

## Investigating the Effective Factors in Nurses' Intention to Leave the Critical Care Unit

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### ARTICLE INFO

#### Article history:

Received 16 August 2022

Revised 08 September 2022

Accepted 23 September 2022

#### Keywords:

Intention to leave;  
Job satisfaction;  
Intensive care unit;  
Critical care nursing

### ABSTRACT

**Background:** The intensive care unit is one of the most specialized hospital units that need nurses with a high level of skill and experience. The leave of experienced nurses from this unit reduces the quality of nursing care and imposes heavy costs on the health care system. This study aimed to investigate the reasons for nurses' intention to leave the ICU.

**Methods:** This cross-sectional study was performed on 247 nurses in the ICU affiliated with Zahedan, Tehran, and Mashhad University of Medical Sciences, Iran, from 2018 to 2021. Nurses were included in the study by Census sampling method based on inclusion criteria. They completed a four-part questionnaire including demographic variables, Job Satisfaction Survey (JSS), intention to leave, and reasons for intention to leave the ICU. Data were analyzed with SPSS software using descriptive-analytic statistics, Chi-square, independent t-test, one-way ANOVA, and Pearson correlation. The significance level was considered less than 0.05.

**Results:** Out of 247 nurses studied, 183 (74.1%) were female and 64 (25.9%) were male. The mean age of participants was  $32.47 \pm 6.68$  years. The mean score of job satisfaction was  $115.45 \pm 58.20$  and the mean score of intention to leave was  $15.98 \pm 3.76$ . The mean score of the three areas of reasons for intention to leave had a negative correlation with job satisfaction and a positive correlation with the intention to leave the ICU, which was statistically significant in all cases ( $p = 0/001$ ). The mismatch between the workload and legal benefits, shortage of nurses, forced overtime, the disproportion of nurse-patient ratio, and lack of welfare facilities had the greatest effect on nurses' intention to leave the ICU.

**Conclusion:** The results of the study showed that the most common reasons for the increase the intention to leave of nurses are related to the mismanagement of nursing managers and authorities of ICU. Therefore, reforming old management styles, observing justice among employees, involving nurses in decisions and the process of patient's treatment are among the things that can increase nurses' self-esteem, job satisfaction and reduce the leave of ICU without providing additional funding for the organization.

The authors declare no conflicts of interest.

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## Introduction

The workload of nurses in ICU is high and at the same time, a lot of sensitivity and accuracy are required. The existence of motivational factors in continuing the activity of nurses and providing accurate and high-quality care is very decisive. The staff of critical care units are trained people who, in addition to having sufficient knowledge in patient care, must have certain clinical skills and special personality skills, and at the same time have sufficient motivation to be able to do their job well. Rapid decision-making, unpredictable and risky situations, lack of control and limited organizational framework, and caring for critically ill patients are some of the conditions that, if there are not enough motivational factors, quickly cause fatigue, increase errors, leave service, or decrease quality of care [1]. Relocation and shortage of nurses in the ICU is an important issue of concern throughout the world. This is called an intention to leave. It is necessary to know the causes of this problem because it is possible to find the reasons that keep nurses in the ward [2]. Relocation and shortage of nurses are important problems for any health care organization [3]. It is effective in increasing costs [4] and reducing the quality of patient care [3, 5]. When nurses leave the ICU, the quality of nursing care decreases due to the loss of expertise of the experienced staff. In addition, novice nurses may not have the necessary commitment to the organization or may not have the necessary expertise and ability [6]. In case of leaving the work, an experienced force of the organization will face an increase in the resulting cost [7-8]. It is important to note that health care organizations do not face a shortage of nurses or staff relocation in all areas, and this is limited to specific areas such as the ICU and operating room. Studies have shown that the transfer in the ICU is 26%, which has the highest relocation rate [6]. Emergency intensive care units also face this problem. However, in these two sections, they need the most experience and skills of a nurse [9-10]. Intention to leave is defined by the process of leaving the ward, intention to leave the hospital, and intention to leave the profession [11]. The intention to do any of the above is defined as the intention to leave nurses, although the intention to leave may not always be associated with the practice of leaving. But in all cases of quitting, people have experienced these feelings before quitting [12]. Many factors can lead to the intention to leave, but one of the most important factors mentioned is job satisfaction. Numerous studies in the past have reported that various factors are effective in creating job satisfaction and dissatisfaction, such as each person's daily activities and personal characteristics, workload, job opportunities, desire for job independence, training opportunities, proper evaluation of the workplace administrative system

