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Determining Discharge Learning Needs and Influencing Factors in Patients Undergoing Cardiovascular Surgery

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Abstract

Background: Discharge education plays a critical role in maintaining continuity of care at home. It is essential to identify the topics patients need during their hospital stay to tailor education accordingly. Discharge education should cover physical, psychological, and social aspects while addressing individual learning needs.

Aim: This study aims to assess patients' learning needs after cardiovascular surgery in the post-discharge period.

Methods: A cross-sectional, descriptive study was conducted in the cardiovascular surgery clinic of a university hospital from June 20, 2018 to January 30, 2019. A total of 78 patients actively participated in this study. Data collection was performed using a questionnaire form, carefully prepared by the researchers, and the Patient Learning Needs Scale (PLNS). Data analysis included the Mann-Whitney U test and the Kruskal-Wallis test.

Results: The mean age of the 78 patients was 61.54 ± 11.55 years. The majority were male (78.2%), married (84.6%), and had completed primary education (61.5%). The PLNS demonstrated a significant level of importance, with an overall mean score of 209.00 ± 27.31. Among the different learning needs, life activities were rated as the most important (41.10 ± 3.83, level of importance: 4.57), while emotions related to the situation were considered the least important (16.56 ± 4.95, level of importance: 3.31). A significant relationship was observed between all PLNS dimensions and patients' age, education, and income level ($p < 0.05$). Additionally, a notable difference was found between employment status and PLNS sub-dimensions, specifically in life activities and quality of life scores. This difference extended to factors such as the presence of chronic diseases, with significance noted in all PLNS dimensions except for medication and skin care ($p < 0.05$).

Conclusion: Patients undergoing cardiovascular surgery exhibited increased discharge needs, highlighting the necessity of restructuring discharge learning in the cardiovascular clinic. It is recommended that education be tailored to individual patient information needs, using patient-specific methods rather than conventional approaches for more effective and personalized post-cardiovascular surgery care.

Keywords: Cardiovascular surgery, learning need, nursing

Introduction

Cardiovascular surgery is a highly complex procedure with positive outcomes for patients, improving both quality of life and survival. However, the recovery period, both in-hospital and post-discharge, is relatively long.[1] Therefore, for optimal patient management in both settings, discharge education should be tailored and patient-centered. Patient-centered care is increasingly recognized as a key component of high-quality healthcare. Grounded in ethical principles, it aims to establish a partnership between the healthcare team and the patient, family member, or both in care planning and decision-making.[2] Patient-centered care involves providing care that respects and responds to individual patient preferences, needs, and values while ensuring that patient values guide all clinical decisions.[3] In this context, informing patients based on their specific learning needs is a critical aspect of patient-centered care.

The discharge phase represents a significant and complex transition for cardiac surgery patients. It is crucial for adapting to new lifestyle changes, learning self-care measures at home, and reintegrating into the community. Traditionally, cardiac surgery is associated with a postoperative hospital stay of approximately one week before full recovery.[4,5]

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Evidence suggests that the surgical discharge process and the early post-discharge recovery period are significant sources of stress for both patients and caregivers.[1] More importantly, patients and caregivers often report feeling inadequately prepared for effective self-care after returning home, a gap that can significantly affect the quality of their postoperative recovery.[6] A study[1] identifying barriers to successful discharge after cardiac surgery found a lack of understanding regarding the discharge process, including when discharge is appropriate and issues with the information provided to patients at discharge. This study also found that the most important component of the discharge process for patients and caregivers after cardiac surgery was "knowing what to do in an emergency." Another study[7] similarly found that healthcare professionals often failed to provide patients with adequate and timely information tailored to their needs and that the information provided did not always align with patients' actual needs. Despite the benefits of surgery, individuals' physical and psychological functioning in the first three weeks after surgery remains negatively impacted.[7] Previous studies[8,9] have identified the following negative effects: cardiac surgery patients experience significant physiological (inadequate nutrition, reduced activity, loss of appetite, nausea, vomiting, changes in bowel habits, sleep disturbances, fatigue, leg and chest incision pain, anxiety), psychological (depression, self-perception issues, difficulty coping with stress, sexuality concerns, values, and social challenges, including issues related to self-care, stress management, pain, and beliefs), and social challenges (role and relationship changes, feelings of helplessness in problem-solving) after discharge. These issues, including difficulties with self-care, stress management, pain, nutrition, sleep, and emotional well-being, often persist beyond the first week[8] and may last up to six months.[9] A study[10] found that patients who underwent coronary artery bypass graft surgery (CABG) reported experiencing fatigue, dyspnea, wound pain, weakness, insomnia, loss of appetite, anxiety, pessimism, leg edema, wound dehiscence, palpitations, and constipation after discharge.

