

Nurses' Intention to Leave the Profession and Its Related Factors: A Cross-sectional Study

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Abstract

Background: Nurses are a vital element of the health care delivery system, and their shortage has a negative effect on the quality of patient care.

Aim: This study was performed aimed to investigate nurses' intention to leave the profession (ITL) and its related factors.

Method: This cross-sectional study was performed on 265 nurses working in the teaching hospitals of Zanzan University of Medical Sciences, Iran, from September 2020 to February 2021. Data was collected using demographic and researcher-made ITL questionnaires. Data were analyzed by SPSS (version 16). $P < 0.05$ was considered statistically significant.

Results: Among the 265 nurses surveyed, 154 (58.55%) intended to leave the profession. The total score of intention to leave the profession was 60.21 ± 14.46 . From the perspective of nurses, "lack of welfare facilities," "high workload," "high working hours," "lack of proper management processes," and "low income" have higher priority for the intention to leave the profession. There was a statistically significant relationship between the type of shift work ($p < 0.05$) and the amount of income ($P < 0.001$) with intention to leave the profession. Age, gender, and income were identified as the predictors of the nurses' intention to leave the profession ($P < 0.05$).

Implications for Practice: The intention to leave the profession is alarmingly high among Iranian nurses. Managers and policymakers can consider the factors identified in this study to diminish the nurses' intention to leave the profession.

Keywords: Intention to leave, Nurses, Professional burnout

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Introduction

Sustainable human resources are critical for the effectiveness of all global organizations (1). Nurses are an essential component of health care delivery systems (2). It has been shown that promoting collaborative processes (3), the nurse's social position, social welfare, and the possibility of career advancement (4) all play a significant role in the likelihood of staying on the job, professionalism, promoting quality of care (5), and patient's satisfaction (6). Leaving the nursing profession is a fundamental cause of the lack of nurses as an important and unsolved nursing challenge worldwide (7). Intention to leave (ITL) means the mental probability of leaving the organization permanently soon (8).

Based on the statistics, 5-17% of nurses in European countries have ITL (9). Similar studies in Iran showed that 35 to 64 percent of Iranian nurses would leave their profession if they found a better occupational chance (10, 11). A comparison of the mentioned statistics shows that ITL among Iranian nurses is significantly higher than their European counterparts.

It is essential for all organizations to maintain human resources in any profession. Nurses are the main care providers in the medical system (1) and play an essential role as the central core of the health system (2). In most countries, problems related to the lack of nurses and their maintenance and relocation affect the quality of care provision. They are the most significant challenges for health system managers and organizations (6, 12).

Studies in different countries show that other factors effectively motivate nurses to leave the profession. These factors include old age, high level of education, working more than 40 hours per week, the experience of violence by the patient, little work experience, lower professional position, low income, low job satisfaction (13), inappropriate relationship with physician, inappropriate leadership style, full-time work (9), burnout (9, 14), high job stress and weak occupational identity (15). It should be noted that factors related to the intention of nurses to leave the profession are different and sometimes contradictory; for example, one study stated that male nurses are more inclined to leave the profession (13); in contrast, in another study, female nurses were more likely to leave the profession (9,16).

Compared with western countries, in Iran, there is a high number of graduates annually; and the nursing educational system in our country does not do his job correctly. However, the issue is more serious when it comes to occupational consent, organizational factors (such as a lack of nursing employment, working in non-professional occupations, heavy workload, and low income), and cultural and social factors (such as inappropriate community view to nursing, sexual discrimination, and family challenges). These factors influence nurses' intentions to leave the profession (7). According to Iranian studies, male nurses are more likely to leave the profession than female nurses (17-19).

These factors are different in various societies, and background, national, and cultural variables also play an essential role in determining nurses' ITL. On the other hand, it is crucial to notice the nurses' role in the care-providing system and the adverse effects of ITL and nurses' relocation on the quality of patient's care. Therefore, the present study was performed with aim to assess the intention of clinical nurses working in hospitals to leave the profession and its related factors. The answers to the subsequent three questions were followed throughout this process: (A) How common is the intention to leave the nursing profession in Iran? (b) From the perspective of the investigated nurses, what are the most significant factors associated with the intention to leave? (c) What is the relationship between demographic factors and the intention to leave the profession?

