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Depression and its Main Determinants Among Iranian Operating Room Personnel: A Systematic Review and Meta-Analysis

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Abstract

Background: Most nurses, especially operating room personnel, seems to be more likely to be affected by mood disorders than other social strata. The present study attempted to systematically review the prevalence of depression and its main determinants among operating room personnel in Iran.

Methods: The method of this systematic review is documenting in a published protocol in the International Prospective Register of Systematic Reviews (PROSPERO) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist. After this massive search, titles and abstracts of retrieved documents have screened and all irrelevant articles excluded. Two reviewers screened the documents and selected all relevant studies and assessed included articles separately.

Results: Totally, 12 citations found in the initial literature search where four citations excluded, as they did not meet the inclusion criteria. The final number of studies available for analysis was 12 including a total of 373 operating room personnel (86 men and 287 women, mean the age of 27.71 years ranged from 20 to 36 years). The pooled prevalence of depression among operating room personnel was estimated to be 45.3%. In this regard, 27.0% of personnel suffered from severe depression. A significant heterogeneity found in the overall analysis of the overall prevalence of depression and its severe pattern.

Conclusion: A notable number of operating room personnel in Iran suffer from depression even in its severe condition emphasizing the importance of the managerial approach to minimize its adverse effects on their performance as well as to improve their quality of life.

Keywords: Depression; Operating room personnel; Determinants; Meta-analysis.

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Introduction

The prevalence of mood disorders in adult populations around the world is estimated to be 10%.[1] Depression as a mood disorder is one of the most common psychiatric illnesses[2,3] and reported by researchers the fourth major disease in the world and the most common cause of disability due to a variety of diseases. This condition characterized by a lack of pleasure, avoiding friends and family, lack of motivation and intolerance of failure, vegetarian symptoms such as decreased libido, low or high appetite, and weight, decreased energy and early fatigue, sleep disorders, anxiety disorders, constipation, dry mouth, and headache. According to research conducted in Iran, about seven million Iranians suffer from some kinds of mental disorders.[4] In the general population of Iran, the prevalence of depression has reported in the range of 2.4% to 37%[5] and according to the World Health Organization (WHO) report; 121 million people worldwide are depressed.[6]

Studies have shown that the operating room is one of the anxious, tense and injurious environments in the hospital that can lead to physical and psychological damage to the professional team involved therein. Seeking to increase the level of professional skills of personnel in the operating room, the noise from monitoring, ventilation, surgical intervention, anesthetics and warning sounds of vital signs have transformed the operating room environment into an unstable and stressful environment. The nursing team experiences much stress in this environment as well as dealing with patient family after surgery.[7-9] Nurses are always facing with the pain and problems of patients and their family members and caregivers. Moreover,

nurses also have their own economic, social and family problems, and they are considered a vulnerable group of society. Therefore, most nurses, especially operating room personnel, are more likely to be affected by mood disorders than other parts of each society. The present study attempted to systematically review the prevalence of depression and its main determinants among operating room personnel in Iran.

Methods

The present study performed as a systematic review and meta-analysis on all published studies on the prevalence of depression among the operating room personnel in Iran. The main aim of this meta-analysis was to describe the pooled prevalence of depression and its determinants among operative room personnel. The method of this systematic review is documenting in a published protocol in the International Prospective Register of Systematic Reviews (PROSPERO)[10] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Checklist.[11] We performed a massive search in several search databases including PubMed/Medline, Embase, and Web of Science and also Persian databases including SID and Magiran. We also browsed the Cochrane Central Register of Controlled Trials (CENTRAL) and the Connecting Research in Security to Practice/Research Portfolio Online Reporting Tool (CRISP/RePORT) National Institutes of Health (NIH) databases for unpublished trials. The search keywords included: "depression," "personnel," "operating room," and "Iran." After this massive search, titles and abstracts of retrieved documents screened and all irrelevant articles excluded. The manuscript categories including case reports and review studies were all excluded. Other exclusion criteria were: non-English or non-Persian language studies and studies with incomplete data or full-text unavailability. Two reviewers screened the documents and selected all relevant studies and assessed included articles separately. The reviewers extracted data regarding study details (study design, publication year and patient number), personnel characteristics, details of disease prevalence, and determining potential determinants for the disease.

