# Job Stress and Mental Health Among Nursing Staff of Educational Hospitals in South East Iran

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## Abstract

**Background:** Job stress is highly emphasized among healthcare staff because of their crucial role in the healthcare system.
**Objectives:** The present study aimed to evaluate job stress and mental health among nursing staff of educational hospitals.
**Methods:** This cross-sectional study was conducted on 124 nurses working in educational hospitals of Zahedan, Iran, from November 2015 to April 2016. Data were collected using Osipow job stress (60 questions in 6 subscales) and Goldberg's general health (28 questions in 4 subscales) Questionnaires, both of which are valid and reliable. The data were presented as mean and standard deviation and analyzed through t-test, ANOVA, and Pearson correlation tests using SPSS Version 16.0. The significance level was accepted as p less than 0.05.
**Results:** The mean score of job stress in the nurses was $202.64 \pm 22.88$. Ambiguity in job was the most important factor affecting the nurses' job stress. The mean score of mental health was $32.41 \pm 2.37$ for females and $29.36 \pm 1.25$ for males. Physical disorders had the highest mean among other factors in mental health, and it was $37.24 \pm 3.21$. There were significant statistic differences between job stress and gender, hospital ward, and working shift of the participants. In addition, a significant difference was obtained between mental health and hospital ward and nurse's working environment.
**Conclusions:** Job stress can affect all dimensions of nurses' mental health and may lead to different disorders, particularly somatic and anxiety disorders. It seems that by planning to reduce job stressors (such as workload, and role ambiguity), improving workplace conditions, and implementing training courses to adapt to and control the stressful conditions, we can reduce job stress and improve nurses' mental health.

*Keywords:* Job Stress, Mental Health, Nurses, Hospital

## 1. Background

Stress is the result of a change in the environment, which is recognized as a damage, challenge, or threat to individual's balanced situation (1). Permanent stress could lead to physical and mental burnout. It also could interrupt individual's daily life (2). Health care providers are close to stressful situations and factors, which lead to stress because of their responsibility to provide care to patients (3). Job exposes the nurses to different situations, which may threaten their health (4). According to the definition of world health organization (WHO), physical health, mental health, and social health are different dimensions of health (5, 6). One study found that job stress could highly affect worker's mental and physical health (7). Gastric ulcers, hypertension, asthma, heart attack, anxiety, burnout, amnesia, and fussiness are all examples of negative effects of stress on human's body (8).

Nursing is a stressful job, and nurses constitute almost 80% of healthcare providers in our country, and 80 % of healthcare services are provided by them (9, 10). Nurses have poor social support, which is the reason for their exposure to job stress (11). Personal reactions and concerns, occupational concerns, doing their job, and dealing with job concerns are 5 factors of stress in the nursing profession (12). Nurses were in the 27th place in evaluation of 130 stressful jobs sorted according to their reference to doctors for health problems, which was conducted by WHO (13). Fighting with colleagues, seeing patient's death every day, lack of supporting resources, lack of time to solve emotional and spiritual problems of patients, and professional responsibilities are some factors that make nursing a stressful job (14-16). Recognizing these factors and reducing them could prevent the health disorders among nurses and patients. Prevention could increase staff's health in the system (17). Considering the importance of nursing

occupation and effects of job stress on mental health, the present study aimed to evaluate job stress and mental health among nursing staff in educational hospitals of South East Iran.

## 2. Methods

### 2.1. Study Design and Participants

This cross-sectional study was conducted on 124 nursing staff of Zahedan University of Medical Sciences (ZAUMS) in three educational hospitals, in Zahedan, South East of Iran, from November 2015 to April 2016. The participants were recruited from nurses of Ali-ebne-Abitaleb, Khatam-al-Anbia, and Bo-Ali educational hospitals through the convenience sampling method.

The inclusion criteria were as follow: working in one of the aforementioned hospitals, having at least an associate degree in nursing, having at least six months experience of working in the present hospital and ward, and willingness for participation. Those nurses with background of psychiatric disorders were excluded.

### 2.2. Data Collection

Data were collected using 2 standard questionnaires. The first section included demographic information such as age, sex, marriage status, job experience, workplace, employment type, working shift, and education.

