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The Effect of Transition Nursing Program from Intensive Care Units to General Units on Anxiety and Satisfaction of Patients and Their Families: A Clinical Trial Study

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Abstract

Background: Transferring patients from intensive care units to general units can increase anxiety in patients and their families, which can lead to re-admission of patients in intensive units and increase hospitalization costs.

Aim: The present study was performed with aim to determine the effect of the transition nursing program from intensive care units to general units on the anxiety and satisfaction of patients and their families.

Method: This randomized clinical trial study was conducted on 50 patients hospitalized in surgical ICUs and 50 of their relatives. The research units were randomly assigned to the intervention and control groups. Before transfer, patients and their families filled out the Spielberger and satisfaction questionnaire. Then, the transition nursing program was implemented and the patient was examined by the liaison nurse immediately, 8, 16 and 24 hours after transfer. Then, the questionnaires were filled out again. Data were analyzed by SPSS software (version 22). $p<0.05$ was considered statistically significant.

Results: After the implementation of the nursing transfer program, the anxiety of patients (34.68±8.02) and their families (32.52±7.84) reduced in the intervention group compared with the control group ($p<0.0001$). Also, the satisfaction of the patients (47.64±5.65) and their families (45.56±6.10) significantly increased in the intervention group ($p<0.000$).

Implications for Practice: The transition nursing program reduces anxiety and increases the level of satisfaction in patients and their families. The findings of the present research can be suggested to the policymakers and nursing managers in order to plan to improve the role of nurses as liaison nurses.

Keywords: Anxiety, Family, Intensive care units, Transition, Satisfaction

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Introduction

The intensive care unit (ICU) is a ward where a specialized staff with specific technical skills is employed. The utilization of special equipment, the use of high technical skills and the presence of experts will increase the costs, which results in a limited number of such units in any hospital (1). On the other hand, many patients who need to be hospitalized in ICUs are waiting for ICU beds, which leads to an early transfer of the ICUs admitted patients , while they still need to receive intensive care (2). Early transfer without full health recovery can cause a lot of anxiety in families (3). The stress and anxiety caused by patient's transfer can be defined as a physical experience or a mental discomfort resulted by moving from one environment to another (4). In a study, 77.1% of ICU patients, especially those who needed more acute care, were anxious at the time of transfer (5). Harvard University researchers showed that about 75% of transfer cases lead to the patient's disability (6). Even though moving the patient from special wards to general wards is a positive step towards the patient's recovery, it causes the patient and the family to often experience anxiety and stress (7).

Various researchers show that several different environmental and individual factors are involved in the occurrence of transfer anxiety, which are comprehensively addressed in the study by Zhou et al. Some factors include lack of constant presence of a nurse in general wards, the lack of equipment for continuous monitoring in general wards, changes in treatment environment, the unpredictability of the new environment, not having information on the continuation of the treatment, lack of patient preparation for transfer, and having concerns about reduced nursing care (8). Moreover, the role of family members in reducing patients' anxiety is undeniable. The improvement of relationships and the support by family members in the IC), prior to patient transfer, can significantly reduce depression, anxiety, and post-traumatic stress disorder (9). Bailey et al. categorizes the family needs into five areas including guaranteeing the patient's health, the family's closeness to the patient, giving comfort to the patient and his/her family, supporting them and briefing the progress of the treatment and recovery (10). Paying attention to the needs of patients' family members is important and necessary in providing the general care suitable for the patient and family; it also helps reduce anxiety. As anxiety in the patient's family can have harmful effects on social and personal relationships, it may lead to making wrong decisions regarding the patients in emergency cases. As a result, managing stress and anxiety is one of the most important needs of the ICU patients' family members (11).

