Review Article

Job burnout among nurses in Iran: A systematic review and meta-analysis

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ABSTRACT

Background: Job burnout is a major problem among nurses. The three dimensions of job burnout include emotional exhaustion (EE), depersonalization (DP), and low personal accomplishment (PA). **Objectives:** The aim of this study was to determine the mean of job burnout among nurses in hospitals affiliated to Medical Sciences Universities in Iran. **Methods:** This was a systematic review and meta-analysis. An online search was performed in the PubMed, Web of Sciences, Scopus, Google Scholar, Scientific Information Database, Medlib, Iranmedex, Magiran, Civilica, Noormags, and Irandoc databases. The search keywords were "burnout," "job burnout," "occupational burnout," "nurses," "nursing staff," and "Iran." Critical appraisal of eligible studies was performed using the Critical Appraisal Skills Program checklist. The first author's name, publication year, sample size, and the mean scores and standard error values of the different dimensions of job burnout were extracted from each included study. The random-effects and the fixed-effect models were used for the meta-analysis. The Cochran's Q test, the I^2 index, and the Egger's regression analysis were used. **Results:** Nineteen studies with a total sample of 3926 nurses were included in the meta-analysis. The overall means of the EE, DP, and low PA dimensions of job burnout were 21.19 (95% confidence interval [CI]: 19.28–23.11), 7.85 (95% CI: 6.26–9.43), and 28.89 (95% CI: 27.10–30.67), respectively. The I^2 index values of these dimensions were, respectively, 96.6%, 99.4%, and 97.8%, indicating high heterogeneity among the studies. The Egger's regression analysis showed that there was no evidence of publication bias in the studies (P = 0.08). **Conclusion:** Job burnout among nurses in Iran is moderate in the EE and the DP dimensions and high in the low PA dimension. Strategies are needed to improve nurses' work conditions, fulfill their needs, and thereby, reduce their job burnout.

KEYWORDS: *Iran, Job burnout, Meta-analysis, Nurses, Systematic review*

INTRODUCTION

Nurses play critical roles in restoring patients' physical and mental health. Meanwhile, they are under high strain and stress due to their

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difficult work conditions.[1-3] Job burnout (JB) is a psychological syndrome that includes emotional exhaustion (EE), depersonalization (DP) (feeling irresponsive and indifferent to clients), and low personal accomplishment (PA). A systematic review and meta-analysis on studies conducted in 49 different countries reported that the prevalence of JB among nurses was 11.23% in the world, 13.68% in South-east Asia and the Pacific, 10.51% in Latin America and the Caribbean area, 10.27% in North America, 10.06% in Europe and Central Asia, 8.94% in sub-Saharan Africa, and 4.86% in the Middle East and North Africa.[4] A systematic review in Iran also suggested that the prevalence of JB among nurses in Iran was 36%, denoting that one-third of nurses suffered from JB.[5]

Many different factors can contribute to JB among nurses. These factors include direct contacts with patients and their suffering,[6,7] taking care of patients with acute or incurable conditions,[2] low professional autonomy,[8] and role ambiguity and conflict.[9] Other factors contributing to JB include inadequate income, inability to adapt to work environment, long-term exposure to occupational and emotional stress, and excessive energy expenditure which leads to reduced job motivation, energy depletion, and fatigue.[10]

JB is associated with negative attitude toward self and job, reduced personal, professional, and organizational communications,[11,12] chronic fatigue, sleep disorders, different physical symptoms, pessimism toward colleagues and patients, and ineffective professional performance.[13,14]

Despite the importance and the negative consequences of JB, there are no reliable data on the mean score of JB among nurses working in hospitals affiliated to Medical Sciences Universities in Iran. Therefore, the present study was conducted to narrow this gap.

Objectives

The aim of this study was to determine the mean of JB among nurses in hospitals affiliated to Medical Sciences Universities in Iran.

Methods

This systematic review and meta-analysis were conducted in 2020 according to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis protocol.[15]

Search strategy

An online literature search was done in the English databases of PubMed, Web of Sciences, Scopus, and Google Scholar, and Persian databases of Scientific Information Database, Medlib, Iranmedex, Magiran, Civilica, Noormags, and Irandoc databases. Search keywords were "burnout," "job burnout," "occupational burnout," "nurses," "nursing staff," and "Iran." Moreover, the reference lists of the retrieved studies were manually reviewed for more eligible studies. Literature search was done in December 20–31, 2019. Appendix 1 shows the search strategy used for English databases.