1) Osipow's standard job stress questionnaire: for the first time, Osipow's Job stress questionnaire was used by Osipow et al. with the title of "Occupational Stress Inventory (OSI)" to evaluate job stress in 1987. This questionnaire includes 60 questions on job stress. The questions are sorted by job roles and categorized into 6 areas of role workload, role insufficiency, role ambiguity, role limit, responsibility, and physical environment. This guideline scores job stress in 4 levels in each area: no stress (60 - 133), normal stress (134 - 216), moderate stress (217 - 258), and severe stress (259 - 300). The total job stress score was the total score of all areas. The questions were designed by a 5-point Likert scale: never (1), rarely (2), sometimes (3), mostly (4), and always (5). The validity and reliability of this instrument were approved by previous studies [18, 19]. In addition, in the current study, the reliability of this questionnaire was approved by Cronbach's alpha (0.87) and test- retest method (0.89).

2) Goldberg's general health questionnaire (GHQ-28): this questionnaire consists of 28 questions and 4 subsets: somatic symptoms (questions 1 - 7); anxiety/insomnia (questions 8 - 14); social dysfunction (questions 15-21); and severe depression (questions 22 - 28). Each subset has 7

questions, which evaluates important dimensions of mental health starting from physical disorders up to psychological problems. A 3-point Likert scale was designed for answering the questions. The range of scores was 0 - 84 and categorized into 4 levels: normal (0 - 22), weak (23 - 40), moderate (41 - 60), and severe disorders (61 - 84); in this questionnaire, the higher the score, the more severe the mental disorder. The validity and reliability of this tool was approved in previous studies [20, 21]. Moreover, in our study, the reliability of this questionnaire was confirmed by calculating Cronbach's alpha and test- retest, and it was 0.91 and 0.84, respectively.

### 2.3. Ethical Considerations

The study was conducted after obtaining approval of the ethics committees of ZAUMS (IR.ZAUMS.REC.1392.6067). Written informed consent was obtained from all participants prior to the study.

### 2.4. Statistical Analysis

Kolmogorov-Smirnov test was used to approve the normality of data (P = 0.71), and the data were normalized. The data were represented as mean, standard deviation, and Frequency. Data analysis was performed by t-test, ANOVA, and Pearson correlation tests using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA). The confidence interval was 95% and significance level was accepted as p less than 0.05.

## 3. Results

Data obtained from the 124 nurses were included in the final analysis. The mean age of the participants was $31.39 \pm 6.28$, with a range of 23 to 46 years. There were 90 (72.06%) females and 34 (27.04%) males in this study; of them, 69 (55.60%) nurses were married, 87 (44.40%) had a bachelor's degree, 35 (28.20%) were working in the internal ward, 48 (38.07%) were officially employed in the hospital, and 65 (52.41%) had rotational shifts. More demographic data are displayed in Table 1.

No significant differences were observed between job stress and age, marriage status and education level (P > 0.05). Nevertheless, a significance difference was observed between the mean score of job stress and gender, job experience, workplace, ward, working shift, and type of employment (P < 0.05, Table 1).

The mean score of job stress in nurses was $202.64 \pm 22.88$, which shows a minor stress level. Moreover, 78 nurses (62.90%) had low stress, and severe stress was not found in the participants of this study (Table 2).

Job ambiguity was the most affecting factor on job stress than other factors with a score of $37.23 \pm 6.13$ (Table 3).

