

# The Prevalence of Occupational Stress among Iranian Midwives: a Systematic review and Meta-analysis

**Hayedeh Rezaei**

Kurdistan University of Medical Sciences

**Naser Parizad**

Urmia University of Medical Sciences

**Reza Ghanei Gheshlagh** (✉ [Rezaghanei30@yahoo.com](mailto:Rezaghanei30@yahoo.com))

Kurdistan University of Medical Sciences <https://orcid.org/0000-0002-7414-8134>

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## Research

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# Abstract

**Background** Occupational stress in midwifery is one of the undesirable factors that can lead to job burnout and even job loss, and affect the quality of treatment and care for patients. This study was conducted to estimate the prevalence of occupational stress among Iranian midwives.

**Methods** Through searching national and international databases, including Scientific Information Database (SID), MagIran, Google Scholar, Web of Science, PubMed, and Scopus, a total of 9 observational studies with full texts were extracted. The meta-analysis was conducted using the random effects model, and the  $I^2$  index was used to assess heterogeneity between studies. The analyses were performed using Stata software, version 11.

**Results** An analysis of 11 articles showed that the pooled prevalence of occupational stress in Iranian midwives was 70.85% (95% Confidence Interval [CI]: 58.42–83.29). Also, meta-regression analysis showed that the prevalence of occupational stress was not related to mean age ( $p = 0.653$ ), work experience ( $p = 0.863$ ), articles' publication year ( $p = 0.158$ ), and sample size ( $p = 0.292$ ).

**Conclusion** Occupational stress among Iranian midwives has a high prevalence that can have harmful consequences for them and patients. Therefore, the training of stress coping strategies seems to be appropriate for this group.

## Plain English Summary

The midwifery profession is stressful, and midwives experience high job stress during their professional careers. According to the different findings of the research, the present study was conducted with the aim of estimating the overall job stress in Iranian midwives. In this systematic review and meta-analysis, the national and international databases of Scientific Information Database (SID), MagIran, PubMed, Web of Science (WoS), and Scopus were searched without time limit. The inclusion criteria were observational studies, publication in Persian or English, and access to full text. Finally, 11 articles on midwives' occupational stress were analysed. The pooled prevalence of occupational stress in midwives was 70.82% (95% CI: 57.69–83.95). Also, meta-regression analysis showed that the prevalence of occupational stress was not related to mean age ( $p = 0.653$ ), work experience ( $p = 0.863$ ), articles' publication year ( $p = 0.158$ ), or sample size ( $p = 0.292$ ). The results of this study confirm that job stress is very common in Iranian midwives and it seems necessary to provide effective coping training.

## Background

Stress has a special relationship within each individual, in which a person considers it as a threat and it demands more than their current abilities and resources and thus endangers the comfort and convenience of the individual. Occupational stress is one of the common types of stress that can affect employees (1). Health care providers, due to their professional nature, are more likely to be exposed to stress than other employees (2). Occupational stress is one of the important causes of absenteeism, early

retirement, and reduced working years of health workers (3). The World Health Organization has identified job stress as a major concern around the world (4). Occupational stress can be associated with multiple psychological (anxiety, depression, fatigue, irritability, aggression, impulsive behavior, overeating, inability to make decisions, poor focus, and low attention) (5, 6), physical (migraine, tachycardia, hypertension, musculoskeletal pain, rheumatoid arthritis, pulmonary and digestive disorders) (7) or organizational problems (low production, conflicts with colleagues, job dissatisfaction, reduced commitment to the organization, and low quality of work) (8). All of these complications are non-specific responses that the body exhibits against the unmet needs that it encounters (9).

Midwifery is a stressful profession that deals with pregnancy, childbirth, and the postpartum period (10). Midwives' mental health and well-being have an impact on the provision of health services to mothers and infants (11). Various studies have shown that workload, inadequate work resources, shift work, conflicts with co-workers and physicians, and meeting the high expectations of patients and their families are factors that can impose stress on midwives (7, 12–14).