of the individual's work, proportionality of salary and work, physical characteristics and workplace welfare facilities [11,13-15]. Excessive stress in the ICU environment can lead to burnout. Most of the nurses in the ICU expressed dissatisfaction with their relationship with the doctors and hospital officials, which was an effective factor in causing burnout. Nurses also expressed dissatisfaction with their work environment, which was significantly associated with their burnout rate. Nurses' gender was significantly associated with burnout, so female nurses experienced more burnout [16]. Past studies have reported that personal characteristics such as gender [17-18] age, level of education [18-19] the type of organization, and the type of workplace are also effective in the intention to leave or stay [20]. According to previous studies conducted in Iran, only the level of nurses' job satisfaction and burnout have been studied, but the intention to leave and reasons for intention to leave have not been studied, so this study was conducted to investigate the reasons for nurses' intention to leave the ICU.

## Methods

### Setting and participants

This cross-sectional study was performed after obtaining the necessary licenses and ethics code number IR.ZAUMS.REC.1396.16 from Zahedan University of Medical Sciences and presenting them to hospitals from 2018 to 2021. The sample size was determined to be 190 according to previous studies (Intention to leave variable  $SD= 3.43$ ,  $Z=1.96$ ,  $\alpha=0.05$ , Sample size formula,  $n = \frac{Z^2_{1-\alpha} \times S^2}{d^2}$ ). To ensure the accuracy of the study results, 50 nurses were added to the sample size [21]. Sampling was performed by a Census sampling method based on inclusion criteria from nurses working in intensive care units.

Inclusion criteria included: having an associate degree or higher in nursing, and one year of experience in the ICU.

To the nurses who met the inclusion criteria, the researchers gave a full explanation of the study objectives and the confidentiality of the information provided by them. Nurses who consented to participate in the study completed an informed consent form and a questionnaire designed to collect data. In the initial sampling of nurses working in teaching hospitals of Zahedan University of Medical Sciences, despite the long sampling interval, the sample size was not sufficient. Therefore, based on the lottery between the universities of medical sciences, two universities of medical sciences, Mashhad and Tehran, were selected to complete the sampling, and administrative correspondence and necessary coordination were made to perform the sampling of nurses working in these two universities. Finally, 247 nurses were included in the study.

### Data collection and Instruments

The questionnaire used in this study consisted of 4 parts. The first part of the questionnaire included the demographic information of the participants. In the second part of the questionnaire, the Job Satisfaction Survey (JSS) Paul E. Spector was used to measure nurses' job satisfaction. This questionnaire contains 36 questions in positive and negative directions. Which examines job satisfaction with income indicators, the possibility of promotion to higher levels, fringe benefits, potential rewards, working conditions, co-workers, the nature of work, and communication in the workplace. Each participant responds to each item on a 6-point Likert scale from "strongly disagree" to "strongly agree." Job satisfaction scores on each test range from 36 to 216. For the whole scale score, if the person gets a score of 36-108, he is dissatisfied with his job. A score of 108-144 means that there is an ambivalence in job satisfaction and people are in the range from dissatisfaction to feelings of job satisfaction, and they are satisfied with their job with a score of 144-216 [22-23]. Cronbach's alpha coefficient in the original version of the questionnaire ranged from 0.60 for the "co-workers" subscale to 0.91 for the whole scale and the reliability of the retest on a sample of 43 people ranged from 0.37 to 0.74 at 18-month intervals [24]. In Iran, the face and content validity of the questionnaire "Job Satisfaction after translation into Persian" has been confirmed by 10 experts and university professors after the proposed corrections. Its reliability with Cronbach's alpha coefficient of 0.62 to 0.88 and reliability re-examination of the test was approved between 0.71 and 0.85 [25].