**Table 1.** Demographic Characteristics of the Nursing Staff of Educational Hospitals of Zahedan in 2016[a]

| Variables | | P Value |
|---|---|---|
| **Age, y** | 33.17 ± 1.28 | 0.23 |
| Mean, range | 23 - 46 | |
| **Work experience, y** | 9.34 ± 5.62 | 0.01 |
| Mean, range | 1 - 25 | |
| **Gender** | | 0.03 |
| Male | 34 (27.04) | |
| Female | 90 (72.06) | |
| **Marital Status** | | 0.12 |
| Bachelor | 55 (44.40) | |
| Married | 69 (55.60) | |
| **Workplace** | | 0.019 |
| Ali-Ebne-Abitaleb | 60 (48.40) | |
| Khatam-Al-Anbia | 38 (30.60) | |
| Bo-Ali | 26 (21.00) | |
| **Department** | | 0.001 |
| Internal | 35 (28.20) | |
| Surgical | 23 (18.50) | |
| Pediatrics | 11 (8.90) | |
| Emergency | 14 (11.30) | |
| Women | 15 (12.10) | |
| CCU | 14 (11.30) | |
| ICU | 12 (9.70) | |
| **Work turn** | | 0.001 |
| Fixed | 59 (47.58) | |
| Rotatory | 65 (52.41) | |
| **Type of employment** | | 0.003 |
| Official | 48 (38.07) | |
| Contractual | 22 (17.70) | |
| Conventional | 36 (29.00) | |
| Projective | 18 (14.50) | |
| **Education level** | | 0.16 |
| Upper Diploma | 25 (20.20) | |
| BSC | 87 (70.20) | |
| MSc | 12 (9.70) | |

[a]Values are expressed as mean ± SD or No. (%).

The mean score of mental health was 32.41 ± 2.37 for females and 29.36 ± 1.25 for males. A significant relationship was found between mental health and nurse's gender (P = 0.007). According to our findings, mental health was

**Table 2.** Frequency and Percentage of Total Job Stress Among the Nursing Staff of Educational Hospitals of Zahedan in 2016

| Level of Stress | No. (%) |
|---|---|
| **Normal (110 - 159)** | 2 (1.60) |
| **Low (160 - 209)** | 78 (62.90) |
| **Moderate (210 - 259)** | 44 (35.50) |

**Table 3.** The Mean and Standard Deviation (SD) of Job Stress Subscales in the Nursing Staff of Educational Hospitals of Zahedan in 2016

| Job Stress Subscales | Mean ± Standard Deviation |
|---|---|
| **Role Workload** | 33.53 ± 4.36 |
| **Role Insufficiency** | 32.20 ± 5.89 |
| **Role Ambiguity** | 37.23 ± 6.13 |
| **Role Limit** | 32.39 ± 5.71 |
| **Responsibility** | 33.79 ± 6.24 |
| **Physical Environment** | 33.60 ± 4.47 |

significantly higher in male nurses compared to female nurses (less score).

A significant positive correlation was found between job stress and mental health (P = 0.03, r = 0.56). Mental health reduces as the score of job stress goes up (increase in score of general health).

There were significant differences between mental health and ward (P = 0.04) and workplace (P = 0.02). However, no significant relationship was detected between mental health and age (P = 0.45), shift type (P = 0.19), marriage status (P = 0.06), and educational degree (P = 0.12) (Table 4).

**Table 4.** Mean and Standard Deviation of Each Dimensions of General Health in the Nursing Staff of Educational Hospitals of Zahedan in 2016

| Dimensions of Mental Health | Mean ± SD |
|---|---|
| **Somatic Symptoms** | 37.24 ± 3.21 |
| **Anxiety/Insomnia** | 28.45 ± 1.19 |
| **Social Dysfunction** | 25.31 ± 4.58 |
| **Severe Depression** | 26.23 ± 2.37 |

## 4. Discussion

This study aimed to evaluate job stress and mental health among nurses working in educational hospitals of Zahedan. The results revealed a minor stress among respondents in the present study. Level of stress was moderate among respondents of Mortaghy Ghasemi et al. (22).

