The prevalence of occupational stress among Iranian midwives: a systematic review and meta-analysis

Abstract

Background **Occupational stress is one of the undesirable risk factors found in the midwifery profession. It can lead to job burnout, job loss and negatively affect the quality of patient care. This study aimed to estimate the prevalence of occupational stress among Iranian midwives.**

Methods **Through searching national and international databases, a total of 11 observational studies with full texts were extracted. Observational studies in Persian or English that reported the prevalence or frequency of job stress among Iranian midwives were included in the analysis. Irrelevant studies, those conducted on midwifery students and gray literature were excluded. The meta-analysis was conducted using the random-effects model.**

Results **11 articles reviewed occupational stress in 1196 midwives (an average of 108 midwives per study). Analysis of the articles showed that the pooled prevalence of occupational stress was 70.82% in Iranian midwives. Meta-regression analysis showed that the prevalence of occupational stress was not related to mean age, work experience, articles' publication year or sample size.**

Conclusions **The prevalence of occupational stress is high among Iranian midwives and it can have harmful consequences for them and their patients. Therefore, the training of stress coping strategies seems to be appropriate for this group.**

Keywords

Occupational stress | Midwife | Meta-analysis | Iran

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Occupational stress is a known risk factor that can cause behavioral, psychological, and medical problems (Quick and Henderson, 2016). As a result of their professional nature, the possibility of healthcare providers being exposed to stress is higher than in other employees (Bruschini et al, 2018).

Occupational stress causes absenteeism, early retirement, and reduced working years in health workers (Bernburg et al, 2016). It has been identified as a major concern around the world (Seňová and Antošová, 2014). Occupational stress can be associated with multiple problems. These can be psychological, including anxiety, depression, fatigue, irritability, aggression, impulsive behavior, overeating, inability to make decisions, poor focus and low attention (Jahromi et al, 2016; Favrod et al, 2018; Chegini et al, 2019). They can also be physical, including migraine, tachycardia, hypertension, musculoskeletal pain, rheumatoid arthritis, pulmonary and digestive disorders (Mollart et al, 2013). Organisational issues such as low productivity, conflicts with colleagues, job dissatisfaction, reduced commitment to the organisation, and poor quality of health services have also been found (Favrod et al, 2018; Rasool et al, 2020). These complications are non-specific responses that the body exhibits against unmet needs that it encounters (Masoumi et al, 2013).

Midwifery is a stressful profession that deals with pregnancy, childbirth and the postpartum period (Creedy et al, 2017). Midwives' mental health and wellbeing impact their provision of health services to mothers and infants (Ilieva et al, 2017). Various studies have been conducted on factors that can impose stress on midwives. Workload, inadequate work resources, shift work, conflicts with coworkers and physicians and meeting the high expectations of patients and families have been found to impose stress on midwives (Knezevic et al, 2011; Mollart et al, 2013; Geraghty et al, 2019). Managerial and organisational issues, interpersonal relationships, lack of support, responsibility for the health and death of mothers and their babies, a lack of equipment, exposure to unexpected situations, high noise at work, job rotation and heavy workload are also

all causes of stress (Elmir et al, 2017; Geraghty et al, 2019). A study reported that environmental issues such as exposure to blood and blood-borne pathogens can lead to considerable stress among midwives (Nwankwo et al, 2020). The most important midwifery profession stressors include crises during childbirth, risks of mothers' and infants' lives and legal issues related to them (Elmir et al, 2017; Kerkin et al, 2018). Rezaei et al (2020) reported that inadequate knowledge and poor clinical skill of midwifery students and their lack of support cause stress in the clinical setting.

In Iranian culture, having children is seen as a great blessing, and midwifery has always been a highly respected profession throughout history. Iranian midwives provide care for women during pregnancy, labour and the postpartum period, as well as providing care for newborns, infants and children up to 6 years old (Ministry of Health and Medical Education of Iran, 2001). Although midwifery has been described as an independent profession in Iran (Moghasemi, 2018), midwives do not work independently from other health professionals. For example, gynecologists are involved before, during and after labour (Sandall, 2016). Iranian midwives face many challenges in the workplace that can be stressful. Some of the most important challenges are low motivation because of low income, excessive workload, staff shortages, and unrealistic expectations of mothers from midwives (Firouznia, 2019).