A 5-item questionnaire was used to assess the intention to leave. The four questions in this questionnaire assess the nurses' opinions about the possibility of leaving the intensive care unit, where on the Likert scale from strongly disagree to strongly agree, a score of 1 to 5 is given to the answer to each question. The fifth question assesses the general intention to leave and includes 5 answers (I will definitely not leave the ward, I will probably not leave the ward, I'm not sure, I will probably leave the ward, I will definitely leave the ward). A score of 5-11 indicates a slight intention to leave the ward, a score of 12-17 indicates that the nurse is unsure about leaving the ward, and a score of 17-25 indicates a strong intention to leave the ward. A previous study reported that this instrument with Cronbach's alpha coefficient of 0.88 has good validity and reliability for measuring the nurses' intention to leave the ward [26]. In the present study, the Job Satisfaction and Intention to leave questionnaires were completed by 10 critical care nurses two times with an interval of one week. The Cronbach's alpha coefficient of 0.81 for Job Satisfaction and 0.89 for the Intention to leave indicated the adequate reliability of the two questionnaires.

To assess the reasons for nurses' intention to leave the ICU due to the lack of a standard questionnaire in this area, a questionnaire was developed by researchers for this purpose. To design the questionnaire, first, face-to-

face interviews were conducted with 20 nurses working in the ICU. After every interview, the recorded voices were heard several times. Then, the interviews were captured in word files and copied into MAXQDA2020 software, through which the data were analyzed using Graneheim & Lundman methods (2020). In this method, the interview is repeatedly reviewed to gain an acceptable level of understanding of the collected data, then extracting meaningful essences and labeling them as a condensed meaning unit, categorizing them, and selecting a title with a higher level of abstraction called codes, sorting them into sub-categories based on their differences and similarities, and assigning a proper title for the created categories, regarded as the main category [27].

### Qualitative data Rigor

The trustworthiness criteria were employed to evaluate the accuracy and rigor of the qualitative data. These criteria consisted of credibility, dependability, transferability, and confirmability. To enhance credibility, the researcher devoted a sufficient amount of time to data collection in this study. And in-depth interviews with the nurses were conducted. The research team assessed the data to ensure that the formed categories were consistent with the participants' statements. Another evaluation was carried out by a group of evaluators outside the research team. This procedure continued to the point of consensus. The three participants were also asked to review the data to ascertain the accuracy of the data and the extracted codes and rectify them, their views were then scrutinized by the research team and the necessary corrections were made [28-29].

### Creating a questionnaire

After ensuring the validity of the qualitative data, the articles were reviewed. Based on the dimensions of the concept obtained from the interview and review of studies, 58 items were designed for the questionnaire to assess the reasons for nurses' intention to leave the ICU. The questions were reviewed several times by the research team and two expert researchers outside the research group, and similar questions were merged. Finally, the instrument was finalized with 23 questions in the form of three factors related to the management of the ward 7 questions, the factors related to the management of the nursing manager 9 questions, and the factors related to patient care 7 questions.

### Face validity

The final version of the questionnaire has been provided to 10 ICU expert nurses to examine the questions in terms of relevance to the purpose of the study, difficulty, ambiguity, and suggest alternative sentences or words if necessary. Then, their opinions were reviewed by two researchers, and the necessary corrections were made [30].

### Content validity

The qualitative content validity of the questionnaire was assessed by 3 members of the nursing faculty. They commented on the grammar, the use of appropriate words, the order of the items, and the scoring of the questionnaire questions. The necessary corrections were made based on their opinions [30-31].