Methods

This cross-sectional study was performed to assess the factors related to ITL among nurses in three teaching hospitals affiliated to Zanjan University of Medical Sciences from September 2020 to February 2021.

The sample size was calculated using Cochran's formula (20) with a known population. $N = 789$, $Z = 1.96$, $CI = 95\%$, $\alpha = 0.05$, $\beta = 0.2$, $q=p=0.5$, $power = 0.8$, and 10% probability of attrition rate were used to estimate the sample size, and the number of participants was determinate as 285. The simple random sampling method was used to select nurses based on the table of random numbers. For this purpose, first, a complete list of nurses working in the target hospitals was prepared, and the sampling frame was set based on that, and a code was assigned to each nurse. Then sampling was done using random numbers table.

Inclusion criteria were: a nursing diploma or higher educational level, full-time occupation in the nursing profession, and consent to participate in the study. The exclusion criteria were failure to answer the questionnaire completely, and not being present at work at the time of sampling, for example, going on maternity leave, transferring to other centers or organizations, etc.

Among 285 participants, 20 didn't meet the inclusion criteria to enter the study. Ten participants were on maternity leave at the time of data collection, four were left their profession, four did not consent to participate in the study, and two had migrated to another city. Also, two questionnaires were answered incompletely and therefore were not analyzed (Figure 1).

A questionnaire was used in two sections to collect data, including demographic information and factors related to ITL in the nursing profession.

The demographic information section included age, gender, marital status, education level, type of work shift, adequacy of monthly income, a second job, and spouse's job. A closed-ended question (yes/no) was inserted at the end of this form to ask participants about their intent to leave the

