rows that met the sampling criteria were assigned to the control group and the patients in the 2nd, 4th, 6th, and 62nd rows that met the sampling criteria were assigned to the video group. Thus, a total of 64 patients and their relatives (33 in video group and 31 in control group) participated in the study as samples.

Step 2: The purpose and method of the study were explained to the patients and their relatives who agreed to participate in the study and the informed consent form was filled by patients and their relatives. Then, they filled out "Patient and Relatives Information Form".

Implementation phase:

Control group: The relatives of patients were given training on enteral feeding verbally by a researcher. After the verbal training, the first feeding was demonstrated by the researcher. The training was carried out with the patient and his/her relatives in the patient's own room and lasted for 10 minutes. The training was provided to the patient and his/her family by narration supported by questions and answers.

Topics: The content of the training prepared in line with the literature [1,2] included the method of administration enteral feeding products by using NG or gastrostomy, the duration of administration, points to be taken into consideration in practice, the complications that may occur during enteral feeding and what to do to prevent these complications.

Video group: The relatives of patients were given training on enteral feeding by the researcher. The researcher first verbally explained how to administer enteral feeding and later the relatives of the patients watched a video on enteral feeding. Then, the first feeding was demonstrated by the researcher. The video recording was shown

to the patient and his/her relatives in the patient's own room and lasted for 20 minutes.

Topics: The video group watched a video CD with audio that depicted enteral feeding on a manikin. Enteral feeding video shootings were carried out by researchers in nursing professional skills laboratory. The video flow plan included introduction of the materials to be used in enteral feeding and demonstration of all the steps administered during enteral feeding in line with the skill checklists prepared by the researcher. Enteral feeding steps were carried out on a manikin (low reality simulator) on which nursing professional skills were taught. Also, the points to be taken into consideration during the application and possible complications were demonstrated on the manikin.

Literature review, research results, the views of clinicians and experts and practices were used in editing the content of the training and video recording.

Evaluation phase

Single-blind method was used in evaluation. For this purpose, enteral feeding practices of the patient's relative were evaluated with the help of an observation form by an individual who involved in the study but not in the implementation phase.

Step 1: After the training, the patient relatives were asked to fill in the enteral feeding information evaluation form to determine their level of knowledge about enteral feeding.

Step 2: All patient relatives in both groups were observed during enteral feeding administrations in the next meal that followed the implementation phase.

Data Collection Tools

Patient and Relatives Information Form with questions to determine the identifying characteristics of patients and their relatives, Enteral Feeding Information Evaluation Form and Observation Form were used to collect research data.

Patient and Relatives Information Form: The form included a total of 4 questions regarding the patient's age, gender, medical diagnosis along with a total of 5 questions for patient's relatives: age, gender, marital status, educational level and degree of closeness with the patient.

Enteral Feeding Information Evaluation Form: The form prepared by the researcher in line with the relevant literature aimed to assess the level of knowledge patients' relatives have already acquired on enteral feeding [1,2].

The form consists of 12 (twelve) open-ended questions evaluating the patient's knowledge status. The lowest score that can be obtained by the relative is "0" while the highest score is "100". High

scores obtained from the test in total point to high level knowledge on enteral feeding. The scope and comprehensibility of the questionnaire was evaluated by 4 experts (nursing lecturers). In line with expert opinions, content validity ratio / index was calculated for each item using Davis (1992) technique, and the internal reliability (cronbach $\alpha = .82$) of the form was found to be at a good level.

Observation Form: The observation form was used to assess enteral feeding practices of patients' relatives after the training. The form consists of 10 items related to enteral feeding practices [13]. During observations, the data were recorded on the observation form while the patient was fed by the relative. Assessment requires marking "done" on the form when the patient's relative follows each step and marking "not done" when the steps are not followed.

The preliminary implementation of the study was carried out on 5 patients who were not included in the sample. It was determined during preliminary implementation that Enteral Feeding Information Evaluation Form and Observation Form were comprehensible.

Ethical Considerations

The study was performed according to the Helsinki Declaration and the University's Clinical Research Ethics Committee approved this study (Ethical approval number: 18-10T/1).