The modified questions were given to 10 experts (ICU nurses, intensive care nursing faculty members) to evaluate the questions in three dimensions: necessary, useful, but not necessary, and not necessary to determine the content validity ratio (CVR). Based on the table of Lawshe's and the number of experts, index values greater than 0.6 were considered appropriate [32]. The questions were also evaluated by experts in three dimensions of simplicity, clarity, and relevance for calculating the content validity index (CVI). Then the index was calculated based on their opinions. Scores above 0.79 with a good content validity index, between 0.7 and 0.79 need to be reviewed, and below 0.7 were considered unacceptable [30,33]. The CVR and CVI of all scale questions were higher than 0.7 and the CVR of all items was 0.96 and the CVI of all items was 0.97 which indicates the appropriate content validity of the instrument to measure the reasons for nurses' intention to leave the ICU.

### Scoring and interpretation

Questionnaire questions on the Likert scale were rated (none, very low, low, somewhat, high, and very high from 1 to 6). In the field of factors related to ward management, getting a score of 7-18 means that ward mismanagement has little effect on nurses' intention to leave the ward, a score of 19-30 has a moderate effect on nurses' intention to leave the ward and a score of 31-42 has a great effect on nurses' intention to leave the ward. In the field of factors related to the nursing manager, getting a score of 9-24 means that the nursing manager's mismanagement had little effect on nurses' intention to leave the ward, a score of 25-39 has a moderate effect on nurses' intention to leave the ward and, a score of 40 to 54 has a great effect on nurses' intention to leave the ward. In the field of factors related to patient care, a score of 7-18 means that the workload of patient care has little effect on nurses' intention to leave the ward, a score of 19-30 has a moderate effect on nurses' intention to leave the ward, and a score of 31-42 has a great effect on nurses' intention to leave the ward.

### Reliability

The test-retest method was used to determine the reliability of the questionnaire. In this way, the questionnaire was first completed by 30 nurses in the ICU. Then, two weeks later, the questionnaire was given to the same nurses to complete. The internal stability of the instrument was measured using spss software with Cronbach's alpha coefficient. Cronbach's alpha

coefficient of 0.78 showed that the questionnaire has good reliability.

### Statistical analysis

Data were analyzed using spss software version 27. Descriptive statistics (frequency, mean and standard deviation) were used to examine the demographic variables of nurses' and the reasons for nurses' intention to leave the ICU. To evaluate the normality of quantitative variables, Kolmogorov-Smirnov test was used. Due to the insignificance of the test result ( $P=0.863$ ), an independent t-test was used to compare the mean of quantitative variables between male and female nurses. Chi-square was used to compare qualitative variables. Pearson correlation test was used to examine the relationship between age, work experience, and job satisfaction score with the intention to leave the ICU. One-way ANOVA test was used to compare the mean scores of nurses' intention to leave the ICU and job satisfaction based on the workplace ICU, degree, and shift. Pearson correlation test was used to investigate the relationship between the reasons for nurses' intention to leave the ICU with job satisfaction and intention to leave the ICU. The significance level in this study was considered less than 0.05 ( $P < 0.05$ ).

### Ethical considerations

The present research plan was approved by the research ethics committee of the Zahedan University of Medical Sciences with the ethics code of IR.ZAUMS.REC.1396.16. The Zahedan University of Medical Sciences provided a letter of introduction which was given to the nurses and hospitals. Moreover, the study permissions were given to the nurses to ensure them of the study process. Next, members of the research team, and study aims were explained and nurses were ensured of the privacy of the information and they freely decided on participating in the study. Participants were given informed consent forms for signing.