Selection of studies

Search results were imported into the EndNote X9 program for better data management and recognizing duplicate records. After removing the duplicate records, two reviewers independently assessed the titles and the abstracts of the studies for eligibility. Then, they retrieved the full-texts of eligible studies and reviewed them. Eligibility criteria were cross-sectional design, having findings related to JB among nurses working in university-affiliated hospitals in Iran, publication in English or Persian, publication between March 21, 2001, and December 31, 2019, use of the Maslach Burnout Inventory for JB assessment, and accessible full-text. Gray literature and studies on other health-care providers were not included.

Maslach Burnout Inventory has 22 items in three main dimensions, namely EE, DP, and low PA.[16] The validity of the inventory has been confirmed in different languages and contexts.[4]

Data extraction

The first author's name, publication year, sample size, mean scores, and standard error values of the different dimensions of JB were extracted from each included study. Extracted data were entered into a data sheet in the Microsoft Excel 2013 software (Microsoft Corporation, Redmond, Washington, USA).

Critical appraisal of the studies

The Critical Appraisal Skills Program checklist for cross-sectional studies was used to appraise the methodological quality of the included studies. This checklist includes 12 items on the attributes of each study, including aim, sample size, sampling method, sample representativeness, selection bias, data collection instrument, validity and reliability of the instrument, and response rate. Studies with a score of 8 or more for the checklist were included in the final analysis.[17]

Data analysis

Data analysis was performed using the STATA 13 software with the meta analysis package (StataCorp LLC, College Station, Texas, USA). The random-effects and the fixed-effect models were used for the meta-analysis. The heterogeneity of the studies was assessed using the Cochran's Q test and the I^2 index. The overall mean

and the confidence interval (CI) of each JB dimension were calculated through an independent meta-analysis. Sensitivity analysis was also performed to determine the effect of each study on the overall result. Moreover, the funnel plot and the Egger's regression analysis were used, respectively, for qualitative and quantitative assessment of publication bias.

Results

Initially, 1235 studies were found. Eligibility assessment and critical appraisal revealed that 19 studies were eligible and appropriate for the meta-analysis [Figure 1]. All these studies were cross-sectional. The total population of the meta-analysis composed of 3926 nurses. Table 1 shows the characteristics of these studies. Some of the included studies had not reported the total JB score and instead, had reported the total JB score according to their participants' characteristics such as gender and marital status. We included these studies into meta-analysis as two independent studies [Table 1].

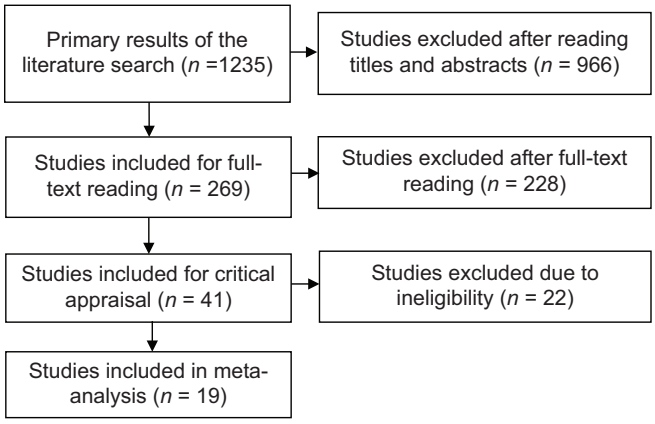

Figure 1: Study flow diagram

Sensitivity analysis to evaluate the effects of each study on the overall result showed that none of the studies had significant effects on the overall mean. Based on the results of Cochran's Q test and the I^2 index, the random-effects model was used to report the final results.

The overall mean of JB in the EE dimension was 21.19 with a 95% CI of 19.28–23.11. The result of the Cochran's *Q*-test was statistically significant ($P < 0.001$) and the I^2 index was 96.6%, indicating that the heterogeneity among the studies was significantly high. Figure 2 shows the forest plot for the EE dimension of JB.