It can be said that the level of satisfaction with the services provided by the health care team is an indicator of their effectiveness (12). In the intensive care unit, it is often difficult to measure patient' satisfaction. The patients hospitalized in these units mostly have a reduced level of consciousness and are unable to make decisions regarding the treatment procedure. Therefore, improving the quality of ICU care requires a measurement of patient's family (13). Recently, professional health care providers have detected significant issues in the quality of life, such as care after discharge from ICU (14). Given the potential impact of transfer on the physical and mental health of the patients and their families, one of the important tasks of the nursing staff is to increase nursing interventions with aim to reduce anxiety (15). The health ministries and the special care communities of different European countries have recommended the continuation of care after discharge from ICU and the provision of more advanced care during transfer, which can increase the patients and their relatives' awareness of the recovery process after transfer, as well as their satisfaction (16). Consequently, a new field has emerged in nursing, known as transition nursing, leading to a higher level of discipline in nursing activities and a better adaptation of the patient and his/her family with care after discharge from ICU (17). Transition nursing can provide the necessary support in three areas; First, it creates a deep impact on the patient and his/her family by performing advanced clinical practices (2), it also has a deep influence on nurses and medical staff through educational and training communication, cooperating and providing consultation in complex issues (18), it can also support the desired organization by making positive changes in order to better meet the needs of the patients experiencing ICU hospitalization as well as their families (6).

The transition nursing program, as part of the transition nursing discipline, skilled nurses and their support team can provide helpful transition care for the patients and their families after discharge from ICU (19). The transition nursing program is a regular and coordinated patient transfer program which is a systematic and comprehensive transfer protocol observed by the nurse while transferring the patient from special departments to general wards. The patient is transferred by the nurse based on the transition protocol, which includes care, education, rehabilitation, as well as mental and emotional

support. The program also considers all aspects of care and is implemented on both the patient and the family members, with a transition order by the anesthesiologist (19). Therefore, the ICU transitional care is defined as providing care before, during, and after transferring the patient from the intensive care unit to other care units with the aim of ensuring minimal disruption and optimal continuity of patient care (20).

Nurses can make the changes needed to plan the process of patient transfer to the ward and make preparations for the provision of holistic nursing care (21). Preparation and ability to deal with transfer anxiety is an important aspect of nurse's role. In such critical situation, controlling the anxiety of the patient and his/her family can affect the patient's recovery (15). Since this field of transition nursing has not yet been established in Iran, and considering the experience of the researcher regarding these patients' problems, the importance of this topic, as well as the fact that most previous researches were carried out on the effect of transfer nursing on the anxiety and the satisfaction of the patients or their families, therefore, the present study was conducted with aim to assess the effect of transition nursing program from ICU to general departments on the anxiety and satisfaction of both patients and their families.

Methods

This randomized clinical trial study was performed from February to September 2018. The research population consisted of the patients hospitalized in the surgical ICU of Ahvaz Imam Khomeini Hospital. The transfer of the patients to general wards including general surgery, gynecologic surgery, ENT, urology, oral and maxillofacial surgery, ophthalmology and maternity wards was decided by the anesthesiologist, after obtaining their families' consent. In this study, the patients, their families and the assistant of the researcher who completed the questionnaires with the interview method were blinded. The researcher and nurses could not be blind because they were involved in the process of training and transition of patients.

Based on previous studies (22) and using the formula of comparing two means, the sample size was considered to be 220 people, while considering the power of the test was considered to be 85%, α=0.05, s=36.5 and d=3.5, with a dropout rate of 15%. However, 20 samples were excluded from the study due to not meeting inclusion criteria or unwillingness to continue cooperation. Finally, 50 patients and 50 family members were placed in each of groups (n=100 in each group) (Figure 1). The samples were selected in accordance with the inclusion criteria. Then, using the permuted block approach with a block size of 4 (Software WinPepi 11.4), the samples were randomly assigned to the intervention and control groups. The inclusion criteria for patients consisted of age > 18 years, no history of ICU hospitalization, no history of psychological problems or anxiety disorders, and not being a health care worker. The inclusion criteria for the patients' families consisted of being the primary caregiver, age > 18 years, no history of psychological problems or anxiety disorders, and not being a health care worker. The exclusion criteria consisted of having complications such as respiratory distress or reduced consciousness of the patient prior to transition, and the occurrence of death or any other reasons that made the anesthesiologist cancel the transfer program.

