

ORIGINAL
ARTICLE**Effects of discharge education and telephone follow-up on patient satisfaction and readmission after orthopedic surgery**Ayob Akbari¹✉, Ahmad Nasiri², Alireza Amirabadizade¹¹*MSc, Medical Toxicology and Drug Abuse Research Center, Birjand University of Medical Sciences, Birjand, Iran*²*PhD, Medical Toxicology and Drug Abuse Research Center, Birjand University of Medical Sciences, Birjand, Iran**Received: November 06, 2018**Revised: February 03, 2018**Accepted: February 03, 2018***Abstract**

Introduction: Discharge planning (i.e., discharge education and telephone follow-up) decrease the readmission rate to hospital and increase patient's satisfaction. Orthopedic patients, especially after the surgery have many problems. Therefore, discharge planning for this group of patients is significant. This study aimed to compare discharge education and telephone follow-up on the satisfaction and readmission of patients after orthopedic surgery.

Methods: This quasi-experimental study was performed on 150 patients divided into three groups before and after the intervention. The patients in the discharge education group were involved in both routine intervention in the ward and a designed discharge planning program based on the study at discharge time. The subjects in telephone group were involved in routine intervention in the ward and followed up for 4 weeks by telephone call (3-4 times) at homes. The cases in the control group were involved only in routine intervention in the ward. The satisfaction level was measured by standard satisfaction questionnaire. The readmission rate of the patients was recorded a month after discharge. The data were analyzed using SPSS software (version 19). In addition, paired t-test, Chi-square test, and one-way analysis of variance were used to compare the mean scores of satisfaction before and after the intervention among the three groups. P-value less than 0.05 was considered statistically significant.

Results: The obtained results showed that after the intervention, the mean score of satisfaction among the three groups was considered statistically significant ($F=58.69$, $P<0.001$). The mean scores of satisfaction in the instruction and telephone follow-up groups were significantly higher than that of the control group ($P<0.001$). Out of 150 participants in the present study, 10.6% of them were readmitted.

Conclusions: Discharge education or telephone follow-up as a target processor can be an effective step in the improvement of patients' conditions, satisfaction increase, and reduction of the patients' readmission rate.

Key words: Discharge planning, Hospital readmission, Patient satisfaction

Introduction

Patient and family education in terms of self-care is one of the most important aspects of nursing care (1). Discharge planning is a systematic process for the patients prior to leaving hospital with the aim of improving costs and outcomes, and

the continuity of nursing care will reduce the patient's anxiety and achieve the patient's independence (2). The upgrading of patient and family education began in the United States in 1960 that aimed to help the patients in resolving care problems after discharge (3).

With patient education, discharge planning and



telephone follow-up decrease readmission rate (4). This will reduce the economic burden of the community and decrease health care costs (5). The educational role of nurses is one of the criteria for work adequacy, productivity, success, and job satisfaction (6). Other benefits of discharge planning include accountability enhancement, mortality reduction, self-confidence increase, and inpatient decrease (1, 7, 8).

Currently, the hospitalization period has been shortened, and the opportunity for the instruction and discharge planning has decreased (9). Discharge planning should begin at the time of patient admission to the hospital and continue during hospitalization and after discharge (10). Another important issue after discharge education is the patient's follow-up after discharge, including telephone follow-up, telephone counseling, SMS follow-up, letter writing, and follow-up at the patient's bedside. These methods are very inexpensive and easy to apply.

Patients, especially after orthopedic surgery, have many problems. Therefore, discharge planning for this group of cases is important and includes postoperative dressing, wound care, casting care, cane use, medication particularly anticoagulation and antibiotics, pain management, drains care, and the patient's referral to a doctor. Orthopedic patients are often readmitted due to wound infections and casting problems; therefore, education and follow-up will be very beneficial for this group (10, 11).

Recently, the patient's satisfaction and readmission rate have become a serious measure of healthcare quality and costs (12, 13). According to the evidence, it was shown that the patient's satisfaction and readmission rate are linked together (14, 15). In many countries, the patients are followed up after discharge at home; however, this issue has been underestimated in Iran (16). Based on the literature it was revealed that the cases who receive instruction after discharge are 30% less likely to be readmitted to the hospital. Although readmission rate in the United States has been reported as high for many years; nonetheless, discharge planning has decreased the related problems (17).

About 21% and 73% of the patients are readmitted due to infection and surgical complications, respectively (16). Patient follow-up after discharge is less common in Iran (12) despite the important role of patient education and telephone follow-up that leads to the reduction of readmission rate. The present study aimed to compare discharge education and telephone follow-up in the patient's satisfaction and

readmission after orthopedic surgery.

