Review Article

The Prevalence of Job Stress among Nurses in Iran: A Meta-Analysis Study

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Background: Many nurses experience job stress in their workplace. Given the wide range of differences in the statistics about job stress among nurses, the question that arises is what is the general prevalence of job stress among Iranian nurses?

Objective: The present study aimed to evaluate the prevalence of job stress among Iranian nurses through meta-analysis. Persian and English databases including SID, MagIran, IranMedex, Google Scholar, Sciencedirect, and PubMed were searched by using the keywords such as “job stress, occupational stress, work-related stress, job related stress” and their combinations and 30 articles were finally selected. All the observational research articles that had information regarding the prevalence of job-related stress, sample size, and job stress instruments were entered into the meta-analysis. The form used to extract information included variables such as the first author’s name, publication year, the place where the study had been carried out, type of the study, sample size, data collection instruments, and the most important findings. Results: The general prevalence of job stress was estimated to be 69% (confidence interval [CI] 95%: 0.58–0.79) based on the report of 30 papers with sample size of 4630. By region, type of hospital and the type of study, the highest prevalence of nurses’ job stress was 90% (CI 95%: 0.85–0.96) in region one (Provinces of Alborz, Tehran, Qazvin, Mazandaran, Semnan, Golestan, and Qom), 70% (CI 95%: 0.60–0.80) in public and private hospitals, and 79% (CI 95%: 0.58–1.01) in studies where the type of study had not been mentioned. Conclusion: Given the high prevalence of job stress among nurses, developing programs to reduce nurses’ job-related stress seems to be essential.

Keywords: Iran, Job stress, Meta-analysis, Nurse, Prevalence

INTRODUCTION

Stress is defined as being under psychological pressure.¹ Stress, as the third cause of diseases, is commonly felt in the workplace so that all jobs are somewhat stressful.² Job stress is a mental and physical arousal caused by job-related physical and psychological conditions.³⁻⁵ Studies showed that job stress occurs as a destructive physical and emotional response when one’s skills, resources, and demands do not fit the requirements of a job.⁶⁻⁸ According to job demands-control theory, jobs with high mental demands and limited power to make decisions would create considerable job stress.⁹

Although job stress appears in all professions, jobs dealing with people are associated with serious stress. Nursing is one of these jobs and nurses suffer from high...
levels of job stress. As recommended by the previous studies, job stress is related to decreased creativity and job satisfaction, lower rate of timely decision making, decreased quality of care, increased errors, decreased motivation, depression, detachment, decreased mental and physical well-being, sleep disorders, depression, burnout, absenteeism, lower job satisfaction, and physical problems.

Although several studies have been published on the causes and the prevalence of job stress among nurses working in different areas of Iran, the question of what the general prevalence of stress among Iranian nurses is, still remains unanswered.

Objective

This study aimed to estimate the general prevalence of job stress among Iranian nurses.

METHODS

Data source

This meta-analysis was conducted on articles collected from national and international databases of SID, MagIran, Google Scholar, IranMedex, Science Direct, PubMed, and Scopus between 2000 and 2016. PRISMA guidelines were used to direct the reporting process. The following keywords were searched: (Job stress) OR (occupational stress) OR (work related stress) OR (job-related stress) and combinations of these terms. Farsi equivalent keywords were also searched in Iranian databases. Moreover, references of the articles were reviewed to find other related research papers.

Study selection

The exclusion criteria were unrelated interventional and review articles; gray literature; unavailability of the full-text articles; focus on other groups such as physicians, midwives, and students, and failure to report frequency or prevalence of job stress. Full-text observational studies were entered in the analysis. Fifty-nine articles were discovered initially. The researchers reviewed a summary of the articles to determine relevant studies. In the case of disagreement between the researchers, an experienced researcher (K. Sayehmiri) with sufficient knowledge regarding meta-analysis studies made the final decision. Eventually, 30 research papers out of the primary 126 articles were selected.

Data extraction

Data were extracted using a form including variables such as publication year, study location, sample size, sampling method, job stress status, the type of hospital (public, private, or military) and the type of study. In studies that job stress was reported in the form of ratings (mild, moderate, and severe), moderate, and severe stress were considered as job stress.

Statistical analysis

Since prevalence has a binomial distribution, the variance of every article was calculated through the binomial distribution variance. The weight was allocated to each study using the inverse variance method. F index was used to assess the heterogeneity of the data. The heterogeneity was divided into three categories of <25% (low heterogeneity), 25%–75% (moderate heterogeneity), and >75% (high heterogeneity). The random effects model was used due to the heterogeneity of the data. Data were analyzed using STATA software version 12 (Stata Corp, College Station, TX).

RESULTS

In total, 30 articles that were published between 2000 and 2016 were reviewed based on four steps of PRISMA statement [17] [Figure 1].

The total sample size of the reviewed studies was 4630 individuals with an average sample size of 154 people for each study. The highest stress levels were reported by Shahrahi Vahed (97.4%), Mortaghi Ghasemi (97.4%), and Rahimi (98.2%).[18-20] and the lowest stress levels were reported by Bahrami (4.7%) and Khaghanizadeh (10%).[21,22] Further details of the articles are listed in Table 1.