### Results

Out of 247 participating nurses, 183 (74.1%) were female and 64 (25.9%) were male. The mean age of participants was  $32.47 \pm 6.68$  years. 225 nurses had a bachelor's degree (91.1%), 8 (3.2%) had an associate degree and 14 (5.7%) had a master's degree. 107 nurses (43.3%) worked in General ICU, 11 (4.5%) Open heart surgery ICU, 9 (3.6%) Poisoning ICU, 23 (9.3%) Neurological ICU, 30 (12.1%) Internal ICU, 13 (5.3%) Surgical ICU, 49 (19.8%) Trauma ICU and, 5 (2%) worked in Burn ICU. The mean work experience of nurses was  $8.32 \pm 5.63$  years and their mean work experience in ICU was  $5.33 \pm 4.33$  years. 168 nurses (68%) were working in shift rotation, 33 (13.4%) were fixed morning shift, 15 (6.1%) were fixed evening shift and 30 (12.1%) were fixed night shift.

The mean score of job satisfaction of nurses was  $115.45 \pm 58.20$  with a range between 60 to 174. The mean

score of intention to leave the ICU was  $15.98 \pm 3.76$  with a range between 6 to 25.

There was no significant difference between male and female nurses in the comparison studied variables (Table 1).

Pearson correlation test showed that all the studied variables are an inverse relationship with the intention to leave. But the only relationship between job satisfaction and the intention to leave is significant ( $P=0.001$ ) (Table 2).

Pearson correlation test also showed that age with ( $r = -0.036$ ,  $p = 0.574$ ), work experience with ( $r = -0.011$ ,  $p = 0.867$ ) and work experience in ICU with ( $r = -0.032$ ,  $p = 0.621$ ) have a weak inverse relationship with nurses' job satisfaction, but none of them had a statistically significant difference.

The mean score of job satisfaction and intention to leave were examined separately for nurses' academic degrees by a one-way ANOVA test. First, to evaluate the equality of variances, the values of the Levene test were considered. According to the values ( $P = 0.463$ ) for job satisfaction and ( $P = 0.452$ ) for intention to leave, the condition of equality of variances was established and the test results were valid. The test results showed that there was no statistically significant difference between nurses' job satisfaction and the intention to leave ICU with different academic degrees (Table 3).

The mean score of job satisfaction and intention to leave were compared between different shifts by a one-way ANOVA test. First, to evaluate the equality of variances, the values of the Levene test were considered. According to the values ( $P = 0.578$ ) for job satisfaction and ( $P = 0.560$ ) for intention to leave, the condition of equality of variances was established and the test results were valid. The test results showed that there was no statistically significant difference between nurses' job satisfaction and the intention to leave ICU with different shifts.

A comparison of the mean job satisfaction score and the intention to leave based on the type of ICU showed that there was no statistically significant difference. Result of Levene test was for job satisfaction ( $P = 0.851$ ) and for intention to leave ( $P = 0.659$ ) (Table 3).

In examining the reasons for nurses' intention to leave the ICU, the results showed that the mean score of nurses in the field of factors related to the management of the ICU was  $19.52 \pm 6.79$ , in the field of factors related to the management of the nursing manager was  $37.99 \pm 10.97$  and, in the field of factors related to patient care was  $25.26 \pm 7.55$ . Pearson correlation test showed that there is a significant inverse relationship between the reasons for nurses' intention to leave and job satisfaction. In this way, as the mismanagement and workload of patient care increase, job satisfaction decreases. The relationship between the intention to leave the ICU and the three areas of reasons for nurses' intention to leave was also positive and significant so that as the mismanagement and workload of patients' care increased, the intention to leave the ICU also increased ( $P=0.001$ ) (Table 4).

Investigating the frequency of reasons for intention to leave showed that a mismatch between the workload of the ICU and the payment of legal benefits compared to other hospital wards, shortage of nurses, forced overtime, the disproportion of nurse-patient ratio, and lack of welfare facilities had the greatest effect on nurses' intention to leave the ICU.

