ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

DOI: 10.5336/cardiosci.2022-91302

Determining the Effectiveness of Discharge Training Provided After Heart Surgery Through Phone Counselling: Descriptive Research

Kalp Ameliyatı Sonrası Verilen Taburculuk Eğitiminin Telefon Danışmanlığıyla Etkinliğinin Belirlenmesi: Tanımlayıcı Araştırma

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This study was presented as an oral presentation at the International Scientific Research and Innovative Studies Symposium February 22-25, 2021, Balıkesir, Türkiye.

ABSTRACT Objective: The research was carried out descriptively in order to determine the effectiveness of the discharge training given after heart surgery with telephone counseling. **Material and Methods:** The sample of the study consisted of 73 patients who underwent heart surgery at a university hospital. After each patient's condition became stabilized following surgery, they were provided discharge training and given a post-heart surgery discharge training booklet after heart surgery. The researchers phoned the patients in the first, 2nd, 3rd, and 4th weeks after discharge, and asked them whether or not the post-heart surgery discharge training booklet lacked any information within the scope of subject headings about topics they needed to know following surgery. The data were analyzed in SPSS 22.0 program in the computer. **Results:** When examining the Cronbach alpha values for the topics that the patients needed to know following surgery, it was observed that subtest total scores were consistent at levels between 0.264 and 1.00, thereby showing a statistically significant correlation. Weekly changes in the mean scores of drug use, pain management, and daily activity training score among subjects that the patients needed to know following surgery were statistically significant (p=0.001). Weekly mean scores for the subjects that patients needed to know following surgery were statistically significant (p<0.05). **Conclusion:** As a result, it can be asserted that continuity is important for phone counselling following heart surgery, and continuous discharge training can have a positive effect on patients following heart surgery and ultimately improve post-heart surgery care.

Keywords: Heart surgery; discharge training; phone counselling

ÖZET Amaç: Kalp ameliyatı sonrası verilen taburculuk eğitiminin, telefon danışmanlığıyla etkinliğinin belirlenmesi amacıyla tanımlayıcı olarak yapılmıştır. **Gereç ve Yöntemler:** Araştırmanın örneklemini, bir üniversite hastanesinde kalp ameliyatı olan 73 hasta oluşturdu. Ameliyat sonrası hastanın durumu stabil hâle geldikten sonra taburculuk eğitimi yapılarak, hastalara kalp ameliyatı sonrası taburculuk eğitimi kitapçığı verildi. Hastalarla taburcu olduktan sonraki 1, 2, 3 ve 4. haftalarda araştırmacılar tarafından telefonla iletişim kuruldu ve verilen kalp ameliyatı sonrası taburculuk eğitimi kitapçığının konu başlıkları dahilinde ameliyat sonrası bilinmesi gereken konulara dair bilgi eksikliğinin olup olmadığı sorgulandı. Veriler bilgisayarda SPSS 22.0 programında değerlendirildi. **Bulgular:** Ameliyat sonrası bilinmesi gereken konuların Cronbach alfa değerleri incelendiğinde; alt-test toplam puanları 0,264-1,00 arasındaki düzeylerde, istatistiksel olarak anlamlı bulundu. Ameliyat sonrası bilinmesi gereken konulardan ilaç kullanımları, ağrı yönetimi ve günlük aktivite eğitimlerinin ortalama puanlarının haftalık değişimleri istatistiksel olarak anlamlı bulundu (p=0,001). Ameliyat sonrası bilinmesi gereken konuların haftalık ortalamaları istatistiksel olarak anlamlı bulundu (p<0,05). **Sonuç:** Bu araştırmadan elde bulgulara göre kalp ameliyatı sonrası telefon danışmanlığında sürekliliği olan taburculuk eğitimlerinin kalp ameliyatı sonrası hastaları pozitif olarak etkileyerek kalp ameliyatı sonrası bakımı geliştireceği söylenebilir.

Anahtar Kelimeler: Kalp ameliyatı; taburculuk eğitimi; telefon danışmanlığı

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Peer review under responsibility of Turkiye Klinikleri Cardiovascular Sciences.