The data collection tools consisted of a questionnaire on the demographic and medical information of the patients and their families, Spielberger Anxiety Questionnaire and a questionnaire on satisfaction with transition nursing program. The patient's demographic and medical history questionnaire included the questions about age, gender, education, marital status, the final medical diagnosis, the cause of ICU hospitalization, having tracheostomy, having pain and any history of surgery, chronic and underlying diseases and addiction. The family's demographic information included items regarding age, gender, education, occupation, relationship with patient, and any history of ICU hospitalization. In order to examine the scientific qualitative content validity, this questionnaire was provided to the ten faculty members of the School of Nursing and Midwifery. The Spielberger questionnaire was used to measure anxiety. The Spielberger state-anxiety questionnaire consisted of 40 items to measure manifest (20 items) and latent anxiety (20 items), with 4-point scale answers ranging from very low to very high. In this scale, scores for manifest anxiety range from 20 to 80. Based on a normative study of manifest and latent anxiety tool (Mahram, 1993), manifest anxiety scores of 20 to 31 indicate mild anxiety; scores from 32 to 42, moderately low anxiety; scores from 43 to 53, high moderate anxiety; scores of 54 to 64, relatively severe anxiety; scores of 65 to 75, severe anxiety; and score greater than 75 is an indicator of very severe anxiety. The validity and reliability of

the Spielberger questionnaire was examined in the research of Mahram. The differences were significant approving the validity of the scale. The reliability has been determined to be 0.9452 in the normal population and 0.9418 in the standard population by measuring Cronbach's alpha (22). The satisfaction questionnaire was developed by the researcher based on the satisfaction questionnaire approved by the Ministry of Health. This questionnaire consisted of thirteen 4-scale items, with four answers of excellent, good, average and bad and scores ranging from 13 to 52. Scores from 13 to 26 indicate low satisfaction; scores from 27 to 39, moderate satisfaction; and scores of above 40, high satisfaction with the transfer program. The scientific quantitative content validity of this questionnaire was confirmed by the ten faculty members of Ahvaz Jundishapur University with a CVR of 0.8, and a CVI of 0.9. Its scientific reliability was approved with the Cronbach's alphas of 0.911 for patients and 0.708 for the relatives. Questionnaires related to the patients were filled by the researcher and assistant researchers by interview method, but the questionnaires related to the families were filled by themselves.

