

The Effect of Discharge Education and Post-Discharge Telephone Counseling on Quality of Life in Patients Undergoing Radical Prostatectomy: A Randomized Controlled Study

İpek Köse Tosunöz¹, Sevgi Deniz Doğan², Şeyma Yurtseven³, Sevban Arslan⁴

1 Hatay Mustafa Kemal University, Faculty of Health Sciences, Nursing Department, Hatay, Türkiye

2 Isparta University of Applied Sciences, Uluborlu Selahattin Karasoy Vocational School, Health Services Department, Isparta, Türkiye

3 Faculty of Medicine, Balcalı Hospital, Çukurova University, Adana, Türkiye

4 Cukurova University, Faculty of Health Sciences, Surgical Nursing Department, Adana, Türkiye

Abstract

Aim: This study aims to determine the effect of model-based discharge education, and post-discharge telephone counseling on patients who have undergone radical prostatectomy on their quality of life.

Methods: This randomized controlled study consisted of patients who underwent radical prostatectomy surgery and completed with a total of 42 patients, 20 of whom were in the experimental and 22 in the control group. The experimental group patients and their relatives were given model-based discharge education and patients were called every two weeks after the operation. The control group received standard care. The patients' quality of life was evaluated the day before the operation, and at the 6th and 12th weeks after surgery. The data were collected with the "Personal Information Form", and "Short Form-12 Health Survey (SF-12)".

Results: 55.0% of the patients in the experimental group and 54.5% of the patients in the control group experienced urinary incontinence; 45.0% of the experimental group patients and 50.0% of the control group patients experienced erectile dysfunction at the 12th postoperative week. The experimental group had statistically significantly higher SF-12 mental component scores in the 12th week than the control group ($p < 0.05$).

Conclusions: Model-based discharge education and post-discharge telephone counseling for patients who had radical prostatectomy surgery were effective in the mental dimension of the patient's quality of life, but not in the physical dimension. Providing patients with different information channels will support the psychological dimension of their quality of life.


Keywords: Counseling, education, quality of life, nursing, prostatectomy.

1. Introduction

Prostate cancer (PCa) is the most common type of cancer in men and ranks second among the causes of cancer deaths in men worldwide.¹⁻³ The lifetime risk of PCa is 15%, and the mortality rate is 2.9%.⁴ PCa has become a significant health problem today, especially in developed countries with an aging population.^{1,2}

Various treatment methods are used in the treatment of PCa, depending on factors such as the stage of cancer, the overall health status of patients, life expectancy, and patient preferences.²

One of the treatment methods for PCa is radical prostatectomy (RP). RP is a highly effective and gold-standard surgical method for the treatment of particularly early-stage and localized PCa patients with a life expectancy of over 10 years.²⁻⁴ RP is a procedure in which the prostate gland, lymph nodes, and seminal vesicles are removed.² After RP, patients have to deal with many complications that negatively affect their quality of life.⁵ These complications can have many negative effects on patients' lives, causing psychosocial changes such as anxiety, depression, difficulty in social interaction, and low self-esteem.⁶⁻⁸ The most important problems of the patients in the first 4 months after discharge are catheter care, pain control, urinary incontinence, and erectile dysfunction following catheter withdrawal.⁶ Especially during the first three months after surgery, patients who undergo RP face a significant period in which they deal with problems related to the surgery and try to cope with them.⁹ Patients need the support of health personnel to explain their surgical problems and to get help.⁶ Patients with RP require cognitive,

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psychological, and functional support.^{6,10} In this challenging process, nurses who have important roles and responsibilities aim to accelerate the recovery process and improve the quality of life of patients through their comprehensive care.⁹