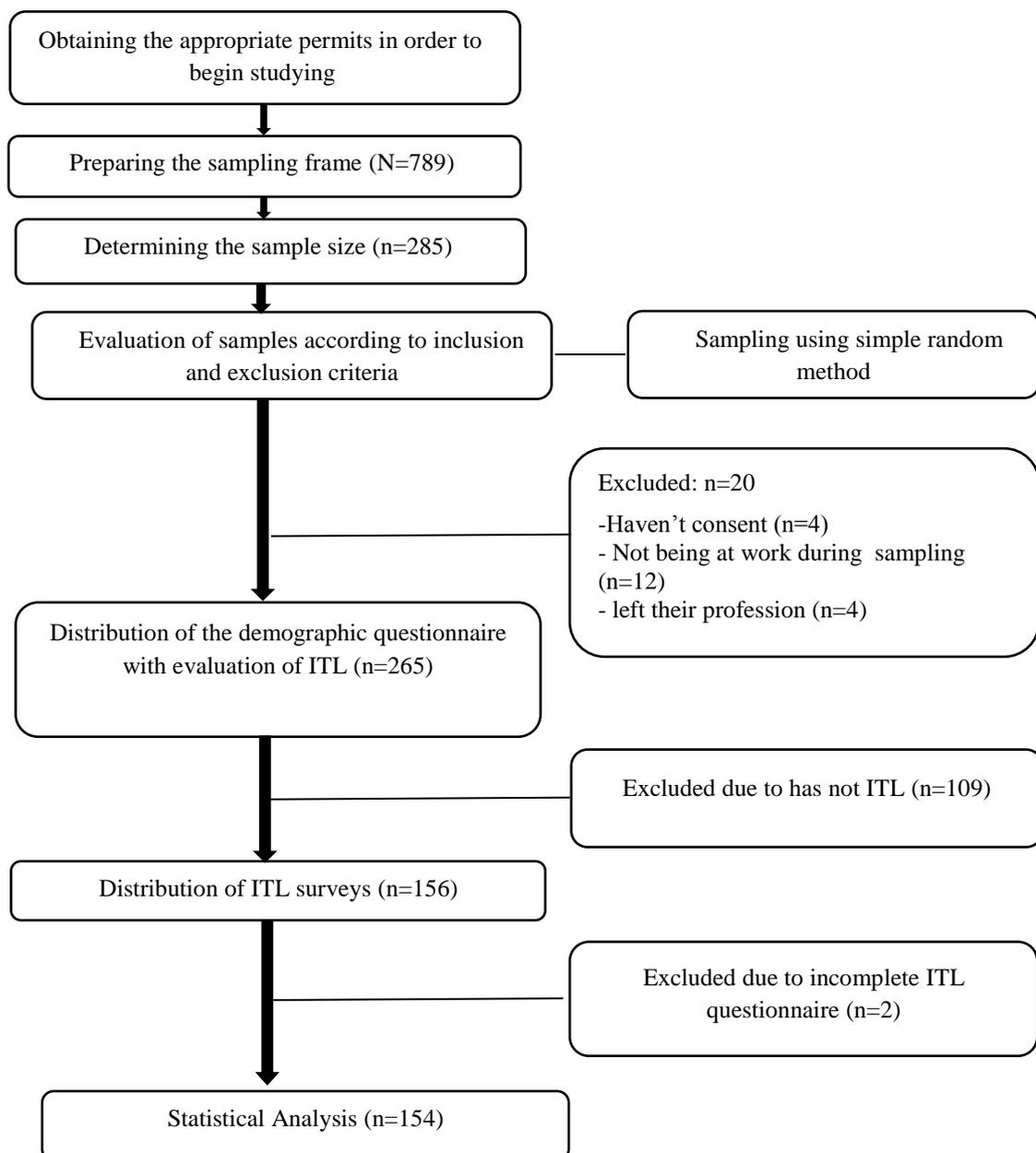


Figure 1. Flowchart of research process

profession. If they answered yes to this question, it was required to complete the second questionnaire or the fundamental questionnaire of the study.

The second part of the researcher-made questionnaire assessed the factors related to ITL. For the design of this questionnaire, databases of Google Scholar, PubMed, Science Direct, Magiran, and SID were searched. The keywords of 'Intention to leave,' 'Retention,' 'Turnover,' 'Nurse,' and 'Nursing' were used in English and Persian in the period 2012 to 2020. The factors related to nurses' ITL introduced in the previous researches from Iran and other countries were extracted and a preliminary questionnaire draft was designed.

The face and content validity of the questionnaire was evaluated quantitatively and qualitatively with participation of 40 nursing specialists, nurses, and nursing managers. The CVI and CVR of the total questionnaire were measured to evaluate the quantitative validity. CVI = 0.94 and CVR = 0.81 values were estimated. CVI for each item in the questionnaire ranged from 0.89 and 1; CVR ranged between 0.64 and 0.98.

For the qualitative assessment of the questionnaire, the quality of definitions and themes of the words used in the questionnaires were evaluated and analyzed. For this purpose, questionnaires were assessed by experts, including nursing professors, nursing managers, and nurses working in hospitals. The comments were reviewed and corrections were made during a meeting with the research team members. The final form of the questionnaire contained 35 items which was scored on a 5-point Likert scale. Each item ranged from very low (score 1) to very high (score 5). Formula 1 was used to normalize the results for each item.

Formula 1: standardization of item scores

$$[(\text{The item's obtained score} - \text{The lowest score in that item}) \div \text{The difference between the item's highest and lowest scores}] \times 100$$

In the ITL questionnaire, obtaining a higher score indicates a greater ITL. The internal consistency method and Cronbach's alpha coefficient were used to measure the reliability of the questionnaire. The Cronbach's alpha coefficient for the intention questionnaire was 0.90.

Since the concept investigated in this study was objective and directly measurable, and on the other hand, the researchers determined the factors related to the intention to leave the profession and not to reduce and consolidate the factors; therefore, the factor analysis method was not used to measure its components (21).