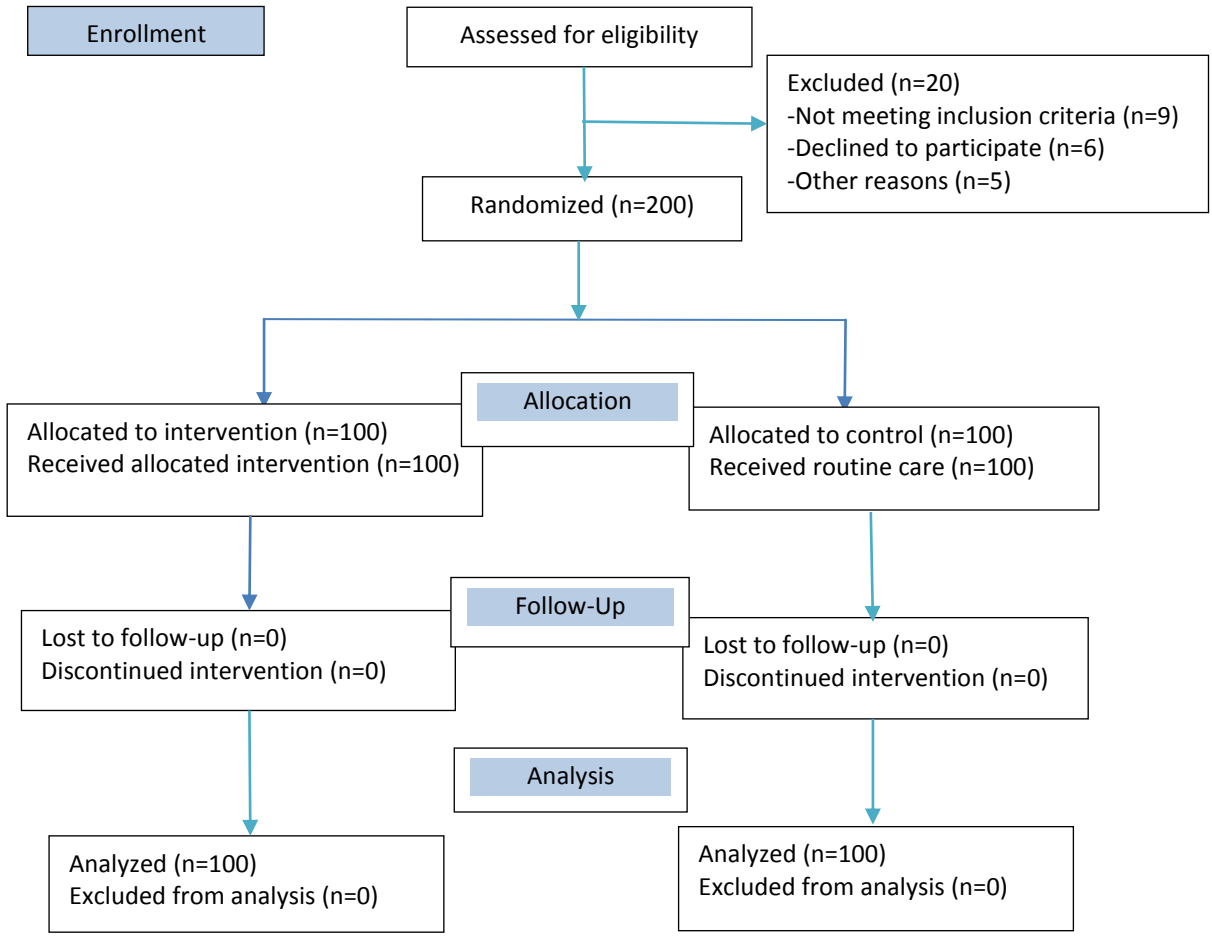

Figure 1: Consort flow diagram of the study

The patients were introduced to this study by an anesthesiologist. In order to observe ethical considerations, research objectives and method, its safety and the voluntary nature of participation in the research were explained to the patients and their families and written informed consent was obtained. The patients and their families were informed that the implementation of transition program would not have any negative impacts. Transition program was planned based on the accreditation criteria of the Ministry of Health, Treatment and Medical Education, Iran. After informing the patients and their families, the level of anxiety was measured in both intervention and control groups using Spielberger Anxiety Questionnaire, once on the day the transition order was issued by the ICU physician, and once 24 hours after transition. The satisfaction questionnaire was completed by the

patients and their accompanying persons 24 hours after transition and the implementation of the intervention program. For the development of nursing transition program, the items in the Ministry of Health's accreditation standards were used and approved by experts (5 nursing faculty members, 3 nursing staff and 2 anesthesiologists). Two of the most skilled ICU nurses were trained by the researcher to help with the accurate implementation of the protocol and perform the transfer protocol before, during, and after the transition (Table 1). The control group received routine hospital care, which included checking the doctor's instructions on patient transition, delivering the patient through phone, checking the patient before transition, informing the patient that he/she is ready for the transition. The patient should be transferred by patient transport, and checked and admitted by a nurse in the destination ward.

Data were analyzed by SPSS software (version 22). The normality of quantitative variables was examined using the Shapiro-Wilk test. Chi-square test was used to compare qualitative variables. Moreover, the independent-samples T-test or its non-parametric equivalent, and Mann-Whitney test were applied to compare quantitative variables between the two independent groups. $p<0.05$ was considered statistically significant.