Managerial and organizational issues, interpersonal relationships, lack of support, responsibility for the health and death of their mother and baby, lack of equipment, exposure to unexpected situations, high noise at work, job rotation, and heavy workload are all causes of stress in this profession (3). Pine also believed that environmental issues such as exposure to blood and blood-borne pathogens could lead to considerable stress among midwives (15). Macclin also cites crisis situations during childbirth, endangering the lives of mothers and children, and legal issues related to it, as the most important stressors in the midwifery profession (16). According to Triolo et al. (1989), legal and managerial problems are the most important stressors in this profession (17). Namadi Vasoughi et al. (2008) believe that inadequate education and lack of support for midwives in the workplace cause occupational stress in them (18). The consequences of occupational stress will lead to a disruption in mental health and reduction in the quality of health services (19). In recent decades, across the globe, including Iran, the number of employed women has increased. Their personality structure is different and in the face of stress is more vulnerable. They play a significant role in family affairs and mental stress in the workplace can lead to the development of family and social disorders (20).

In Iran, various studies have examined the prevalence of occupational stress in midwives that have reported different prevalence. Considering the different results of the studies conducted in this field, this study evaluates and estimates the prevalence of occupational stress in Iranian midwives.

## **Methods**

### **Search Strategy**

In this systematic review and meta-analysis, the prevalence of occupational stress among Iranian midwives was assessed based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline (21). To find relevant articles, we searched the national databases of scientific information database (SID) and MagIran and the international databases of Web of Science, Scopus, and

PubMed without time limitation. The keywords included job stress, job-related stress, occupational stress, work-related stress, workplace stress, midwife, midwives, obstetrician and Iran. To access further articles, searches were made as back-up (reviewing the list of references for eligible articles) and forwards (reviews of papers that were cited in eligible studies).

### **Study selection and data extraction**

Initially, two researchers collected all the articles in which they referred to the prevalence of occupational stress in midwives. Some studies categorized the percentage of people with occupational stress as mild, moderate and severe. Individuals with moderate and severe stress were considered as midwives with occupational stress.

The inclusion criteria were observational studies, publication in Persian or English, and access to full text. Irrelevant studies, studies conducted on midwifery students, and gray literature were excluded. In order to minimize bias, search for articles, studies selection, quality assessment, and data extraction were conducted by two independent researchers. Any disagreement on the articles was solved in consultation. After reading each article, the required information such as first author's name, year of the study publication, the place where the study was conducted, total sample size, age, work experience, and prevalence of occupational stress among midwives were recorded in a pre-designed form. The methodological quality of articles was assessed based on the ten selected items of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (title and abstract, goals and hypotheses, research environment, inclusion criteria, sample size, statistical methods, descriptive data, interpretation of findings, research limitation and funding). (22)

### **Statistical analysis**

The prevalence of occupational stress was calculated based on the ratio of midwives with occupational stress to all midwives. The standard error of the prevalence of occupational stress was calculated for each study using the binomial distribution formula. The heterogeneity among selected studies was investigated with  $I^2$  statistic and Chi-square Q. The p-value of the  $\chi^2$ -based Q-test was less than 0.05 and the  $I^2$  statistic above 50% indicated heterogeneity between studies (23). In the case of high heterogeneity, a random effects model is used. Point prevalence of occupational stress was estimated using forest plot with 95% confidence interval (CI). Publication bias was examined with Egger's funnel plot (24). Moreover, a sensitivity analysis was used to ensure the stability of results. The data were analyzed using the Stata version 11 software.

## **Results**

We found 407 articles with the initial search of national and international databases. In the identification and screening stage, we excluded 391 unrelated articles from the analysis. Of the 16 remaining articles, 5 papers were excluded from the analysis due to the lack of reporting the prevalence. Finally, 11 articles on midwives' occupational stress were analyzed. Due to the lack of susceptibility of national databases to

Boolean operators, the search was conducted as single-worded. The process of searching and screening articles is presented in Fig. 1.

Eleven articles reviewed the occupational stress on 1196 midwives (an average of 108 midwives in each study). The sample size varied between 60 and 150 in selected papers. More details were reported in Table 1.

Table 1  
The characteristics of selected paper.