The study was approved by the Bioethics Committee of Zanjan University of Medical Sciences. The list of nursing staff was obtained with the assistance of hospitals administrations. The sample frame was created based on this list. The sampling was done using a simple random method. The researcher went to the research site to hand out the questionnaires. Eligible nurses were given a demographic information form. As noted, there was a question on the intent to leave the nursing profession at the end of demographic information form, if participants answered positively, they were given the ITL questionnaire. This led to the inclusion of 154 questionnaires in the statistical analysis phase. Figure 1 illustrated the research process.

Data were analyzed by SPSS (version 16). Descriptive statistics, including mean (standard deviation) for quantitative variables and frequency (percentage) for qualitative variables, were used to analyze the data. The Kolmogorov-Smirnov test was used to investigate the normal distribution of quantitative data. Independent t-test, one-way analysis of variance, logistic regression, and Pearson correlation coefficient were used to investigate the relationship between demographic factors and ITL of nurses. $P < 0.05$ was considered statistically significant.

This study has an ethics code from the ethics committee [Ethical Code: IR.ZUMS.REC.1399.074] of the Bioethics Committee of Zanjan University of Medical Sciences. Informed consent was obtained from all participants in the study. The principles of information security, confidentiality, and anonymity were observed during the study process. Required ethical principles were also considered in the use of references.

Results

Participants' demographic information

Among 265 participants, 154 (58.55%) had ITL. The total score of intention to leave the profession

was 60.21 ± 14.46 .

The mean age of the participants was 34.50 ± 6.94 years. Most of the participants was female (90.3%), in the clinical nurse position (89.6%), had a bachelor's degree (87%), and were married (74%) (Table 1).

Factors related to ITL from the perspective of nurses

According to the findings of the present study, from the perspective of nurses, lack of welfare facilities (89.61 ± 16.99), high workload (86.62 ± 18.58), long working hours (85.06 ± 19.74), lack of appropriate management processes (lack of on-time rewards and support, non-participation in hospital affairs, etc.) (84.68 ± 20.16), and low income (84.16 ± 21.04) had the highest mean scores in ITL the profession (Table 2).

Table 2 showed the 15 items in the ITL which had the highest mean scores.

Relationship between demographic and occupational variables with ITL

The type of work shift ($P = 0.038$) and income ($P = 0.0001$) had a statistically significant relationship with ITL in the nursing profession. The lowest mean score of ITL is related to nurses with evening shift work (42.85 ± 18.18). It was found that the lowest mean score ITL is related to high-income nurses (34.28 ± 19.94). There was no statistically significant relationship between other demographic characteristics and ITL score ($p > 0.05$) (Table 1).

Demographic characteristics were entered into the logistic regression model in order, and finally, the variables (age, gender, and income) remained in the model. The results showed that the chance of leaving the nursing profession according to age was 0.925 and it was significant ($P < 0.0001$). It can be said that the probability of leaving the nursing profession decreases by 7.5% with a one-unit increase

Table 1. Participants' demographic and occupational characteristics and the relationship between the ITL score and nurses' demographic characteristics (n = 154)

Qualitative Variable		Frequency	Percent	Intention to leave		
				Mean	SD	Sig.
Gender	Female	139	90.3	60.60	14.09	T = 1.00 P = 0.416
	Male	15	9.7	56.66	17.66	
Education	High-school	8	5.2	53.03	18.02	F = 1.85 P = 0.161
	Bachelor degree	134	87	61.06	13.15	
	Master's degree	12	7.8	55.59	23.18	
Position	Clinical Nurse	138	89.6	60.86	14.18	F = 0.87 P = 0.482
	Head nurse	7	4.5	61.53	20.03	
	Supervisor	1	0.7	62.57	11.23	
	Nurse Assistant	8	5.2	53.03	18.02	
Marital status	Single	38	24.7	59.96	14.63	F = 0.07 P = 0.927
	Married	114	74	61.01	14.47	
	Divorced	2	1.3	59.64	0.50	
Income	Low	86	55.8	63.93	13.00	F = 14.44 P = 0.000
	Medium	63	40.9	57.15	13.23	
	Good	5	3.2	34.28	19.94	
Work shift	Morning	17	11	58.02	12.87	F = 2.43 P = 0.038
	Evening	2	1.3	42.85	18.18	
	Night	7	4.5	49.08	9.97	
	Rotational shiftwork	17	11	62.85	18.21	
	Irregular rotation	109	70.8	61.50	13.79	
	Morning & Evening	2	1.3	43.21	10.60	
Quantitative Variable		Mean	SD	Pearson correlation		
Age		34.50	6.94	r = 0.121	P = 0.137	