Received: 12 May 2022 ***Received in revised form:*** 25 Oct 2022 ***Accepted:*** 27 Oct 2022 ***Available online:*** 09 Nov 2022

Implications for Practice

What is the prevalence and content of heart nurses' telephone counseling to their patients?

How responsible do cardiac nurses feel in providing discharge education to patients?

How confident are cardiac nurses in providing discharge training to patients?

Surgical intervention is one of the most important experiences of one's life that physically, psychologically, socially, and economically influences him/her.[1] Besides the therapeutic and positive effects of heart surgery, patients experience some physical, emotional, and social changes during postoperative period.[2] In the literature it is stated that problems such as anxiety, depression, sexual dysfunction, and loss of role and status at domestic and professional life have been frequently observed in patients undergoing open heart surgery.[3]

Today, the use of phone counseling in care and treatment services has considerably enhanced the quality of patient care.[4] The use of phone counseling in discharge training allows to strengthen home care, provides support and decreases the costs of healthcare system for those suffering from various health problems, and increases self-efficacy of people with chronic diseases.[4-7]

Patient discharge training includes benefits such as increasing ability of patients to involve in physical and social activities through counseling provided to them and their families, allowing individuals to develop appropriate coping methods for the changes in their lifestyle and their adaptation to disease, and providing them to reach a quality level of life. It is stated in the literature that discharge training provided to patients accelerates their recovery process, increases their self-confidence in parallel to self-care abilities, and decreases their repeated applications to hospital/outpatient clinic; thus, resulting in decreased patient care costs and enhanced care quality.[8-10]

The study was conducted with descriptive design in order to determine the effect of phone counseling provided for a month after heart surgery on discharge training provided after post heart surgery period.

MATERIAL AND METHODS

POPULATION AND SAMPLE SELECTION

The population of the study consisted of the patient who underwent coronary artery bypass graft, valve repair, and dissection surgery at Cardiovascular Surgery Clinic of Gaziantep University Şahinbey Research and Application Hospital. The sample of the study consisted of 73 patients who voluntarily agreed to participate in the study.

DATA COLLECTION TOOLS

The data were collected using "patient information form" and "patient phone counselling follow up form" which were prepared by the researchers upon literature review.

APPLICATION OF DATA COLLECTION TOOLS

Face-to-face interview, question-answer and discussion, narration and demonstration methods were used to prevent the decrease of attention for the training and to attract curiosity.

The researchers prepared the booklet of post-heart surgery discharge training upon literature review in order to help patients to cope with the possible problems during recovery period at home (Appendix 1).

After post-operative condition of the patient became stabilized, application was started. The researcher made necessary explanations and obtained their consents.

Patient information form was filled. Contact information of patients and their relatives was taken and contact information of the researchers were also given to patients and their relatives. The researchers provided post-heart surgery discharge training to the patients by considering their educational needs. The training was provided under the guidance of post-heart surgery discharge training booklet prepared by the researchers and lasted for approximately an hour. Information of the patients was assessed and booklets of post-heart surgery discharge training were given to them at the end of the discharge training given by considering personal differences.

APPENDIX 1: Subjects to know after surgery.

Use of drugs	Names
	Effects
	Points to consider in the use of drugs
Pain management	Situations increasing pain
	Things to do to prevent development of pain
	Things to do to relieve pain
Wound care	Signs of recovery
	Things to do to support recovery
Edema control	What is edema?
	Things to prevent
Infection follow-up	Symptoms
Diet	Dietary recommendations
	Limitations for diet
Excretion	Causes
	Things to do for prevention of constipation
Exercises	Possible exercises
	Benefits
	Points to consider during exercise
Resting	Sleep changes
	Points to consider while sitting
	Points to consider while lying
Hygiene care	Time-frequency of bathing
	Points to consider
Smoking	Reasons of not smoking
Alcohol use	Reasons of not using alcohol
Sexual life	Time of start
	Points to consider
Mood changes	Changes of the mood
Emergencies	Situations requiring counselling a doctor
Daily activities	Status of starting to work
	Doing household chores
	Driving
	Traveling
	Social activity

The researchers called up patients at the first, the 2nd, the 3rd, and the 4th weeks after discharge and it was questioned whether or not they had missing information regarding the issues which should be known after surgery within the context of subject headings of post-heart surgery discharge training booklet. All interviews were recorded on patient phone counseling follow-up form (Figure 1).