First author	Year	Sample size	Age	Work experience (year)	Tool	place	Prevalence (%)
Hadizade Talasaz (25)	2017	107	-	-	VAS	Mashhad	35.5
Roostae (26)	2016	150	35.2	-	Occupational stress scale	Zahedan	45
Nourani Saadoldin (27)	2016	122	38.4	12.9	Karasek	Mashhad	76
Safaei (28)	2016	60	41.2	15.2	Cordon	Tabriz	83.3
Kordi (29)	2014	123	-	-	QSAQ	Mashhad	71
Kurdi (30)	2013	150	20.3	-	Karasek	Mashhad	84.3
Sabooteh (31)	2013	106	32.3	7.76	Davis	Isfahan	54.3
Mohamadirizi (32)	2013	150	-	-	Karasek	Mashhad	78.6
Hashemi Nejad (33)	2013	74	32.6	8.5	Altmaier	Kerman	98.7
Mohammadian (34)	2013	74	32.7	8.5	Altmaier	Kerman	98.6
Enjezab (35)	2002	80	29.5	6.87	Altmaier	Yazd	88
VAS: visual analog scale; OSAQ: Occupational Stress Assessment Questionnaire							

To see if all studies that looked at occupational stress among midwives were included in the study or not, we used the publication bias. Publication bias was significant in this study ( $p = 0.004$ ) (Fig. 2). The results of the sensitive analysis also showed that the exclusion of each study alone had no effect on the overall prevalence of occupational stress in midwives.

The pooled prevalence of occupational stress in midwives was 70.82% (95% CI: 57.69–83.95) (Fig. 3). Nine studies were conducted in Mashhad, Kerman, Zahedan and Yazd (Region 5).

Sensitivity analysis showed that none of the studies independently had a significant impact on the pooled prevalence of occupational stress. Also, meta-regression analysis showed that the prevalence of occupational stress was not related to mean age ( $p = 0.653$ ), work experience ( $p = 0.863$ ), articles' publication year ( $p = 0.158$ ), or sample size ( $p = 0.292$ ) (Fig. 4).

## Discussion

For the first time, this systematic review and meta-analysis have been conducted to estimate the prevalence of occupational stress in Iranian midwives. The findings showed that prevalence of occupational stress in midwives was 70.82%. In other words, nearly two-thirds of Iranian midwives suffer from occupational stress, which could have a negative impact on their quality of work. In the study of Knezevic et al. (2011), occupational stress in Croatian midwives was 74% (13). Also, Oncel et al. (2007) showed that more than half of Turkish midwives have moderate to severe occupational stress (36), which is consistent with our findings. The results of various studies conducted in Australia and Ireland showed that the prevalence of occupational stress in midwives was 27% and 30%, respectively (10, 37).

The difference in these results can be attributed to the difference in hospital facilities, hospital management style, and demographic characteristics of samples in different countries.

In summary, midwives everywhere in the world experience some degree of occupational stress. They are expected to respond to the needs of patients and their families in the shortest possible time, and any mistakes may lead to irreparable life threatening situations for both mothers and babies (29, 37). Findings of Ghaneshlagh et al. (2017) showed that occupational stress in Iranian nurses was 69%, which is similar to the occupational stress of Iranian midwives (38). This comparison shows that the midwifery profession is as stressful as the nursing profession. Heavy workload and very little room for error in the delivery unit cause them to be always exposed to moderate to high stress levels.

Meta-regression analysis showed that over the years, the prevalence of occupational stress in Iranian midwives has been declining, but these changes have not been significant. During these years, it seems that programs and interventions to reduce the occupational stress of midwives have not been sufficient or effective and need to be re-evaluated. Exacerbating occupational stress can lead to adverse consequences such as reducing the effectiveness and motivation of midwives, which can endanger the health of the vulnerable patients.<sup>5</sup> With an increase in work experience, the prevalence of occupational stress was rising, but this change was also not significant. There was no relationship between the age of midwives and the prevalence of occupational stress. Occupational stress seems to be a widespread phenomenon that affects all midwives, regardless of age and work experience. One of the limitations of this study was that some articles did not report the prevalence of occupational stress. The strength of this study is that for the first time in Iran, the results of various studies were combined to estimate the pooled prevalence of occupational stress.