As previous studies have shown, cardiac surgery patients are particularly vulnerable to challenges and complications after discharge. Therefore, discharge education plays a crucial role in the early detection and prevention of adverse outcomes, bridging the gap between hospital and home care and reducing the likelihood of hospital readmission.[11] This education is the "process of assisting consumers of health care to learn how to incorporate health-related behaviors (knowledge, skills, and/or attitudes) into everyday life with the purpose of achieving." Discharge education equips patients and their families with essential health information, empowering them to recover post-discharge, manage their health, make informed decisions, recognize early signs of complications, regain self-care independence, and optimize their surgical recovery at home.[11] Ensuring continuity of care at home requires effective discharge education. Identifying the specific topics that patients need during their hospital stay is critical for tailoring education to their individual learning needs.[12-14] Initiating discharge education at the appropriate time, considering the patient's health status, level of anxiety, and preferred timing, with a multidisciplinary approach, is essential.[15] Kang et al.[16] emphasized its importance in enabling surgical patients to regain control and re-engage in their lives after discharge. The literature suggests that surgical patients often receive inadequate discharge information.[12,17,18] This study aims to identify the post-discharge learning needs of patients undergoing cardiovascular surgery.

Study Questions

1. What are the post-discharge learning needs of patients undergoing cardiovascular surgery?
2. What factors influence the post-discharge learning needs of patients undergoing cardiovascular surgery?
3. What is the significance level of the post-discharge learning needs of patients undergoing cardiovascular surgery?

Materials and Methods

Study Design and Participants

A single-center, prospective, descriptive study was conducted between June 2018 and January 2019 at the Cardiovascular Surgery Clinic of a university hospital. A total of 78 patients were included in the study. The inclusion criteria were: (a) 18 years of age or older, (b) intact cognitive function, (c) not being a healthcare professional, and (d) undergoing CABG, heart valve, or vascular surgery as elective procedures. In the clinic where the study was conducted, an education nurse is responsible for patients' discharge learning. The education nurse typically provides information one day before discharge using a booklet that covers wound care, signs of infection, home environmental adjustments, self-care requirements and complications, medications, follow-up appointments, exercise management, and nutrition. Patient education in the clinic is not personalized; instead, general education is provided.

Data Collection Tools

Research data was collected using a questionnaire form and the Patient Learning Needs Scale (PLNS).

The Questionnaire Form

The questionnaire form was developed by the researchers based on the literature[8-12] to identify characteristics that may influence learning needs. It consisted of 16 questions covering the patient's type of surgery, age, gender, education, marital status, employment status, income, residence, living arrangements, health insurance, history of previous surgeries, presence of a support person after surgery, presence of chronic conditions, receipt of discharge information, and preferences for receiving information from healthcare professionals.

The Patient Learning Needs Scale

The Patient Learning Needs Scale (PLNS), developed by Bubela et al, aims to identify the learning needs and priorities of surgical patients at discharge.[19] The Turkish validity and reliability study of the scale, conducted by Çatal & Dicle, reported a Cronbach's alpha of 0.95 and item-total score correlations ranging from r = 0.69 to r = 0.85.[20] The scale consists of 50 items organized into seven sub-dimensions: medication, life activities, community and follow-up, emotions related to the situation, treatment and complications, quality of life, and skincare. Items are rated on a Likert-type scale ranging from 1 = not important, 2 = somewhat important, 3 = neither unimportant nor important, 4 = important, to 5 = extremely important. Scoring is based on both individual sub-dimensions and the total scale score. The total scale score ranges from 50 to 250. The scale and sub-dimension scores are interpreted on a scale of 1 to 5, indicating the significance of the learning need: 1 = not important, 2 = somewhat important, 3 = neither unimportant nor important, 4 = important, and 5 = extremely important. The scale does not have a cut-off point; higher

scores indicate a greater level of importance for learning needs.[19,20] In this study, Cronbach's alpha value for the scale was found to be 0.953.