Despite these results most studies showed a high level of stress among nurses (23-25). Many factors affect stress such as ambiguity in job; and conflicts in job could lead to stress. This could be the reason for various results in different studies (26-28). Respondents in this study had a high work experience, and were familiar with the job's environment, so did not have stress while working. Job stress is usually the result of expectations, which are higher than individual's ability and responsibility. Stress could lead to bad clinical services and reduce career competency (29). Inappropriate communications could lead to job dissatisfaction, stress, and illness (30, 31). Reducing responsibilities, time flexibility, coordinating the job and individual's ability and programs for better quality of life would lead to stress reduction and job satisfaction (13). The results of this study about different areas of stress showed that the most important factor is job ambiguity. In the study of Andersson-Fele, it was found that job ambiguity is related to job stress and poor performance (32). However, in Malek et al. study and some others, workload was the most important area of job stress (33-35). When the level of job ambiguity is high, the soft management techniques could be conducted. Employees with job ambiguity prefer to work under those who have a good vision of job and its definitions (36). Thus, job ambiguity could affect customer- respecting behaviors and organizational incomes (37). Therefore, organizations should train their employees (nurses particularly) about organizational aims and scopes for better outcomes and reducing job ambiguity. The results of this study revealed a significant difference between the mean score of job stress and gender, job experience, working location, ward and working shift. In Moein et al. study, no significant relationship was found between job experience, age, over shift working, type of employment, education, marriage status, and job stress (11). Also, Mortaghy Ghasemi et al. study detected no significant relationship between age, gender, ward, marriage status, working shift, job experience, overshift working, and job stress (23). On the other hand, some studies had shown a significant relationship between working hours, marriage status, job experience, type of employment, and job stress (38-40). These results are consistent with those of the present study. It seems that bad work place and work condition could lead to job stress. The results of this study revealed minor psychological disorders among respondents. A study in a hospital in Kashan also stated that a high number of nurses did not have psychological health, particularly nurses working in psychology wards and those who had over shift working (14). Some other studies also found psychological disorders among nurses (28, 29). The prevalance of mental health disorders among nurses was different in various studies. For example, it was

reported to be 34%, 41%, and 48.8% in 3 different studies (41-45). These differences in results could be due to a different number of respondents, difference in hospitals, wards, and working shifts. However, in all these studies and the present study, it was found that the number of nurses with mental health disorders were much more than the general population (46). Stressful conditions in nursing, high workload, unpredictable conditions, working shifts, organizational factors, and personal factors are possible reasons of high rate of mental disorders among nurses (44, 45, 47). Moreover, a significant relationship was detected between the mean score of mental health and gender, and ward and working location in this study. However, no significant relationship was obtained between gender and mental health in Farrell study (46); the same result was found in Ebrahimi (14) study. In Hashemi et al. study, no significant relationship was observed between hospital ward, working location, and mental health (48). In Ebrahimi study, the relationship between hospital ward and mental health was significant (14). Also, a significant relationship was found between gender and mental health in Yoon and Cho (49) and van der Doef et al. studies (50). These different results prove that background factors have an important role in mental disorders due to job stressors. Demogroaphic information plays the stepping up role in this process.

Based on the results of this study, as the job stress increases, mental health decreases among nurses. This result was consistent with that of Sook Youn et al. study conducted on 2031 nurses working in South Korean hospitals. Stress in job could lead to burnout, anxiety, physical disorders, poor performance, and general health problems. In this condition, the individual do not go to work to escape from this critical situation (50). This means that burnout plays an interfering role between job stress and general health among nurses (51, 52). Lambert et al. study showed a significant relationship between high workload, as an area of job stress, and general health (53). Chang's study indicated that reducing stress in workplace and increasing support could lead to mental health in nurses (52). Nurses are exposed to both general stress factors in the society (44) and particular stress factors in nursing career. According to the results of this study and those of the above- mentioned studies, stress could lead to mental disorders. Considering the important role of nurses, it is important to reduce stress by omitting stress factors in hospitals. Psychological interventions, personal consulttations, better relationship between doctors and nurses, social and professional supports, change in working shifts, and group treatments could be helpful. The main limitations of the study were small sample size and lake of nurses' cooperation in filling the questionnaires.

## 4.1. Conclusions

According to the results, job stress can affect all dimensions of nurses' mental health and lead to different disorders, particularly somatic and anxiety disorders. Considering the stressful and unpredictable nature of the nursing job, it seems that by accurate planning we can reduce job stressors (such as workload, role ambiguity) and improve workplace conditions, moreover, by implementing training courses to adapt to and control stressful conditions, we can reduce job stresses and improve nurses' mental health.

## Acknowledgments

## Footnotes

## References

1. Smeltzer SC, Bare BG, Hinkle JL, Cheever KH, Townsend MC, Gould B. Brunner & Suddarth's Textbook of Medical Surgical Nursing 12th Edition. Wolters Kluwer: Lippincott Williams and Wilkins; 2008.

2. Khayer M, Seyf D. Study of the relationship between coping with stress skills and academic achievement of undergraduate students in relation to some demographic factors. *Daneshvar Raftar.* 2004:25–34.