Table 2. The frequency and mean of the scores related to the 15 important items of the ITL questionnaire based on responses of the participants

Item number in the questionnaire	Factor related to ITL	Very high	High	Moderate	Low	Very low	Mean \pm SD
		(%) N	(%) N	(%) N	(%) N	(%) N	
24	Lack of welfare facilities	101(65.6)	33 (21.4)	15 (9.7)	3 (1.9)	2 (1.3)	89.61 \pm 16.99
15	High workload	88 (57.1)	38 (24.7)	22 (14.3)	3 (1.9)	3 (1.9)	18.58 \pm 86.62
16	High working hours	79 (51.3)	50 (32.5)	15 (9.7)	5 (3.2)	5 (3.2)	85.06 \pm 19.74
23	Lack of appropriate management processes (lack of timely rewards, support, non-participation in hospital affairs, etc.)	85(55.2)	33 (21.4)	25 (16.2)	9 (5.8)	2 (1.3)	84.68 \pm 20.16
20	Lack of low income	86 (55.8)	30 (19.5)	24 (15.6)	12 (7.8)	2 (1.3)	84.16 \pm 21.04
17	Work shift / night work	84 (54.5)	35 (22.7)	19 (12.3)	8 (5.2)	8 (5.2)	83.25 \pm 23.03
22	Inequality and discrimination in the workplace	83(53.9)	26 (16.9)	32 (20.8)	10 (6.5)	3 (1.9)	82.86 \pm 21.62
26	Low position of profession in comparison with other professions (medicine and paramedical)	73(47.4)	40(26)	25 (16.2)	12 (7.8)	4 (2.6)	81.56 \pm 21.75
7	Stress of the nursing profession	62(40.3)	(33.1) 51	25 (16.2)	14(9.1)	2 (1.3)	80.39 \pm 20.51
28	High life pressures and stresses (unrelated to work)	67(43.5)	42 (27.3)	29(18.8)	13 (8.4)	3 (1.9)	80.39 \pm 21.38
8	High risk of the nursing profession (high probability of injury in the profession)	60 (39)	46 (29.9)	32 (20.8)	13 (8.4)	3 (1.9)	79.09 \pm 21.12
25	Workplace bullying (by doctor, nurse, patient or patient companion)	66(42.9)	40 (26)	26 (16.9)	15 (9.7)	7 (4.5)	78.57 \pm 23.66
11	Lack of group cohesion and consensus among nurses	50 (32.5)	39 (25.3)	49 (31.8)	9 (5.8)	7(4.5)	75.06 \pm 22.20
18	Lack of flexibility in work schedule	51(33.1)	40(26)	42 (27.3)	15 (9.7)	6 (3.9)	74.94 \pm 22.7
27	Society's attitude towards the profession and the position of nursing (inappropriate professional identity, subordination, and obedience)	57(37)	33 (21.4)	37(24)	17(11)	10 (6.5)	25.01 \pm 74.29

in age. The chance of leaving the nursing profession in men was 0.434 times higher than women, in other words, men had a 56.6 percent chance of leaving nursing profession compared to women. The chance of leaving the nursing profession in middle-income nurses was 0.352 times higher than those with low incomes, and in high-income nurses was 0.338 times higher than those with low incomes. In other words, the probability of leaving the nursing profession decreases by 64.8% in middle-income and 66.2% in high-income compared to low-income nurses (Table 3).