STATISTICAL ANALYSIS

The normality of distribution of continuous variables was tested by Shapiro Wilk test. Friedman test and Dunn's multiple comparison tests were used to compare four time points of subscales of the questionnaire with a non-normal distribution. Cronbach's alpha values were calculated for reliability of questionnaire items. Statistical analysis was performed with SPSS 22.0 program (IBM SPSS Statistics for Windows, Version 22.0. IBM Corp., Armonk, NY.) and a p value <0.05 was accepted as statistically significant.

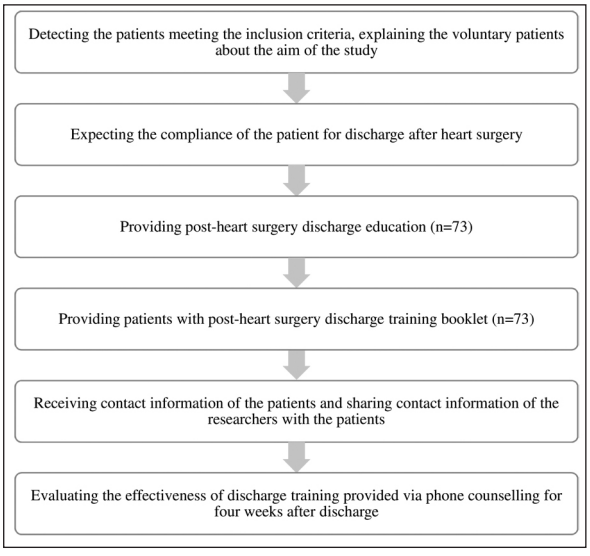

FIGURE 1: Flow chart of the study.

ETHICAL CONSIDERATIONS OF THE STUDY

This study was approved by Gaziantep University Clinical Research Ethics Committee (date: December 4, 2019, no: 2019/425). The patients were verbally informed about the study, all the patients, who were voluntary to participate in the study and were included in the study, signed the informed consent form. This form included written information about the study. The patients included in the sample stated that they had the right to withdraw from the study at any time. All procedures performed in the present study were made in accordance with the ethical standards of the Helsinki Declaration (2008).

RESULTS

As descriptive characteristics of the patients included in the study were examined (n=73), it was determined that mean age was 57.19±13.62, mean body mass index was 28.77±6.47, mean duration of hospitalization was 11.78±5.26, 56.2% underwent surgery

mostly due to the diagnosis of coronary artery disease (n=41), 78.1% were hospitalized for 8 days or longer (n=57), 56.2% were male (n=41), 43.8% were female (n=32) with an approximate rate, substantially 84.9% were considerably married (n=62), 47.9% was mostly secondary school graduate (n=35), 56.1% were employed (n=41) and 43.9% were unemployed (n=32), 74% were living mostly in the city (n=54), 82.2% had no previous surgical experience (n=60), 72.6% were not smoking (n=53), 100% were not using alcohol (n=73), 98,6% were living with 2 and more people (n=72), and 90.4% had a good social support (n=66) (Table 1).

When examining Cronbach's alpha values for the subjects to know after surgery, it was observed that sub-test total scores were around 0.264-1.00 points, which was consistent by showing a statistically significant correlation. Table 2 shows internal

TABLE 1: Distribution of descriptive characteristics of the patients included in the study (n=73).