3. Kabirzadeh A, Mohsenisaravi B, Asghari Z, Bagherianfarahabadi E, Bagerzadehladari R. Rate of general health, job stress and factors in medical records workers. *Health Inf Manag.* 2008;**4**(2):215 222.

4. Kivimaki M, Leino-Arjas P, Luukkonen R, Riihimaki H, Vahtera J, Kirjonen J. Work stress and risk of cardiovascular mortality: prospective cohort study of industrial employees. *BMJ.* 2002;**325**(7369):857. [PubMed: 12386034].

5. Samiee M, Rafiee H, Amini RM, Akbarian M. Social health of Iran: from a consensus-based definition to an evidence-based index. *J Kharazmi Univ.* 2011:31–51.

6. Behrouzian F, Khajeddin N, Hodaei F, Zamani N. The relationship of job satisfaction and coping mechanism with general health, among private industrial's staff. *Jundishapur Sci Me J.* 2009;**8**(3):345–53.

7. Beddoe AE, Murphy SO. Does mindfulness decrease stress and foster empathy among nursing students?. *J Nurs Educ.* 2004;**43**(7):305–12.

8. Tehrani H, Shojayizade D, Hoseiny SM, Sh A. Relationship between Mental Health, personality Trait and Life Events in Nurses Working in Tehran Emergency Medical Service (Tehran 115). *Iran J Nurs.* 2012;**25**(75):52–9.

9. Ghasemi SA, Attar M. Investigation intensity of nurses occupational stressors at Babol, Sari. Behshahr. *Betsa.* 2008;**2**(1):1–7.

10. Moein M, Adib Hajbaghery M. Comparison of Occupational Stress among Female Nurses and Female Members of the Medical Group in Chosen Training Hospitals in Isfahan. *Iran J Psychiatr Nurs.* 2015;**3**(2):1–10.

11. Lu KY, Chang LC, Wu HL. Relationships between professional commitment, job satisfaction, and work stress in public health nurses in Taiwan. *J Prof Nurs.* 2007;**23**(2):110–6. doi: 10.1016/j.profnurs.2006.06.005. [PubMed: 17383604].

12. Ghafari F, Azizi F, Mazloum SR. Multiple Roles and its Relationship with Mental Health of Female Nurses. *Iranian journal of obsterics, gyneocology and infertility;.* 2007;**10**(1):69–78.

13. Sepehrmanesh Z, Ahmadvand A, Moravveji AR, Mirzadeh M. Survey of Nurse's Mental Health in Psychiatric and Dialysis Wards in Kashan University of Medical Sciences in 2010:(A Short Report). *J Rafsanjan Univ Med Sci.* 2013;**12**(4):325–30.

14. Ebrahimi E. Mental health status of nursing staff. *Iran J Nurs.* 2012;**24**(74):28–35.

15. Khaghanizade M, Siratinir M, Abdi F, Kaviani H. Assessing of mental health level of employed nurses in educational hospitals affiliated to Tehran medical sciences university. *Q J Fund Ment Health.* 2006:141–8.

16. Ketelaar SM, Gärtner FR, Bolier L, Smeets O, Nieuwenhuijsen K, Sluiter JK. Mental Vitality@ Work—a workers' health surveillance mental module for nurses and allied health care professionals: process evaluation of a randomized controlled trial. *J Occupat Environ Med.* 2013;**55**(5):563–71.

17. Shakerinia I, Mohammadpour M. Relationship between job stress and resiliency with occupational burnout among nurses. *J Kermanshah Univ Med Sci.* 2010;**14**(2).

18. Namavar S, Rahmani GH, Reza Nejad MT, Gholami L. Investigation of stress on the staff of the National Broadcast-ing Company National Gas YASUJ petroleum companies in 2013. Sixteenth National Conference on Environmental Health. Tabtiz university of medical sciences; .

19. Bashiri Z, Aghajani M, Masoudi Alavi N. Effects of Psychoeducation on Mental Health in Patients With Coronary Heart Disease. *Iran Red Crescent Med J.* 2016;**18**(5):ee25089. doi: 10.5812/ircmj.25089. [PubMed: 27437125].

