Research Paper
Perceived Stress and Anxiety of Healthcare Providers Before and After a Hospital Accreditation Program in Ahvaz City, Iran

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ABSTRACT

Background: Evaluation and accreditation of hospitals have essential roles in improving the quality, safety, and effectiveness of healthcare services. Nevertheless, this process may cause stress and anxiety among hospital staff. This study aims to determine and compare employees' anxiety levels and perceived stress before and after the accreditation program in private hospitals in Ahvaz City, Iran.

Methods: This research was a quantitative, observational, and longitudinal study. A total of 456 employees of Ahvaz private hospitals were recruited by convenience sampling. The state-trait anxiety inventory (STAI) and the perceived stress scale-14 (PSS-14) were used to measure the level of anxiety and stress among hospital employees one month before and one month after implementing the hospital accreditation program. The data were analyzed in SPSS software, version 22 using descriptive and inferential statistics, such as the paired t-test, Pearson, and Spearman correlation coefficients. The significance level was set at $P<0.05$.

Results: The findings showed a significant difference between perceived stress and anxiety before and after implementing the accreditation program ($P<0.05$). There was a significant relationship between the employees' perceived stress levels and their age, gender, and work experience. The subjects' state-trait anxiety was also significantly associated with their sex, work experience, and organizational position ($P<0.05$).

Conclusion: Although the accreditation program usually improves the quality of healthcare, the employees experienced more stress and anxiety before the implementation of this program than after its completion, which can negatively affect the quality of care. Therefore, policymakers and managers should pay great attention to prevent stress and anxiety among healthcare providers while implementing the accreditation program.

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Highlights

• Accreditation is a method for evaluating the quality and safety of healthcare services.

• The accreditation process can increase workload, stress levels, and use of resources.

• An increase in anxiety and stress can damage hospital employees' performance and quality of work.

• This study showed that the anxiety and stress of healthcare providers increased before the accreditation program implementation.

• Implementing pre-accreditation training programs and employee support by upper managers are recommended to reduce the adverse effects of this process.

Plain Language Summary

Accreditation of hospitals plays an important role in improving the quality and safety of health care services. Still, it may also cause problems such as reduced clinical training opportunities, increased workload, and high job stress. This study found that healthcare providers experience more anxiety and stress before participating in accreditation programs than after it. This situation may negatively affect their performance and quality of work. As a result, implementing the hospital accreditation program should be properly managed by the implementers to avoid its adverse effects.

1. Introduction

Ensuring the appropriateness of service quality in healthcare systems is essential (Araujo et al., 2020). Accreditation is one method health system trustees use to evaluate the quality and safety of the services provided by the staff (Jaafaripooyan et al., 2019). The accreditation process involves an independent evaluation team confirming an organization's compliance with predetermined standards. In light of this, accreditation is considered an essential tool in the healthcare system for ensuring quality (Tabrizi et al., 2013). A hospital accreditation process is "the systematic evaluation and determination of hospital credit by an independent external organization based on the desired structural, process, and outcome standards" (Mosadeghrad & Ghazanfari, 2020). Accreditation has been a reliable measure of improving patient safety and quality of care in the last few decades (Avia & Hariyati, 2019). Initially developed in 1917 in America, this evaluation program gradually spread to Europe and other countries, so it has gained widespread acceptance today and is implemented in most countries (Jaafaripooyan, 2014).

In Iran, the accreditation of hospitals is one of the responsibilities of the Ministry of Health, which provides feedback regarding hospital performance, improving the quality, safety, and efficiency of hospitals (Pourreza et al., 2017). In cooperation with the Medical Affairs Supervision and Accreditation Department, the Ministry of Health in Iran has been planning and implementing hospital accreditation since 2010 (Mosadeghrad et al., 2020b).

Hospital accreditation in Iran is governmental, and all hospitals must participate in this program. The accreditation program starts with the self-evaluation process of hospitals (Mosadeghrad et al., 2020a). A team of accreditation evaluators conducts a field evaluation of Iranian hospitals as part of the accreditation evaluation process. There are 6 grades on the hospital's accreditation certificate: excellent, top one, first, second, third, and fourth (Mosadeghrad et al., 2017). It is considered substandard if a hospital does not achieve the minimum score for rank four. The certificate is valid for two years (Mosadeghrad et al., 2020b).