		Mean±SD	Median (minimum-maximum)
Age		57.19±13.62	59 (20-77)
BMI		28.77±6.47	28.09 (14.65-49.20)
Length of hospital stay		11.78±5.26	11 (5-35)
		n	%
Diagnosis of disease	CAD	41	56.2
	Valve	18	24.7
	Other	14	19.2
Length of hospital stay	0-7 days	16	21.9
	≥8 days	57	78.1
Age	18-65 years of age	50	67.1
	66-79 years of age	23	32.9
Gender	Female	32	43.8
	Male	41	56.2
BMI	Thin (<18.5)	1	1.4
	Normal (18.5-24.9)	19	26
	Overweighed (25.0-29.9)	25	34.2
	Obese (30-34.9)	19	26
	Morbid obese (35>)	9	12.3
Marital status	Married	62	84.9
	Single*	11	15.1
Educational background	Illiterate	9	12.3
	Literate	17	23.3
	Secondary school	35	47.9
	University and higher	12	16.4
Profession	Employed	41	56.1
	Unemployed	32	43.9
Residence place	City	54	74.0
	District-village	19	26.0
Surgical experience	Yes	13	17.8
	No	60	82.2
Smoking	Yes	53	72.6
	No	1	1.4
	Quitted	19	26
Alcohol use	Yes	73	100
	No	0	0
Number of people living together	Alone	1	1.4
	2 and more	72	98.6
Social support	Insufficient	6	8.2
	Good	66	90.4
	Very good	1	1.4

SD: Standard deviation; BMI: Body mass index; CAD: Coronary artery disease.

consistency assessment results of the subjects to know after surgery. While Cronbach's alpha values of pain management from the subjects to know after surgery by the weeks decreased by 0.954, 0.959, 0.958, and 0.264 respectively based on weeks; Cronbach's alpha values of sexual life from the subjects to know after surgery by the weeks increased by 0.886, 0.886, 0.798, and 1.000, respectively based on weeks (Table 2).

When weekly change of the scores of training questions provided after discharge was examined; mean value of the use of drugs by the weeks was 2.56±0.82, 2.49±0.77, 2.58±0.76, and 2.86±0.47, mean value of the pain management by the weeks was 2.21±0.89, 2.22±0.82, 2.44±0.8, and 2.81±1.37, mean value of the daily activities by the weeks was 4.64±0.74, 4.77±0.56, 4.78±0.68, and 4.89±0.42 (p=0.001). Weekly changes of the mean scores of the trainings for the use of drugs, pain management, and daily activities form the subjects to know after surgery were found to be statistically significant (Table 3).

When examining the comparison of weekly mean scores of the subjects to know after surgery it was determined that the training on the use of drugs was 0.010 in the Week 2 and Week 4; the training on pain management was 0.001 in the Week 1 and Week 4, 0.001 on the Week 2 and Week 4, and 0.043 on the Week 3 and Week 4; and the training on daily activities was 0.025 on the Week 1 and Week 4. Weekly mean scores of the subjects to know after surgery were statistically significant (Table 4).

DISCUSSION

In the present study, it was observed that Cronbach's alpha internal consistency sub-test total scores of the topics to know after surgery ranged between 0.264-1.00 points and were highly reliable (Table 2). Accordingly, the topics including post-heart surgery discharge training which were used during the present study can be applied to all patients undergoing heart surgery.

In their study, Yilmaz and Cifci concluded that complications were detected at early stage, recovery accelerated, and patients were satisfied with the professional support they received at home.[11] In another study it was fund that adherence to the treatment was ensured thanks to text messages sent via phone for encouraging the compliance to anti-thrombocyte and statin medication used to prevent coronary heart disease.[12] In a study investigating the effects of short text message services via cell phone on the adherence to

TABLE 2: Cronbach's alpha values of the subjects to know after surgery.

	Number of items	Week 1 Mean±SD	Week 2 Mean±SD	Week 3 Mean±SD	Week 4 Mean±SD
Use of drugs	3	0.980	0.916	0.914	0.922
Pain management	3	0.954	0.959	0.958	0.264
Wound care	2	0.876	0.966	0.913	0.976
Edema control	2	0.846	0.638	0.714	0.483
Infection follow-up	1	---	---	---	---
Diet	2	0.957	0.811	0.819	0.854
Excretion	3	0.975	0.963	0.965	0.957
Exercises	3	0.910	0.949	0.961	0.975
Resting	3	0.737	0.737	0.764	0.740
Hygiene care	2	0.548	0.548	0.728	0.754
Smoking	1	-----		-----	-----
Use of alcohol	1	-----		-----	-----
Sexual life	2	0.886	0.886	0.798	1.000
Mood changes	1	-----		-----	-----
Emergencies	1	-----		-----	-----
Daily activities	5	0.855	0.855	0.881	0.878

SD: Standard deviation

TABLE 3: Weekly variation of mean scores of the subjects to know after surgery.