Data Collection

Research data were collected using a questionnaire form and the PLNS. Some patients were accompanied by their caregivers during the administration of the questionnaire, as their participation was considered useful in supporting the patient's care at home. The questionnaire forms were administered through face-to-face interviews in the patients' rooms within three days before discharge and took approximately 25-30 minutes per participant.

Ethical Considerations

The study was approved by the Institutional Review Board for Non-Invasive Clinical Research at Cumhuriyet University where the research was conducted, and written approval (Approval Number: 2018-05/02, Date: 28.05.2018) was obtained from the institution. The study was conducted in accordance with the tenets of the Declaration of Helsinki. Following approval, patients were informed about the study, and written (Cumhuriyet University Non-Invasive Clinical Research Ethics Committee Informed Consent Form) and verbal consent were obtained before the surveys were administered.

Statistical Analysis

Statistical analysis was conducted using IBM SPSS version 22.0 software (SPSS Inc, Chicago, IL, USA). The Shapiro-Wilk test was performed to assess the normality of the data, which indicated a non-normal distribution. Quantitative data were represented using descriptive statistics, including means and standard deviations (SDs) for continuous data, as well as frequencies and counts for categorical variables. For inferential analysis, the Mann-Whitney U test was applied to compare binary groups, and the Kruskal-Wallis test was used for comparisons involving more than two groups. Statistical significance was set at $p < 0.05$.

Results

The median age of the patients at the time of surgery was 61.54 years (SD = 11.55). The majority of patients were male, had completed primary education, were married, unemployed, lived with their families in urban areas, had low incomes, had undergone previous surgery, had a caregiver at home, had chronic diseases, and had health insurance (Table 1).

Table 1. Descriptive Characteristics of Patients (n = 78)

Characteristics		n	%
Average Age	61.54 ± 11.55		
Type of Surgery	Heart Surgery	72	92.3
	Vascular Surgery	6	7.7
Gender	Male	61	78.2
	Female	17	21.8
Education	Illiterate	5	6.4
	Primary School	48	61.5
	High School	13	16.7
	University	12	15.4
Marital Status	Married	66	84.6
	Single	12	15.4
Employment Status	Employed	20	25.6
	Unemployed	58	74.4
Income Level	Low	49	62.8
	Middle	29	37.2
Place of Residence	City	50	64.1
	Rural Area	28	35.9
Living Arrangements	With Family	68	87.2
	With Caregiver or Alone	10	12.8
Health Insurance	Yes	77	98.7
	No	1	1.3
Previous Surgeries	Yes	50	64.1
	No	28	35.9
Support Person Available	Yes	74	94.9
	No	4	5.1
Chronic Illness	Yes	54	69.2
	No	24	30.8
Received Discharge Information	Yes	2	2.6
	No	76	97.4
Received Information From	Nurse	2	100.0
	Physician	33	42.3
Preferred Source of Information	Nurse	45	57.7
Total		78	100.0

As shown in Table 2, the overall mean PLNS score of the patients was 209.00 (SD = 27.31, significance level = 4.18), indicating a high level of learning needs. The mean values and significance levels of the PLNS sub-dimensions were as follows: medication (M = 33.50, SD = 5.52, significance level = 4.19), activities of daily living (M = 41.10, SD = 3.83, significance level = 4.57), community and follow-up (M = 22.60, SD = 4.50, significance level = 3. 78), feelings about the disease (M = 16.56, SD = 4.50, significance level = 3.31), treatment and complications (M = 39.77, SD = 4.72, significance level = 4.42), quality of life (M = 33.59, SD = 5.47, significance level = 4.21), and skin care (M = 21.87, SD = 2.90, significance level = 4.40).