The verbal and written informed consent was obtained from the patients and relatives who accepted to participate in the study.

Data Analysis

The statistical package for social sciences (SPSS-version 20 for Windows) (SPSS Inc., Chicago, IL, USA) was used to analyze the study data. Numbers, percentages and arithmetic means were used in analyzing the descriptive characteristics of participants. Chi square test was used to show that the groups were homogeneous according to independent variables. The independent sample *t*-test was used to assess the difference between participants' posttest knowledge and practice scores. Between groups. Mann-Whitney U and Kruskal-Wallis tests were used to examine the effect of independent variables between groups. The significance level of the statistical tests was established to be $p < .05$.

RESULTS

Characteristics of patients and their relatives

Of the 64 patients included in the study, 33 were assigned to the video group and 31 were assigned to the control group. Table 1 presents the demographic data for patients and their relatives assigned to the video and control groups.

Table 1. Demographic characteristics of patients and relatives assigned to video and control groups

Characteristic	Video Group (n= 33)		Control Group (n= 31)		Total (n=64)		Statistical Analysis
	n	%	n	%	n	%	
Patient							
Age (M±SD)	62.16±13.59						
Under 50	6	(18.2)	9	(29)	15	(23.4)	x ² = 1.205 p= .272
51-65	10	(30.3)	11	(35.5)	21	(32.8)	
66-75	9	(27.3)	8	(25.8)	17	(26.6)	
Over 75	8	(24.2)	3	(9.7)	11	(17.2)	
Gender							
Female	15	(45.5)	9	(29)	24	(37.5)	x ² = .205 p= .136
Male	18	(54.5)	22	(71)	40	(62.5)	
Medical Diagnosis							
Larenks cancer	17	(51.5)	21	(67.7)	38	(59.4)	x ² = 2.583 p= .275
Tongue cancer	10	(30.3)	8	(25.8)	18	(28.1)	
Mouth cancer	6	(18.2)	2	(6.5)	8	(12.5)	
Patient relatives							
Age (M ± SD)	46.84±11.69						
20-35	8	(24.2)	4	(12.9)	12	(18.8)	x ² = 2.754 p= .252
36-50	17	(51.5)	14	(45.2)	31	(48.4)	
Over 50	8	(24.3)	13	(41.9)	21	(32.8)	
Gender							
Female	24	(72.7)	23	(74.2)	47	(73.4)	x ² = .000 p= .136
Male	9	(27.3)	8	(25.8)	17	(26.6)	

Marital status				
Married	23 (69.7)	28 (90.3)	51 (79.7)	$\chi^2 = 3.023$ $p = .082$
Single	10 (30.3)	3 (9.7)	13 (20.3)	
Education level				
Primary school	12 (36.4)	14 (45.2)	26 (40.6)	$\chi^2 = .579$ $p = .749$
High school	14 (42.4)	12 (38.7)	26 (40.6)	
University/Master	7 (21.2)	5 (16.1)	12 (18.8)	
Degree of closeness				
Child				$\chi^2 = 2.179$ $p = .336$
Spouse	16 (48.5)	10 (32.3)	26 (40.6)	
Other (sister/brother, grandson, caretaker)	4 (12.1)	7 (22.5)	11 (17.2)	

Mean knowledge and practice scores

Mean enteral feeding knowledge scores of patient relatives after the training were found to be 76.7 ± 7.97 in the video group and 42.1 ± 12.57 in the control group. Mean enteral feeding practice scores were as follows: 19.64 ± 3.3 for the video

group and 13 ± 3.63 for the control group. It was found that knowledge ($t = -13.06$, $p = .000$) and practice ($t = -7.671$, $p = .000$) scores of the video group were higher compared to the control group (Table 2).