Studies have indicated that occupational stress can negatively affect midwives' delivery of care and their emotional, psychological, and physical wellbeing (Grech and Hili, 2019). Thus, midwives' wellbeing can affect the health of pregnant mothers and newborns (Sabzevari and Rad, 2019). Identifying the job stress situation in Iranian midwives is the first step to providing healthcare interventions to reduce stress in the workplace and improve the quality of midwifery care. In Iran, numerous studies have examined the prevalence of occupational stress in midwives but reported different results (Kordi et al, 2014; Nourani Saadoldin et al, 2016; Rezaei et al, 2020). Therefore, the overall prevalence of stress among Iranian midwives remains unknown. To clarify contradictory results in this field, this study investigated and estimated the overall prevalence of occupational stress in Iranian midwives

Methods

In this systematic review and meta-analysis, the prevalence of occupational stress among Iranian midwives was assessed using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guideline (Page and Moher, 2017). The authors searched national and international databases with no time limitation to find relevant articles. The search was conducted between 1 October 2019 and 1 November 2019. The scientific information database, Magiran, the Web of Science, Scopus, Cochrane Library, ProQuest, Google Scholar and PubMed databases were searched.

The keywords for the search included job stress, job-related stress, occupational stress, work-related stress, workplace stress, midwife, midwives, obstetrician and Iran. Searches were made backward (reviewing the list of references for eligible articles) and forward (reviewing the papers that were cited in eligible studies) to access further articles.

Data extraction and quality assessment

Initially, two researchers reviewed the articles in which the prevalence of occupational stress in midwives was reported. Some studies reported occupational stress in terms of whether it was mild, moderate or severe. The authors considered individuals with moderate and severe stress as midwives with occupational stress.

The inclusion criteria were that the studies were observational, in Persian or English, and full texts. Irrelevant studies, those conducted on midwifery students and gray literature were excluded. Two independent researchers searched for the articles, and conducted study selection, quality assessment and data extraction to minimise bias. An expert researcher with sufficient knowledge regarding meta-analysis studies was asked to make the final decision if there was a disagreement among the researchers.

After reading each article, a pre-designed form was used to record information such as the first author's name, publication year, the place where the study was conducted, total sample size, age, work experience and prevalence of occupational stress among midwives. The 10 selected items of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist were used to assess the quality of articles methodologically (Lachat et al, 2016):

- Title and abstract
- Goals and hypotheses
- Research environment
- Inclusion criteria
- Sample size
- Statistical methods
- Descriptive data
- Interpretation of findings
- Research limitation
- Funding.

Data analysis

The ratio of midwives with occupational stress to all midwives was used to calculate the prevalence of occupational stress. The binomial distribution formula was used to calculate the standard error of each study's prevalence of occupational stress. Heterogeneity between