Table 1: The transition nursing program

Pre-transfer interventions	• Informing the family • Arranging a patient visit for the family • Communicating with family and asking them to express their feelings • Providing the necessary training and making explanations on how to perform patient transfer • Describing the characteristics of the destination ward
During transfer interventions	• Accompanying the patient • Monitoring the vital signs • Securing the connections • Introducing the patient to the nurse in the destination ward • Guiding the patient to bed • Staying at the patient's bedside until his/her anxiety is reduced
Post-transfer interventions	• Self-care training for patients and families • Check vital signs • Check for side effects • Continuous care in the destination department in person and by phone up to 24 hours • 3 visits every eight hours

Results

According to the results of the present study, no significant statistical difference was found between the two groups of patients in terms of age ($p=0.579$), gender ($p=0.837$), marital status ($p=0.262$), education ($p=0.058$), occupation ($p=0.372$), the initial diagnosis ($p=0.620$), the presence of pain (p=0.265), addiction ($p=0.525$), the number of connections to device ($p=0.686$), history of surgery ($p=0.202$), undergoing tracheostomy ($p=0.357$) and underlying diseases ($p=0.158$) (Table 2).

Moreover, no significant difference was observed between the two groups of patients' families in terms of age ($p=0.0.39$), gender ($p=0.689$), the level of education ($p=0.225$), occupation ($p=0.190$), relationship with the patient ($p=0.133$) and history of ICU hospitalization ($p=0.990$) (Table 3).

According to Table 4, there was no significant difference in the mean scores of trait anxiety ($p=0.713$) and state anxiety ($p=0.973$) between the intervention and control groups prior to the intervention. However, there was a statistically significant difference in the mean scores of trait and state anxiety and mean change between the two groups after the intervention ($p<0.0001$).

Regarding the patient's family's anxiety, no significant difference was found in the mean scores of trait anxiety ($p=0.711$) and state anxiety ($p=0.379$) between the intervention and control groups before the intervention, but there was a significant difference in the mean scores of trait and state anxiety and mean change between the two groups after the intervention ($p<0.0001$). Also, there was a statistically significant difference between the mean level of satisfaction in the intervention and control groups for both patients ($p<0.0001$) and their families ($p<0.0001$).

Table 2. The medical and demographic information of patients in the two groups

Variable	Control	Intervention	*p*-value
Age (Mean ± SD)	48.96±23.36	44.68±18.65	0.579*
Gender N (%)			
Female	32 (64%)	30 (60%)	0.837**
Male	18 (36%)	20 (40%)	
Marital status N (%)			
Married	45 (90%)	40 (80%)	0.262**
Single	5 (10%)	10 (20%)	
Education N (%)			
Illiterate	22 (44%)	12 (24%)	0.058***
High school	17 (34%)	28 (56%)	
University	11 (22%)	10 (20%)	
Occupation N (%)			
Unemployed	27 (54%)	31 (62%)	0.372***
Employed	13 (26%)	14 (28%)	
Retired	10 (20%)	5 (10%)	
Diagnosis N (%)			
Gynecology	14 (28%)	17 (34%)	0.620***
Surgical	20 (40%)	14 (28%)	
Medical	7 (14%)	7 (14%)	
Hematology and cancer	9 (18%)	12 (24%)	
Pain N (%)			
Yes	11 (22%)	17 (34%)	0.265**
No	39 (78%)	33 (66%)	
Addiction N (%)			
Yes	4 (8%)	7 (14%)	0.525**
No	46 (92%)	43 (86%)	
Surgical history N (%)			
Yes	37 (74%)	30 (60%)	0.202**
No	13 (26%)	20 (40%)	
Underlying disease N (%)			
Yes	18 (36%)	26 (52%)	0.158**
No	32 (64%)	24 (48%)	
Tracheostomy N (%)			
Yes	4 (8%)	8 (16%)	0.357**
No	46 (92%)	42 (84%)	
Number of connections (Mean ± SD)	2.6±0.90	2.5±0.90	0.686*

*Mann-Whitney test; **Fisher's exact test; *** Chi-square test

Table 3. The medical and demographic information of patients' family in the two groups

Variable	Control	Intervention	*p*-value
Age (Mean ± SD)	36.38±11.89	40.20±9.38	0.039*
Gender N (%)			
Female	23(46%)	26 (52%)	0.689**
Male	37(54%)	24(48%)	
Relatives' education N (%)			
Illiterate	9 (18%)	16 (32%)	0.225***
High school	20 (40%)	19 (38%)	
University	21 (42%)	15 (30%)	
Relatives' occupation N (%)			
Unemployed	19 (38%)	21 (42%)	0.190***
Employed	27 (54%)	29 (58%)	
Retired	4 (8%)	0 (0%)	