The overall mean of the PA dimension of JB was 28.89 with a 95% CI of 27.10–30.67. The result of the

Table 1: The characteristics of the reviewed studies

Study author (s)			Dimensions, mean (SE)		
	Province	Sample size	EE	PA	DP
Karaman Özlü *et al*. (2017)[18]	Azerbaijan	92	25.47 (0.95)	31.57 (0.55)	9.35 (0.41)
Amini (2013)[19]	Tehran	304	22.33 (0.67)	34.05 (0.55)	7.83 (0.43)
Pordanjani (2014)[20]	Khuzestan	300	28.61 (0.84)	33.6 (0.68)	10.6 (0.48)
Bazazan *et al*. (2016)[21]	Tehran	362	19.56 (0.66)	28.91 (0.54)	5.93 (0.38)
Jamshidian-GhalehShahi *et al*. (2014)[22]	Isfahan	146	24.64 (0.76)	26.39 (0.76)	10.63 (0.38)
Heshmat *et al*. (2012)[23]	Tehran	200	31.3 (0.59)	23.1 (0.42)	10.9 (0.30)
Khani *et al*. (2015)[24]	Isfahan	120	22.64 (1.05)	33.24 (0.48)	7.6 (0.40)
Khazaei *et al*. (2005)[25]	Khorasan	32	20.8 (1.75)	34.9 (1.48)	13.2 (0.57)
Khazaei *et al*. (2005)[25]	Khorasan	88	16.3 (1.11)	32.4 (1.20)	11.3 (0.41)
Khalatbary *et al*. (2016)[26]	Mazandran	400	16.4 (0.52)	31.41 (0.37)	4.9 (0.23)
Delaram *et al*. (2016)[27]	Khuzestan	39	12.84 (1.37)	28.3 (1.14)	5.94 (1.11)
Delaram *et al*. (2016)[27]	Khuzestan	112	16 (0.98)	29.49 (0.74)	5.5 (0.49)
Rahimi-Zarchi *et al*. (2016)[28]	Fars	33	20.6 (1.85)	24.57 (1.20)	8.9 (0.86)
Rahimi-Zarchi *et al*. (2016)[28]	Fars	212	21.16 (0.78)	24.75 (0.47)	8.83 (0.37)
Namnabati *et al*. (2016)[29]	Isfahan	86	21.28 (0.87)	22.6 (0.58)	2.6 (0.03)
Safaeifar *et al*. (2016)[30]	Tehran	55	18.65 (1.56)	28.2 (1.27)	5.87 (0.79)
Safaeifar *et al*. (2016)[30]	Tehran	52	17.11 (1.40)	34.73 (1.24)	4.89 (0.55)
Sadeghi *et al*. (2016)[31]	Hamedan	299	19.1 (0.80)	27.8 (0.64)	7.4 (0.41)
Abbasinia *et al*. (2015)[32]	Isfahan	97	23.02 (1.19)	28.69 (1.12)	11.55 (0.62)
Abbasinia *et al*. (2015)[32]	Isfahan	163	23.85 (0.91)	31.11 (0.80)	11.06 (0.53)
Gholami *et al*. (2015)[33]	Hamedan	415	25.13 (0.61)	33.3 (0.47)	5.91 (0.25)
Hashemian *et al*. (2015)[34]	Kermanshah	103	27.91 (1.27)	34.9 (1.24)	10.8 (0.61)
Yaghubi *et al*. (2015)[35]	Khorasan	110	16.5 (1.09)	33.4 (1.02)	5.3 (0.42)
Ghassemi and Yousefy (2006)[36]	Isfahan	51	16.64 (1.06)	13.82 (1.38)	4.96 (0.77)
Ghassemi and Yousefy (2006)[36]	Isfahan	55	21.07 (1.20)	15.87 (1.57)	4.38 (0.69)

EE: Emotional exhaustion, DP: Depersonalization, PA: Low personal accomplishment, SE: Standard error