Nursing interventions after prostate surgery focus on pain management, urinary catheter care, nutrition, exercise, pelvic muscle exercises, patient education, and psychosocial counseling.¹⁰ Various methods are available to provide support, including informative brochures, preoperative counseling, telephone support, educational videos, and various educational programs. PCa patients undergoing surgical intervention need accurate information before, during, and after treatment.¹¹ However, a systematic review has shown that patients undergoing prostatectomy do not receive adequate training and support.¹² Patient education and consultancy are important in meeting patients' information needs for their self-care skills, and sense of control and helping patients manage the negative effects associated with RP thus helping to support their physical and psychological well-being.^{8,10,12}

Today, the approach of early discharge of patients to their homes limits the adequate patient education about the home care needs of the patient. As a result, the patients leave the hospital with a lack of information about the management of complications and home care needs. Therefore, discharge training is very important.⁶ Discharge education is important for coping with complications and the improvement of a patient's quality of life. Nurses play a key role in discharge planning. Discharge education is a process of preparing the patient, their family, and their close circle for the care information and responsibilities they may need after discharge.¹³ Educational interventions increase the patient's knowledge and competency on how to deal with pain, incisions, drains, and the catheter.¹⁴ In the postoperative period, anxiety, fatigue, and pain due to surgery can reduce the effectiveness of training. For this reason, in addition to verbal education, patients can be supported and the effectiveness of discharge education can be increased by giving a written education brochure or booklet and visiting the patients at home or following them by telephone in the early postoperative period.⁶

The quality of nursing care received by patients during the treatment process will depend on the complete and accurate implementation of all steps of the nursing process, as well as the application of a model or theory that supports the scientific nature of the care.¹⁵ Roper-Logan-Tierney Model of Nursing Based on Activities of Living is one of the models frequently used in nursing. This model, which is compatible with Maslow's hierarchy of basic human needs, identifies 12 activities that patients and healthy individuals perform to maintain their daily lives.^{15,16} The model includes all the relationships between the elements that make up an individual's life and is used to protect and improve the health of individuals. It consists of five main components: "lifespan", "12 activities of living", "factors affecting life activities", "dependent-independence continuum" and "individuality in living". The model aims to prevent or solve problems related to daily living activities affected by the disease rather than treating the disease.¹⁷ This model evaluates the individual as a whole, determines all the needs of the individual, and guides the implementation of the nursing process. Nursing care given to a patient diagnosed with prostate cancer in line with the Nursing Model with classification systems provides diagnosis and planning in a versatile and systematic way. It facilitates clinical decision-making and evaluation of nursing care.¹⁸ Using this model, the holistic nurse identifies the individual's care needs.^{15,16} Education and counseling, planned based on a model appropriate for patient needs, can improve the quality of life of patients and families.¹⁹ It is thought that increasing the communication between patients and health personnel, informing and supporting patients about their post-discharge life will positively affect the quality of life of patients.⁶

1.1. Aim

This study aims to determine the effect of model-based discharge education, and post-discharge telephone counseling on patients who have undergone radical prostatectomy on their quality of life.

1.2. Study Hypotheses

Hypothesis 1. The experimental group who receives discharge education, and post-discharge telephone counseling will have a higher Short Form-12 Health Survey (SF-12) physical component score after education and counseling than that of the control group.

Hypothesis 2. The experimental group who receives discharge education, and post-discharge telephone counseling will have a higher Short Form-12 Health Survey (SF-12) mental component score after education and counseling than that of the control group.

2. Materials and methods

2.1. Design

This was a randomized controlled study.

2.2. Setting

The study was carried out in the urology clinic of a university hospital in Adana, Turkey.

2.3. Sample

The population of the study consisted of patients who underwent radical prostatectomy surgery between June 2022 and January 2023. The inclusion criteria were: (1) being 18 years or older, (2) being literate, (3) able to understand and speak Turkish, (4) not having a hearing impairment, and (5) agreeing to participate in the research. The exclusion criteria were: (1) development of any complications during the surgical intervention, (2) having any psychiatric disorder that will reduce the ability to comprehend and understand, (3) having other types of cancer accompanying PCa, (4) having metastases, and (5) being not agreed to participate in the study.

