Prevalence of major depressive disorder in the general population of Iran: A systematic review and meta-analysis

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Abstract

Background: Major depressive disorder (MDD) is the most common psychological disorder and affects many people worldwide. Surveying the prevalence of mental disorders, especially general disorders, such as major depressive disorder, is highly important for health professionals and policymakers. Due to a wide variation of studies concerning the prevalence of major depressive disorder in Iran, the present study was conducted to integrate such results.

Methods: To conduct this study, English (PubMed/Medline, Scopus and Web of Science) and Persian (MHRN, Noormgs, Magiran, Iran-Medex, Irandoc, and SID) databases, from 1990 to 2018, were explored. All articles related to the point prevalence of depressive disorders in the general population of Iran were reviewed. The inclusion criteria of the present study were as follow: cross sectional studies based on general populations; the expression of the point prevalence rate and incidence of major depressive disorder for people over 15 years; and the use of a structured or semi-structured clinical interview for diagnosis of the disorder. Studies that were not original (such as review studies) and those that did not represent general populations were excluded from the study. To analyze the data obtained from this study, the second version of Comprehensive Meta-Analysis (CMA) software was used. The total point prevalence was calculated using the meta-analysis method, and the I2 index was used to measure the heterogeneity of the studies.

Results: Of 6734 studies, 30 studies with a total sample size of 37 867 were finally included based on proposed inclusion and exclusion criteria. The sample included 20641 women (55%), and 17 226 (45%) men. In the present meta-analysis study, due to significant heterogeneity (I=97.1%, p=0.001) among studies, the randomized method was used, and the total point prevalence was 4.1% (CI: 3.1% 5.5%). The overall point prevalence of major depressive disorder was 4.8% (CI: 3.6% -5.6%) in women and 2.3% (CI: 1.6% -3.6%)in men, which indicated that the incidence of this disorder was 1.95 times more in women than in men.

Conclusion: This meta-analysis study found a considerable prevalence of major depressive disorder among Iranian participants and revealed that the point prevalence of the disease was more than two-fold in women compared to men. Considering these findings and the high burden of this disorder for communities, the need to formulate and implement prevention and treatment programs is highly required.

Keywords: Prevalence, Major depressive disorder, Iran, Meta-analysis, Systematic review

Introduction

Major depressive disorder is the most common psychological disorder in the world and affects many people. This disorder causes several problems in professional life, social relationships, and the personal lives of individuals. About 350 million people are depressed worldwide (1); this number rised by about 18% between 2005 and 2015.

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↑*What is "already known" in this topic:*
Depression has an important role in people's lives. Many studies have investigated the prevalence of depressive disorders in Iran during past decades.

→*What this article adds:*
This systematic review and meta-analysis revealed the considerable prevalence of major depression disorder among Iranians.

According to the World Health Organization forecasts by 2020, this disorder will be in the second position in the list of the burden of disease. About 800 000 people die annually because of suicidal ideation due to this disorder (2, 3). The main symptoms of major depressive disorder include lack of positive emotions and lack of interest and pleasure, which accompany other symptoms such as sleeping problems, feelings of self-worthlessness, and thoughts of suicide and death. To diagnose this disorder, the symptoms listed in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) must be present on most days during the least 2 weeks (4).

The prevalence of major depressive disorder is affected by many factors such as culture, socioeconomic status, age, gender, marital status, physical health status, occupation, and other factors (5-7). A recent systematic review on the prevalence of major depressive disorder and its effective factors in 30 different countries showed that major depressive disorder has a point prevalence of 12.9%, the one-year prevalence of 7.2%, and a lifetime prevalence of 10.8%. The point prevalence of major depressive disorder was significantly higher in women (14.4%) and countries with moderate levels of human development index, including many Asian countries, had a higher prevalence of major depressive disorder (29.2%) (8).