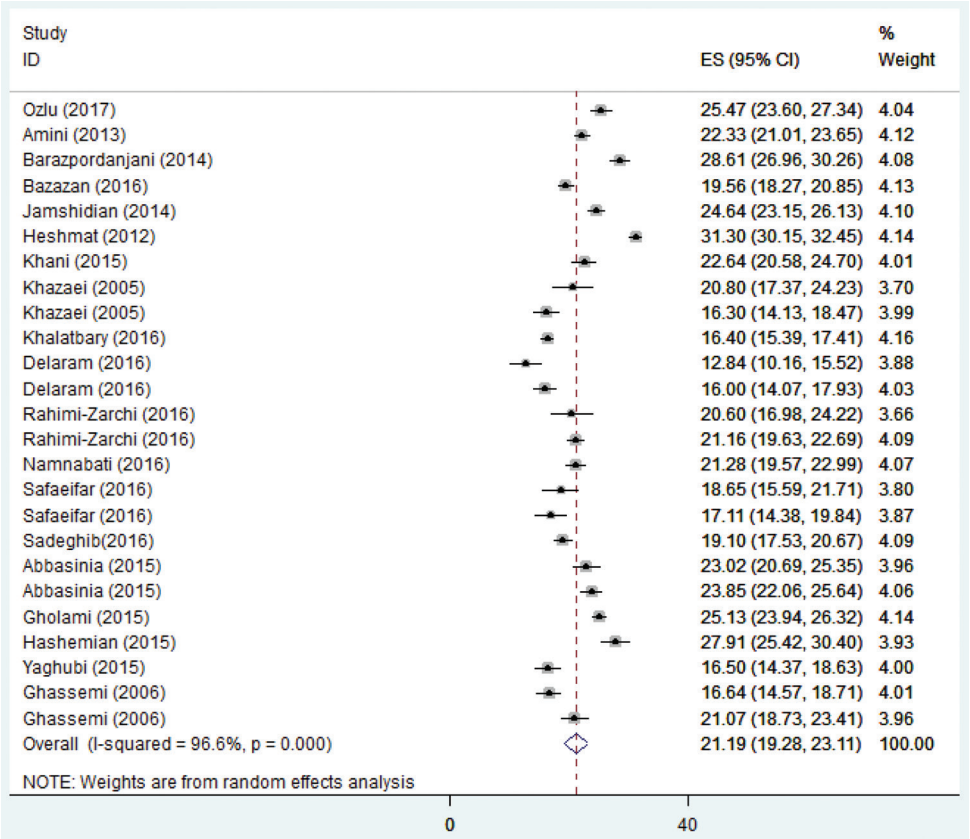

Figure 2: The forest plot for the emotional exhaustion dimension of job burnout

Cochran's *Q*-test was significant ($P < 0.001$) and the I^2 index was 97.8%, implying that the heterogeneity among the studies was significantly high. Figure 3 shows the forest plot for the PA dimension of JB.

The overall mean of the DP dimension of JB was 7.85 with a 95% CI of 6.26–9.43. The result of the Cochran's Q test was significant ($P < 0.001$) and the I^2 index was 99.4%, denoting that the heterogeneity among the studies was significantly high. Figure 4 shows the forest plot for the DP dimension of JB.

The funnel plot was used for the qualitative assessment of publication bias and the Egger's regression analysis was used for the quantitative assessment of publication bias. The funnel plot [Figure 5] was relatively symmetrical, indicating that there was no significant publication bias. The result of the Egger's regression analysis was not statistically significant ($P = 0.08$), implying no evidence of publication bias in the studies.

Discussion

The findings showed that the overall means of the EE, DP, and PA dimensions of JB were 21.19, 7.85, and 28.89, respectively. Based on Maslach Burnout Inventory, scores ≥30 on EE, ≥12 on DP and ≤33 on PA are considered high burnout; scores of 18–29 on EE, 6–11 on DP and 34–39 on PA were considered moderate burnout; and scores of ≤17 on EE, ≤5 on DP and ≥40 on PA were considered low burnout.[16] Findings denote that nurses in university-affiliated hospitals in Iran suffered from moderate JB in the EE and the DP dimensions and high JB in the PA dimension. Consistent with these findings, a former systematic review into JB among emergency nurses reported moderate JB in the EE dimension (overall mean = 25.552) and high JB in the DP (overall mean = 10.383) and the PA (overall mean = 30.652) dimensions.[37]

The possible reasons for high JB in the AP dimension may be inadequate work experience of younger nurses,[38] patients' mistreatment and hostility toward nurses,[39] and nurses' limited assertiveness.[40] Factors such as inadequate family support,[41] having an unemployed spouse,[1] heavy workload, and limited control over work environment[42,43] can also contribute to high JB in the PA dimension. Karaman Özlü *et al.* in a study concluded that high number of working hours and high number of patients can contribute to high JB in the low PA dimension among Iranian nurses[18] which is consistent with the result of several studies in other countries.[44-46] Furthermore, Bazazan *et al.* studied 450 nurses working in public hospitals of Iran and reported that the mean score of