Table 3. Logistic regression model: testing the effect of demographic variables on ITL

	Wald (P-value)	OR (Lower Band-Upper Band)
Age	18.473 (0.000)	0.925 (0.893-0.959)
Gender	4.1 (0.043)	0.434 (0.193- 0.974)
Low income	14.206 (0.001)	-
Medium income	13.751 (0.000)	0.352 (0.202- 0.611)
Good income	2.357 (0.125)	0.338 (0.085- 1.350)

Discussion

According to the results of the present study, more than half of the studied nurses were intending to leave their profession. This means that most nurses had ITL if they found a suitable job position. The study by conducted Heinen et al. in 10 European countries showed that 5-17% of nurses intended to leave their profession (9). This rate is much lower than the rate of ITL the profession in the present study (58.55%). In reviewing studies conducted in Iran, Chegini et al. showed that 64% of nurses have ITL the profession (10). The result of the present study was in line with the result of the study by Chegini et al.. Also, Mosadeghrad showed that 35% of nurses had ITL the profession if they find another job (11). Although this rate was lower than the rate of nurses' ITL the profession in the present study, it was still higher than the rate of ITL the profession in other countries. This finding is very worrying and can be an alarm for health system managers in Iran. This different result can be related to the limited statistical population or unfavorable working conditions of nurses in Iran.

The results of the present study showed that among the demographic variables, working shifts and income level were related to the ITL of nurses. The highest mean scores of nurses' ITLs were related to rotational working shifts and low-income levels. Reviewing the studies on the relationship between income level and nurses' intention to leave job showed that improving the low wages and salaries of nurses can help them retain their profession (8, 13).

The findings of the present study were in concordance with the results of the above studies. Moreover, Alilu et al. (2016) concluded that rotational working shifts could be an influential factor in strengthening the ITL of nurses in their profession (22).

Assessing the relationship between age and total ITL score in the present study showed that, as Jiang et al. (13) and Heinen et al. (9), there was no relationship between ITL and age. Based on the logistic regression model, age (younger), gender (female), and low income were identified as the predictors of the intention to leave the profession of nursing.

Factors related to ITL from the perspective of nurses

The present study found that from the perspective of nurses, 'lack of welfare facilities,' 'high workload,' 'high working hours,' 'lack of proper management processes (lack of on-time rewards and support, lack of participation in the hospital affairs, etc.),' and 'low income', respectively had a higher priority in the ITL in the nursing profession.

Moreover, the results of the present study showed that in addition to the above items, inequality and discrimination in the workplace, nurses' exposure to bullying in the workplace by physicians, other nurses, patients or their families, and the community view to this profession and nursing position (inappropriate professional identity, subordination, and obedience) could also be related to nurses' ITL. The study of Valizadeh et al. (2018) showed three main themes along with nine subtypes which threaten the nursing profession: 1- lack of professional pride (physician authority, unknown nature of nursing profession, and negative view towards clinical nurses), 2- Oppressive work environment (high workload, disrespect, discrimination, and lack of support), and 3-Growth suppression (lack of appreciation and attention to meritocracy). Almost all participants experienced some degree of disrespect and dignity. In general, the participants were not successful in showing their protest against the threats and protecting their dignity; so their ITL increased (23). The present study approved the results of Valizadeh et al. in terms of a relationship between prioritization of ITL in the nursing profession and occupational discrimination, nurse-physician inappropriate relationship, negative social view to the nursing profession, high workload and occupational exhaustion, and lack of appreciation and attention to meritocracy. In the study of Valizadeh et al., prioritization between factors related to ITL was not specified, which was tried to eliminate this prioritization to make essential managerial decisions in the present study.

Alilu et al. (2016), in their study, aimed to assess the challenges of clinical nurses leading to ITL, they also introduced four main themes and 14 subgroups as the challenges of clinical nurses and factors leading to ITL in the nursing profession: 1-unfriendly workplace (discrimination, lack of proper support from managers, poor cooperation, conflict between members of the treatment team, and lower professional level than other members); 2-impossibility of professional advancement (lack of meritocracy, impossibility of professional development, and lack of appreciation for nurses efforts); 3-occupational stress (high workload, lack of budget to hire more nursing staff,

rotational work shift, inter-sectional movement to help, occupational exhaustion caused by caring for critically ill patients), and 4-ethical issues (unfavorable conditions to provide an appropriate and safe nursing care for patients) (22). The present study supports the results of Alilu et al. regarding the relationship between ITL in the nursing profession and lack of occupational support by managers, a low professional position, high workload and work volume, and a rotating work shift.