Iran is one of the largest countries in western Asia with a population of more than 81 million, with diverse cultures. Fars, Kurds, Turks, Baluch, Turkmen, and Arabs live in Iran (9), and this cultural diversity affects the prevalence of depressive disorders (10). The results of a systematic review of the prevalence of major depressive disorder in Iran in 2010 showed that the point prevalence of major depressive disorder in Iran was 4.1% and the incidence of women with this disorder was 1.95 times more than that of men. The point prevalence of this disorder was not significantly different in urban and rural areas (10).

The prevalence of mental disorders, especially common disorders such as major depressive disorder, is significant for health professionals and policymakers and can help reduce social discrimination in the area of receiving health services (11). Many studies have been conducted on the prevalence of these disorders in many countries; and to make the information obtained from these studies understandable, there is a need to integrate their results in the form of systematic review (12). Many studies have been conducted in Iran on the prevalence of major depressive disorder. However, due to their wide variety in the population studied, measurement tools used, study years, and many other factors, there is a severe need to integrate their results for a better understanding. Therefore, the present study aimed to investigate all studies that had been conducted in Iran from 1990 to 2018 that examined the point prevalence of major depressive disorder in Iran to integrate the prevalence rates of these studies and to determine the overall point prevalence of major depressive disorder disorder in Iran.

Methods
This study was conducted according to the systematic and meta-analytic review (PRISMA) reporting guide (13). Before conducting this study, its protocol, including method of searching, inclusion criteria, method of extracting information, etc., was designed and published (14).

Information resources
For this study, the Institute of Scientific Information (ISI), PubMed, and NLM Gateway (for MEDLINE), and SCOPUS databases were selected as the primary sources of international electronic information. The Scientific Information Database (SID), Iran-Medex, Irandoc, MHRN, Noormgs, and Magiran databases were also investigated to access national information sources. According to the objectives of this study, all sources were studied from January 1990 through January 2018 without any restrictions on the language of the studies. The researchers also tried to search unpublished sources and reports using a manual search, and if necessary, communicate with the author to obtain the required information.

Search strategy and eligibility criteria
Searches on all databases were done by 2 researchers independently to increase search accuracy. Search strategy in international sources was designed in 3 steps, based on the Medical Subject Headings (MeSH) and other keywords, and the results of the third step were examined. The 3 steps of the search and the words used were as follow:

Step I- " "depressive disorder* "OR "mood disorder* " OR "affective disorder* "OR "depression* "OR "depressive symptom* "OR "depression symptom* "OR "emotional depression* "OR "emotional disorder* "".

Step II- "Iran* OR Persia* OR I.R.Iran* OR IR.Iran*".

Step III- step I AND step II.

To search the national databases, the mentioned English keywords, as well as their Persian equivalents, were used to search all sources, such as published articles, summaries of conferences, issues, and reports. Since many of the national databases were restricted by the use of search strategies, keywords were searched separately.

The inclusion criteria of the present study included cross-sectional studies based on the general populations, the expression of the point prevalence rate and incidence of major depressive disorder for people over 15 years, and the use of a structured or semi-structured clinical interview for diagnosis of the disorder (DSM-III-based clinical interview, DSM-IV-based clinical interview, Schedule for Affective Disorders and Schizophrenia, Structured Clinical Interview for DSM-IV Axis I Disorders, and Composite International Diagnostic Interview). Studies that were not original (such as review studies) and those that did not represent general populations, including studies that focused on the major depressive disorder of certain specific patients (eg, cancer, diabetes, etc.), those with special occupations (eg, workers of a particular factory), pregnant women or those who just had a baby, women during their menstruation, prisoners, and hospitalized patients were excluded from the study.

Selection of studies and data extraction

Two researchers independently studied the results of the initial search based on studies' titles and abstracts and selected those that met the inclusion criteria. At this stage, duplicate studies were omitted, and in cases where the 2 researchers disagreed about a study, the disagreement was resolved based on the compromise or discussion or opinion of the third researcher. The same 2 researchers independently extracted information and completed standard forms designed for this purpose, which included information about the study characteristics such as title, first author, year of implementation and publication, location of deployment, sampling method, sample size, measurement tools, point prevalence, standard error, and confidence interval.