The sample number of the study was calculated using the G*Power 3.0.10 program after collecting the data from 10 prostatectomy surgery patients ($n_1:5$; $n_2:5$). The patients participating in the preliminary study were not included in the study. The results of the power analysis indicated that a minimum sample size of 42 in total was sufficient ($n_1:21$; $n_2:21$) with a one-tailed hypothesis, 80% power, 5% margin of error, and an effect size of 0.80 for t-tests^{20,21}. Considering the 10% of possible participants lost to follow-up, a total sample of 46 subjects, 23 in each group, was considered. Patients were divided into experimental and control groups using simple randomization methods with a computer-generated randomization table.

2.4. Outcomes

The primary outcome was the quality of life score. The data were collected using the "Personal Information Form", and the "Short Form-12 Health Survey (SF-12)".

The Personal Information Form consists of two parts. The first part included information such as the patient's age, weight, height, marital status, level of education, working status, presence of chronic diseases, clinical stage, American Society of Anesthesiology (ASA) score, and surgical method used. In the second part, urinary incontinence, and erectile dysfunction were questioned. At the 12th postoperative week, patients were asked about the presence of urinary incontinence and erectile dysfunction problems and were evaluated as "yes" or "no".

Short Form-12 Health Survey (SF-12) was used to assess quality of life. It consists of 12 items in 8 subdimensions. The items on role-physical and role-emotional are dichotomous, to be answered as "yes or no", while the other items are Likert-type with response options ranging from 3 to 6. The total physical component score (PCS-12) score is obtained from the subdimensions of "general health", "physical functioning", "role-physical", and "bodily pain"; and the to-

tal mental component score (MCS-12) score is obtained from the subdimensions of “social functioning”, “role-emotional”, “mental health” and “energy”. Higher scores indicate better health status. The scale scores range from 0 to 100²².

2.5. Study Procedures

Patients who volunteered to participate in the study were divided into two groups: experimental and control. Patients in both groups were asked to fill out the first section of the “Personal Information Form” and the “SF-12” one day before the surgery. The experimental group received face-to-face model-based discharge education using an educational booklet, and post-discharge telephone counseling. The patients in the experimental group were called by the counseling researcher every two weeks after the operation and counseling was provided according to their needs. The control group was not given model-based discharge education and post-discharge counseling. No intervention other than standard care was applied to the patients in the control group. Routine/standard care in the clinic includes verbal discharge education without using any materials. Both groups of patients were contacted by phone at the 6th and 12th weeks postoperatively, and they were asked to complete the online Short Form-12 Health Survey. During the call in the 12th week, the presence of urinary incontinence and erectile dysfunction were also inquired and evaluated based on the patient’s self-reports as “yes/no” and recorded in the second part of the Personal Information form.

Discharge education: The experimental group patients and their relatives were given model-based discharge education in the patients’ room face-to-face one day before the discharge. Although it differed according to the learning status of the patients, the education lasted an average of 30-40 minutes. The patient education

booklet was prepared based on the 12 daily living activities specified in the Roper-Logan-Tierney Model of Nursing by the researchers and finalized in line with experts’ (2 urology physicians, 2 clinical nurses, and 3 academic nurses) opinions. The education booklet included information about the points patients should pay attention to during the post-operative and post-discharge periods. After the education, the education booklets containing the researcher’s telephone number were given to the patients. The patients were informed that the phone number in the booklets belonged to the researcher and that they could contact the researcher whenever they needed.

Post-discharge telephone counseling: Post-discharge counseling was provided by telephone. The patients’ needs were determined during the calls by referring to each title in the education booklet. Therefore, the duration of the calls varied depending on the needs of the patients.