Continue of Table 3: The medical and demographic information of patients' family in the two groups

Hospitalization history in ICU			
Yes	9 (18%)	10 (20%)	0.990**
No	41 (82%)	40 (80%)	
Family relationship with the patient N (%)			
Spouse	9 (18%)	15 (30%)	
Children	14 (28%)	19 (38%)	0.133***
Sibling	21 (42%)	10 (20%)	
Parents	6 (12%)	6 (12%)	

*Mann-Whitney test; **Fisher's exact test; *** Chi-square test

Table 4. Trait and state anxiety and satisfaction in patients and their families in the two groups before and after the intervention

Variable		Intervention Mean±SD	Control Mean±SD	Intergroup comparison Statistics	*p*–value
Patients' trait anxiety	Before intervention	54.02 ± 11.95	53.22 ± 9.59	0.36	0.713*
	After intervention	35.80 ± 6.86	52.56 ± 9.54	-10.08	<0.0001*
Mean change		18.22 ± 12.90	0.66 ± 3.29	-7.90	<0.0001**
Intragroup comparison		*t*=9.98 *p*<0.0001***	*t*=1.41 *p*=0.163***		
Patients' state anxiety	Before intervention	53.96 ± 12.09	54.04 ± 11.07	-0.03	0.973*
	After intervention	34.68 ± 8.02	53.50 ± 10.91	-9.82	<0.0001*
Mean change		19.28 ± 11.22	0.54 ± 2.68	-8.05	<0.0001**
Intragroup comparison		*t*=12.14 *p*<0.0001***	*t*=1.42 *p*=0.161***		
Family's trait anxiety	Before intervention	49.00 ± 10.89	49.76 ± 9.47	-0.37	0.711*
	After intervention	32.86 ± 6.78	49.52 ± 9.23	-7.40	<0.0001**
Mean change		16.14 ± 10.92	0.24 ± 3.29	-7.55	<0.0001**
Intragroup comparison		*z*= -6.03 *p*<0.0001****	*t*= -2.06 *p*=0.609***		
Family's state anxiety	Before intervention	50.06 ± 11.22	52.00 ± 10.70	-0.88	0.379*
	After intervention	32.52 ± 7.84	52.12 ± 10.21	-10.76	<0.0001*
Mean change		17.54 ± 10.52	- 0.12 ± 3.35	-8.03	<0.0001**
Intragroup comparison		*t*=11.78 *p*<0.0001***	*t*=-0.25 *p*=0.801***		
Patient's satisfaction		47.64 ± 5.65	13.70 ± 0.909	-8.73	<0.0001**
Family's satisfaction		45.56 ± 6.10	13.66 ± 0.981	-8.75	<0.0001**

* Independent t-test; ** Mann-Whitney test; *** Paired t-test; **** Wilcoxon test

Discussion

The purpose of the present study was to determine the effect of the nursing transition program from the intensive care unit to the general department on the anxiety and satisfaction of patients and their families. The results of the study showed that after the implementation of the nursing transition program, the level of anxiety was reduced in the patients and their families in the intervention group compared to the control group. Also, the satisfaction of the patients and their families significantly increased in the intervention group compared to the control group. The structure of the intensive care unit and the physical conditions of the patient hospitalized in this unit impose stress on the patient and family (23,24). The cause of this anxiety can be the fear of the patient's permanent disability, and the family's unfamiliarity with the care, equipment, and procedures in the ICU (25,26). During the ICU

hospitalization, the family members receive insufficient information regarding the course of the disease, treatment, and prognosis. The failure in providing correct and appropriate information to the patient and family leads to misunderstanding, fear, and anxiety that can distort the family's understanding of the care provided for the patient and reduce their satisfaction (27). The effective presence of a patients' family is very helpful for the development of the procedure and reduces patient's anxiety. The results of a study by Siahkeli et al. showed that 77.1% of family members of ICU patients experienced anxiety which was significantly higher in those who were involved in decision-making regarding their patient (5).