Table 3 shows the mean PLNS scores based on patient characteristics. Patients aged 60 years and younger had higher PLNS scores, and the observed difference in scores between patients aged 60 years and older was statistically significant ($p < 0.05$). Females had higher mean PLNS scores than males in the dimensions of medication, community follow-up, emotional response to the situation, treatment and complications, skin care, and total score; however, the gender difference in PLNS scores was not statistically significant ($p > 0.05$). Although married patients had higher PLNS scores than single patients, the variance in mean scores was not significant ($p > 0.05$). Employed patients had higher scores in all dimensions of the PLNS. Patients with prior surgery had higher total PLNS scores; however, this difference was not statistically significant ($p > 0.05$). Patients without chronic diseases had higher scores in all PLNS dimensions and total scores, with significant differences in all dimensions and total scores except for medication and skin care. Patients living with spouses and children had higher scores in the dimensions of medication, life activities, community support, treatment and complications, skin care, and total scores, but the differences were not significant ($p > 0.05$).

Table 2. Mean Scores and Significance Levels of Patient Learning Needs (n = 78)

	Scale	Patients		Significance Level
PLNS	Min-Max	Min-Max	Mean ± SD	Min-Max
Medicines	8-40	32.26-34.75	33.50 ± 5.52	4.19 (1-5)
Life Activities	9-45	40.24-41.97	41.10 ± 3.83	4.57 (1-5)
Society and Monitoring	6-30	21.59-23.62	22.60 ± 4.50	3.78 (1-5)
Emotions About the Situation	5-25	15.45-17.68	16.56 ± 4.95	3.31 (1-5)
Treatment and Complications	9-45	38.71-40.83	39.77 ± 4.72	4.42 (1-5)
Quality of Life	8-40	32.36-34.83	33.59 ± 5.47	4.21 (1-5)
Skin Care	5-25	21.22-22.53	21.87 ± 2.90	4.40 (1-5)
Total	50-250	202.84-215.16	209.00 ± 27.31	4.18 (1-5)

Urban residents had higher scores in the dimensions of community care, emotional response to the situation, quality of life, and skin care, while rural residents had higher scores in the dimensions of medication, life activities, treatment and complications, and total score. These differences were not significant ($p > 0.05$). Patients who received discharge information had lower scores in all PLNS dimensions except medication; however, the differences were not statistically significant. Patients seeking information from physicians had higher scores in the dimensions of life activities, emotional response to the situation, and skin care. Patients seeking information from nurses had higher scores in the dimensions of medication, community follow-up, treatment and complications, quality of life, and total score. These differences were not significant ($p > 0.05$).

Discussion

The process of learning is an integral part of the nursing profession. The initial step in developing effective learning programs is to identify the priority learning needs of patients. Therefore, nurses must assess and determine patients' learning needs during hospitalization to ensure appropriate education and preparation for recovery. The current study found high mean scores and significant levels across all dimensions of the pre-discharge PLNS. Similarly, two studies assessing the post-discharge learning needs of patients undergoing CABG also reported that the average total score for their learning needs was significantly high.[21,22] Consistent with the findings of this study, other research conducted in Türkiye has also reported a high level of learning needs among patients undergoing surgery.[12,17,18,23-28] Additionally, these studies have found that the learning needs of surgical patients were significantly high. A study[29] conducted in Jordan using the PLNS to assess nurses' and patients' perceptions of learning needs after cardiac surgery found that patients had a very high need for information. The significant change in the sense of freedom experienced by individuals who have undergone heart surgery or other surgical procedures may be attributed to factors such as fear of surgery, the presence of a wound and pain, or difficulty in performing activities of daily living.

In the present study, the "life activities" sub-dimension of the PLNS had the highest mean score and significance level. This finding is consistent with the results of other cardiac surgery studies.[21,22] Cardiac surgery is a procedure involving vital organs; therefore, factors such as pain, loss of independence, and fear of death experienced by patients as a result of the surgical procedure negatively impact their ability to participate in activities of daily living. In this context, it can be said that patients require more information about daily life activities.

In the current study, the "treatment and complications" sub-dimension of the PLNS had the second-highest significance level. Studies conducted in Türkiye to determine the discharge learning needs of surgical patients[12,18,24,26,30] found that the "treatment and complications" dimension had the highest significance level score. This suggests that patients prioritize aspects related to managing their condition and understanding potential adverse effects associated with treatment.