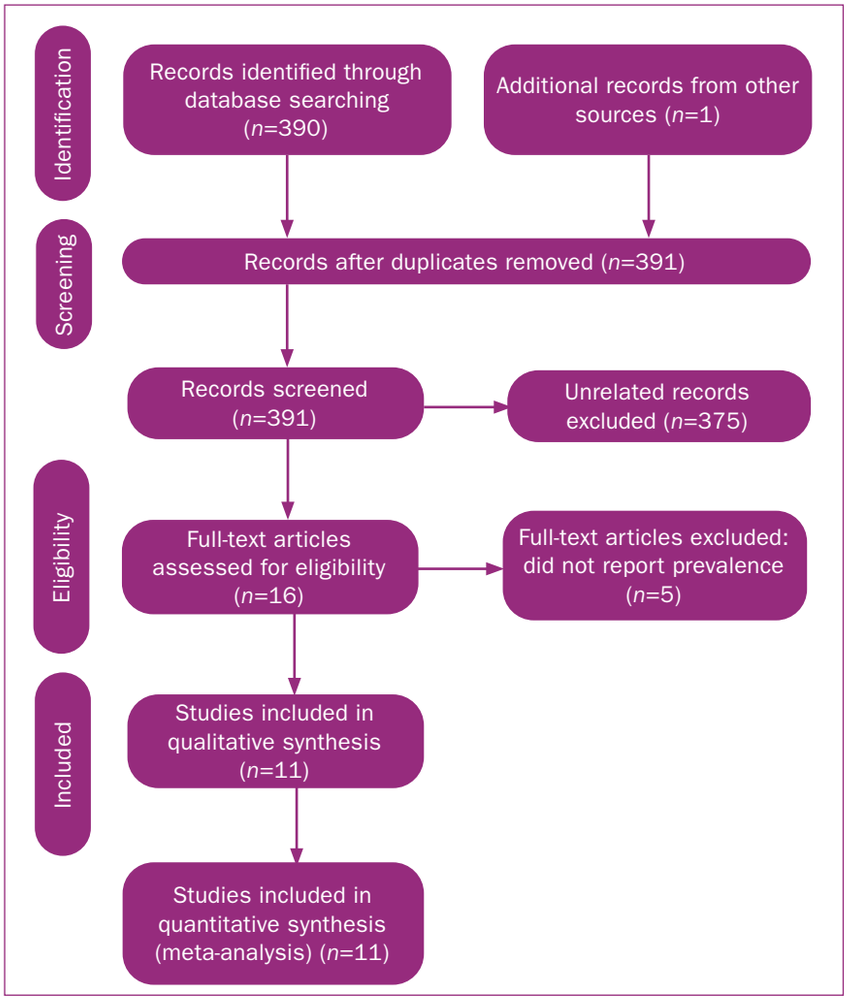

Figure 1. Flowchart of screening and selection process

studies was tested using the Chi-squared test and I^2 index, which found that the studies were heterogeneous ($P<0.05$ and $I^2>50\%$) (Higgins and Thompson, 2002). The random-effects model was used because of the high heterogeneity of data. A forest plot with a 95% confidence interval was used to estimate the point prevalence of occupational stress. Egger's funnel plot examined publication bias (Egger et al, 1997). A sensitivity analysis was used to ensure the stability of the results. The data were analysed using STATA software version 12 (Stata Corp, College Station, TX).

Results

The initial search found 407 articles, 391 of which were excluded as they were found to be unrelated articles from the analysis in the identification and screening stage. Of the 16 remaining articles, five did not report prevalence and were excluded. The final 11 articles were analysed on midwives' occupational stress. A single-worded search was conducted because the national databases were not susceptible to Boolean operators. The process of searching and screening articles is presented in *Figure 1*.

The 11 articles reviewed occupational stress in 1196 midwives (an average of 108 midwives per study). The sample size varied between 60 and 150. More details on each paper are reported in *Table 1*.

Publication bias was used to check if all studies that investigated occupational stress among midwives were included in the research, and was found to be significant ($P=0.004$) (*Figure 2*). The sensitivity analysis results also showed that the exclusion of each study alone did not affect the overall prevalence of occupational stress.

The pooled prevalence of occupational stress was 70.82% (95% confidence interval: 57.69–83.95) for midwives (*Figure 3*). Nine studies were conducted in Mashhad, Kerman, Zahedan, and Yazd (which make up region 5 of the five regions in Iran).

Sensitivity analysis showed that none of the studies independently had a significant impact on the pooled prevalence of occupational stress. Meta-regression analysis showed that the prevalence of occupational stress was not related to mean age ($P=0.653$), work experience ($P=0.863$), article publication year ($P=0.158$), or sample size ($P=0.292$) (*Figure 4*). Though not significant, the trends in the graphs show that occupational stress decreased with age and sample size, as well as showing a decrease over the years of publication, and that it increased with work experience (*Figure 4*).

Discussion

This systematic review and meta-analysis was conducted to estimate the prevalence of occupational stress in Iranian midwives for the first time, which was 70.82%. In other words, nearly two-thirds of Iranian midwives suffer from occupational stress, which could harm their work quality. Exacerbating occupational stress can lead to adverse consequences such as reduced motivation and efficiency, which can endanger the health of the vulnerable patients (Jahromi et al, 2016). Occupational stress can also negatively impact midwives' psychological health, leading to burnout and leaving the profession (Moghadam et al, 2016; Wright et al, 2018; Stoll and Gallagher, 2019).