## Conclusion

More than half of Iranian midwives suffer from occupational stress. Therefore, occupational stress coping training courses are needed to control and manage this problem in midwives.

## Abbreviations

CI  
Confidence Interval  
PRISMA  
Preferred Reporting Items for Systematic Reviews and Meta-Analyses  
SID  
Scientific Information Database  
STROBE  
Strengthening the Reporting of Observational Studies in Epidemiology

## Declarations

## Ethics approval and consent to participate

Not applicable.

### Consent to publish

Not applicable.

### Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

### Competing interests

The authors declare no competing interests.

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None

## Authors' Contribution

RGG and HR: data collection; HR: study design; NP and AFMS: final revision and grammar editing; RGG: statistical analysis. All authors have read and approved the manuscript.

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## Authors' information

Hayedeh Rezaei: Faculty of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran; Ali Faiek M.Saeed: Department of Management, College of Business Administration and Economic, Bayan University, Erbil, Kurdistan, Iraq; Naser Parizad: Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Urmia University of Medical Sciences, Urmia, Iran; Reza Ghanei Gheshlagh: Department of Nursing, Faculty of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran.

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## Figures

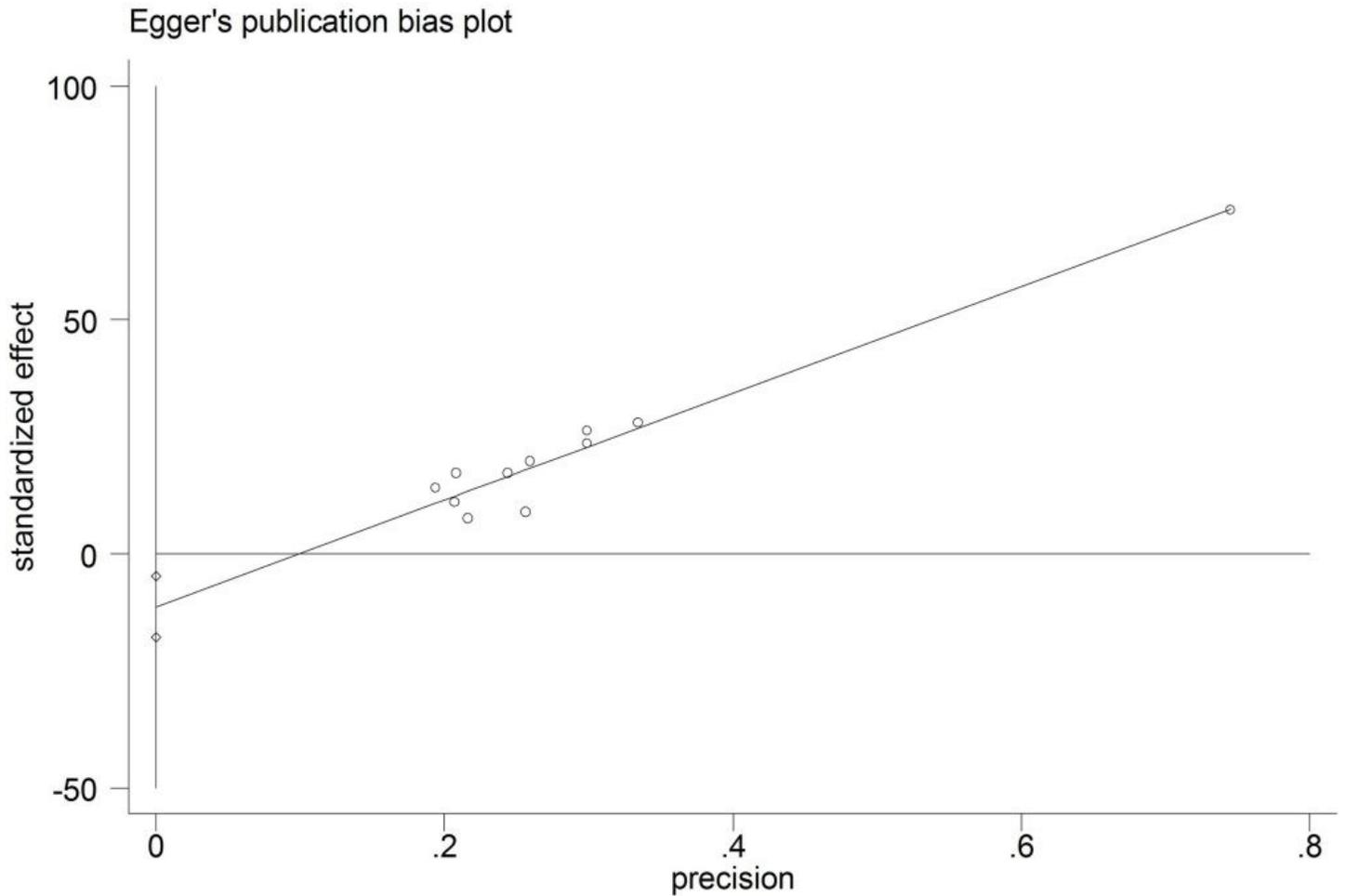
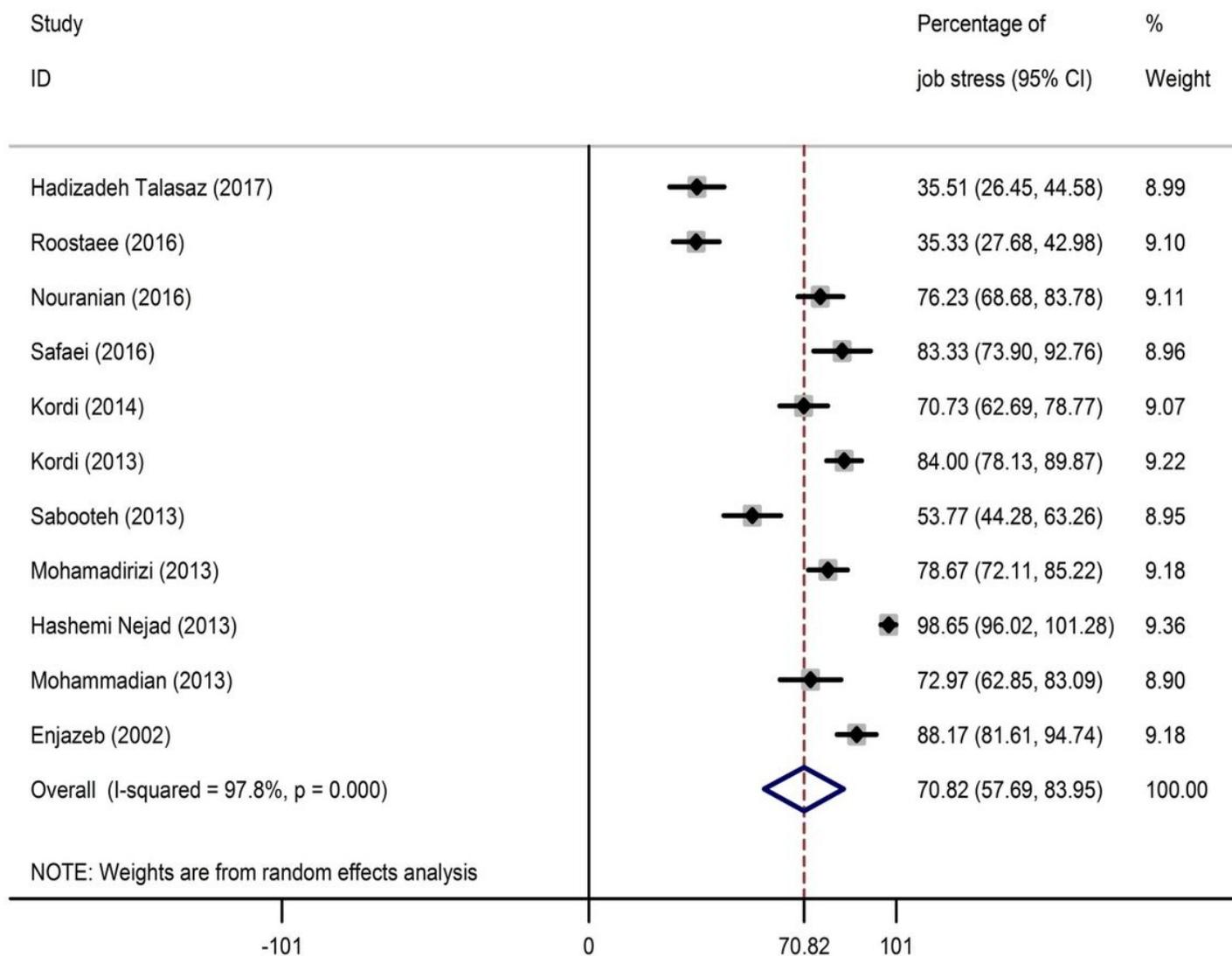