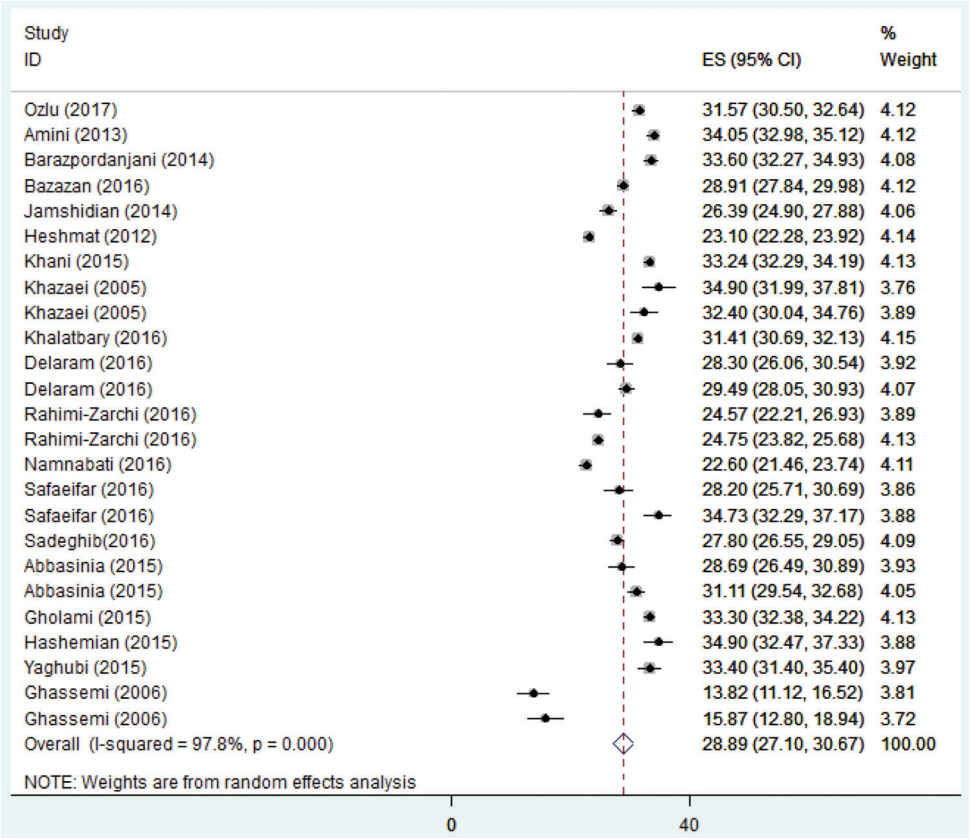

Figure 3: The forest plot for the low personal accomplishment dimension of job burnout