The results of the present study showed that after the intervention, the anxiety scores of the patients and their families decreased and their level of satisfaction with the transition program increased. The findings of this study are consistent with the findings of the studies by Jing et al. and Manente et al. (28,29). Another study was conducted by Tongsai et al. with aim to determine the impact of a pre-transition preparation program on anxiety and the level of satisfaction in patients with coronary artery bypass undergoing heart valve replacement surgery on anxiety and satisfaction. It was found that implementing a transition program significantly reduces the patient's anxiety in the intervention group compared with the control group (30). Also, the results of Jodaki et al.'s study showed that liaison nurse services significantly reduced the mean anxiety score related to the patients transfer from the cardiac surgery ICU to the general ward (31). Hanson et al. in their study showed that the presence of the surgical liaison nurse reduced the anxiety of the patient's family and increased their satisfaction (32). The Korean study by Yun et al. with aim to determine the effect of liaison nursing program on neuro-ICU patients and their families showed that the group receiving liaison nursing care experienced less anxiety, stress and burden during hospitalization compared to those receiving routine care (14). It seems that the main factor leading to the low level of satisfaction in the patients and their relatives is their lack of knowledge of the medical condition and the treatment plan after transfer due to the weak communication between the ICU team, general ward nurses, the patient, and the stakeholders. Considering the potential impact of the transition on the physical and mental health of the patients and their families, implementation of the interventions to reduce this anxiety seems to be important.

In a study conducted by Li et al., the liaison nurse service during the COVID-19 pandemic significantly increased the total satisfaction score of ICU patients' family in the intervention group compared with the control group. The level of transition anxiety in patients in the intervention group was significantly lower than the control group after the intervention (33). The study by Van Staa et al. conducted to review the experiences and satisfaction with the transition care showed that the transfer program causes a high level of satisfaction, especially in young men. It also emphasizes on early interventions, systematic reviews and follow-up care provided by the liaison nurse (34). In a study conducted by Motaghi et al. during the COVID-19 pandemic, the results showed that the level of anxiety of the caregivers of the patients clearly increased due to the services of the liaison nurse after the patient discharge from the ICU (35). The results of the study by Farzadmehr et al. also found that nursing counseling reduces anxiety and increases the level of satisfaction in the family members of cardiac surgery ICU patients (36).

The research conducted by various researchers show that several different environmental and individual factors are involved in the occurrence of transition anxiety. The environmental factors include the urgent need for a bed in the intensive care unit, the lack of constant presence of a nurse, the failure to monitor the equipment, the change of environment, and the lack of anticipation regarding the new environment. The individual factors are the lack of information, the lack of patient preparation for transition, and concerns about the reduction of nursing care in general departments compared with the intensive care unit (37).

Another study was conducted with the aim of determining the effect of the supportive educational program on depression, anxiety, stress, and satisfaction in the families of the acute coronary syndrome patients admitted to the coronary care unit. Their results showed that the implementation of a supportive training program, which covers most of the informational and emotional needs of patients' families, can reduce anxiety, depression, and stress, and increase satisfaction (26).

Lynch et al. in a qualitative study examined the views of general ward nurses regarding the presence and performance of liaison nurses in special departments. General ward nurses believed that the presence of liaison nurses improves the quality of care and reduces the rate of resuscitation code

announcements. In critically ill patients, increasing their self-confidence in facing serious situations improves clinical decision-making and reduces the duration of hospitalization and re-hospitalization (38).

One of the limitations of this study is that the information is self-reported, and the psychological and mental states of the patients and their relatives can affect the completion of the anxiety and satisfaction questionnaires and may compromise the accuracy of the data.

Implications for practice

The results of this study indicated that transition nursing program reduces anxiety and increases the level of satisfaction in patients and their families. The findings of the present research can be suggested to the policymakers and nursing managers in order to plan to improve the role of nurses as liaison nurses.

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Conflicts of interest

The authors declared no conflict of interest.

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