Studies conducted in Iran show that hospital accreditation program is essential for improving the quality and safety of healthcare services, but they may have disadvantages, too (Mosadeghrad et al., 2022). The drawbacks include reduced clinical training opportunities, increased workload, and time-consuming processes (Ho et al., 2014). Most hospital managers are concerned about obtaining accreditation for their hospital, regardless of whether they have encouraged performance and quality improvement. The high number of criteria and standards, the time-consuming process, the

lack of staff, especially clinical staff and nurses, the need to provide a large number of documents by clinical staff, and a lot of emphasis on documentation are other issues raised in accreditation (Bahmaei et al., 2020). Therefore, the increase in workload takes a lot of time from employees, which can lead to high levels of stress (Al-Faouri et al., 2019; Bahmaei et al., 2020; Davis, 2018). Carrying out several programs at the same time by employees lowers their motivation and causes job burnout (Salehi & Payravi, 2017; Elkins et al., 2010; Al-Faouri et al., 2019; Davis, 2018; Rhoden et al., 2021). The increase in anxiety and stress may harm their performance and quality of work (Almazan et al., 2019). Therefore, the health of employees, especially from a mental point of view, becomes especially important because the quality of care depends on the health of employees. No study was found on hospital employees' mental and emotional states during the accreditation process in Iran. Accordingly, this study was conducted to determine and compare the level of anxiety and stress of employees before and after the accreditation program in Ahvaz private hospitals.

2. Materials and Methods

This quantitative, observational, and longitudinal study was conducted to determine and compare the anxiety and stress employees faced before and after the hospital accreditation program in 2018. The research population was all employees of private hospitals in Ahvaz City, Iran, including physicians, managers (head nurses, supervisors, and hospital managers), clinical staff (nurses, midwives, assistant nurses), and administrative and service staff. The convenience sampling method was used to select the participants from the existing employees of three private hospitals in Ahvaz, and those who agreed to participate were recruited (n=456). The inclusion criteria were willingness to participate in the study, not having a specific mental problem based on self-report, and having at least two years of work experience in the hospital. Those who did not want to cooperate in the second round of completing the questionnaires or were stressed or anxious during the study due to non-work issues were excluded.

At two time points, one month before and one month after implementing the hospital accreditation program, 456 study participants were asked to complete questionnaires. The study initially involved 472 participants, but 16 were excluded based on the exclusion criteria. After coordinating with the relevant officials of the hospitals, each department's employees' names were received. After explaining the research objectives, the volunteer participants were asked to complete the questionnaires.

Data was collected using a demographic questionnaire, the state-trait anxiety inventory (STAI), and the perceived stress scale (PSS-14). The demographic information included gender, age, marital status, organizational position, education level, and work experience.

Spielberger first developed STAI in 1970 with 40 questions and two scales: State anxiety, i.e. how one feels at the moment, and trait anxiety, i.e. how one generally feels (Spielberger et al., 1971). It is one of the first tests to measure state and trait anxiety separately. Each type of anxiety has a scale of 20 different questions (Deklava et al., 2015). The state-anxiety is scored on a 4-point Likert scale from 1=not at all to 4=very much; the trait-anxiety is also scored on a 4-point Likert scale from 1=rarely to 4=almost always (Moladoost et al., 2021). Questions 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20 in the state-anxiety and questions 21, 26, 27, 30, 33, 36, and 39 in the trait-anxiety are scored in reverse (Zsido et al., 2020). The minimum score in each section is 20 (meaning the absence of anxiety), and the maximum score is 80 (meaning the highest level of anxiety). Scores of 21-39 indicate mild anxiety, 40-59 moderate anxiety, and 60-79 severe anxiety (Khalili et al., 2020). The total anxiety score is the sum of state and trait anxiety scores. The convergent validity between the Persian version of STAI and BAI (Beck Anxiety Inventory) is 0.612 for trait anxiety and 0.643 for state anxiety (P<0.001) (Abdoli et al., 2020). The Cronbach α coefficient of the Persian version of the inventory was 0.94 in the study by Dehghan-Nayeri & Adib-Hajbaghery (2011) and 0.91 in the study by Sattar et al. (2021).