Quality assessment

To assess the quality of the selected articles, the tool presented in the study of Ibrahim et al was used (15). In this tool, 7 items are used for scoring the quality of the articles, and the total score of the sum of the scores for these 7 items is obtained; the items are as follow: (1) the target population is clearly defined; (2) complete, random, or consecutive sampling; (3) the targeted sample is representative, or there is evidence showing that the results can be generalized to the general population (4); the response rate is equal to or greater than 70%; (5) the instrument used to diagnose major depressive disorder is a valid tool; (6) the sample size is at least 300 individuals; (7) the confidence interval or standard error are reported. For each of these items, a score was assigned to each relevant study. For example, an article that has all of the above items but does not specify the confidence interval or standard error receives a maximum of 6 points. Two researchers independently evaluated the quality of the selected articles, and in cases where they differed, the difference was resolved by compromise or the opinion of the third researcher.

Statistical analysis

To analyze the data obtained from this research, the second version of the Comprehensive Meta-Analysis software (CMA) (16) was used. The pooled point prevalence was calculated using the meta-analysis method, and the I2 index was used to measure the heterogeneity between the studies. Whenever this index was higher than 0.50, the random model was used instead of the fixed model in the meta-analysis (17). Considering that based on the inclusion and exclusion criteria, there was no significant heterogeneity in the diagnostic tools and the age of the sample between the studies, and also considering the limitation in the detailed information of each study (such as lack of the prevalence in rural and urban areas separately in each study), the subgroup analysis was conducted solely based on gender. The bias of publication was evaluated by a funnel plot as well as Begg's correction test. Significance level was set at p<0.05.

Results

Study selection

Of the 6734 studies found in the search of the databases, 1076 were duplicates and excluded and 4950 were also excluded at the initial screening stage. Finally, 30 papers with a total sample size of 37 867 were selected based on inclusion and exclusion criteria. Moreover, a national study with a sample size of 25180 was excluded because its information was published in the form of several other articles separated by different provinces. Details of the process of selecting studies are reported in Figure 1.

Studies characteristics

All studies have been conducted from 1995 to 2015 in 18 different provinces of Iran, along with a national survey. The sample size of these studies was between 204 and 7886 people, of whom 20 641 (55%) were women and 17 226 (45%) were men. The minimum age of the sample in these studies was 15 years. At a 7-degree scale, the quality of the studies selected was between 4 and 7, with a mean of 5.06. Of the 30 final studies, 20 included both urban and rural areas, while 6 were limited to urban areas, and only one study was limited to rural areas. Among the studies reviewed, one study was related to high school students and 2 to university students. All studies had used clinical interview and measurement tools by blended methods to increase the accuracy of diagnosis. The tools used in the studies included DSM-III-based clinical interview, DSM-IV-based clinical interview, General Health Questionnaire (GHQ), Self-Reporting Questionnaire (SRQ-24), Symptom Checklist-90 Revised (SCL-90-R), Beck Depression Inventory (BDI), Schedule for Affective Disorders and Schizophrenia (SADS), Geriatric Depression Scale (GDS), Composite International Diagnostic Interview (CIDI), and Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). The details of the characteristics of the studies selected are summarized in Table 1.

Pooled point prevalence

Studies that entered the final analysis showed that the point prevalence of major depressive disorder was between 0.3% and 12.7%. To calculate the point prevalence of the 30 final studies entered in this study, based on the evidence of significant heterogeneity (I^2=97.1%, p=0.001), a randomized model was used in meta-analysis, based on which the pooled point prevalence was obtained equal to 4.1% (CI: 3.1-5.5%) (Fig. 2). The lowest point prevalence belonged to a study in Kohgiluyeh and Boyer Ahmad, with 0.3%, and the highest point prevalence to a national survey, with a major depressive disorder prevalence of 12.7%. The spatial distribution of major depressive disorder point prevalence is shown in Figure 3.