20. Gorgich EAC, Barfroshan S, Ghoreishi G, Balouchi A, Nastizaie N, Arbabisarjou A. The Association of Self-Assessed Emotional Intelligence with Academic Achievement and General Health with Students of Medical Sciences. *Global J Health Sci.* 2016;**8**(12):27. doi: 10.5539/gjhs.v8n12p27.

21. Zeghami SH, Asgharzadeh C. Relationship between job stress and burnout in nursing personal. *J Hamedan Faculty Nurs Midwifery.* 2011;**19**(2):42–9.

22. Mortaghy Ghasemi M, Ghahremani Z, Vahediane Azimi A, Ghorbani F. Nurse's job stress in a therapeutic educational center in Zanjan. *J Gorgan Bouyeh Faculty Nurs Midwifery.* 2011;**8**(1):42–51.

23. Rezaee N, Behbahani N, Najaf Yarandi A, Hosseini F. Relationship between job stress and social support in nurses. *Iran J Nurs.* 2006;**46**(19):71–8.

24. Rahmani F, Behshid M, Zamanzadeh V, Rahmani F. Relationship between general health, occupational stress and burnout in critical care nurses of Tabriz teaching hospitals. *Iran J Nurs.* 2010;**23**(66):54–63.

25. Levert T, Lucas M, Ortlepp K. Burnout in Psychiatric Nurses: Contributions of the Work Environment and a Sense of Coherence. *South Afr J Psychol.* 2000;**30**(2):36–43. doi: 10.1177/008124630003000205.

26. Rothmann S, van der Colff JJ, Rothmann JC. Occupational stress of nurses in South Africa. *Curationis.* 2006;**29**(2):22–33. [PubMed: 16910131].

27. Peltzer K, Mashego TA, Mabeba M. Short communication: Occupational stress and burnout among South African medical practitioners. *Stress Health.* 2003;**19**(5):275–80. doi: 10.1002/smi.982.

28. Ghassemi PM, Ahmadi R, Alavi ESS. Association of organizational culture and job stress with mental health in nurses in Hajar and Kashani hospitals of Shahrekord city. *J Clin Nurs Midwifery.* 2013;**2**(3):53–63.

29. Samadi S, Golmohammadi A, Seyedahmadian S, Rezapour T, Panahi H. The relationship between job stress and occupational empowerment of nurses in selected military hospitals of the country. *J Police Med.* 2013;**2**(1):31–7.

30. Kohler JM, Munz DC, Grawitch MJ. Test of a Dynamic Stress Model for Organisational Change: Do Males and Females Require Different Models?. *Appl Psychol.* 2006;**55**(2):168–91. doi: 10.1111/j.1464-0597.2006.00229.x.

31. Coyle D. A systematic review of stress among mental health social workers. *Int Soc Work.* 2005;**48**(2):201–11. doi: 10.1177/0020872805050492.

32. Andersson-Fele L, editor. Age related work load—a work environment intervention with a life course perspective. International Congress Series. 2005; Elsevier; pp. 341–6.

33. Malek M, Mohammadi S, Attarchi MS. Occupational stress and influencing factors, in medical residents of one of the educational hospitals of Tehran University of Medical Sciences. *Razi J Med Sci.* 2011;**18**(87):24–35.

34. Castelo-Branco C, Figueras F, Eixarch E, Quereda F, Cancelo MJ, Gonzalez S, et al. Stress symptoms and burnout in obstetric and gynaecology residents. *BJOG.* 2007;**114**(1):94–8. doi: 10.1111/j.1471-0528.2006.01155.x. [PubMed: 17233864].

35. Sargent MC, Sotile W, Sotile MO, Rubash H, Barrack RL. Stress and coping among orthopaedic surgery residents and faculty. *J Bone Joint Surg Am.* 2004;**86-A**(7):1579–86. [PubMed: 15252111].

36. Flaherty TB, Dahlstrom R, Skinner SJ. Organizational values and role stress as determinants of customer-oriented selling performance. *J Pers Selling Sales Manag.* 1999;**19**(2):1–18.

37. Hashem ZI, Aurangi M, Bahrehdar MJ. The relationship between job stress and mental health in a group of hospital employees in Shiraz. *Iran J Psychiatr Clin Psychol.* 2001;**6**(3).