PSS-14 was developed by Cohen & Williamson (1988) to measure stress levels during the last month. It is widely used to assess stress levels in young people and adults aged 12 and above (Cohen et al., 1994). It has 14 items and is scored on a 5-point Likert scale (from 0=never to 4=very often). Seven positive-meaning phrases in this scale (phrases 4, 5, 6, 7, 9, 10, 13) are scored in reverse. The resulting scores range from 0 to 56, with higher scores indicating higher levels of perceived stress (Maroufizadeh et al., 2014). The reliability of this scale has been investigated using Cronbach α coefficient in different studies. On a sample of 2387 people in the US, Cohen et al. reported the Cronbach α coefficient of the 14-item version of the PSS as 0.75 (Cohen & Williamson, 1988). Lesage et al. have reported the Cronbach α coefficient of different versions of this scale between 0.73 and 0.84 in French workers (Lesage et al., 2012). The reliability and validity of the Persian version of this scale have been verified in previous studies (Akhlaghi Pirposhteh et al., 2021). A Cronbach α coefficient of 0.9

was reported for the Persian version of this questionnaire (Maroufizadeh et al., 2014). The content validity of the scales was also evaluated and confirmed in the present study by 10 experts. The Cronbach α value was 87% for the STAI and 89% for the PSS-14.

Descriptive and inferential statistics were used in SPSS software, version 22 to analyze the data. A paired t-test was used to compare stress and anxiety scores before and after accreditation. The Spearman and Pearson correlation coefficient tests were used to investigate the relationship between stress and anxiety scores and demographic characteristics.

3. Results

The Mean±SD age of the subjects was 30.01±6.65 years. Most participants were women (56.8%), married (69.8%), clinical staff (52.4%), with bachelor's degrees (63.4%), and work experience of 6.09±5.5 years. Table 1 presents additional demographic characteristics of the participants.

Before implementing the accreditation program, the employees' average state anxiety (STAI-1) was 49.23±8.41; their average trait anxiety (STAI-2) was 47.8±4.6, and their perceived stress was 31.39±4.34. After the accreditation program, these values decreased significantly (P<0.05) (Table 2). Tables 3 and 4 show the participants' stress and anxiety before and after the accreditation program according to their organizational position.

A high level of perceived state anxiety and stress was observed among clinical staff (nurses, midwives, and assistant nurses) and administrative staff before the accreditation program (Table 3). Clinical staff experienced the highest trait anxiety level before the accreditation program's commencement (49.01±6.46) (Table 4).

However, the state anxiety (40.59±6.68), trait anxiety (42.93±5.22), and perceived stress (26.08±4.87) of the clinical staff were also at the highest level after the accreditation program.

Anxiety and perceived stress significantly correlated with some participants' demographic characteristics. The employees' perceptions of stress were significantly associated with their age, sex, and work experience. There was a significant association between the anxiety level of the participants and their sex, work experience, and organizational position (P<0.05) (Table 5).

4. Discussion

This study aimed to assess the anxiety and stress levels among employees of private hospitals in Ahvaz before and after implementing the accreditation program. According to the study, the hospital accreditation program increased the stress and anxiety of the employee, particularly among clinical staff. A similar study indicated that implementing a hospital accreditation program significantly increased employees' stress, anxiety, and depression, negatively affecting their interpersonal relationships and job satisfaction (Elkins et al., 2010). Another study conducted in Brazil found that nurses' job stress and musculoskeletal pain have increased during accreditation programs. Additionally, most of those who reported pain before and after accreditation was under moderate stress levels (Rhoden et al., 2021). A systematic review examining 76 articles on the impact of accreditation programs on the quality of health care identified job stress as one of the adverse effects of implementing these programs (Hussein et al., 2021).