Publication bias

To measure the publication bias, the funnel plot and the Begg's Correction Index were used. The funnel plot indicated no bias in the publication, which was also confirmed by the Begg's Correction Index (p=0.134) (Fig. 4).
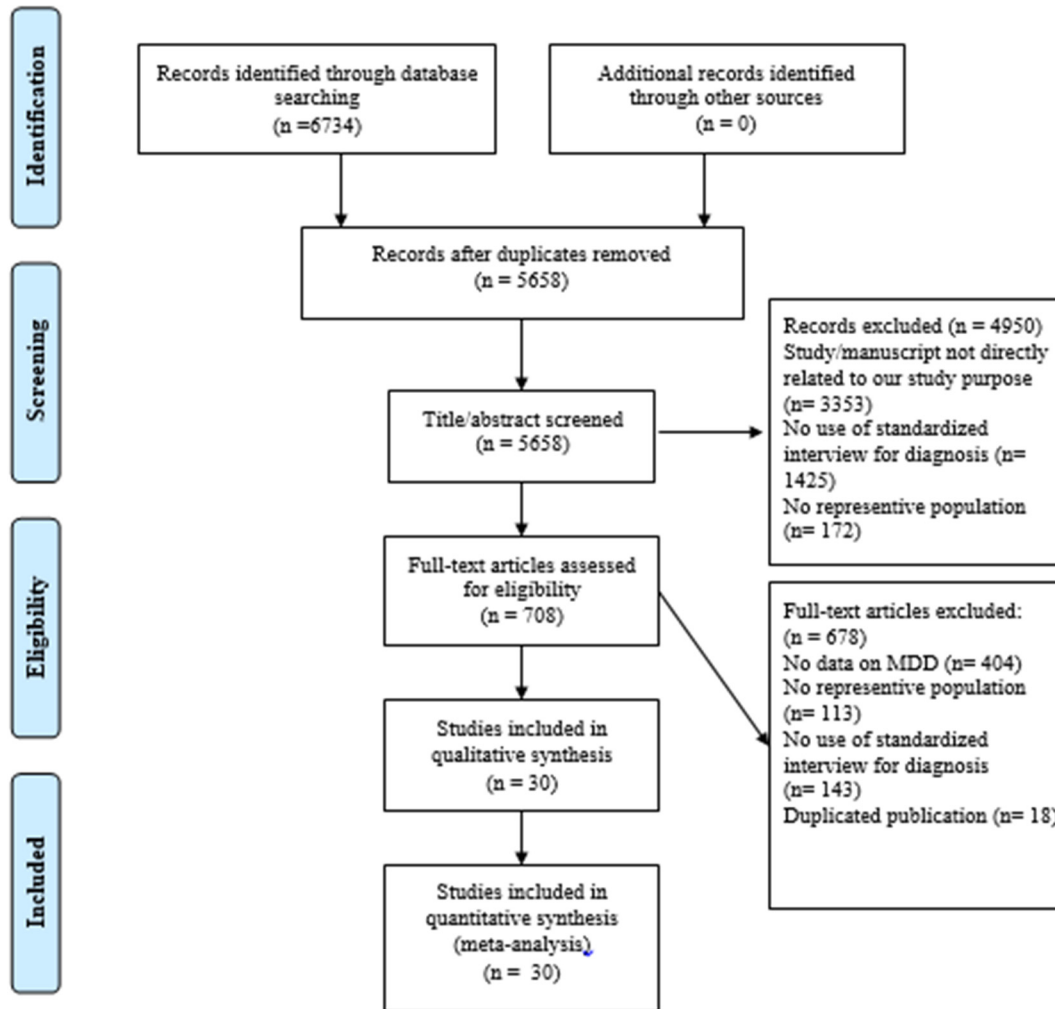
Fig. 1. PRISMA flow diagram showing study selection process