Lack of attention to the physical fitness and scientific literacy of the nurse to work in the ICU, discrimination between fixed morning shifts with other shifts, shortage of nurse assistants, and the imposition of primary care such as patients changing positions and cleaning patients' stool to nurses, physical fatigue due to high care needs of patients, emotional instability due to high patient mortality and the feeling of futile care were also factors that had a moderate effect on the nurses' intention to leave the ICU.

**Table 1- Comparison of studied variables between male and female nurses**

Variable		Female nurses	Male nurses	df	Test Statistics	P value
Age (mean $\pm$ SD) *		32.37 $\pm$ 8.44	32.75 $\pm$ 7.35	98.99	-0.384	0.702
Work experience (mean $\pm$ SD) *		8.22 $\pm$ 5.41	8.61 $\pm$ 6.26	97.84	-0.479	0.719
Work experience in ICU (mean $\pm$ SD) *		5.37 $\pm$ 4.18	5.19 $\pm$ 4.78	99.02	0.290	0.786
Academic degree**	Associate's degree	5(%2.7)	3(%4.7)	2	0.650	0.723
	Bachelor's degree	168(%91.8)	57(%81.9)			
	Master's degree	10(%5.5)	4(%6.3)			
Shift work**	Fixed morning shift	27(%14.7)	6(%9.4)	4	5.846	0.211
	Fixed evening shift	13(%7.1)	3(%4.7)			
	Fixed night shift	23(%12.6)	7(%10.9)			
	Shift rotation	120(%65.6)	48(%75)			

Job Satisfaction Score (mean $\pm$ SD) *	115.85 $\pm$ 20.45	114.32 $\pm$ 21.08	107.25	0.514	0.607
Intention to leave score (mean $\pm$ SD) *	16.17 $\pm$ 3.7	15.43 $\pm$ 3.89	105.90	1.352	0.189

\*The results of the independent sample t-test.

\*\* The results of the Chi-Square test.

**Table 2- Correlation of characteristics of nurses with an intention to leave the ICU**

Variable	Correlation rate with the intention to leave	P value
Age	-0.058	0.363
Work experience	-0.062	0.335
Work experience in ICU	-0.007	0.909
Job Satisfaction	-0.411	0.001

**Table 3- Comparison of job satisfaction and intention to leave the ICU among nurses with different academic degrees, shifts, and wards**

Variable	Job Satisfaction (mean $\pm$ SD)	df	Test Statistics	P value	Intention to leave (mean $\pm$ SD)	df	Test Statistics	P value	
Academic degree*	Associate's degree	123.87 $\pm$ 21.58	2	1.124	0.327	14.75 $\pm$ 3.15	2	0.997	0.370
	Bachelor's degree	115.48 $\pm$ 20.81				16.08 $\pm$ 3.81			
	Master's degree	110.21 $\pm$ 20.58				15 $\pm$ 3.03			
Shift work*	Fixed morning shift	117.63 $\pm$ 19.42	3	1.54	0.189	15.57 $\pm$ 3.41	3	0.340	0.851
	Fixed evening shift	121.8 $\pm$ 19.59				15.33 $\pm$ 4.80			
	Fixed night shift	131.1 $\pm$ 18.37				15.9 $\pm$ 3.73			
	Shift rotation	113.54 $\pm$ 21.11				16.1 $\pm$ 3.82			
	General	115.34 $\pm$ 18.45				15.75 $\pm$ 3.94			
ICU type*	Open heart surgery	109 $\pm$ 21.47	7	1.022	0.417	18 $\pm$ 3.49	7	1.317	0.243
	poisoning	123.88 $\pm$ 25.07				14 $\pm$ 2.91			
	Neurology	112.39 $\pm$ 20.46				16.21 $\pm$ 3.59			
	Internal	115.5 $\pm$ 24.4				16.43 $\pm$ 3.29			
	Surgical	117.92 $\pm$ 19.54				15.07 $\pm$ 3.79			
	Trauma	116.2 $\pm$ 22.13				16.42 $\pm$ 3.87			
Burns	136.6 $\pm$ 14.32	14.2 $\pm$ 2.16							

\*The results of the one-way ANOVA test.