Nursing, midwifery, and nursing assistant personnel reported high anxiety and stress levels. Their stress and anxiety increased with the commencement of the accreditation program. In addition, the institution's effort to obtain a high ranking increased its workload, while most of the burden is on the shoulders of nurses. Other studies have also shown that nurses and other healthcare providers may experience psychological trauma due to these factors, which negatively affect health and well-being, quality of care, and organizational productivity (Rhoden et al., 2021; Labrague et al., 2018; Maharaj et al., 2019), or even cause them to leave the job (Choi & Kim, 2020). This result is significant for Iran's private hospitals because the wages and benefits of employees may decrease or increase based on the accreditation results, but there is no such approach in public hospitals. Meanwhile, in some countries, public hospital employees' stress and anxiety level is significantly higher than that of private hospital employees (Al-Faouri et al., 2019).

The study results showed that perceived stress was significantly associated with the participant's age, sex, and work experience. This result is in line with the studies conducted on the role of gender in perceived stress levels (Cestari et al., 2017; Dobnik et al., 2018; Sánchez-Anguita Muñoz et al., 2018; Najimi et al., 2012). It has been shown that female healthcare providers' higher stress levels and anxiety are related to the range of roles, dual roles, and physical environment (Najimi et al., 2012). Also, studies on the role of work experience in the level of perceived stress have shown that staff with more work experience have less stress and anxiety than their younger counterparts (Kupcewicz & Jóźwik, 2019; Frögéli et al., 2019). A study in Eng-

Table 1. Demographic characteristics of the participants

Characteristics		Mean±SD/No. (%)
Age (y)		30.01±6.65
Work experience (y)		6.09±5.5
Sex	Female	259(56.8)
	Male	197(43.2)
Marital status	Single	138(30.2)
	Married	318(69.8)
Education	Diploma	37(8.1)
	Associate degree	63(13.8)
	Bachelor's degree	289(63.4)
	Master's degree and higher	36(7.9)
	Doctor of medicine (M.D)	31(6.8)
Organizational position	Physician	31(6.8)
	Managers[a]	20+26(10.1)
	Clinical staff[b]	187+52(52.4)
	Administrative staff	97(21.3)
	Other staff[c]	43(9.4)

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[a]Department, ward, and unit manager or supervisor.
[b]Nurse, Midwifery, assistant nurse.
[c] Housekeeping staff, janitor, and security guard.

land indicated that younger nurses with less experience have higher levels of anxiety and depression and lower levels of resilience (Roberts et al., 2021). Among clinical staff, perceived stress was more common among younger employees than older staff. This finding may be related to nurses' attitudes about accreditation and previous experiences in accreditation programs (Lotfi Hadi Biglo et al., 2021). It may also be due to older employees' increased stability, advanced skills, and work experience (Khodaveisi et al., 2006).

Table 2. Comparing the mean perceived stress and anxiety of the participants before and after implementing the accreditation program

	Pre-accreditation			Post-accreditation			P[*]
	Mean±SD	Max	Min	Mean±SD	Max	Min	
PSS	31.39±4.34	43	23	25.79±5.27	37	15	0.044[**]
STAI	93.97±10.56	132	65	83.64±10.3	104	55	0.001
STAI-1	49.23±8.41	76	24	40.39±8.73	58	14	0.024[**]
STAI-2	47.8±4.6	58	38	41.9±3.8	54	31	0.038[**]

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Abbreviations: PSS: Perceived stress scale; STAI: State-trait anxiety inventory; STAI-1: State anxiety; STAI-2: Trait anxiety.
[*]$P<0.05$.
[**]The paired t-test was used to measure relationships in parametric data.

Table 3. Comparing the participants' perceived stress before and after the accreditation program according to their organizational position

PSS	Pre-accreditation			Post-accreditation			P*
	Mean±SD	Min	Max	Mean±SD	Min	Max	
Physician	29.57±4.34	27	32	24.5±2.7	18	30	0.063
Managers[a]	31.12±6.01	25	36	20.75±4.59	16	24	0.021
Clinical staff[b]	32.07±3.95	31	43	26.08±4.87	24	37	0.000
Administrative staff	32±2.36	29.5	34.48	22.16±3.18	18.82	25.5	0.000
Other staff[c]	26.2±3.9	23.37	27.02	21.45±5.72	17.77	23.13	0.054

PSS: Perceived stress scale.