Table 1. Characteristics of the included studies

First author (reference)	Year of publication	Province	Sample size	Female gender (%)	Age (years)	Population type	Sampling method	Diagnostic tools	Point prevalence (%)	95% Confidence interval (CI)	Quality score
Yaghoubi et al. (18)	1995	Guilan	625	53.4	≥15	Urban & Rural	Cluster random	GHQ & DSM-III based clinical interview	6.2	4.6-8.4	5
Sadeghi et al. (19)	2000	Kermanshah	501	53.9	≥15	Urban	Cluster random	SRQ-24 & DSM-IV based clinical interview	1.6	0.7-3.5	5
Shamsalizadeh et al. (20)	2001	Tehran	640	55.1	≥15	Rural	Total population	GHQ & DSM-IV based clinical interview	11.3	9.1-14.0	5
Khosravi (21)	2002	Chaharmahal and Bakhtiari	450	57.7	≥15	Urban & Rural	Systematic random	SCL-90-R & DSM-III based clinical interview	4.7	3.1-7.0	5
Kaviani et al. (22)	2002	Tehran	1052	49.0	20-65	Urban	Cluster random	BDI & DSM-IV based clinical interview	6.8	5.4-8.5	5
Mohammadi et al. (23)	2003	Mazandaran	1022	51.7	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	4.6	3.5-6.1	5
Mohammadi et al. b (24)	2003	West Azerbaijan	1041	50.1	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	4.6	3.5-6.1	5

Analysis of subgroups

As discussed earlier, in the present study, the analysis of subgroups was performed solely based on gender. Accordingly, the total point prevalence of major depressive disorder was 4.8% (CI: 3.5-6.6%) in women and 2.3% in men (CI: 1.6-3.6%), which indicated the risk of this disorder was twice in women than in men.

Table 1. Ctd

First author (reference)	Year of publication	Province	Sample size	Female gender (%)	Age (years)	Population type	Sampling method	Diagnostic tools	Point prevalence (%)	95% Confidence interval (CI)	Quality score
Hassanshahi et al. (25)	2003	Fars	650	57.8	≥15	Urban & Rural	Simple random	SCL-90-R & DSM-IV based clinical interview checklist	7.2	5.5-9.5	5
Omidi et al. (26)	2003	Isfahan	650	50.0	≥15	Urban	Systematic random	GHQ & DSM-IV based clinical interview checklist	3.4	2.3-5.1	5
Mohammadi et al. c (27)	2003	Kurdistan	495	49.3	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	4.0	2.6-6.2	5
Mohammadi et al. d (28)	2003	Kohgiluyeh and Boyer Ahmad	337	49.2	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	0.3	0-2.1	5
Mohammadi et al. e (29)	2003	Semnan	280	53.2	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	3.6	1.9-6.5	4
Mohammadi et al. f (30)	2003	Tehran	5311	48.5	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	3.3	2.8-3.8	5
Mohammadi et al. (31)	2004	Guilan	925	50.8	≥15	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	3.0	2.1-4.4	5
Mohammadi et al. b (32)	2004	East Azerbaijan	1286	49.1	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	2.3	1.6-3.2	5
Mohammadi et al. c (33)	2004	Hamadan	664	48.2	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	2.6	1.6-4.1	5
Mohammadi et al. d (34)	2004	Chaharmahal and Bakhtiari	305	47.5	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	2.3	1.1-4.7	5
Mohammadi et al. e (35)	2004	Ardebil	394	47.5	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	4.8	3.1-7.4	5
Mohammadi et al. f (36)	2004	Golestan	518	47.9	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	1.9	1.0-3.5	5
Mohammadi et al. g (37)	2004	South Khorasan	2301	50.4	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	2.3	1.7-3.0	5
Mohammadi et al. (38)	2005	Kerman	876	51.3	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	5.6	4.2-7.3	5
Mohammadi et al. b (39)	2005	Qazvin	354	50.8	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	2.8	1.5-6.2	5
Hosseinifard et al. (40)	2005	Kerman	830	54.5	15-18	High-school Students	Multistage	SCL-90-R & DSM-IV based clinical interview checklist	2.4	1.6-3.7	5
Parvizifard et al. (41)	2006	Kermanshah	423	74.2	17-22	University Students	convenience	SRQ-24 & DSM-IV based clinical interview checklist	5.7	3.8-8.3	5
Modabernia et al. (42)	2008	Guilan	4020	62.8	18-70	Urban & Rural	Multistage cluster random	BDI & DSM-IV based clinical interview	1.0	0.7-1.4	6
Mirabzadeh et al. (43)	2009	Tehran	204	53.4	≥59	Urban	Simple random	GHQ & GDS & CIDI	10.7	15.4-26.5	4
Parvaresh et al. (44)	2010	Kerman	1527	67.6	≥15	Urban	Cluster random	GHQ & DSM-IV based clinical interview	6.8	5.7-8.2	6
Ahmadvand et al. (45)	2012	Isfahan	1800	54.5	≥18	Urban	Stratified random	GHQ & DSM-IV based clinical interview checklist	8.2	7.0-9.6	5
Yaghubi et al. (46)	2014	Tehran	500	62.0	NR	University Students	Quota Sampling	GHQ & CIDI	8.5	6.4-11.3	5
Sharifi et al. (47)	2015	National	7886	57.0	15-64	Urban & Rural	Multistage cluster random	CIDI & SCID-I	12.7	12.0-13.5	7
Mohammadi et al. (48)	2001	National	25180	49.7	≥18	Urban & Rural	Multistage cluster random	SADS & DSM-IV based clinical interview	1.8	1.0-2.9	5