**Table 4- Investigating the correlation between the reasons for nurses' intention to leave the ICU with job satisfaction and the intention to leave the ICU**

Variable	Correlation rate with a job satisfaction score	P value	Correlation rate with intention to leave the ICU score	P value
Factors related to the ICU management	-0.456	0.001	0.373	0.001
Factors related to the nursing manager	-0.573	0.001	0.424	0.001
Factors related to patient care	-0.572	0.001	0.358	0.001

## Discussion

The initial hypothesis of the study was based on a decrease in nurses' job satisfaction and an increase in the intention to leave with an increase in work experience in

the ICU. The results of the study showed that the mean job satisfaction score of nurses is in the ambivalence range of satisfaction to dissatisfaction and with increased job satisfaction, the intention to leave the ICU decreases. Nurses' individual variables such as gender, age, work experience, shift work, and academic degree were not

statistically significant relationship to job satisfaction and intention to leave the ICU. Also, the results showed that factors related to the mismanagement of the nursing manager such as lack of manpower, imposing forced overtime and inadequate payment of salaries with the amount of care provided by nurses are on top of the reasons for nurses' intention to leave the ICU, and then there are the factors associated with the high burden of patient care and ward mismanagement. According to the results of this study, these factors led to a decrease in nurses' job satisfaction and an increase in the intention to leave the ICU.

Contrary to these results of the present study, a study by Alasmari et al. in Saudi Arabia reported high nurses' job satisfaction. However, as in the present study, the level of job satisfaction was inversely related to the intention to leave and with increased job satisfaction, the intention to leave the ICU was reduced. In examining the reasons for intention to leave, it was reported that, in particular, the three dimensions of job satisfaction, including perceived workload, professional support, pay, and the prospect of promotion, were directly related to the intensity of the intention to leave the ICU. The reasons mentioned are consistent with the reasons given by nurses in the present study for their intention to leave the ICU [21]. Job satisfaction is a concept that is closely related to the intention to leave and leave the service among nurses. The workload, respect, and social and professional support of nurses vary from country to country. Some studies conducted in Iran's neighboring countries in the last decade have shown that nursing is one of the most lucrative jobs and the level of job satisfaction and quality of life of nurses is acceptable [21,34]. While several studies in Iran have shown that nurses' job satisfaction is at a moderate and low level. One of the main reasons for job dissatisfaction is the low salary of nurses and its disproportion to the amount and importance of the work they do, and ultimately this job dissatisfaction has led to leaving the profession or burnout [12, 35-38].

The type of ICU management is another factor affecting nurses' perceptions of job satisfaction. Most nursing managers have a task-oriented leadership style and have little flexibility in their activities. The style of administrative management in Iran is dominated by administrative bureaucracy, which makes the implementation of the transformational management style difficult. For this reason, managers are less inclined to use new management styles and apply innovative solutions to problems. Therefore, nurses' personal beliefs about the type of appropriate management can be effective in their perception of job satisfaction, and, some nurses working with a task-oriented manager may have good job satisfaction while others may be extremely dissatisfied [39].

Management style has a direct impact on nurses' job satisfaction [40]. Therefore, job satisfaction levels in different medical centers are different and research findings cannot be easily generalized to other centers. It is necessary to evaluate the job satisfaction of nurses in each center separately. Because the difference in working conditions in different medical centers, due to differences in leadership styles, communication, promotion system, and other components can affect nurses' views and job satisfaction [39].