Midwives experience a degree of occupational stress everywhere in the world. In Croatia, occupational stress is high. A study conducted by Knezevic et al (2011) in Croatia found that the prevalence of occupational stress was 76.6%. Midwives experienced work-related stress as a result of a number of factors, including an improper working environment, unexpected situations, working on the night shift, an inadequate number of coworkers, incurable patients, low income and poor organisation at work (Knezevic et al, 2011). Similarly, Oncel et al (2007) showed that more than half of Turkish midwives have moderate to severe occupational stress, partly as a result of the lack of opportunities for career

Table 1. Characteristics of selected papers

Study ID	Sample size	Age	Work experience (years)	Tool	Location	Prevalence (%)
Hadizadeh Talasaz et al (2017)	107	-	-	Visual analogue scale	Mashhad	35.5
Roostaee et al (2016)	150	35.2	-	Occupational stress scale	Zahedan	45.0
Nourani Saadoldin et al (2016)	122	38.4	12.9	Karasek	Mashhad	76.0
Safaei et al (2016)	60	41.2	15.2	Cordon	Tabriz	83.3
Kordi et al (2014)	123	-	-	Occupational stress assessment questionnaire	Mashhad	71.0
Kordi et al (2013)	150	20.3	-	Karasek	Mashhad	84.3
Sabooteh (2013)	106	32.3	7.76	Davis	Isfahan	54.3
Mohamadirizi et al (2013)	150	-	-	Karasek	Mashhad	78.6
Hashemi Nejad et al (2013)	74	32.6	8.5	Altmaier	Kerman	98.7
Mohammadian et al (2013)	74	32.7	8.5	Altmaier	Kerman	98.6
Enjezab (2002)	80	29.5	6.87	Altmaier	Yazd	88.0

promotion. In Australia and the USA, the prevalence of occupational stress is lower; Creedy et al (2017) reported the prevalence in Australia as 27% and Wright et al (2018) reported the prevalence in the USA as 38.3%. In Australia, there are fewer patients per midwife, which may contribute to the low prevalence of occupational stress. In the USA, sources of stress for midwives include a heavy workload, conflict with colleagues, sleep deprivation, dual responsibility, traumatic birth, dealing with urgent cases in delivery units and an improper physical environment (Wright et al, 2018). In some Scandinavian countries, such sa Sweden, midwives have a high level of occupational stress, and Hildingsson et al (2013) found that this was related to the low level of autonomy these midwives have.

An extensive literature review found only one study relating to occupational stress in Iran. Ghaffari et al (2020) reported that high stress in Iranian midwives results from burnout because of excessive and irregular work shifts, a heavy workload, improper environmental conditions and midwives' poor mental and physical health.

Midwives are expected to respond to patients' and their families' needs in the shortest possible time, and any mistakes may lead to irreparable life-threatening situations for both mothers and infants (Mackin and Sinclair, 1998; Kordi et al, 2014). In Iran, nursing and midwifery schools are combined, and the term nurses also includes midwives. Gheshlagh et al (2017) found that the prevalence of occupational stress among Iranian nurses was 69%, which is similar to the present study's findings of occupational stress specifically among Iranian midwives.

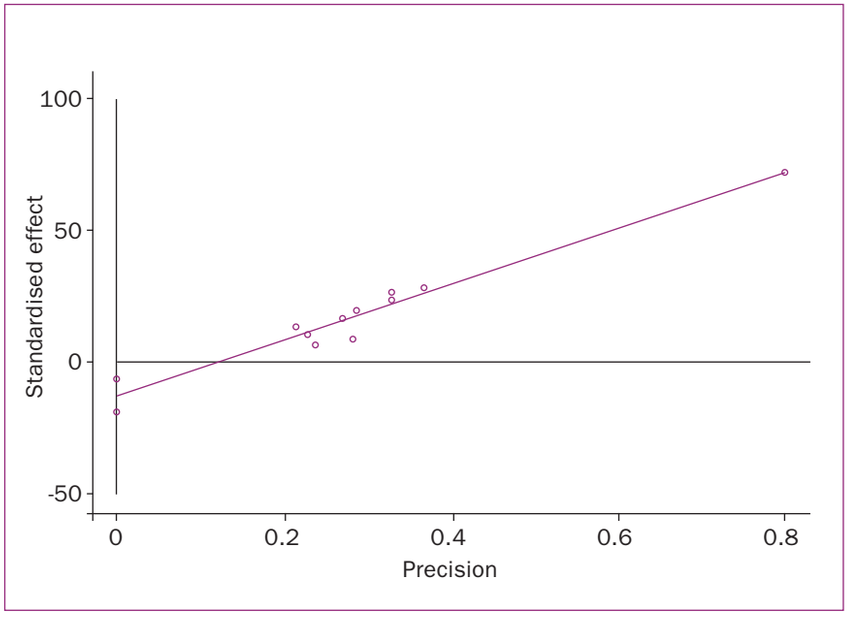

Figure 2. Egger's publication bias plot (*P*=0.004)