The "skin care" sub-dimension received the third-highest score. It is well known that surgical patients have concerns about incision/wound care before hospital discharge.[12,29] Cardiac surgery involves significant surgical incisions, often at the sternum or at vein graft sites. Proper skin care is crucial to prevent surgical site infections (SSIs), which can lead to severe complications such as mediastinitis or systemic infections. Additionally, many cardiac surgery patients have comorbidities such as diabetes or peripheral vascular disease, which can impair wound healing and increase the risk of skin complications. Furthermore, the location of the incision in a highly visible area of the body, such as the chest, may negatively impact the patient's body image. Proper skin care plays a crucial role in minimizing scarring and promoting better healing, helping to preserve the patient's appearance and confidence. It can be suggested that nurses educate patients on proper skin care practices during the discharge process to prevent unfavorable outcomes and support the patient's psychological well-being throughout the recovery period. The results of previous studies[12,18,21,22,29] are consistent with the current findings. These findings can be attributed to the fact that the heart is a vital organ.

In the current study, the mean scores and significance levels for the "medication" and "quality of life" dimensions were high. Similar studies have focused on patients' medications,[12,18,28] as well as the impact of medications on their quality of life.[17] The high level of significance placed on the "medication" and "quality of life" sub-dimensions in this study and others conducted with surgical patients suggests

Table 3. Comparison of the Mean Scores of Learning Needs According to Patient Characteristics (n=78)

	PLNS Sub-Dimensions							
Characteristics	Medicines M ± SD	Life Activities M ± SD	Society and Monitoring M ± SD	Emotions Related to the Situation M ± SD	Treatment and Complications M ± SD	QoL M ± SD	Skin Care M ± SD	Total M ± SD
Age								
≤60 years (n=26)	36.3 ± 4.8	43.1 ± 2.6	25.1 ± 4.5	19.8 ± 4.5	42.7 ± 3.3	37.1 ± 3.7	23.6 ± 2.3	227.6 ± 22.1
>60 years (n=52)	32.1 ± 5.4	40.1 ± 3.1	21.35 ± 3.1	14.9 ± 4.4	38.3 ± 4.7	31.9 ± 5.4	21.0 ± 2.8	199.7 ± 24.9
Z/P	-3.385/**0.001**	-3.556/**0.000**	-3.469/**0.001**	-4.074/**0.000**	-4.038/**0.000**	-40.82/**0.000**	-4.189/**0.000**	-4.262/**0.000**
Type of Surgery								
Heart Surgery	33.3 ± 5.6	41.0 ± 3.9	22.5 ± 4.4	16.3 ± 4.9	39.7 ± 4.8	33.3 ± 5.5	21.8 ± 2.9	207.8 ± 27.5
Vascular Surgery	36.2 ± 4.02	42.8 ± 1.8	24.0 ± 5.7	19.5 ± 5.2	40.7 ± 4.2	37.0 ± 4.7	23.3 ± 2.1	223.5 ± 22.4
Z/P	-1.094/0.274	-0.958/0.338	-0.687/0.492	-1.494/0.135	-0.218/0.828	-1.716/0.086	-1.349/0.177	-1.276/0.202
Gender								
Female (n=17)	33.8 ± 6.5	40.8 ± 4.6	24.1 ± 4.3	17.2 ± 5.1	39.9 ± 5.4	33.1 ± 5.2	22.4 ± 2.5	211.2 ± 31.7
Male (n=61)	33.4 ± 5.3	41.2 ± 3.6	22.2 ± 4.5	16.4 ± 4.9	39.7 ± 4.6	33.7 ± 5.4	21.7 ± 3.0	208.4 ± 26.2
Z/P	-0.560/0.575	-0.018/0.985	-1.434/0.152	-0.588/0.556	-0.305/0.760	-0.371/0.710	-0.576/0.564	-0.454/0.650
Education								
Illiterate (n=5)	27.0 ± 4.7	35.0 ± 3.4	19.6 ± 1.5	11.8 ± 2.6	33.2 ± 3.5	26.0 ± 3.5	19.0 ± 2.1	171.6 ± 14.7
Primary School (n=48)	33.4 ± 5.2	40.7 ± 3.6	22.3 ± 4.3	16.2 ± 5.0	39.7 ± 4.6	33.1 ± 5.2	21.5 ± 3.0	206.7 ± 26.1
High School and University (n=24)	35.0 ± 5.6	43.1 ± 2.7	23.8 ± 5.1	18.3 ± 4.7	41.2 ± 4.1	36.1 ± 4.7	23.2 ± 2.2	220.7 ± 24.4
KW/P	7.479/**0.024**	17.009/**0.000**	4.490/0.106	7.902/**0.019**	10.878/**0.004**	14.112/**0.001**	11.386/**0.003**	13.502/**0.001**
Marital Status								
Married (n=66)	33.8 ± 5.5	33.8 ± 5.5	22.6 ± 4.6	16.7 ± 4.9	39.9 ± 4.7	33.6 ± 5.6	21.9 ± 2.9	209.7 ± 27.3
Single (n=12)	31.7 ± 5.3	40.8 ± 4.5	22.5 ± 3.9	15.9 ± 5.1	39.3 ± 5.1	33.3 ± 5.1	21.7 ± 2.9	205.2 ± 28.6
Z/P	-1.414/0.157	0.000/1.000	-0.014/0.989	-0.534/0.593	-0.314/0.753	-0.258/0.797	-0.210 0.833	-0.769/0.442
Employment Status								
Employed (n=20)	35.8 ± 4.0	42.7 ± 2.6	22.4 ± 5.1	17.8 ± 4.9	41.7 ± 3.2	36.2 ± 3.5	22.4 ± 3.2	218.8 ± 20.4
Unemployed (n=58)	32.7 ± 5.8	40.6 ± 4.1	22.7 ± 4.3	16.1 ± 4.9	39.1 ± 5.0	32.7 ± 5.8	21.7 ± 2.8	205.6 ± 28.7
Z/P	-1.928/0.054	-1.992/**0.046**	-0.213/0.832	-1.307/0.191	-1.865/0.062	-2.255/**0.024**	-1.258/0.208	-1.769/0.077