The prevalence of job stress among Iranian nurses with sample size of 4630 was estimated to be 69% (confidence interval [CI] 95%: 0.58–0.79) by using random effect model. Heterogeneity was 99.4%, which is considerable compared to similar studies. Further, surveys were carried out using random effect model; the model assumed that differences between studies are due to differences in sampling and the frequency of job stresses. The studies...
were categorized based on the zoning of the provinces. Accordingly, 6 studies had been conducted in region 1, 7 studies in region 2, 6 studies in region 3, 4 studies in region 4 and 3 studies in region 5. Region of the study had not been mentioned in 4 studies. The highest prevalence rate of job stress was in region 1 (prevalence of 90%, CI 95%: 85%–96%) and the lowest prevalence rate was observed in region 4 (46%; CI 95%: 37%–56%).

Table 1: Characteristic of the included studies

| First author (year) | Sample size | Type of the study | Scale | Place | Stress prevalence (%) | CI |
|---------------------|-------------|-------------------|-------|-------|------------------------|----|
| Esfahani (2016)[23] | 200         | Cross-sectional   | Occupational Stress Questionnaire | Isfahan | 78                     | 0.72-0.84 |
| Masoumy (2016)[24]  | 140         | Cross-sectional   | HSS-35 | Bushehr | 67.8                   | 0.60-0.76 |
| Mouslem (2016)[25]  | 103         | Cross-sectional   | Gray Taft Nursing Stress Scale | Zahedan | 75                     | 0.67-0.83 |
| Mohebbifar (2015)[26] | 112     | Cross-sectional   | Harris Job Stress Scale | Qazvin | 65.4                   | 0.57-0.74 |
| Komeili (2015)[27]   | 80          | Cross-sectional   | Osipow | Alvaz  | 35.1                   | 0.25-0.46 |
| Karchani (2015)[28]  | 250         | Cross-sectional   | Osipow | -      | 68                     | 0.62-0.74 |
| Karimyar Jahromi (2014)[29] | 212     | Cross-sectional   | Cohen’s Perceived Stress Scale | Jahrom | 76.4                   | 0.71-0.82 |
| Karehachi (2012)[30] | 100         | Cross-sectional   | Cooper’s Job Stress | - | 56                     | 0.46-0.66 |
| Mehrabi (2007)[31]   | 170         | Correlative       | Gray Taft Nursing Stress Scale | Isfahan | 83.6                   | 0.78-0.89 |
| Farhadi (2014)[32]   | 60          | Cross-sectional   | Gray Taft Nursing Stress Scale | Urmia | 91.6                   | 0.85-0.99 |
| Donyavi (2013)[33]   | 51          | Cross-sectional   | Krishna | Tehran | 82.3                   | 0.72-0.93 |
| Samadi (2013)[34]    | 126         | Cross-sectional   | Gray Taft Nursing Stress Scale | - | 73.2                   | 0.64-0.80 |
| Faraji (2012)[35]    | 297         | Cross-sectional   | Stimmer | Kurdistan | 71.7       | 0.67-0.77 |
| Hossini (2012)[36]   | 101         | Other             | Steinmetz | Bandar Abbas | 44.7       | 0.35-0.54 |
| Hazavehei (2012)[37] | 237         | Cross-sectional   | Gray Taft Nursing Stress Scale | Hamedan | 57.4                   | 0.51-0.64 |
| Bahrami (2011)[38]   | 190         | Cross-sectional   | Osipow | Kashan | 4.7                    | 0.02-0.08 |
| Zeighami Mohammadi (2011)[39] | 90    | Correlative       | Occupational Stress | Karaj | 95.6                   | 0.91-1   |
| Mortaghi Ghasemi (2011)[40] | 155    | Cross-sectional   | Gray Taft Nursing Stress Scale | Zanjan | 97.4                   | 0.95-1   |
| Rahmani (2010)[41]   | 59          | Cross-sectional   | Occupational Stress | Tabriz | 49.2                   | 0.36-0.62 |
| Noorian (2010)[42]   | 170         | Correlative       | Gray Taft Nursing Stress Scale | Isfahan | 83.5                   | 0.83-0.89 |
| Shahrahi Vahedi (2010)[43] | 150     | Correlative       | Alzheimer | Zabol | 97.4                   | 0.95-1   |
| Khaghanizadeh (2008)[44] | 200    | Correlative       | Osipow | - | 10                     | 0.06-0.14 |
| Sherbafinezhad (2008)[45] | 240    | Other             | Gray Taft Nursing Stress Scale | Tabriz | 97                     | 0.95-0.99 |
| Pourghane (2006)[46]  | 39          | Cross-sectional   | Karasak | Lorestan | 35.9       | 0.21-0.51 |
| Rhezaii (2006)[47]   | 373         | Correlative       | Gray Taft Nursing Stress Scale | Tehran | 96                     | 0.94-0.98 |
| Kohestani (2006)[48]  | 80          | Other             | Gray Taft Nursing Stress Scale | Tehran | 93.7                   | 0.88-0.99 |
| Khalilizadeh (2005)[49] | 200     | Cross-sectional   | Nursing Stress Scale | Urmia | 92                     | 0.88-0.96 |
| Khodaveisi (2005)[50] | 310       | Cross-sectional   | Hinshaw and Atwood | Hamedan | 51.3       | 0.46-0.57 |
| Rahimi (2004)[51]    | 111         | Cross-sectional   | - | Tehran | 98.2                   | 0.96-1.01 |
| Abdi (2001)[52]      | 24          | Cross-sectional   | Osipow | Yazd   | 25                     | 0.08-0.42 |