For statistical analysis, the pooled prevalence of depression was estimated using the Metaprop command. This technique was considered an appropriate pooling technique due to the relative heterogeneity of the source population in each study. We also evaluated the presence of heterogeneity across studies by using the I^2 statistic. Publication bias was assessed using funnel plots and Eggers test. All of the statistical analyses done in STATA, version 13.1 (STATA Corp, College Station, TX).

Results

Twelve citations found in the initial literature search where 4 citations excluded, as they did not meet the inclusion criteria. The final number of studies available for analysis was 12 including a total of 373 operating room personnel (86 men and 287 women, mean age of 27.71 years ranged 20 to 36 years).[12-18] The Beck depression inventory was used to assess the level and severity of depression in 7 out of 8 studies, while GHQ-28 was the primary tool for this goal in only one study (Table 1). The pooled prevalence of depression among operating room personnel was estimated to be 45.3% (95% CI: 40.1% to 50.7%).

In this regard, 27.0% of personnel (95% CI: 22.3% to 32.4%) suffered from severe depression. A significant heterogeneity was found in the overall analysis of overall prevalence of depression ($I^2 = 73.623$, $P < 0.001$) and also rate of severe depression ($I^2 = 78.014$, $P < 0.001$) (Figures 1 and 2). To assess publication bias, we generated a funnel plot of the logarithm of effect size versus the standard error for each study (Figures 3 and 4). There was no evidence of significant publication bias ($P = 0.57$ and 0.42) in both pooled and severe depression analysis.

Discussion

Depression is the most common psychiatric disorder in the world and has a high burden in many countries.[19] The disease involves a large number of patients referring to treatment centers, with nearly 10% of them suffering from some degree of depression.[20,21] It estimated that around 340 million people in the world suffer from this disease.[22] Depression affects the body and mind of

Table 1. The Details of the Studies Analyzed

Author, year	No. of patients	Region	Mean Age	M/F Ratio	Tool	Depression Rate	Severe Depression	Determinants
Yasemi, 2014 (12)	60	Ilam	31.86	29/31	Beck	31.9% 19	20.8% 12	Female gender
Habibi, 2012 (13)	31	Ghazvin	35.77	0/31	Beck	48.8% 15	38.7% 12	-
Habibi, 2012 (13)	49	Ghazvin	30.06	0/49	Beck	57.1% 28	36.7% 18	-
Khani, 2016 (14)	22	Neyshabour	32.10	7/15	Beck	4.5% 1	0.0% 0	Hypochondriasis
Azizi, 2015 (15)	44	Mazandaran	-	-	Beck	43.0% 19	30.0% 13	Female gender, age, single status
Eslami, 2014 (16)	45	Jahrom	21.30	13/32	Beck	57.8% 26	42.2% 19	-
Hadavi, 2012 (17)	81	Rafsanjan	20.03	22/59	Beck	53.1% 43	11.1% 9	Female gender, mother's education
Akhavan, 2017 (18)	41	Guilan	22.83	15/26	GHQ-28	24.4% 10	4.9% 2	Female gender, urban residency

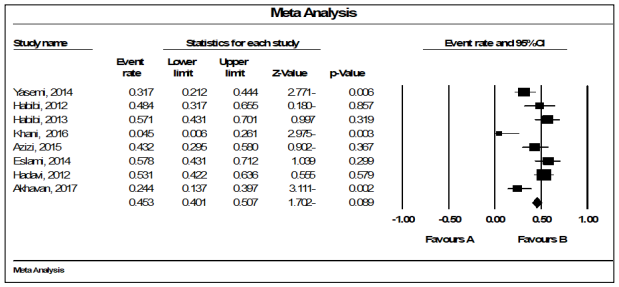

Figure 1. Forest Plot Showing the Pooled Prevalence of Depression Among Iranian Operating Room Personnel.

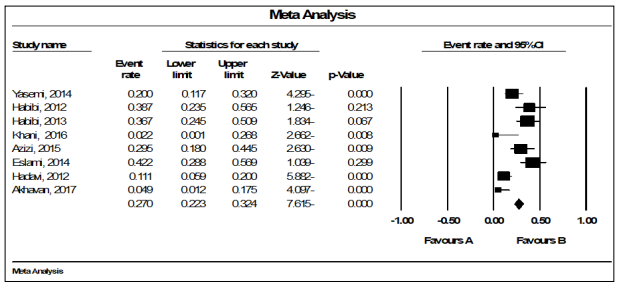

Figure 2. Forest Plot Showing the Pooled Prevalence of Severe Depression Among Iranian Operating Room Personnel.