According to the results of the present study, lack of financial independence has a significant relationship with nurses' ITL of their profession. The results of the study performed by Jiang et al. (2019) showed that nurses, who are male, single, with higher education, working more than 40 hours per week, and experiencing violence from the patient, are more likely to leave their profession. Besides, older nurses, those with better self-assessed health, higher professional positions, more work experience, higher average monthly salary, and higher occupational satisfaction, have more intention to stay in their current job (13). The present study was in concordance with the results of the Jiang's study regarding the relationship between low occupational position and high workload with ITL in nursing profession, and a relationship between lack of financial independence and ITL. However, unlike the study of Jiang et al., the relationship between age and ITL was not supported in the present study. Limiting the target population to nurses in the psychiatric section, as well as the potential effects of nurses' mental health and organizational characteristics on ITL, are some limitations of the Jiang's study, which reduces the generalizability of the results to nurses employed in the sections other than psychiatry. In the present study, in addition to nurses working in the psychiatric sections, nurses from other sections were randomly sampled to increase the possibility of generalizing the findings to the target community.

The results of the study performed by Heinen et al. (2013) aimed to assess the nurses' ITL in 10 European countries showed that 9% of nurses had ITL due to 7 factors including inappropriate nurse-physician relationship, non-participation in hospital affairs, old age, female gender, full-time work, and occupational exhaustion. Occupational exhaustion was significantly associated with ITL in all ten countries (9). Their study showed that the factors related to the work environment and its relationship with nurses' ITL are different in various countries. This indicates the importance of national and cultural background factors in explaining related factors and preventing nurses' ITL. The present study was in concordance with the results of the study of Heinen et al. in terms of the relationship between nurses' ITL and inappropriate nurse-physician relationship, low professional identity, lack of participation in hospital affairs, high workload, and occupational exhaustion.

The present study, like previous ones, had some limitations. First, because the studied variable is completely dependent on social-cultural factors, there is less probability of transferring the study's findings to other societies. In this study, a questionnaire was used to assess the ITL's contributing variables, therefore there was a high probability that respondents would submit the answers which were judged socially desirable. Also, the relationship between the job experience and ITL was not evaluated in the present study.

Implications for practice

The present research provided empirical data on the factors associated with nurses' ITL. This knowledge can be used to raise the awareness of hospital administrators in order to retain nurses and improve the quality of care provided to patients. Providing resources, equipment and facilities in addition to reducing the workload in hospitals can be an important and strategic influencing factor in reducing the intention to leave the profession in nurses.

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Conflicts of interest

The authors declared no conflict of interest.