CI: Confidence interval, HSS: Hospital Stress Scale

Table 2: The prevalence of job stress in all the studied subgroups

| Variables assessed | Number of studies Participants Prevalence (%) CI | Heterogeneity Percentage P |
|--------------------|-----------------------------------------------|---------------------------|---------------------------|
| Study tool         |                                               |                           |                           |
| Osipow             | 6                                             | 825                       | 38                        | 0.13-0.63 | 99.2 | <0.0001 |
| Gray Taft Nursing Stress Scale | 11                                           | 1904                      | 85                        | 0.79-0.91 | 96  | <0.0001 |
| Other              | 13                                            | 1901                      | 78                        | 0.72-0.84 | 98.2 | <0.0001 |
| Type of the study  |                                               |                           |                           |
| Cross-sectional    | 21                                            | 3056                      | 65                        | 0.50-0.79 | 99.4 | <0.0001 |
| Correlative        | 6                                             | 1153                      | 78                        | 0.53-1.02 | 99.7 | <0.0001 |
| Other              | 3                                             | 421                       | 78                        | 0.58-1.01 | 98.1 | <0.0001 |
| Hospital           |                                               |                           |                           |
| Public and private | 27                                            | 4253                      | 70                        | 0.60-0.80 | 99.3 | <0.0001 |
| Military           | 3                                             | 377                       | 55                        | 0.04-1.05 | 99.3 | <0.0001 |
| Total prevalence   | 30                                            | 4630                      | 69                        | 0.58-0.79 | 99.4 | <0.0001 |
The prevalence of job stress based on geographical region and the CIs is illustrated in Figure 2.

Gray-Taft nursing stress scale and Osipow’s Job Stress tool were used in 11 and 6 studies, respectively. The estimated prevalence of job stress was calculated to be 85% (CI 95%: 0.79–0.91) and 38% (CI 95%: 13%–63%) by the first and the second tool. Table 2 lists the studies based on the type of study and hospital.

Figures 3 and 4 indicate that there is no relationship between the prevalence of nurses’ job stress and sample size (\(P = 0.921\)) and also date of publishing (\(P = 0.720\)).

As shown in Figure 5, Egger regression test showed that publication bias was not statistically significant (\(P = 0.06\)).

**DISCUSSION**

By using the random effects model, the general prevalence of job stress among Iranian nurses was estimated to be 69% (CI 95%: 0.58–0.79). The results indicated a high prevalence of job stress among Iranian nurses. Mwinga and Mugala reported that job stress among Zambian nurses was about 93%,[45] which is consistent with our findings. Given the stressful nature of the nursing profession, high level of job stress among nurses is not surprising. Al Hosis et al. studied 152 nurses working in Saudi Arabia and concluded that 34.2% of them suffered from moderate to severe job stress.[46] This result is not consistent with our finding. This inconsistency could be because of the organizational structure and management
A survey showed that patient’s death[8,9,35,39] and conflict with physicians[30,31,38] was among the top stressors. Because the nature of the nurses’ job required them to build a close relationship with patients and their families. Thus, watching patients on their death bed has always been stressful for nurses.[9] Regarding conflicts between physicians and nurses, it is notable that nurses and physicians seek the same medical goal; however, because of their professional role, they tend to have different perceptions of the patient’s needs so that they adopt different health care approaches.

No meta-analysis studies were discovered regarding the prevalence of job stress in national and international databases. Based on Gray-Taft nursing stress scale, the highest level of job stress was reported 85% (CI 95%: 0.79–0.91) among the studies. The highest stress level among nurses was reported 90% (CI 95%: 0.85–0.96) according to the studies conducted in region 1 of the country. According to Rahimi’s findings, the highest level of stress was 98%.[9] Shahraki Vahed and Mortaghi Ghasemi both reported that the highest stress level among nurses was 97.4%.[18,20]

Estimating the general prevalence of job stress among Iranian nurses is a distinguishing feature of the present study. Some limitations of this study were failure to appraise the methodological quality of the articles, unavailability of the full text of some articles, and lack of a conventional report system for domestic articles. Despite different reports about the prevalence of job stress among nurses in different studies, the general prevalence of job stress among Iranian nurses is considerably high so that three-fourths of nurses complain about job stress. Therefore, it is vital to take effective measures to reduce job stress among nurses.

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**Conflicts of interest**

There are no conflicts of interest.

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