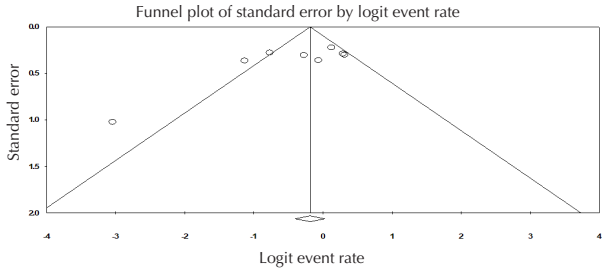

Figure 3. The Funnel Plot to Assess the Publication Bias on the Studies Evaluated Depression Among Iranian Operating Room Personnel.

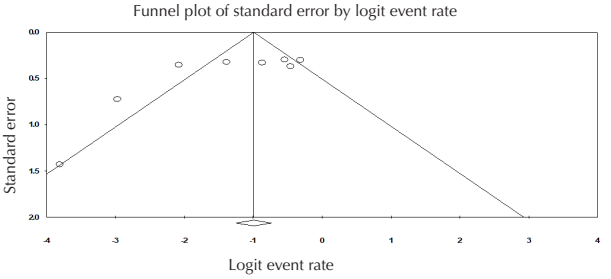

Figure 4. The Funnel Plot to Assess the Publication Bias on the Studies Evaluated Severe Depression Among Iranian Operating Room Personnel.

affected people and leads to disability, absence from work, reduced efficacy and an increased risk of suicide.[23,24] Major depression disorder is predicted to be the second most debilitating factor in the world in 2020.[25-27] It is a common, costly, and disabling disease and has one of the highest rates of illness worldwide.[29-32]

Depression associated with severe social disability, a significant loss of workplace efficiency, and a significant reduction in the quality of life of individuals.[33] Studies show that the prevalence of life-long depression is 10% in men and 20% in women.[34] There is a direct relationship between depression and stress. Widespread domains in the activity of nurses are exposing them to various problems and pressures that aggravation of these stresses can lead to chronic fatigue, frustration and depression.[35] One of the most critical areas for sustainable health development in human societies is the health sector, which has a direct relationship with human health and has significant responsibility for maintaining and restoring health to the human community. In today's competitive organizations, only organizations can survive to upgrade their performance. The hospital, as one of these organizations, needs to consider the mental health of the staff, especially the nursing staff, in order to improve its efficiency. Among all staff, nurses provided the most direct services to patients and accounted for 20% of the total operating budget of the hospital as annual salaries to improve the efficiency of hospital management.[36,37]

Nurses are the most impressive occupational group among hospitals that rarely think about their individual needs.[38] Operating room staff seems to be at the forefront of the most labor-intensive and vulnerable but least expected personnel and thus higher rate if mood disorders among the personnel are strongly predictable, especially in developing countries with significant social and economic burden. As shown in our study, high rates of Iranian operating room nurses suffer from depression that about half of the personnel suffered a degree of depression and about one-third of them experienced severe depression with disruption in professional activity. However, due to various reasons including different geographical areas (with different socioeconomic characteristics), the different facility for personnel, and different familial background, the rate of depression widely varied from 4.5% to 58% leading considerable heterogeneity of study results. Because of the high rate of these personnel suffers from severe depression needing further consideration, a comprehensive preventing and monitoring strategies should consider in hospital management leading management and early diagnosis of mood disabilities among operating room personnel.

Despite significant heterogeneity, the studies assessed had no publication bias. Publication bias refers to the publication of more articles that contain positive conclusions or significant statistical results.[39] This bias suggests that articles containing negative or non-significant statistical results have less chance of printing. One of the first studies to be published on publication bias was reported by Sterling et al,[40] in which it is pointing out that 97% of published psychology studies had statistically

significant results.

Unfortunately, the evidence suggests that the bias of publication from that date remains a significant problem in the publication of the results of medical research.[41] Fortunately, the studies on assessing the prevalence of depression among Iranian operating room nurses had no publication of bias emphasizing the reliability of the results.

Conclusion

It can finally conclude that a notable number of operating room personnel in Iran suffer from depression even in its severe condition emphasizing the importance of the managerial approach to minimize its adverse effects on their performance as well as to improve their quality of life. However, due to the high heterogeneity of the studies because of considering different regions, different sample sizes, and different assessing inventories, further studies considering these variables should be performed.

Conflict of Interest Disclosures

The authors declare that they have no conflict of interests.

Ethical Statement

Not applicable.

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