References

1. Aiken LH, Clarke SP, Sloane DM, Sochalski JA, Busse R, Clarke H, et al. Nurses' reports on hospital care in five countries. *Health affairs*. 2001;20(3):43-53.
2. Allen D. Translational Mobilisation Theory: A new paradigm for understanding the organisational elements of nursing work. *International journal of nursing studies*. 2018;79:36-42.
3. Aghebati N, Mohammadi E, Ahmadi F. The Concept of Nursing in Holistic Theories: An Integrative Review. *Evidence Based Care Journal*. 2012;2(2):67-84.
4. Ravani Pour M, Vanaki Z, Afsar L, Azemian A. The standards of professionalism in nursing: the nursing instructors' experiences. *Evidence Based Care Journal*. 2014;4(1):27-40.
5. Leineweber C, Chungkham HS, Lindqvist R, Westerlund H, Runesdotter S, Smeds Alenius L, et al. Nurses' practice environment and satisfaction with schedule flexibility is related to intention to leave due to dissatisfaction: A multi-country, multilevel study. *International journal of nursing studies*. 2016;58:47-58.
6. De Simone S, Planta A, Cicotto G. The role of job satisfaction, work engagement, self-efficacy and agentic capacities on nurses' turnover intention and patient satisfaction. *Applied Nursing Research*. 2018;39:130-40.
7. Zarea K, Negarandeh R, Dehghan- Nayeri N, Rezaei- Adaryani M. Nursing staff shortages and job satisfaction in Iran: Issues and challenges. *Nursing & health sciences*. 2009;11(3):326-31.
8. Chang HY, Shyu YIL, Wong MK, Friesner D, Chu TL, Teng CI. Which aspects of professional commitment can effectively retain nurses in the nursing profession? *Journal of Nursing Scholarship*. 2015;47(5):468-76.
9. Heinen MM, van Achterberg T, Schwendimann R, Zander B, Matthews A, Kozka M, et al. Nurses' intention to leave their profession: a cross sectional observational study in 10 European countries. *International journal of nursing studies*. 2013;50(2):174-84.
10. Chegini Z, Asghari Jafarabadi M, Kakemam E. Occupational stress, quality of working life and turnover intention amongst nurses. *Nursing in critical care*. 2019;24(5):283-9.
11. Mosadeghrad AM. Occupational stress and turnover intention: implications for nursing management. *International journal of health policy and management*. 2013;1(2):169-176.
12. Van den Heede K, Aiken LH. Nursing workforce a global priority area for health policy and health services research: a special issue. *International journal of nursing studies*. 2013;50(2):141-2.
13. Jiang F, Zhou H, Rakofsky J, Hu L, Liu T, Wu S, et al. Intention to leave and associated factors among psychiatric nurses in China: A nationwide cross-sectional study. *International journal of nursing studies*. 2019;94:159-65.
14. Rudman A, Gustavsson P, Hultell D. A prospective study of nurses' intentions to leave the profession during their first five years of practice in Sweden. *International journal of nursing studies*. 2014;51(4):612-24.
15. Zhang Y, Wu J, Fang Z, Zhang Y, Wong FK. Newly graduated nurses' intention to leave in their first year of practice in Shanghai: A longitudinal study. *Nursing outlook*. 2017;65(2):202-11.
16. Yamaguchi Y, Inoue T, Harada H, Oike M. Job control, work-family balance and nurses' intention to leave their profession and organization: A comparative cross-sectional survey. *International journal of nursing studies*. 2016;64:52-62.
17. Khajehmahmood F, Mahmoudirad G. Survey tendency to leave service and its related some factors among nurses in Zabol university hospitals. *Journal of clinical nursing and midwifery*. 2017;6(1):73-83.
18. Sharififard F, Asayesh H, Rahmani-Anark H, Qorbani M, Akbari V, Jafarizadeh H. Intention to leave the nursing profession and its relation with work climate and demographic characteristics. *Iranian Journal of Nursing and Midwifery Research*. 2019;24(6):457-461.
19. Varasteh S, Esmaili M, Mazaheri M. Factors affecting Iranian nurses' intention to leave or stay in the profession during the Covid- 19 pandemic. *International Nursing Review*. 2022;69(2):139-49.
20. Chaokromthong K, Sintao N. Sample Size Estimation using Yamane and Cochran and Krejcie and Morgan and Green Formulas and Cohen Statistical Power Analysis by G* Power and Comparisons. *Aphait International Journal*. 2021;10(2):76-86.
21. Cureton EE, D'Agostino RB. *Factor analysis: An applied approach*: Psychology press; 2013.
22. Alilu L, Zamanzadeh V, Fooladi MM, Valizadeh L, Habibzadeh H. Towards an understanding of

- clinical nurses challenges that leads intention to leave. *Acta Paulista de Enfermagem*. 2016;29:534-41.
23. Valizadeh L, Zamanzadeh V, Habibzadeh H, Alilu L, Gillespie M, Shakibi A. Threats to nurses' dignity and intent to leave the profession. *Nursing ethics*. 2018;25(4):520-31.