2.6. Data collection

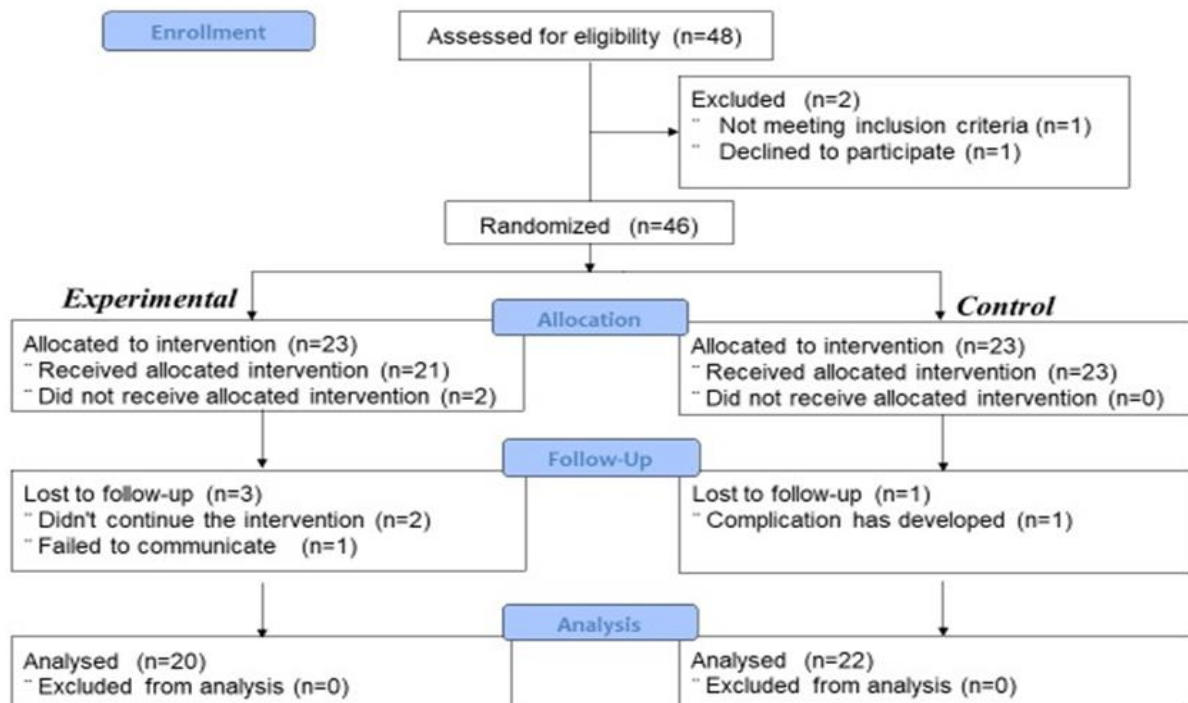
Data were collected at three time points: one day before the operation, 6th and 12th weeks after the operation. The researcher, who provided the education, collected pre-discharge data through face-to-face interviews and post-discharge data using an online survey. The researcher interviewed all patients face-to-face, obtained written and verbal consent, and filled out the “Personal Information Form” and “SF-12” one day before the operation. After discharge, outcome measures were collected in the 6th and 12th weeks after the operation on the online platform.

2.7. Blinding

The statistical analysis was conducted by a researcher who was blinded to the group assignments.

Figure 1

CONSORT 2010 Flow Diagram



2.8. Data analysis

Data analyses were made using IBM SPSS Statistics 24. Skewness and kurtosis values were used to determine the normal distribution. Data were normally distributed, and parametric tests were used²³. The descriptive statistics, independent samples t-test, repeated measures ANOVA test, and χ^2 cross-tabulation were used.

2.9. Ethical considerations

The study was conducted in conformity with the Helsinki Declaration principles. Approval from the ethics committee was obtained from the Non-Interventional Clinical Research Ethics Committee of the university where the study was conducted (Date: April 8, 2022, Number of meetings: 121, Decision no: 29). Institutional permission was obtained. All patients were informed about the aim of the study, that their participation was voluntary, and that their participation or withdrawal from the study would not affect their treatment and care.