In Iran, the Ministry of Health has acknowledged that midwifery and nursing are among the most demanding occupations and introduced interventions to improve the prevalence of occupational stress, including allowing early retirement, increasing their salaries and

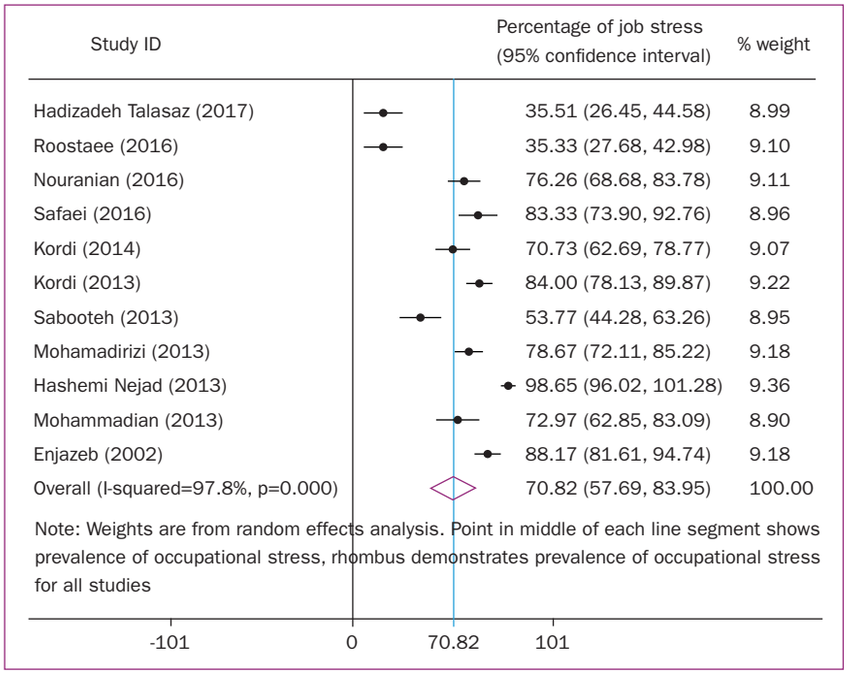

Figure 3. Occupational stress prevalence according to random effects model.

reducing their working hours (Nobahar et al, 2015; Vali et al, 2016). The meta-regression analysis showed that the prevalence of occupational stress in Iranian midwives has been declining over the years, but these changes have not been significant. It would appear that the interventions have not been sufficient to reduce midwives' occupational stress during recent years and need to be re-evaluated. The results also showed that the prevalence of occupational stress was higher in midwives with more work experience, although this change was not significant. There was also no relationship between age and the prevalence of occupational stress. Occupational stress would appear to be a widespread phenomenon that affects all midwives, regardless of their age and work experience.

Strengths and limitations

A limitation of this study was that there were not many papers that calculated prevalence of occupational stress, compared to the overall number that examined occupational stress. Some of these predicted stress based on other variables, which were not included in