	Week 1 Mean±SD	Week 2 Mean±SD	Week 3 Mean±SD	Week 4 Mean±SD	p value
Use of drugs	2.56±0.82	2.49±0.77	2.58±0.76	2.86±0.47	0.001
Pain management	2.21±0.89	2.22±0.82	2.44±0.8	2.81±1.37	0.001
Wound care	1.74±0.52	1.65±0.55	1.75±0.49	1.74±0.53	0.303
Edema control	1.72±0.55	1.73±0.44	1.73±0.44	1.79±0.38	0.564
Infection follow-up	0.91±0.23	0.92±0.22	0.92±0.2	0.9±0.23	0.819
Diet	1.82±0.39	1.82±0.4	1.79±0.41	1.84±0.41	0.771
Excretion	1.77±0.52	1.81±0.44	1.81±0.44	1.91±0.28	0.077
Exercises	2.52±0.76	2.71±0.63	2.53±0.77	2.71±0.63	0.051
Resting	2.56±0.63	2.68±0.6	2.68±0.6	2.74±0.49	0.066
Hygiene care	1.86±0.36	1.86±0.36	1.86±0.36	1.9±0.31	0.261
Smoking	0.99±0.12	0.98±0.13	0.98±0.13	0.99±0.06	0.194
Use of alcohol	1±0	1±0	1±0	1±0	1.000
Sexual life	1.95±0.23	1.98±0.13	1.98±0.13	2±0	0.068
Mood changes	0.97±0.11	0.93±0.17	0.93±0.17	0.93±0.21	0.251
Emergencies	0.86±0.25	0.9±0.22	0.91±0.21	0.93±0.17	0.211
Daily activities	4.64±0.74	4.77±0.56	4.78±0.68	4.89±0.42	0.001

SD: Standard deviation.

TABLE 4: Comparison of the weekly mean scores for the subjects to know after surgery.

Weeks	Use of drugs	Pain management	Daily activities	p value
Week 1-Week 2	0.387	0.974	0.387	<0.05
Week 1-Week 3	0.847	0.178	0.320	
Week 1-Week 4	0.089	0.001	0.025	
Week 2-Week 3	0.501	0.189	0.898	
Week 2-Week 4	0.010	0.001	0.168	
Week 3-Week 4	0.059	0.043	0.211	

antiretroviral treatment, patients receiving short text message services via cell phone were found to have significantly improved adherence to antiretroviral treatment and viral suppression rate compared to control group.[13] Kelleci et al., stated in their study evaluating the compliance to the medication by calling up the patients 1 month and 6 months following discharge that 73.8% of the patients knew the names of the drugs they needed to use, 85.7% knew their doses, 83.2% knew how many times they needed to take, and 82% used the drugs regularly at the first phone follow up.[14] In their study, Özkan et al., assessed the effect of spiritual education and telepsychiatric follow up for the patients with schizophrenia on patient functioning and medication adherence and found that medication adherence was high after the training provided via phone follow up.[15] In their study, Park and Song compared phone counseling and short text message service given for the people undergoing total knee replacement surgery and revealed that both interventions improved knee functions of patients and increased their independence for activities of daily living and patient satisfaction.[16] Another study examining the counseling provided for people who underwent total knee replacement surgery, it was stated that it was effective for decreasing the pain level of patients and patients were quite much satisfied with receiving the counseling.[17]

The present study revealed that patients had enough knowledge about wound care, edema control, infection follow up, diet, excretion, exercises, resting, hygienic care, smoking, use of alcohol, sexual life, mood changes, and emergencies from the subjects to know after surgery. Compared to other topics,

training contents about use of drugs, pain management, and daily activities were repeated regularly for the 4 weeks (Table 3). Results of the study indicated that patients who received training before discharge had more educational needs about use of drugs, pain management, and daily activities. This result could be accepted as an indicator regarding the fact that the training given via phone counseling is likely to be effective for patients to use drugs, to manage the pain, to maintain activities of daily living, and to cope with possible problems after heart surgery, therefore it would help them to have a more comfortable and problem-free recovery period at home following the discharge.