3. Results

Figure 1 is the trial CONSORT 2010 diagram showing participant flow through the study.²⁴ The study was completed with a total of 42 patients, 20 of whom were in the experimental and 22 in the control group.

3.1. Homogeneity test

The experimental and control groups found no significant differences in descriptive characteristics ($p > 0.05$, Table 1). No statistically significant difference was found between the experimental and control groups before the surgery in SF-12 scores ($p > 0.05$, Table 2).

3.2. Hypothesis tests

No statistically significant difference was found between the experimental and control groups in the 6th, and 12th weeks after the surgery in SF-12 physical component scores ($p > .05$, Table 2). Thus, Hypothesis 1 was not supported.

There was a statistically significant difference between the groups in the postoperative 12th week of SF-12 mental component scores ($t= 2.381, p < 0.05$). The experimental group (40.86 ± 7.00) had statistically significantly higher SF-12 mental component scores in the 12th week compared to the control group (36.41 ± 5.03). Thus, Hypothesis 2 was supported (Table 3).

There was no statistically significant difference in the SF-12 physical and mental component scores between experimental groups at different stages preoperatively and postoperatively ($p > .05$). However, there was a statistically significant difference in the SF-12 mental component scores between control groups in different stages ($F=7.185, p < .05$). It was determined that the preoperative SF-12 mental component scores (44.93 ± 9.32) differed statistically significantly from the 6th-week postoperative scores (42.26 ± 9.49) of the control group. Also, there was a statistically significant difference between the 6th-week (42.26 ± 9.49) and 12th-week scores (36.41 ± 5.03) of SF-12 mental component scores of the control group (Table 3).

55.0% of the patients in the experimental group and 54.5% of the patients in the control group experienced urinary incontinence; 45.0% of the experimental group patients and 50.0% of the control group patients experienced erectile dysfunction at the 12th postoperative week. There were no statistically significant differences between the groups regarding urinary incontinence and erectile dysfunction at the 12th postoperative week ($p > 0.05$, Table 4).

Table 1
Comparison of descriptive characteristics of the patients (n=42)

	Experimental Group (n=20)		Control Group (n=22)		Test
	$\bar{X} \pm SD$	Median [Min-Max]	$\bar{X} \pm SD$	Median [Min-Max]	
Age	65.20 ± 6.42	65.5 [48-73]	63.50 ± 5.06	63.0 [55-73]	$t= .957^a$ $p= .844$
Body Mass Index (kg/m ²)	25.77 ± 3.31	24.7 [21.7-33.9]	25.93 ± 1.96	26.1 [22.9-29.7]	$Z= -1.057^b$ $p= .290$
	n	%	n	%	
Education level					
• Primary school	6	30.0	5	22.7	$\chi^2= .330^c$ $p= .848$
• High school	12	60.0	15	68.2	
• University	2	10.0	2	9.1	
Working status					
• Yes	8	40.0	14	63.6	$\chi^2= 2.346^c$ $p= .126$
• No	12	60.0	8	36.4	
Marital status					
• Married	17	85.0	21	95.5	$\chi^2= 1.329^c$ $p= .249$
• Single	3	15.0	1	4.5	
Chronic disease					
• Yes	9	45.0	9	40.9	$\chi^2= .072^c$ $p= .789$
• No	11	55.0	13	59.1	
Clinical Stage					
• 1	10	50.0	15	68.2	$\chi^2= 1.437^c$ $p= .231$
• 2	10	50.0	7	31.8	
Surgery method					
Laparoscopic	17	85.0	20	90.9	$\chi^2= .394^c$ $p= .555$
Open Surgery	3	15.0	2	9.1	
ASA					
• 1	7	35.0	7	31.8	$\chi^2= .048^c$ $p= .827$
• 2	13	65.0	15	68.2	