Methods

This quasi-experimental study was carried out on 150 patients in three groups before and after the intervention. The sample size was determined based on a study carried out by Nasiriani et al. (18). The participants were randomly divided into two intervention groups and a control group after discharge. First, the researcher explained the objectives and procedure of the study to the participants and ensured them of the confidentiality terms and possibility of withdrawal from the study at any time. Then, the written informed consent was obtained from the subjects and the checklist was completed by the researcher. The ethical code of the study was IR.bums.REC.1396.328.

All the patients were healthy without any systemic diseases. All the three groups were matched based on the variables, such as age (age range: 20-40 years), sex, hospitalization duration (24-48 h), and surgery type. All the subjects had anterior cruciate ligament surgery with general anesthesia. All the subjects were visited by a doctor and dressed before discharge.

The participants in the discharge education group were involved in both routine intervention in the ward (considering diet, mobility, and referral to a doctor) and designed discharge education (regarding any complications related to the surgery and drugs, position change, dressing, proper diet, mobility as soon as possible, wound care, casting care, use cane, time to visit again) based on a study carried out by Nasiriani et al. (18) at discharge time.

The patients in telephone follow-up group were involved in the routine intervention in the ward and followed up for 4 weeks by telephone call (3-4 times) at home (considering any complications related to the surgery and drugs, position change, dressing, proper diet, mobility as soon as possible, wound care, casting care, cane use, time to visit again). The participants in the control group were only involved in the routine intervention in the ward.

The satisfaction level was measured by standard satisfaction questionnaire. The Patient Satisfaction Questionnaire consists of 10 items used to measure patients' satisfaction in the hospital. The scoring of this questionnaire is based on the four-point Likert scale that is considered totally dissatisfied, dissatisfied, satisfied, and completely satisfied with the points from 1 to 4, respectively. The minimum and maximum scores

obtained by each person are 10 and 40, respectively (18). The reliability of the questionnaire was also confirmed by Cronbach's alpha coefficient (81%). The values of the reliability index for each domain of the questionnaire were well-suited (52% to 76%) (19).

The questionnaire was completed by the researcher. The readmission rate in patients was recorded a month after discharge. The data were analyzed using SPSS software (version 19) and statistical tests. The normality of the variables was evaluated using Kolmogorov-Smirnov test. Paired t-test, Chi-square test, and one-way analysis of variance (ANOVA) were used to compare the mean scores of satisfaction before and after the intervention among the three groups. The categorical data were analyzed using Chi-square test. P-value less than 0.05 was considered statistically significant.

Results

This study was carried out on 150 patients, including 90 (60%) men and 60 (40%) women. The mean age of the participants was reported as 35.56 ± 6.38 years. Regarding the demographic data, 90% of the participants were married, 60% of the cases had high school education, and 100% of the subjects were in the hospital for 2-4 days.

The mean score of satisfaction in the instruction group before the intervention (8.9 ± 5.35) was significantly lower than that after the intervention (16.12 ± 5.80 ; $P < 0.001$). In addition, the mean score of satisfaction in the follow-up group before the intervention (8.83 ± 5.31) was significantly lower than that after intervention (17.54 ± 4.74 ; $P < 0.001$).

However, in the control group before and after the intervention, there was no significant difference in the mean score of satisfaction (Table 1; $P = 0.14$).

The results of ANOVA showed that there was no significant difference among the three groups before the intervention ($F = 1.69$, $P = 0.08$). According to the findings, it was revealed that after the intervention the mean score of satisfaction among the three groups was statistically significant ($F = 58.69$, $P < 0.001$). Based on the results of Tukey post hoc test, the mean scores of satisfaction in the instruction and follow-up groups were significantly higher than that of the control group ($P < 0.001$). However, the difference between both intervention groups was not statistically significant (Table 2).

Before the intervention in the three groups, most of the patients ($n = 63$) were absolutely dissatisfied. After the intervention in the telephone follow-up group, 46% of the cases were absolutely satisfied. In the instruction group, 42% of the participants were satisfied; however, in the control group, 56% of the subjects were absolutely dissatisfied. The results of Chi-square test showed that there was no significant difference among the three groups and satisfaction dimensions before the intervention ($P = 0.15$).

Nonetheless, after the intervention, a significant difference was observed in the frequency of satisfaction dimensions among the three groups (Table 3; $P < 0.001$). Out of 150 participants in the study 16 cases (10.6%) were readmitted, namely 12 cases in the control group, 3 subjects in the telephone follow-up group, and 1 participant in the instruction group.