Discussion

A study on the prevalence of mental disorders, especially common disorders such as major depressive disorder, which imposes a high burden on communities and can endanger the lives of many people (49), has a vital role in the formulation and development of prevention and treatment programs for mental health professionals (50). In recent years, many studies have been conducted on the prevalence of major depressive disorder in Iran and the dispersion of these studies required the implementation of
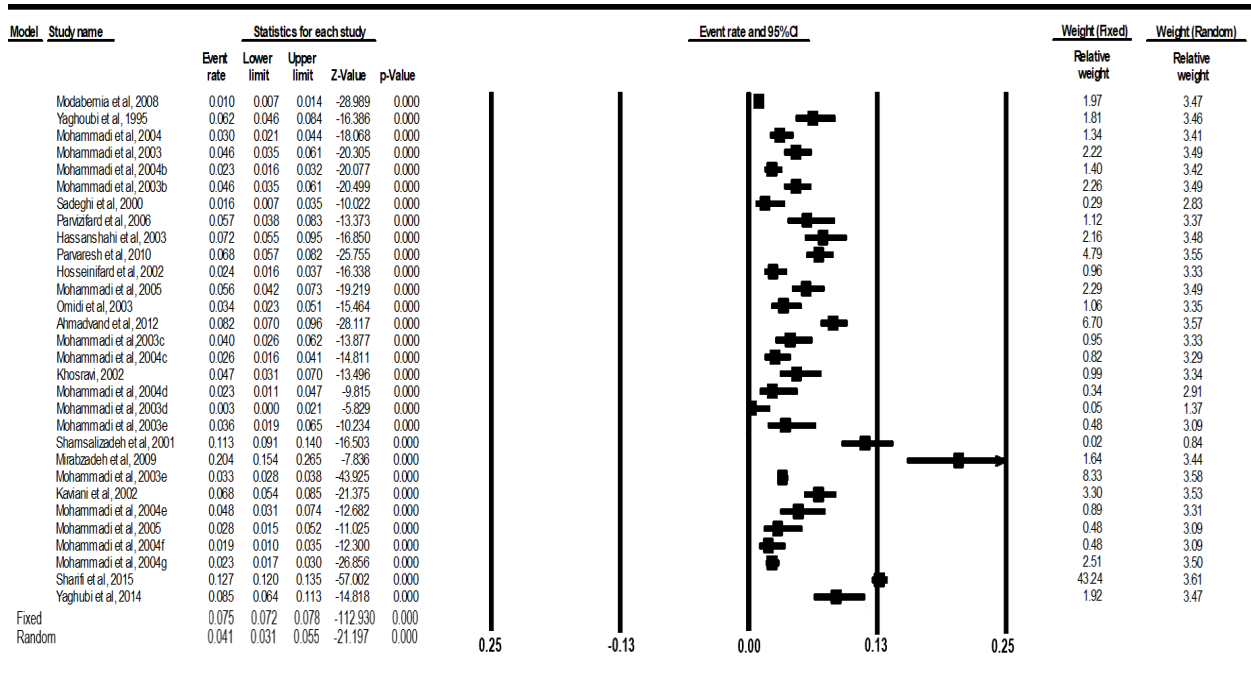
Model	Study name	Statistics for each study					Event rate and 95% CI	Weight (Fixed)	Weight (Random)
		Event rate	Lower limit	Upper limit	Z-Value	p-Value		Relative weight	Relative weight
	Modabernia et al, 2008	0.010	0.007	0.014	-28.989	0.000		1.97	3.47
	Yaghoubi et al, 1995	0.062	0.046	0.084	-16.386	0.000		1.81	3.46
	Mohammadi et al, 2004	0.030	0.021	0.044	-18.068	0.000		1.34	3.41
	Mohammadi et al, 2003	0.046	0.035	0.061	-20.305	0.000		2.22	3.49
	Mohammadi et al, 2004b	0.023	0.016	0.032	-20.077	0.000		1.40	3.42
	Mohammadi et al, 2003b	0.046	0.035	0.061	-20.499	0.000		2.26	3.49
	Sadeghi et al, 2000	0.016	0.007	0.035	-10.022	0.000		0.29	2.83
	Parvizifard et al, 2006	0.057	0.038	0.083	-13.373	0.000		1.12	3.37
	Hassanshahi et al, 2003	0.072	0.055	0.095	-16.850	0.000		2.16	3.48
	Parvaresh et al, 2010	0.068	0.057	0.082	-25.755	0.000		4.79	3.55
	Hosseinifard et al, 2002	0.024	0.016	0.037	-16.338	0.000		0.96	3.33