(*Continued*)

Table 3. Comparison of the Mean Scores of Learning Needs According to Patient Characteristics (n = 78) (*Continued*)

	PLNS Sub-Dimensions							
	Medicines	Life Activities	Society and Monitoring	Emotions Related to the Situation	Treatment and Complications	QoL	Skin Care	Total
Characteristics	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD	M ± SD
Place of Residence								
Urban Area (n = 50)	33.0 ± 6.1	40.8 ± 4.2	22.6 ± 4.8	16.9 ± 5.3	39.1 ± 5.2	33.7 ± 5.8	22.3 ± 2.7	208.3 ± 30.0
Rural Area (n = 28)	34.5 ± 4.2	41.7 ± 3.1	22.5 ± 4.0	15.9 ± 4.4	41.0 ± 3.6	33.5 ± 4.8	21.2 ± 3.2	210.2 ± 22.2
Z/P	-0.775/0.438	-0.685/0.493	-0.037/0.971	-0.913/0.361	-1.366/0.172	-0.377/0.706	-1.451/0.147	-0.057/0.954
Chronic Illness								
Yes (n = 54)	32.7 ± 5.6	40.4 ± 4.0	21.7 ± 4.0	15.7 ± 4.5	38.9 ± 4.7	32.6 ± 5.4	21.8 ± 2.6	203.8 ± 26.1
No (n = 24)	35.3 ± 4.9	42.6 ± 2.8	24.5 ± 5.1	18.6 ± 5.4	41.8 ± 4.1	35.8 ± 5.2	22.1 ± 3.6	220.8 ± 26.9
Z/P	-1.906/0.057	-2.394/**0.017**	-2.489/**0.013**	-2.262/**0.024**	-2.720/**0.007**	-2.586/**0.010**	-1.223/0.221	-2.518/**0.012**
Received Discharge Information								
Yes (n = 2)	34.5 ± 6.3	37.5 ± 3.5	19.0 ± 2.8	13.5 ± 3.5	36.5 ± 0.7	29.5 ± 0.7	21.5 ± 2.1	192.0 ± 12.7
No (n = 76)	33.4 ± 5.6	41.2 ± 3.8	22.8 ± 4.5	16.8 ± 4.9	39.9 ± 4.8	33.7 ± 5.5	21.9 ± 2.9	209.7 ± 27.6
Z/P	-0.111/0.911	-1.456/0.145	-1.269/0.204	-0.950/0.342	-1.260/0.208	-1.303/0.192	-0.352/0.725	-1.059/0.289
Preferred Source of Information								
Physician (n = 33)	32.2 ± 6.3	41.6 ± 3.5	22.3 ± 4.6	16.6 ± 5.1	39.0 ± 5.1	33.1 ± 5.9	22.2 ± 2.9	207.2 ± 29.5
Nurse (n = 45)	34.5 ± 4.8	40.8 ± 4.0	23.0 ± 4.4	16.6 ± 4.9	40.4 ± 4.4	34.1 ± 5.2	21.6 ± 2.9	211.0 ± 25.8
Z/P	-1.527/0.127	-0.844/0.399	-0.615/0.539	-0.010/0.992	-1.158/0.247	-0.632/0.528	-0.955/0.340	-0.479/0.632