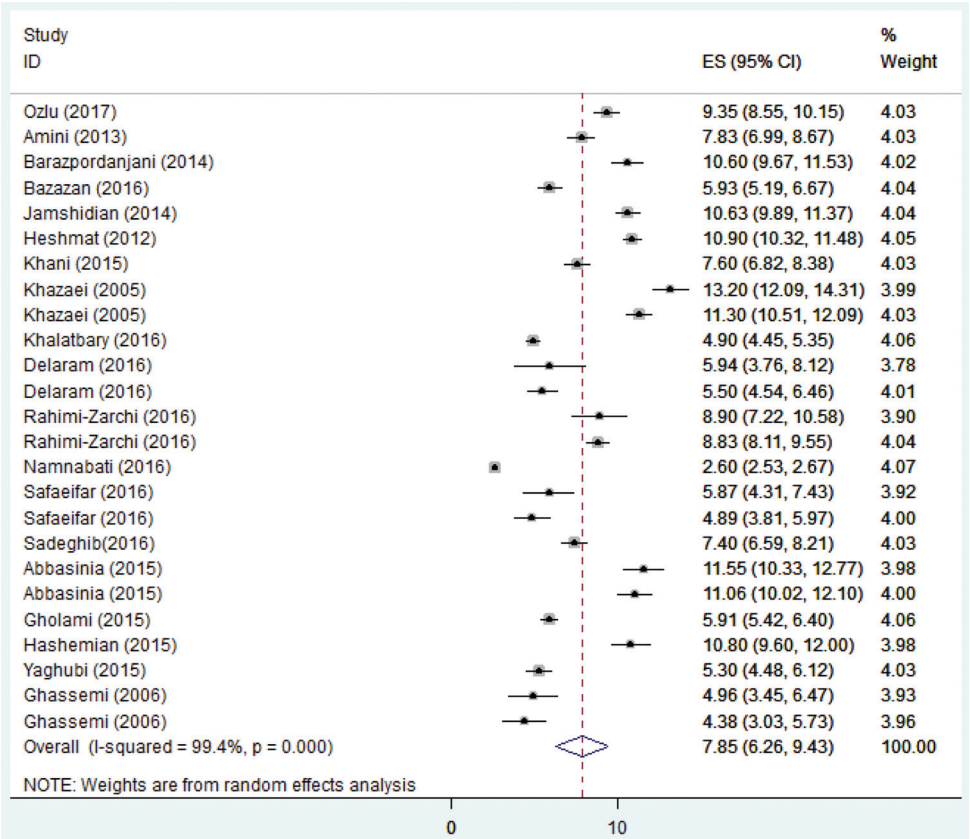

Figure 4: The forest plot for the depersonalization dimension of job burnout

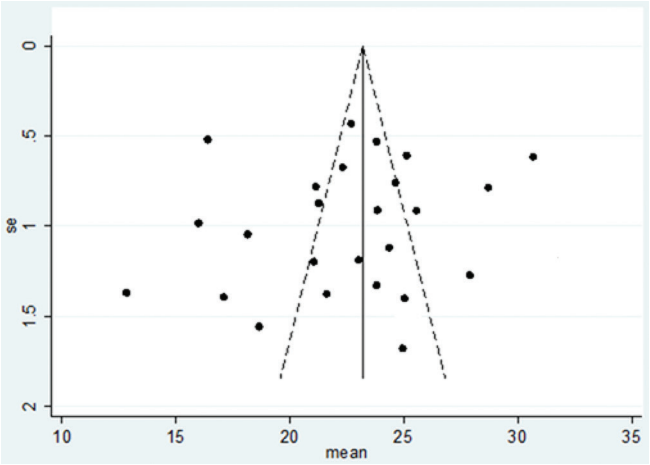

Figure 5: The funnel plot with pseudo 95% confidence limits

nurses' job satisfaction had significant positive correlation with their PA so that nurses with greater job satisfaction had higher PA.[21] Several studies in other countries found that job satisfaction had significant negative relationship with JB.[47-49] A systematic review also showed that the prevalence of JB among nurses in Iran was 36%, i.e., more than one-third of them suffered from JB.[7] High JB is associated with low care quality and increased risk of clinical errors.[50-52] Therefore, effective strategies are needed to reduce JB among nurses in Iran.

The main strength of the present study was the determination of the overall means of JB dimensions among nurses in university-affiliated hospitals in Iran using a systematic review and meta-analysis design. One of the main limitations of the study was inaccessibility to the full-texts of some potentially eligible studies. Moreover, the heterogeneity among the included studies was high due to the fact that the reviewed studies had been conducted in different hospital settings in different sociocultural contexts in Iran. Therefore, findings should be interpreted with caution. Further studies are needed to provide better understanding about JB among nurses in Iran, its contributing factors, and strategies for its effective management.

Conclusion

Nurses in Iran suffer from moderate JB in the EE and the DP dimensions and high JB in the PA dimension. As nurses' JB can negatively affect patients and health-care organizations, strategies are needed to identify nurses who are prone to or suffer from JB and to provide them with necessary care to manage their JB. Adequate social support and in-service training are also needed to help nurses more effectively manage their stress and emotions. Studies are recommended to assess causal relationships between JB and its potential personal and environmental risk factors.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1: Search strategy used for English databases

PubMed

((((((((("Burnout, Professional"[Mesh]) OR burnout[Title/Abstract]) OR("Occupational burnout"[Title/Abstract])) OR("Job burnout"[Title/Abstract])) OR (Depersonalization[Title/Abstract])) OR("Emotional exhaustion"[Title/Abstract])) OR("personal accomplishment"[Title/Abstract])) AND (IRAN[Text Word])) AND (("Nurses"[Mesh]) OR ((NURSES[Title/Abstract]) OR ("NURSING STAFF"[Title/Abstract]))))))))))

Scopus

((TITLE-ABS-KEY (burnout) OR TITLE-ABS-KEY ("job burnout") OR TITLE-ABS-KEY ("Occupational burnout") OR TITLE-ABS-KEY (depersonalization) OR TITLE-ABS-KEY ("Emotional exhaustion") OR TITLE-ABS-KEY ("personal accomplishment"))) AND (ALL (Iran)) AND ((TITLE-ABS-KEY (nurses) OR TITLE-ABS-KEY ("nursing staff")))

Web of sciences

(TS=(burnout) OR TS=("job burnout") OR TS=("Occupational burnout") OR TS=(depersonalization) OR TS=("Emotional exhaustion") OR TS=("personal accomplishment")) AND (TS=(Iran)) AND (TS=(nurses) ORTS=("nursing staff"))