^a Independent Sample-t; ^b Mann-Whitney U; ^c Pearson- χ^2

Table 2

Comparison of SF-12 physical component of patients during different stages

SF-12 Physical	Experimental Group (n=20)		Control Group (n=22)		Test
	$\bar{X} \pm SD$	Median [Min-Max]	$\bar{X} \pm SD$	Median [Min-Max]	
Preoperative	40.96 ± 4.06	41.6 [34.1-47.2]	39.14 ± 6.70	40.4 [27.1-46.1]	t=1.073 ^a p= .291
6 th week	38.77 ± 4.27	38.7 [32.1-50.9]	37.38 ± 5.71	37.8 [25.6-47.5]	t= .903 ^a p= .372
12 th week	38.95 ± 4.45	37.9 [30.5-46.1]	36.76 ± 5.49	37.7 [27.1-45.0]	t=1.407 ^a p= .167
Test	F=2.240 ^b p= .135		F=2.166 ^b p=.141		

^a Independent Sample-t, ^b Repeated Measures ANOVA**Table 3**

Comparison of SF-12 mental component of patients during different stages

SF-12 Mental	Experimental Group (n=20)		Control Group (n=22)		Test
	$\bar{X} \pm SD$	Median [Min-Max]	$\bar{X} \pm SD$	Median [Min-Max]	
Preoperative ⁽⁰⁾	43.7 ± 6.86	44.0 [26.5-53.7]	44.93 ± 9.32	47.0 [25.2-57.5]	t= -.445 ^a p= .659
6 th week ⁽¹⁾	41.98 ± 6.75	43.0 [26.4-53.8]	42.26 ± 9.49	42.5 [24.1-57.4]	t= -.108 ^a p= .914
12 th week ⁽²⁾	40.86 ± 7.00	40.3 [27.3-51.7]	36.41 ± 5.03	37.1 [20.2-44.7]	t= 2.381 ^a p= .022
Test	F= 2.580 ^b p= .103		F= 7.185 ^b p= .004 [0-2] [1-2]		

^a Independent Sample-t ^b Repeated Measures ANOVA**Table 4**

The status of urinary incontinence and erectile dysfunction at the 12th week after surgery (n=42)

	Experimental Group (n=20)		Control Group (n=22)		Test
	n	%	n	%	
Urinary Incontinence					
• Yes	11	55.0	12	54.5	$\chi^2= .001^a$ p= .976
• No	9	45.0	10	45.5	
Erectile Dysfunction					
• Yes	9	45.0	11	50.0	$\chi^2= .105^a$ p= .746
• No	11	55.0	11	50.0	

^a Pearson- χ^2

4. Discussion

The discharge education and post-discharge counseling provided to different patient groups have been shown to have a positive impact on patient outcomes and can be effective in improving their quality of life^{25,26}. While there was no significant difference in SF-12 physical component scores between the experimental and control groups at the 6th and 12th weeks after surgery, SF-12 mental scores were significantly higher in the experimental group than in the control group at the 12th week. In this regard, it was concluded that model-based discharge education and post-discharge telephone counseling for patients who had radical prostatectomy surgery were effective in the mental dimension of the patient's quality of life, but not in the physical dimension.

In a study, it was generally found that RP did not have a long-term negative effect on the functional scales of the quality of life questionnaire over one year, but a temporary decrease in role functioning was observed at three months, which returned to baseline at 12 months²⁷. In a qualitative study investigating men's post-radical prostatectomy experiences, telephone and face-to-face interviews were conducted with patients after discharge. Comprehensive written and verbal information before the surgery was not sufficient to manage the postoperative symptoms. Telephone follow-up helped promote adjustment after surgery and reduced anxiety caused by the side effects of surgery and unanswered questions²⁸. In our study, the mental dimension of the quality of life of patients in the experimental group was higher than the control group at 12 weeks after surgery, while there was no significant difference be-