QoL: Quality of Life.

that patients recognize the role of medication in their recovery and understand that proper management can enhance their quality of life. Therefore, nurses should provide clear explanations of the purpose, duration, and side effects of medications during discharge education, ensure patient understanding and compliance, and reinforce the information with written materials. The study also revealed that the "social impression" and "emotions related to the situation" dimensions of the PLNS had the lowest mean scores and significance levels. These findings are consistent with previous research, which has demonstrated a correlation between patients' emotions in analogous situations[12,21,26,31] and social monitoring and emotions in similar contexts.

This study found that the discharge learning needs of patients were high in relation to certain patient characteristics. Specifically, patients who had vascular surgery and were 60 years of age or younger, female, married, highly educated, employed, with moderate income, living with their spouses and children, and without chronic diseases exhibited higher discharge learning needs. These differences may be attributed to factors such as work responsibilities, income level, marital status, gender-related expectations, and levels of awareness. Furthermore, it was established that as education level increased, all dimensions of the PLNS, except for community and monitoring, showed a higher level of learning needs post-discharge. This finding corroborates previous studies[21,30] which suggest that patients with higher educational levels tend to have greater learning needs due to their tendency to ask more questions and seek information. Additionally, younger patients, who are generally more active and eager to resume an active lifestyle, were more aware of their learning needs. This finding supports studies indicating that younger patients have greater learning needs.[21,28] The findings of this study highlight the importance of nurses identifying each patient's individual discharge learning needs and providing tailored discharge education. Nurses play a crucial role in educating cardiovascular surgery patients on managing their postoperative care after discharge.

Limitations of the Study

This study has several limitations. The first limitation is the small sample size, which resulted from the limited number of cardiac surgical procedures performed at the institution where the study was conducted. Another limitation is the reliance on patient self-report, which may have introduced bias or inaccuracy. Additionally, time constraints associated with completing the study as part of a master's program limited the scope and depth of the research. Finally, the lack of new resources due to the small number of studies on this topic in cardiac surgery further constrained the study.

Conclusion

This study found that patients who underwent cardiovascular surgery had a significant demand for discharge information. Based on these findings, it is advisable to assess patients' training requirements upon discharge, modify the discharge training program based on individual needs identified in the cardiovascular clinic, and deliver training using personalized approaches. Furthermore, to enhance the level of evidence, it may be beneficial to replicate the study with larger cohorts, with separate evaluations of vascular and cardiac patients.

Ethics Committee Approval: The study was approved by the Institutional Review Board for Non-Invasive Clinical Research at Cumhuriyet University where the research was conducted, and written approval (Approval Number: 2018-05/02, Date: 28.05.2018) was obtained from the institution.

Informed Consent: Written (Cumhuriyet University Non-Invasive Clinical Research Ethics Committee Informed Consent Form) and verbal consent were obtained before the surveys were administered.

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