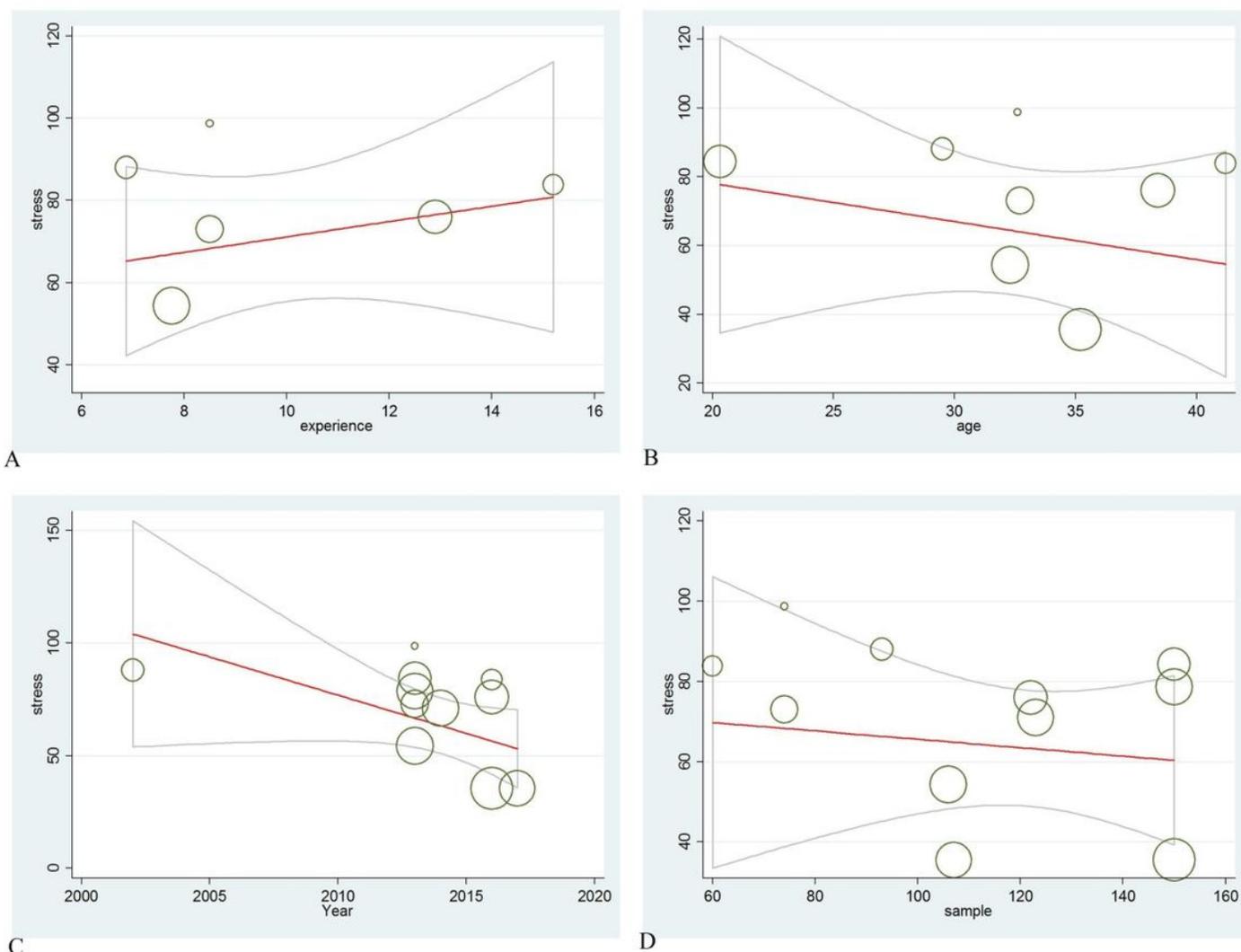
Figure 1

Publication bias ( $p=0.004$ ).



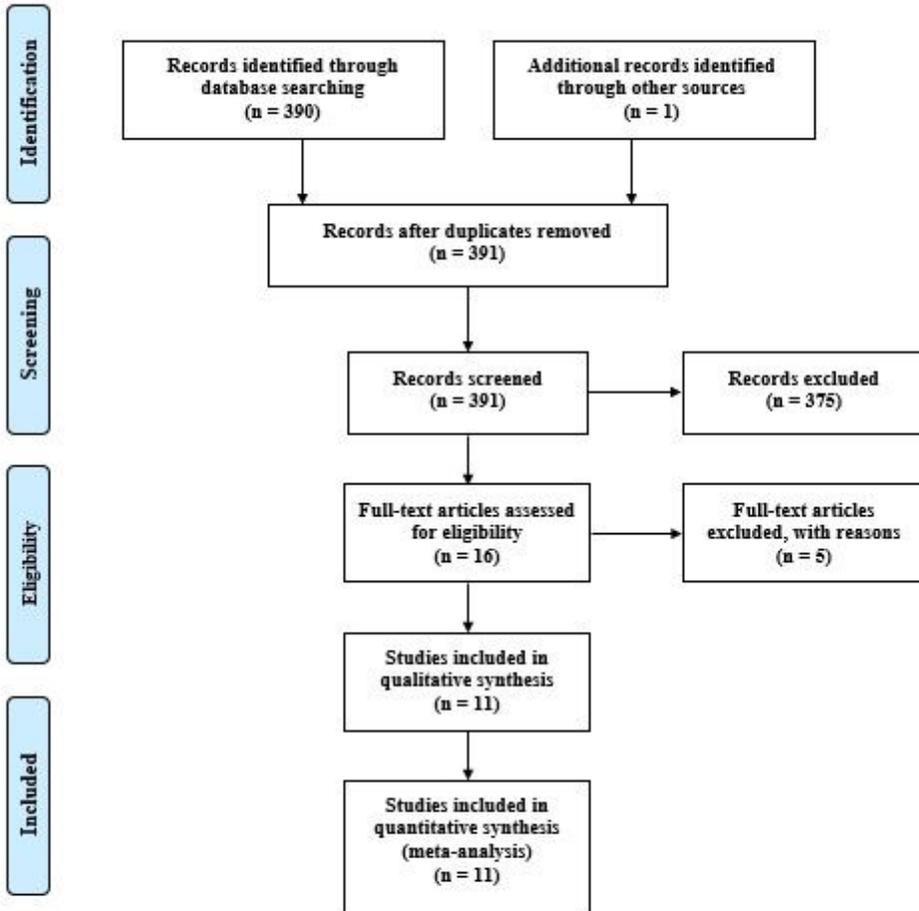
**Figure 2**

Occupational stress prevalence and its 95% confidence interval in Iranian midwives based on the name of the first author and publication year according to the random effects model. The point in the middle of each line segment shows the prevalence of occupational stress in each study, whereas the rhombus shape demonstrates the prevalence of occupational stress for all studies.



**Figure 3**

Meta-regression result. Relationship between occupational stress in Iranian midwives and work experience (A), age (B), articles' publication year (C), and sample size (D).



**Figure 4**

Flowchart of the process of screening and selection of selected articles