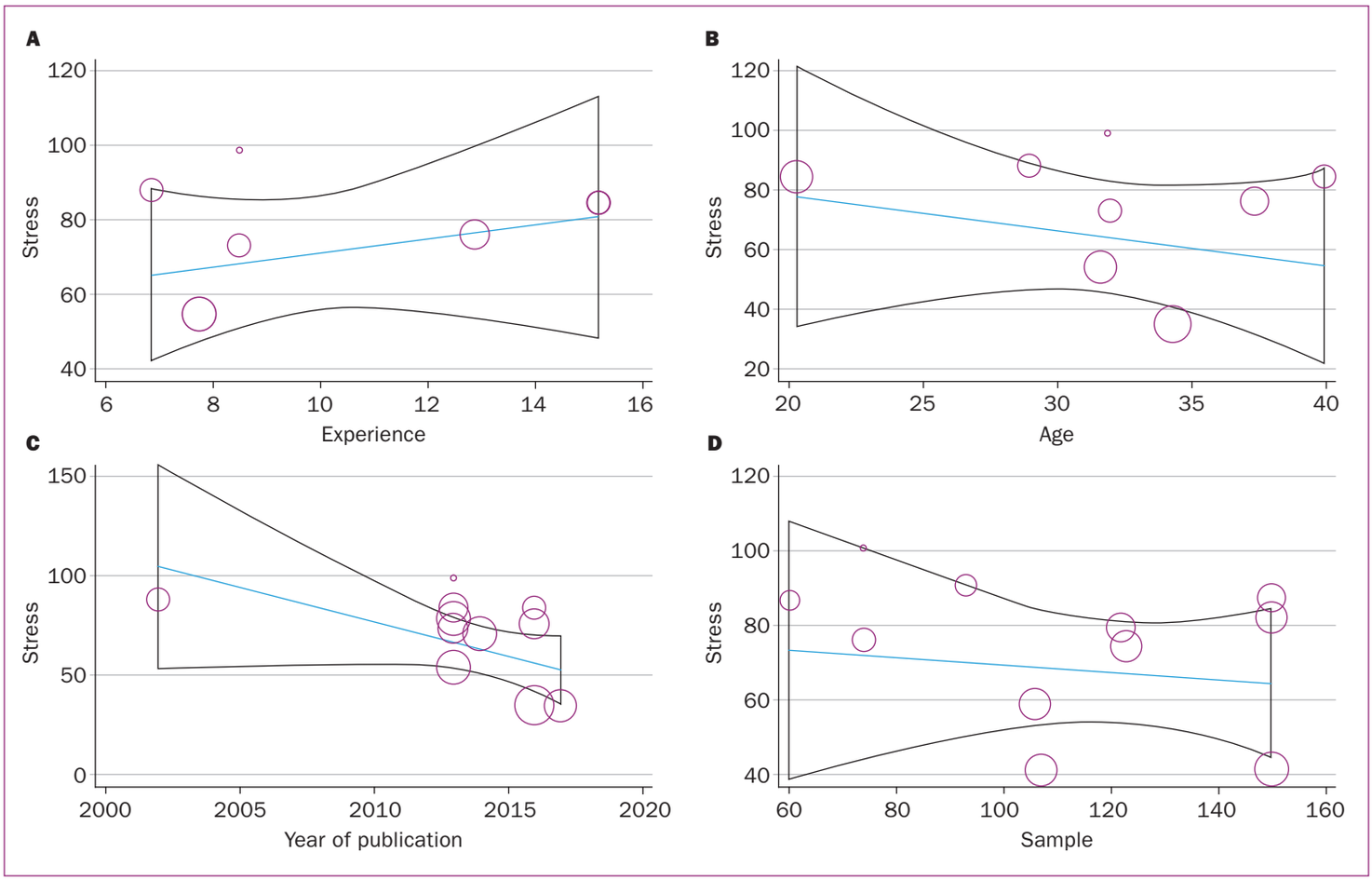

Figure 4. Meta-regression results. Relationship between occupational stress and (A) work experience, (B) age, (C) articles' publication year and (D) sample size.

this analysis. However, a strength of the study was the estimation of pooled prevalence, which was calculated in Iran for the first time by combining the results of various studies.

Conclusions

More than half of Iranian midwives suffer from occupational stress. Given the high prevalence of job stress among Iranian midwives, identifying people at risk is vital to prevent occupational errors, which can lead to life-threatening situations for mothers and infants. It is necessary to consider measures such as compulsory leave, introducing leisure tours and holding stress management classes. Also, a workplace training course regarding coping strategies would be helpful to control and manage occupational stress among midwives. BJM

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Key points

- This systematic review and meta-analysis reports the prevalence of occupational stress among Iranian midwives.
- There is a high prevalence of occupational stress among Iranian midwives, as nearly two-thirds suffer from job stress.
- There was no relationship between the prevalence of occupational stress and sample size, age, work experience and article publication year according to the meta-regression.
- Job stress can harm midwives' performance and reduce productivity, leading to life-threatening consequences for mothers and infants.
- Adopting appropriate coping strategies can reduce stress and improve performance, consequently preventing errors.

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