Table 2. Comparison of post-test knowledge and practice scores between groups

	Video Group (n= 33)			Control Group (n= 31)			Statistical Analysis
	M	SD	Min-Max	M	SD	Min-Max	
Post-test knowledge score	76.7	7.97	55-95	42.1	12.57	15-70	$t = -13.06$ $df = 50.214$ $p = .000^*$
Practice score	19.64	3.3	14-36	13	3.63	10-31	$t = -7.671$ $df = 62$ $p = .000^*$

Note. M= Mean, SD= Standard deviation, t= Independent sample t test, * $p < 0.05$

The analysis pointed to no significant differences between relatives' mean knowledge and practice scores based on age, gender, education level and marital status both in the video training and control groups ($p > .005$). While there were no

significant differences based on degree of closeness in the control group, it was found that patients' spouses in the video group had higher mean knowledge scores compared to patients' children ($\chi^2 = 7.928$, $p = .019$). (Figure 1).

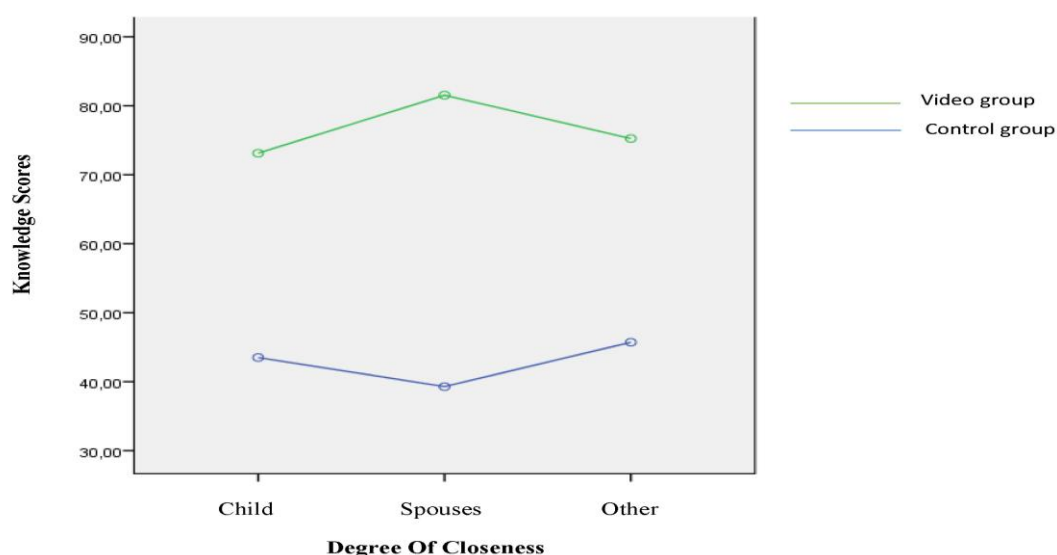


Figure 1. Mean knowledge scores compared to patients' children

DISCUSSION

The majority of the patients (76.6%) in this study were older than 50 years old and more than half (62.5%) of the patients were males. The literature specifies that the incidence of HNC cancer increases with age and is more common in males [14-19]. The most common location of the cancer is larynx in first place and oral cavity in second place. Similar findings were also found in studies conducted in Turkey [16]. According to cancer statistics data of ASCO (American Society of Clinical Oncology) in 2019, the rate of oral cavity cancers is higher in some regions [20].

In this study, the mean age of the patient relatives was 46.84 ± 11.69 and the majority was females (78.1%). It was found that most of the patient relatives were either spouses or children of the patients and the average age of patients cared by these relatives was high (62.16 ± 13.59), which is consistent with the mean age reported in previous studies. Similar results were found in the study conducted by Chang et. al. [3]

The fact that caregivers, who provide care for patients with chronic illnesses, are often females is reported among the results of most studies conducted with caregivers [4,8,18,21]. It is observed that women generally assume the role of caregiver in Turkey and other countries since they are more compassionate and sensitive and can cope with care burden more efficiently.

Caring for patients who require enteral feeding is a condition that generally causes stress, anxiety, tension, uncertainty, and feelings of incompetence in patients' relatives [21].

Stress and anxiety stems from the need to learn new skills and unique knowledge that caregivers should acquire. The skill acquisition process for patients' relatives begins in the hospital. It is important for patients' relatives to gain sufficient knowledge and skills in the hospital environment so that they can perform the feeding process safely and accurately after discharge [22].