In line with our results, a study conducted by Ebrahim et al. showed that 78.6% of critical care nurses were dissatisfied with their job or did not have a positive opinion about it and, 72.8% of nurses were intention to leave the ward. Female nurses and nurses with higher academic education had lower job satisfaction and were more intention to leave the ward. Job satisfaction was lower among young nurses and their intention to leave was high. But with increasing age and work experience, job satisfaction increased, and the intention to leave decreased. Although the results of the two studies were similar in terms of job satisfaction, there were also differences between the results of the two studies. Contrary to the results of the above study, in the present study, job satisfaction decreased with increasing work experience, but the intention to leave did not increase, and there was no difference between men and women in job satisfaction and intention to leave. But in both studies, job satisfaction decreased with increasing nurses' academic education levels. In the above study, the intention to leave was also increased with the increase in education level, but in the present study, nurses with a level of bachelor education compared to master's and an associate's had the highest intention to leave the ICU [41]. The reason for this is probably related to the increase in expectations in proportion to the increase in education. But over time, due to the failure to meet expectations through appropriate management mechanisms such as paying salaries proportionate to the amount of service provided by the nurse, not participating in patients' treatment decisions, lack of diversity in the workplace, lack of welfare and recreational facilities, and lack of appropriate educational structures to update and increase nurses' knowledge, fatigue and burnout are created and their job satisfaction decreases and they tend to leave the department to get rid of repetitive tasks [36, 38]. Unfortunately, in the Iranian nursing system, due to the specialization of postgraduate education, the job descriptions of nurses are not specialized accordingly, and different levels of nursing education must provide the same services. There is also ambiguity between the duties of different levels of nursing and other groups involved in the treatment and care of the patient [42]. This has led to a decrease in job satisfaction of nurses with a master's degree, but with regard to the promotion of knowledge, skills, and professional attitude, they feel responsible for

working in the ward and are not willing to leave the ward so that they can use their knowledge and skills to care for patients [38]. Ambiguity in the description of nurses' duties in Iran is one of the important issues that lead to overlapping duties, creating legal and judicial problems, reducing nurses' job satisfaction, and reducing the quality of nursing care [42-43]. Determining nursing duties and clarifying lines of communication between health care providers seems to be an effective way to create favorable working conditions and increase job satisfaction. Therefore, developing a standard job description for all nurses with different academic degrees in Iran is reasonable and necessary [43]. Employment of enough nurses, adjustment of the workload of nurses, improvement of professional support, adequate payment of wages, providing welfare facilities, creating a promotion system based on knowledge and skills, and designing an educational program to improve nurses' knowledge are also among the things that lead to increasing job satisfaction and reducing the nurse's intention to leave. Therefore, nursing leaders should consider these results instructive and consider managerial and policy interventions that target these aspects of job satisfaction to improve nurses' retention [21, 34, 36-37, 44-45].

## Conclusion

By focusing on the factors affecting nurses' intention to leave the ICU, their job satisfaction can be increased. Therefore, by providing adequate manpower, eliminating interprofessional stressors, planning strategies to improve cooperation and communication between the treatment team, strengthening the freedom of action among postgraduate nurses in the patient's treatment process, organizing the profession of nursing, and improving the payment system, and making it fair, improved nurses' job satisfaction and reduced their intention to leave the ICU.

## Limitation

The first limitation of the study was the non-availability of enough samples to generalize the results to the entire nursing community working in the intensive care unit. Because sampling for the study was done only from three universities in the country and nurses working in the ICU of hospitals of other universities, banks, the Ministry of Oil, the military, and the Social Security Organization were not examined. Therefore, the sample size may not indicate job satisfaction and the intention to leave by critical care nurses to leave the ICUs in the entire country. Therefore, it is recommended that a larger study be conducted to examine job satisfaction and the reasons for the intention to leave the intensive care unit of the whole country.

The second limitation of the study was the lack of access to nurses who had previously left the intensive care unit and we couldn't be found them.

## Acknowledgment

This article is the result of a research project with code 981690 approved by the research deputy of Zahedan University of Medical Sciences. Researchers would like to thank and appreciate the research deputy of Zahedan University of Medical Sciences, as well as authorities and nurses of the intensive care units of Zahedan University of Medical Sciences, Tehran, and Mashhad for their cooperation in conducting research and collecting data.

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