*The paired t-test was used to measure relationships in parametric data.

[a]Department, ward, and unit manager or supervisor.

[b]Nurse, midwifery, assistant nurse.

[c]Housekeeping staff, janitor, and security guard.

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Table 4. Comparing the participants' state, trait, and total anxiety before and after the accreditation program according to their organizational position

STAI		Pre-accreditation			Post-accreditation			P*
		Mean±SD	Min	Max	Mean±SD	Min	Max	
STAI	Physician	88.13±13.29	65	108	74.19±13.31	55	95	0.000
	Managers[a]	93.47±12.85	83	122	84.07±10.06	60	97	0.022
	Clinical staff[b]	94.95±9.33	77	122	85.53±9.2	62	104	0.000
	Administrative staff	91.04±9.84	84	117	84±6.24	75	95	0.073
	Other staff[c]	94.18±8.70	80	117	85.33±8.11	63	99	0.002
STAI-1	Physician	47±5.65	24	70	43±2.82	18	55	0.054
	Managers	43.37±9.82	35	51	40.25±8.06	33	46	0.011
	Clinical staff	49.33±6.3	47	76	40.59±6.68	38	58	0.000
	Administrative staff	50.5±7.34	42	58	37.83±6.82	30	44	0.031
	Other staff	43.7±7.01	40	46	36.55±8.61	14	40	0.021
STAI-2	Physician	41.64±2.7	36	46	36.5±1.85	30	42	0.045
	Managers	42±1.85	39	44	39.02±2.39	33	41	0.043
	Clinical staff	49.01±6.46	45	58	42.93±5.22	32	54	0.000
	Administrative staff	43.21±4.98	38	50	37.83±3.18	31	42	0.012
	Other staff	40.3±4.49	37	47	38.65±4.29	31	38	0.000

Abbreviations: STAI: State-trait anxiety inventory; STAI-1: State anxiety; STAI-2: Trait anxiety.

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*The paired t-test was used to measure relationships in parametric data.

[a]Department, ward, and unit manager or supervisor.

[b]Nurse, midwifery, assistant nurse.

[c]Housekeeping staff, janitor, and security guard.

Table 5. Association between stress and anxiety of the participants and their demographic characteristics after the accreditation program (n: 456)

Demographic Characteristic	Stress		Anxiety	
	r	P*	r	P
Age (y)	-0.41	0.00**	0.02	0.82**
Sex	-0.37	0.00***	-0.38	0.05***
Work experience	-0.32	0.04**	-0.48	0.04**
Education	0.10	0.28***	0.07	0.46***
Position	0.09	0.33***	0.67	0.039***

*P<0.05

**The Pearson correlation coefficient was used to measure relationships in parametric data.

***The Spearman correlation coefficient was used to estimate relationships in non-parametric data.

This study was conducted in the fourth round of accreditation of private hospitals in Iran, and naturally experienced personnel had more experience in accreditation. The organizational position was also related to stress and anxiety. After the clinical staff, managers of different departments of the hospitals showed the highest level of stress and anxiety, probably caused by their greater responsibility and the need to respond to the evaluation process. Among the study limitations is the possibility of increasing the stress and anxiety of the participants due to factors other than the accreditation program, which was beyond the researchers' control. In addition, the present study was conducted in private hospitals in one of the southern cities of Iran, which limits the generalization of the findings to public hospitals and other regions.

5. Conclusion

The results of this study showed that the level of perceived anxiety and stress of Ahvaz private hospitals' employees increased significantly before the implementation of the accreditation program. This research suggests policymakers identify the program's weak points and implement the accreditation program by planning and providing suitable conditions for the successful implementation of this program and to prevent psychological problems among employees. It is also recommended that the hospital managers continuously pay attention to the criteria of the accreditation program and provide conditions so that the hospital staff is not pressured to prepare before the accreditation. Conducting interim self-assessments with the help of experienced personnel and accreditation experts in private hospitals before the actual implementation of accreditation programs can probably determine the expectations of hospital staff and reduce the pressure and stress caused by accreditation.