The trainings provided at the hospital should be designed to increase self-efficacy and self-confidence for patients' relatives. Therefore, it is important to utilize educational methods different from traditional methods that rely on explanations and lectures. The video training method used in this study to train the relatives of HNC cancer patients who required enteral feeding was found to be more effective compared to the routine training provided in the clinic. It was found that the knowledge and practice scores of the relatives of the patients who were trained with the video training method were significantly higher than the knowledge and practice scores of the patient relatives who were routinely trained. Similar to the present study,

Chang et. al. [3] found that the video method was more effective than routine training in the clinic in providing knowledge and skills to patient relatives. Studies using video methods are conducted in recent years to train patients and their relatives in the clinic. Video-based learning resource materials were found to be effective in providing knowledge and skills to caregivers of patients with colostomy [23]. Similar results were reported in other studies as well [24-26].

The literature states that videos that demonstrate real people undertaking tasks and demonstrating how to do things are more effective in skill acquisition compared to videos that present only didactic information verbally or graphically [27]. The basic information presented in the video material used in our study was explained in a simple language that patients' relatives could easily understand. Important points about enteral feeding were reinforced in the video by using images and written information. In addition, enteral feeding was practiced on a manikin by the researcher through demonstrations. Care givers easily understood and adopted knowledge and skills related to enteral feeding with the help of the content of this video, where behavior was animated on a manikin.

The study found that among the patient relatives in the video group, spouses had higher knowledge scores compared to children of patients who assumed caregiver roles.

The literature emphasizes the significance of spouses in self-care method [8,28] and spouses are reported to have a higher burden of care. The current study also found that care givers who were the spouses of patients better grasped the topic which was important to ensure that enteral feeding practices could be handled correctly and smoothly. This may be due to the fact that spouses were more aware of the need for support, with the thought that it increased knowledge and practices would reduce their burden of care. In addition, the thought that spouses would always be with the patients may cause them to give more attention to the subject.

People with low education levels are less informed about their treatments [29].

The majority of patients' relatives (81.2%) in this study had primary and high school level education. Studies reported that videos are useful educational tools for those with low educational attainments [29,30]. It was found in this study that knowledge and practice were not affected by level of education in both video training and control groups. Another study reported that patients with low education levels had better comprehension when video training was used [30].

Since the number of patient relatives with university or higher education levels was very low

in the current study, it is difficult to determine the difference.

CONCLUSIONS

As a result of this research, which examined the effect of using videos on the knowledge and practice levels of the relatives of patients with HNC cancer, it was concluded that the enteral feeding training provided by using the video method increased the knowledge and practice levels of patient relatives. According to the results of the research, it is recommended to use an interactive method such as video training to provide more permanent knowledge and practices about enteral feeding to the relatives of patients with HNC cancer. Thus, it can be ensured that enteral feeding is learned accurately and the training can contribute to reducing or preventing problems that may develop during feeding.

PRACTICE IMPLICATIONS

The findings of this study demonstrate that, video-supported training programs besides standardized training on enteral feeding increase the knowledge and practice level of relatives of patients with HNC cancer. The results of this study emphasize the importance of video training provided along with verbal lectures to enable patients' relatives in learning the subject better and practicing safer feeding. Thus, the problems that may arise due to incorrect feeding practices will be prevented. In addition, the video material prepared for the clinic will be a guide for clinical nurses and help them in their enteral feeding training and care planning.

LIMITATIONS AND SUGGESTIONS

One of the limitations in this study is related to lack of experience on the part of patient relatives in regards to enteral feeding. It is suggested to conduct further studies with larger sample groups with different levels of experiences.

This study compared enteral feeding knowledge and practice scores of patients' relatives only in the last test. Future studies can be conducted with a pre-post test design to compare knowledge and practice development.

Another limitation in this study is related to the fact that the video was watched on the first day of enteral feeding. In future studies, video can be repeated as many times as necessary to correct mistakes in feeding performance.

In addition home training can be continued by making home visits in addition to the training provided at the clinic. Thus, enteral feeding performances of patients can be monitored. Also,

future studies may focus on using different methods during enteral feeding and comparing these methods with each other so that other effective methods in addition to video method can be identified in training the relatives of patients.

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Conflicts of interest

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