After the cardiovascular surgery, patients were determined to experience most frequently incision related pain, infection, edema in chest and leg incisions, fatigue, weakness, sleep disorders, respiratory problems and palpitation.[18-22] These problems experienced after open heart surgery cause patients to have difficulty in carrying out daily life activities and may impair their life of quality by limiting their functional independence.[23,24]

When the studies in the literature were examined, it was determined that patients requested to receive discharge training about the treatment and complications, daily life activities and drugs after surgical intervention, their most important post-operative needs were receiving information about ensuring pain management, care and follow up of surgical wounds, teaching home care process and exercises, and determining post discharge control periods, diagnosis and prevention of their complications, moves and positions to take into consideration.[25,26]

In their study, Timmers et al., found that compared to control group receiving training via face to face interview once a week after total knee replacement surgery, patients had significantly less pain during activity, at nights and also while resting in intervention group continuing to education via daily phone call even 4 weeks later discharge. Also physical functional condition was also significantly higher in the intervention group.[27]

The study of Kelleci et al., indicated that 70.6% of the patient regularly used their medications at the first phone follow up, 39.1% of the patients were hospitalized again because they did not take their drugs regularly within the first 6 months after discharge, 54.3% of the patients who were not hospitalized again within the first 6 months were not using their drugs regularly at the second follow up. All of the patients and families expressed that it was very satisfying to get phone call and they felt important.[14]

The patients included in the present study were observed to need training more in the week 2 and week 4 in the weekly comparison of training on the use of drugs from the subjects to know after surgery (Table 4). When the results of the study were examined, it can be concluded that patients needed to repeat training on the use of drugs because they asked to consolidate the training as the phone counseling started and because the phone counseling ended. Training needs of the patients increased when mean scores of training on pain management from the subjects to know after surgery were compared between the week 1-week 4, week 2-week 4, and week 3-week 4 (Table 4). This result could be explained with the fact that heart surgeries cause more pain compared to other surgical procedures and they require more training about the pain management. In the comparison of trainings on daily life activities from the subjects to know after surgery based on the weeks, the patients were seen to need training more in the week 1 and week 4 compared to the other weeks (Table 4). When the results of the study were evaluated, it can be concluded that patients requested to consolidate education about physical activities via phone counseling and to receive the training again upon ending of the phone counseling.

LIMITATIONS

The major limitations of the present study are that it had a time limitation, it was a descriptive study and the sample size was small. The sample of the study consisted of the patients hospitalized in cardiovascular surgery service of a single clinic and therefore the results of this study can't be generalized.

CONCLUSION

New areas of services have emerged with the use of phone for discharge after heart surgery and it gets

easier to reach people who have undergone heart surgery. Within this context, it is crucial training to use phone in discharge to reach and provide service for people who have undergone heart surgery. Consequently, according to results of the present study, it can be asserted that continuity is important in phone counseling after heart surgery and continuous discharge training will improve the care after heart surgery by positively influencing the patients after heart surgery.

Acknowledgements

We thank the hospital for allowing access to patients. We thank theparticipants for sharing their valuable views.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Tuğba Albayram, Mehmet Adnan Celkan;* ***Design:*** *Tuğba Albayram, Mehmet Adnan Celkan;* ***Control/Supervision:*** *Tuğba Albayram, Mehmet Adnan Celkan;* ***Data Collection and/or Processing:*** *Tuğba Albayram;* ***Analysis and/or Interpretation:*** *Seval Kul;* ***Literature Review:*** *Tuğba Albayram;* ***Writing the Article:*** *Tuğba Albayram, Seval Kul;* ***Critical Review:*** *Mehmet Adnan Celkan, Seval Kul;* ***References and Fundings:*** *Mehmet Adnan Celkan, Tuğba Albayram;* ***Materials:*** *Tuğba Albayram, Mehmet Adnan Celkan.*