Further studies with a larger sample size in other public and private hospitals are recommended to investigate the effects of the accreditation program on the psychological status and quality of care in hospital staff, especially nurses. Investigating the impact of various interventions to prevent psychological problems caused by accreditation programs in future studies is also suggested.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (Code: IR.AJUMS.REC.1398.277). Before starting the study, the research objectives were explained, the participants were assured of the confidentiality of the information, and written informed consent was obtained from all subjects.

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Authors' contributions

Conceptualization: Safoura Yadollahi and Rajab Dashti Kalantar; Study consultant and project administration: Marziyeh Asadizaker; Data collection: Safoura Yadollahi; Data analysis and data presentation: Rajab Dashti Kalantar; Draft preparation: Safoura Yadollahi; Writing the initial draft and reviewing: Safoura Yadollahi and Ismail Azizi-Fini; Final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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References

Abdoli, N., et al., 2020. Reliability and validity of Persian version of state-trait anxiety inventory among high school students. *East Asian Archives of Psychiatry,* 30, pp. 44-7 [DOI:10.12809/eaap1870] [PMID]

Akhlaghi Pirposhteh, E., et al., 2021. Prevalence of musculoskeletal disorders and occupational stress among workers of an engineering company in Iran during the Covid-19 Pandemic, 2021: A cross-sectional study. *Journal of Occupational Health and Epidemiology,* 10(3), pp. 183-92. [DOI:10.52547/johe.10.3.183]

Al-FaouRI, I., et al., 2018. Effect of Health Care Accreditation Council survey site visit on perceived stress level among Jordanian healthcare providers. *Nursing Forum,* 54(1), pp. 30-7. [DOI:10.1111/nuf.12294] [PMID]

Almazan, J. U., Albougami, A. S. & Alamri, M. S., 2019. Exploring nurses' work-related stress in an acute care hospital in KSA. *Journal of Taibah University Medical Sciences,* 14(4), pp. 376-82. [DOI:10.1016/j.jtumed.2019.04.006] [PMID] [PMCID]

Araujo, C. A., Siqueira, M. M. & Malik, A. M., 2020. Hospital accreditation impact on healthcare quality dimensions: A systematic review. *International Journal for Quality in Health Care,* 32(8), pp. 531-44. [DOI:10.1093/intqhc/mzaa090] [PMID]

Avia, I. & Hariyati, R. T. S., 2019. Impact of hospital accreditation on quality of care: A literature review. *Enfermeria Clinica,* 29(Supplement 2), pp. 315-20. [DOI:10.1016/j.enfcli.2019.06.003]

Bahmaei, J., et al., 2020. [Challenges of the execution of hospital accreditation in Iran: A critical review (Persian)]. J*ournal of Health Research in Community,* 5(4), pp. 82-98. [Link]

Cestari, V. R. F., et al., 2017. Stress in nursing students: Study on sociodemographic and academic vulnerabilities. Acta paulista de enfermagem, 30(2), pp. 190-6. [DOI:10.1590/1982-0194201700029]

Choi, J. S. & Kim, K. M., 2020. Effects of nursing organizational culture and job stress on Korean infection control nurses' turnover intention. *American Journal of Infection Control,* 48(11), pp. 1404-6. [DOI:10.1016/j.ajic.2020.04.002] [PMID] [PMCID]

Cohen S., 1988. Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds), The social psychology of health (pp. 31–67). California: Sage Publications, Inc. [Link]

Cohen, S., Kamarck, T. & Mermelstein, R., 1994. Perceived stress scale. Measuring stress: A guide for health and social scientists. California: Mind Garden. [Link]

Davis, J. H., 2018. Buffering the stress of programmatic accreditation. *Teaching and Learning in Nursing,* 13(1), pp. 14-17. [DOI:10.1016/j.teln.2017.08.001]

Dehghan-Nayeri, N. & Adib-HajbagherY, M., 2011. Effects of progressive relaxation on anxiety and quality of life in female students: A non-randomized controlled trial. *Complementary Therapies in Medicine,* 19(4), pp. 194-200. [DOI:10.1016/j.ctim.2011.06.002] [PMID]