Table 1: Comparison of satisfaction score in three groups before and after intervention

Variables	Groups	Control (n=50) Mean±Standard deviation	Instruction (n=50) Mean±Standard deviation	Telephone follow-up (n=50) Mean±Standard deviation	Analysis of variance
Satisfaction score	Before intervention	8.36 ± 5.30	8.9 ± 5.35	8.83 ± 5.31	$F = 1.69$ $P = 0.08$
	After intervention	7.22 ± 4.87	16.12 ± 5.80	17.54 ± 4.74	$F = 58.69$ $P < 0.001$
		$t = 1.48$ $P = 0.14$	$t = 13.63$ $P < 0.001$	$t = 9.35$ $P < 0.001$	Paired t-test

Table 2: Comparison of mean differences among three groups after intervention

Time	Group	Group	Mean difference±Standard deviation	P-value
After intervention	Telephone follow-up	Instruction	1.42 ± 0.98	$P = 0.35$
		Control	10.32 ± 1.08	$P < 0.001$
	Instruction	Telephone follow-up	-1.42 ± 0.98	$P = 0.35$
		Control	8.9 ± 1.03	$P < 0.001$

Table 3: Patient satisfaction in qualitative scale before and after intervention in three groups

Time	Before intervention						After intervention					
	Control		Instruction		Telephone follow-up		Control		Instruction		Telephone follow-up	
	n	%	n	%	n	%	n	%	n	%	n	%
Absolutely dissatisfied	29	58.0	16	32.0	18	36.0	28	56.0	5	10.0	1	2.0
Fairly dissatisfied	11	22.0	15	30.0	18	36.0	13	26.0	4	8.0	5	10.0
Satisfied	9	18.0	16	32.0	12	24.0	8	16.0	21	42.0	21	42.0
Absolutely satisfied	1	2.0	3	6.0	2	4.0	1	2.0	20	4.0	23	46.0
Test result	X ² =9.35 P=0.15						X ² =70.28 P<0.001					

Discussion

The obtained results of the present study supported the hypothesis that an improved discharge process can impact patient's satisfaction. This study investigated the effects of instruction and telephone follow-up on satisfaction and readmission rate of the patients undergoing orthopedic surgery after discharge. The instruction and follow-up for orthopedic patients are necessary and can reduce the readmission rate and enhance satisfaction level.

The results of a study carried out by Sunil Kripalani (2014) showed that multiple strategy interventions, including communication and advanced discharge planning, reduced the readmission rate (20). In a study conducted by Lin PC on orthopedic patients, the subjects were trained before discharge and followed up by telephone after discharge. The results of the aforementioned study indicated that the discharge planning could enhance the patient's satisfaction (21).

In a study conducted by Zohre Vanaki et al. (2009) on the effect of discharge planning in patient's satisfaction, it was represented that discharge planning can be the reason for complete satisfaction in patients. In addition, patient education was shown to increase the satisfaction and reduce readmission rate (22).

In a study performed by BelaBen-Morderchai, it was investigated that structured discharge education improves early outcome in orthopedic patients. In the aforementioned study, it was reported that structured patient education at discharge offers an easily implemented alternative to standard instructions and improves patient satisfaction, pain management, as well as compliance with follow-up, and better functional status (23).

Heather Markey Waniga et al. (2016) expressed that communication and follow-up at discharge positively affect the patient's

satisfaction (15). In a study carried out by Julia Sara Hager regarding the effects of discharge planning intervention on perceived readiness for discharge, it was represented that discharge planning can reduce the costs by decreasing the readmission rates and adverse events, improving patient satisfaction, and assisting patients with feeling more comfortable as they transfer from hospital to home (24).

In another study conducted by Christopher O. Phillips et al. entitling "Comprehensive Discharge Planning With Post-discharge Support for Older Patients With Congestive Heart Failure", it was demonstrated that comprehensive discharge planning plus post-discharge support for older patients with congestive heart failure significantly reduced the readmission rate (25% reduction) and may improve health outcomes, such as survival and quality of life, without increasing the costs (25).

The abovementioned findings are consistent with the results of the present study indicating the positive effect of discharge planning (i.e., education and telephone follow-up) on patient's satisfaction and readmission rate. It is suggested to perform discharge planning for orthopedic and other surgical patients. The limitations of the present study include the lack of accountability of some patients, attention to education, and referral to the doctor. It is recommended to carry out further studies on patients with high-risk diseases (e.g., diabetes, heart failure, and chronic obstructive pulmonary disease) and compare the results with the findings of other studies.

Conclusions

Discharge planning (i.e., education and telephone follow-up) as a target processor can be an effective step in the improvement of patients' conditions, an increase in patient's satisfaction, a reduction in the readmission rate of patients, and care continuity. Discharge planning is recommended as an organized

program in all hospitals in Iran.

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Author's contribution

Mr. Ayob Akbar wrote the manuscript, designed and monitored the present study. Dr. Ahmad Nasiri helped in writing the manuscript and the final edition. Mr. Alireza Amirabadizade collected the data and conducted the analysis.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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