REFERENCES

1. Ertem A, Yava A, Demirkilic U. Kardiyak cerrahi yapılan hastaların ameliyat öncesi verilen aydınlatılmış onam hakkındaki görüş ve önerilerinin belirlenmesi [Determination of the opinions and suggestions of the patients undergoing cardiac surgery on preoperative informed consents]. Turkish Journal of Thoracic and Cardiovascular Surgery. 2013;21(2):371-7. [Crossref]
2. Ozhan Elbas N. Cardiac surgery and nursing care. Erdil F, Özhan Elbaş N, editörler. Cerrahi Hastalıklar Hemşireliği. 1. baskı. Ankara: Aydoğdu Ofset. 2016. p.297-366.
3. Sidar A, Iskesen AI, Dedeli O. Açık Kalp cerrahisi öncesi ve sonrası hastaların kaygı ve ağrı distresi: ağrı düzeyi ile ilişkisinin incelenmesi [The relationship between anxiety, pain distress and pain severity before and after open heart surgery in patients]. Journal of Medical and Surgical Intensive Care Medicine. 2013;4(1). [Link]
4. Bikmoradi A, Masmouei B, Ghomeisi M, Roshanaei G. Impact of Telenursing on adherence to treatment plan in discharged patients after coronary artery bypass graft surgery: a quasi-experimental study in Iran. Int J Med Inform. 2016;86:43-8. [Crossref] [PubMed]
5. Uslu E, Buldukoglu K. Tele-hemşirelik uygulamalarının şizofreni hastalarının bakımına etkisi: sistematik derleme [The effect of tele-nursing practices on the care of schizophrenia patients: a systematic review]. Turkish Journal of Psychiatry. 2016;27(1):47-56. [Link]
6. Nagel DA, Pomerleau SG, Penner JL. Knowing, caring, and telehealth technology: "going the distance" in nursing practice. J Holist Nurs. 2013;31(2):104-12. [Crossref] [PubMed]
7. Polisena J, Tran K, Cimon K, Hutton B, McGill S, Palmer K. Home telehealth for diabetes management: a systematic review and meta-analysis. Diabetes Obes Metab. 2009;11(10):913-30. [Crossref] [PubMed]
8. Dag H, Donmez S, Gulec D, Ozturk R, Eminov A, Saruhan A, et al. Learning needs of gynecological surgerypatients before discharge [Jinekolojik operasyon geçiren kadınların taburculuk öncesi öğrenim gereksinimleri]. Journal of Ege University Nursing Faculty. 2014;30(1):49-59. [Link]
9. Yalcin S, Arpa Y, Cengiz A, Dogan S. Hemşirelerin hastaların taburculuk eğitim gereksinimlerine yönelik görüşleri ile hastaların eğitim gereksinimlerine yönelik görüşlerinin karşılaştırılması [A comparison of nurses' and patients' opinions about discharge education needs]. Journal of Nursing Education and Research. 2015;12(3):204-9. [Link]
10. Duran S, Gurhan N. Psikiyatri hastalarının taburculuk eğitimi alma durumunun değerlendirilmesi [Evaluation of state of acquiring discharge education in psychiatric patients]. Medical Journal of Firat University Health Sciences. 2012;26(1):39-44. [Link]
11. Yilmaz M, Cifci ES. Açık kalp ameliyatı geçirmiş bireylerin evde bakım gereksinimlerinin belirlenmesinde bir model: fonksiyonel sağlık örüntüleri [A model defining the needs of patient care at home after open heart surgery: functional health patterns]. Turkish Journal of Thoracic and Cardiovascular Surgery. 2009;18(3):183-9. [Link]
12. Park LG, Howie-Esquivel J, Chung ML, Dracup K. A text messaging intervention to promote medication adherence for patients with coronary heart disease: a randomized controlled trial. Patient Educ Couns. 2014;94(2):261-8. [Crossref] [PubMed]
13. Lester RT, Ritvo P, Mills EJ, Kariri A, Karanja S, Chung MH, et al. Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial. Lancet. 2010;376(9755):1838-45. [Crossref] [PubMed]
14. Kelleci M, Dogan S, Elvan EE, Avci D, Sabanciogullari S, Basegmez F, et al. Bir psikiyatri kliniğinde yatan hastaların psikotrop ilaç kullanma hakkında düşünceleri ve taburculuk sonrası telefonla izlem [Ideas regarding psychotropic drug use among inpatients in a psychiatry clinic and after their discharge from the hospital with follow-up by telephone]. Journal of Psychiatric Nursing. 2011;2(3):128-35. [Link]