tween the groups in terms of the physical dimension. In this study, the absence of differences in the physical dimension of quality of life between groups in the postoperative period can be associated with the presence of physical problems, especially erectile dysfunction and urinary incontinence, after RP. Additionally, there were no differences between the groups in terms of these symptoms, and they were evenly distributed. This situation suggests the need for longer-term interventions and evaluations to alleviate the symptoms. However, the significant difference between the groups in the mental dimension can be considered as an indication that the discharge education and counseling given to patients based on the Nursing Model had an impact on changing the mental dimension of their quality of life. In the literature, it is also recommended that patients who have undergone RP use educational resources such as websites, videos, and written materials for coping with complications and be given a phone number/email address that they can access when they need to express their concerns, which makes them feel more secure. In addition, the importance of patients feeling that they can reach healthcare professionals is emphasized in the literature⁷. Studies have reported that adequate support and education given to patients who have undergone RP contribute to shorter recovery times and increased self-efficacy and self-care skills^{8,29,30}. A study has found that guiding patients with preoperative education and counseling tailored to their needs is effective in improving patient-reported sexual function outcomes and optimizing patient satisfaction after surgery⁹. In a randomized controlled study conducted with patients who underwent laparoscopic radical prostatectomy, patients were divided into conventional nursing and psychoeducational intervention groups. In the study, it was determined that 3 months after catheter removal, patients in the psychological nursing intervention group had lower symptoms of anxiety and depression and higher quality of life³¹. It can be said that education tailored to the needs of patients undergoing prostatectomy and based on a model has positive effects on their quality of life.

In this study, it was determined that there was a significant decrease in the mental dimension of the quality of life of patients in the control group after surgery. The decrease in the quality of life of patients after surgery suggests that it may be related to various complications associated with RP. In a study examining changes in quality of life after treatment in patients with localized and metastatic PCa, it was found that there was a deterioration in the quality of life in every time interval measured, and the parameter most affected in the RP group was social function³². However, in this study, while the deterioration in the quality of life of patients in the mental dimensions of the control group was significant, the lack of significance in the decrease in the experimental group may be related to the use and perception of the provided education and educational booklets as a source of information for patients to access. This study will make it possible to understand patient needs better and will help improve the quality of care to better respond to these needs.

4.1. Limitations

This study has some limitations. The fact that the effects of the training provided were not evaluated after the 12th week after surgery can be considered a limitation. The limited number of samples may affect the generalization of the results. Another limitation of our study is that chronic illnesses of the patients were considered in a general manner as either present or absent. However, each chronic disease may contribute to the patient's comorbidity index to varying extents.

5. Conclusion

It has been determined that discharge education and counseling provided to patients with RP surgery, based on a model, was effective

on the mental dimension of patients' quality of life, but not on the physical dimension. The use of new technologies and information channels can enhance the effectiveness of educational interventions in PCa patients. This study provides support for further investigation of the impact of model-based discharge education and counseling on improving the quality of life in men with PCa.

Statement of ethics

This study was approved by the Çukurova University Faculty of Medicine Non-Interventional Clinical Research Ethics Committee (Approval date: April 8, 2022; Number:121/29).

Source of Finance

The authors declare that they have received no financial support for this study

Conflict of interest statement

The authors declare that they have no conflict of interest.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Author Contributions

Research idea: İ.K.T., S.D.D., Ş.Y., S.A., Design of the study: İ.K.T., S.D.D., Ş.Y., S.A., Acquisition of data for the study: İ.K.T., Ş.Y., Analysis of data for the study: S.D.D., Interpretation of data for the study: S.D.D., Drafting the manuscript: İ.K.T., S.D.D., Ş.Y., Revising it critically for important intellectual content: İ.K.T., S.D.D., Ş.Y., S.A. Final approval of the version to be published: İ.K.T., S.D.D., Ş.Y., S.A.

Supplementals

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