38. Molaie B, Mohamadi M, Habibi A, Zamanzadeh V, Dadkhah B, Molavi P, et al. A study of job stress and its related causes among employed women in Ardabil city. *J Ardabil Univ Med Sci.* 2011;**11**(1):76–85.

39. Suzuki K, Ohida T, Kaneita Y, Yokoyama E, Miyake T, Harano S, et al. Mental health status, shift work, and occupational accidents among hospital nurses in Japan. *J Occup Health.* 2004;**46**(6):448–54. [PubMed: 15613767].

40. Musarezaie A, Bagherian SR, Fanian N, Tabatabaei SM. Predictors of nurses' mental health in medical and surgical wards based on demo-graphic variables. *J Res Behavi Sci.* 2014;**12**(3):369–79.

41. Yang MS, Pan SM, Yang MJ. Job strain and minor psychiatric morbidity among hospital nurses in southern Taiwan. *Psychiatry Clin Neurosci.* 2004;**58**(6):636–41. doi: 10.1111/j.1440-1819.2004.01314.x. [PubMed: 15601389].

42. Arafa MA, Nazel MW, Ibrahim NK, Attia A. Predictors of psychological well-being of nurses in Alexandria, Egypt. *Int J Nurs Pract.* 2003;**9**(5):313–20. [PubMed: 14531854].

43. de Souza Magnago TSB, Lisboa MTL, Griep RH, Kirchhof ALC, de Azevedo Guido L. Aspectos psicossociais do trabalho e distúrbio musculoesquelético em trabalhadores de enfermagem. *Revista Latino-Americana de Enfermagem.* 2010;**18**(3):429–35.

44. Stellman JM. Encyclopaedia of occupational health and safety. International Labour Organization; 1998.

45. Josephson M, Lagerström M, Hagberg M, Hjelm EW. Musculoskeletal symptoms and job strain among nursing personnel: a study over a three year period. *Occup Environ Med.* 1997;**54**(9):681–5.

46. Farrell GA. The mental health of hospital nurses in Tasmania as measured by the 12-item General Health Questionnaire. *J Adv Nurs.* 1998;**28**(4):707–12.

47. Rout UR. Stress amongst district nurses: a preliminary investigation. *J Clin Nurs.* 2000;**9**(2):303–9. [PubMed: 11111622].

48. Hashemi S, Ghazanfari F, Karami K, Farzinara F, Ebrahimzadeh F. The effect of environmental index on mental health in nurses working in emergency and non emergency wards in Khorramabad hospitals. *J Clin Nurs Midwifery.* 2015;**4**(3):57–66.

49. Yoon HS, Cho YC. [Relationship between job stress contents, psychosocial factors and mental health status among university hospital nurses in Korea]. *J Prev Med Public Health.* 2007;**40**(5):351–62. [PubMed: 17917483].

50. van der Doef M, Mbazzi FB, Verhoeven C. Job conditions, job satisfaction, somatic complaints and burnout among East African nurses. *J Clin Nurs.* 2012;**21**(11-12):1763–75. doi: 10.1111/j.1365-2702.2011.03995.x. [PubMed: 22458703].

51. Gelsema TI, van der Doef M, Maes S, Janssen M, Akerboom S, Verhoeven C. A longitudinal study of job stress in the nursing profession: causes and consequences. *J Nurs Manag.* 2006;**14**(4):289–99. doi: 10.1111/j.1365-2934.2006.00635.x. [PubMed: 16629843].

52. Lambert VA, Lambert CE, Itano J, Inouye J, Kim S, Kuniviktikul W, et al. Cross-cultural comparison of workplace stressors, ways of coping and demographic characteristics as predictors of physical and mental health among hospital nurses in Japan, Thailand, South Korea and the USA (Hawaii). *Int J Nurs Stud.* 2004;**41**(6):671–84. doi: 10.1016/j.ijnurstu.2004.02.003. [PubMed: 15240091].

53. Chang EM, Daly JW, Hancock KM, Bidewell J, Johnson A, Lambert VA, et al. The relationships among workplace stressors, coping methods, demographic characteristics, and health in Australian nurses. *J Prof Nurs.* 2006;**22**(1):30–8.