15. Ozkan B, Erdem E, Ozsoy Demirel S, Zararsiz G. Şizofreni hastalarına verilen ruhsal eğitim ve telepsikiyatrik izlemenin hasta işlevselliği ve ilaç uyumuna etkisi [The effect of mental education and telepsychiatric monitoring given to patients with schizophrenia on patient functionality and medication compliance]. Anatolian Journal of Psychiatry. 2013;14:192-9. [Crossref]
16. Park KH, Song MR. The effects of postdischarge telephone counseling and short message service on the knee function, activities of daily living, and life satisfaction of patients undergoing total knee replacement. Orthop Nurs. 2017;36(3):229-36. [Crossref] [PubMed] [PMC]
17. Unal Taskin E. The effect of pre- and postoperative counseling on self-care ability, functional status and pain. [Yüksek lisans tezi]. İzmir: Dokuz Eylül Üniversitesi; 2011. Date of access: 15 May 2022 Erişim linki: [Link]
18. Schulz P, Lottman DJ, Barkmeier TL, Zimmerman L, Barnason S, Hertzog M. Medications and associated symptoms/problems after coronary artery bypass surgery. Heart Lung. 2011;40(2):130-8. [Crossref] [PubMed] [PMC]
19. Schulz PS, Zimmerman L, Pozehl B, Barnason S, Nieveen J. Symptom management strategies used by elderly patients after coronary artery bypass surgery. Appl Nurs Res. 2011;24(2):65-73. [Crossref] [PubMed] [PMC]
20. Hannan EL, Zhong Y, Lahey SJ, Culliford AT, Gold JP, Smith CR, et al. 30-day readmissions after coronary artery bypass graft surgery in New York State. JACC Cardiovasc Interv. 2011;4(5):569-76. [Crossref] [PubMed]
21. Fox JP, Suter LG, Wang K, Wang Y, Krumholz HM, Ross JS. Hospital-based, acute care use among patients within 30 days of discharge after coronary artery bypass surgery. Ann Thorac Surg. 2013;96(1):96-104. [Crossref] [PubMed] [PMC]
22. Gelsomino S, Lorusso R, Livi U, Masullo G, Lucà F, Maessen J, et al. Cost and cost-effectiveness of cardiac surgery in elderly patients. J Thorac Cardiovasc Surg. 2011;142(5):1062-73. [Crossref] [PubMed]
23. Abelha FJ, Botelho M, Fernandes V, Barros H. Quality of life and mortality assessment in patients with major cardiac events in the postoperative period. Rev Bras Anestesiol. 2010;60(3):268-84. [Crossref] [PubMed]
24. Margeret MF, Noreen O. Caring for a patient after coronary artery surgery. Nursing Critical Care. 2009;4(1):22-7. [Crossref]
25. Kaya C, Bîlîk O. Total diz protezi ameliyatı planlanan bireylere neden danışmanlık verilmeli? [Why should consultancy be offered to the patients scheduled for total knee artroplasty?]. Journal of Nursing Science. 2020;3(1):25-30. [Link]
26. Su HH, Tsai YF, Chen WJ, Chen MC. Health care needs of patients during early recovery after total knee-replacement surgery. J Clin Nurs. 2010;19(5-6):673-81. [Crossref] [PubMed]
27. Timmers T, Janssen L, van der Weegen W, Das D, Marijnissen WJ, Hannink G, et al. The effect of an app for day-to-day postoperative care education on patients with total knee replacement: randomized controlled trial. JMIR Mhealth Uhealth. 2019;7(10):e15323. [Crossref] [PubMed] [PMC]