Deklava, L., et al., 2015. Causes of anxiety during pregnancy. *Procedia-Social and Behavioral Sciences,* 205, pp. 623-6. [DOI:10.1016/j.sbspro.2015.09.097]

Dobnik, M., Maletič, M. & Skela-Savič, B., 2018. Work-related stress factors in nurses at Slovenian hospitals-a cross-sectional study. *Zdravstveno Varstvo,* 57(4), pp. 192–200. [DOI:10.2478/sjph-2018-0024] [PMID] [PMCID]

Elkins, G., et al., 2010. Perceived stress among nursing and administration staff related to accreditation. *Clinical Nursing Research,* 19(4), pp. 376–86. [DOI:10.1177/1054773810373078] [PMID] [PMCID]

Frögéli, E., Rudman, A. & Gustavsson, P., 2019. The relationship between task mastery, role clarity, social acceptance, and stress: An intensive longitudinal study with a sample of newly registered nurses. *International Journal of Nursing Studies,* 91, pp. 60-9. [DOI:10.1016/j.ijnurstu.2018.10.007] [PMID]

HO, M. J., et al., 2014. Effects of hospital accreditation on medical students: A national qualitative study in Taiwan. *Academic Medicine,* 89(11), pp. 1533-9. [DOI:10.1097/ACM.0000000000000481] [PMID]

Hussein, M., et al., 2021. The impact of hospital accreditation on the quality of healthcare: A systematic literature review. *BMC Health Services Research,* 21(1), pp. 1057. [PMID] [PMCID]

Jaafaripooyan, E., 2014. Potential pros and cons of external healthcare performance evaluation systems: Real-life perspectives on Iranian hospital evaluation and accreditation program. *International Journal of Health Policy and Management,* 3(4), pp. 191–8. [PMCID]

Jaafaripooyan, E., Mosadeghrad, A. M. & Salarvand, A., 2019. [Hospital accreditation surveyors' evaluation criteria in Iran (Persian)]. *Payavard-Salamat,* 13(2), pp. 110-22. [Link]

Khalili, N., et al., 2020. Predictors of preoperative anxiety among surgical patients in Iran: An observational study. *Archives of Anesthesiology and Critical Care,* 6(1), pp. 16-22. [DOI:10.18502/aacc.v6i1.2044]

Khodaveisi, M., Mohammadi, N. & Omidi, A., 2006. [Frequency of job stress in clinical nurses (Persian)]. *Avicenna Journal of Nursing and Midwifery Care,* 13(2), pp. 44-54. [Link]

Kupcewicz, E. & Jóźwik, M., 2019. Positive orientation and strategies for coping with stress as predictors of professional burnout among Polish nurses. *International Journal of Environmental Research and Public Health,* 16(21), pp. 4264. [DOI:10.3390/ijerph16214264] [PMID] [PMCID]

Labrague, L. J., et al., 2018. Stress and ways of coping among nurse managers: An integrative review. *Journal of Clinical Nursing,* 27(7-8), pp. 1346-59. [DOI:10.1111/jocn.14165] [PMID]

Lesage, F. X., Berjot, S. & Deschamps, F., 2012. Psychometric properties of the French versions of the Perceived Stress Scale. *International Journal of Occupational Medicine and Environmental Health,* 25(2), pp. 178-84. [DOI:10.2478/s13382-012-0024-8] [PMID]

Lotfi Hadi Biglo, S. Y., et al., 2021. [Assessment nurses knowledge, attitude, and comment on hospital accreditation and its impact on patient care quality in Imam Khomeini Hospital, Sarab (Persian)]. *Journal of Sabzevar University of Medical Sciences,* 28, pp. 329-37. [Link]

Maharaj, S., Lees, T., & Lal, S., 2018. Prevalence and risk factors of depression, anxiety, and stress in a cohort of Australian nurses. *International Journal of Environmental Research and Public Health,* 16(1), pp. 61. [DOI:10.3390/ijerph16010061] [PMID] [PMCID]

Maroufizadeh, S., Zareiyan, A. & Sigari, N., 2014. [Psychometric properties of the 14, 10 and 4-item "Perceived Stress Scale" among asthmatic patients in Iran (Persian)]. *Payesh (Health Monitor),* 13(4), pp. 457-65. [Link]

Moladoost, A., et al., 2021. The effects of an interdisciplinary supportive educational program on anxiety among patients undergoing cataract surgery. *Nursing and Midwifery Studies,* 10(3), pp. 145-50. [Link]

Mosadeghrad, A. M., Akbari, A. & Yousefinezhadi, T., 2017. [Evaluation of hospital accreditation standards (Persian)]. *Razi Journal of Medical Sciences,* 23 (153), pp. 43-54. [Link]

Mosadeghrad, A. M. & Ghazanfari, F., 2020. [Iran hospital accreditation governance: Challenges and solutions (Persian)]. *Payavard Salamat,* 14(4), pp. 311-32. [Link]

Mosadeghrad, A. M., et al., 2020. [Hospital accreditation method: A comparative study (Prsian)]. *Payesh (Health Monitor) Journal,* 19(5), pp. 523-40. [DOI:10.29252/payesh.19.5.523]

Mosadeghrad, A. M., et al., 2020. [Hospital accreditation method: A comparative study (Persian)]. *Payesh (Health Monitor),* 19(5), pp. 523-40. [DOI:10.29252/payesh.19.5.523]

Mosadeghrad, A. M., Qazanfari, F. & Keykhani, S., 2022. [Hospital infection control accreditation standards: A comparative review (Persian)]. *Journal of Health and Safety at Work,* 12(1,) pp. 99-122. [Link]

Najimi, A., Goudarzi, A. M. & Sharifirad, G., 2012. Causes of job stress in nurses: A cross-sectional study. *Iranian Journal of Nursing and Midwifery Research,* 17(4), pp. 301–5. [PMCID]

Pourreza, A., Mosadeghrad, A. M. & Zoleikani, P., 2017. [The impact of accreditation on the performance of hospital emergency departments (Persian)]. *Journal of Health Based Research,* 3(3), pp. 277-95. [Link]

Rhoden, D. J., Colet, C. F. & Stumm, E. M. F., 2021. Association and correlation between stress, musculoskeletal pain and resilience in nurses before hospital accreditation maintenance assessment. *Revista Latino-Americana de Enfermagem,* 29, pp. e3465. [DOI:10.1590/1518-8345.4658.3465] [PMID] [PMCID]

Roberts, N. J., et al., 2021. Levels of resilience, anxiety and depression in nurses working in respiratory clinical areas during the COVID pandemic. *Respiratory Medicine,* 176, pp. 106219. [DOI:10.1016/j.rmed.2020.106219] [PMID] [PMCID]

Salehi, Z. & Payravi, H., 2017. [Challenges in the implementation accreditation process in the hospitals: A narrative review (Persian)]. *Iran Journal of Nursing,* 30(106), pp. 23-34. [DOI:10.29252/ijn.30.106.23]

Sánchez-Anguita MuñoZ, Á., Pulido López, M. F. & Conde Vieitez, J., 2018. Self-efficacy and anxiety in female hospital healthcare workers. *Ansiedad y Estrés,* 24(2-3), pp. 99-104. [DOI:10.1016/j.anyes.2018.08.002]

Sattar, D., et al., 2021. [The effect of educational video on anxiety before surgery of patient's candidates for eye surgery by fico method (Persian)]. *Complementary Medicine Journal,* 11(1), pp. 44-55. [DOI:10.32598/cmja.11.1.1022.1]

Spielberger C. D., Gonzalez-Reigosa, F. & Martinez-Urrutia, A., 1971. Development of the Spanish edition of the state-trait anxiety inventory. *Interamerican Journal of Psychology,* 5(3-4), pp. 145-58. [Link]

Tabrizi, J. S., Gharibi, F. & Pirahary, S., 2013. Developing of national accreditation model for rural health centers in Iran health system. *Iranian Journal of Public Health,* 42(12), pp. 1438-45. [PMCID]

Zsido, A. N., et al., 2020. Development of the short version of the spielberger state-trait anxiety inventory. *Psychiatry Research,* 291, pp. 113223. [DOI:10.1016/j.psychres.2020.113223] [PMID]

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