	Mohammadi et al, 2005	0.056	0.042	0.073	-19.219	0.000		2.29	3.49
	Omidi et al, 2003	0.034	0.023	0.051	-15.464	0.000		1.06	3.35
	Ahmadvand et al, 2012	0.082	0.070	0.096	-28.117	0.000		6.70	3.57
	Mohammadi et al 2003c	0.040	0.026	0.062	-13.877	0.000		0.95	3.33
	Mohammadi et al, 2004c	0.026	0.016	0.041	-14.811	0.000		0.82	3.29
	Khosravi, 2002	0.047	0.031	0.070	-13.496	0.000		0.99	3.34
	Mohammadi et al, 2004d	0.023	0.011	0.047	-9.815	0.000		0.34	2.91
	Mohammadi et al, 2003d	0.003	0.000	0.021	-5.829	0.000		0.05	1.37
	Mohammadi et al, 2003e	0.036	0.019	0.065	-10.234	0.000		0.48	3.09
	Shamsalizadeh et al, 2001	0.113	0.091	0.140	-16.503	0.000		0.02	0.84
	Mirabzadeh et al, 2009	0.204	0.154	0.265	-7.836	0.000		1.64	3.44
	Mohammadi et al, 2003e	0.033	0.028	0.038	-43.925	0.000		8.33	3.58
	Kaviani et al, 2002	0.068	0.054	0.085	-21.375	0.000		3.30	3.53
	Mohammadi et al, 2004e	0.048	0.031	0.074	-12.682	0.000		0.89	3.31
	Mohammadi et al, 2005	0.028	0.015	0.052	-11.025	0.000		0.48	3.09
	Mohammadi et al, 2004f	0.019	0.010	0.035	-12.300	0.000		0.48	3.09
	Mohammadi et al, 2004g	0.023	0.017	0.030	-26.856	0.000		2.51	3.50
	Sharifi et al, 2015	0.127	0.120	0.135	-57.002	0.000		43.24	3.61
	Yaghubi et al, 2014	0.085	0.064	0.113	-14.818	0.000		1.92	3.47
Fixed		0.075	0.072	0.078	-112.930	0.000			
Random		0.041	0.031	0.055	-21.197	0.000			

(axis: 0.25   -0.13   0.00   0.13   0.25)

Fig. 2. Forest plot of major depressive disorder point prevalences in the included studies
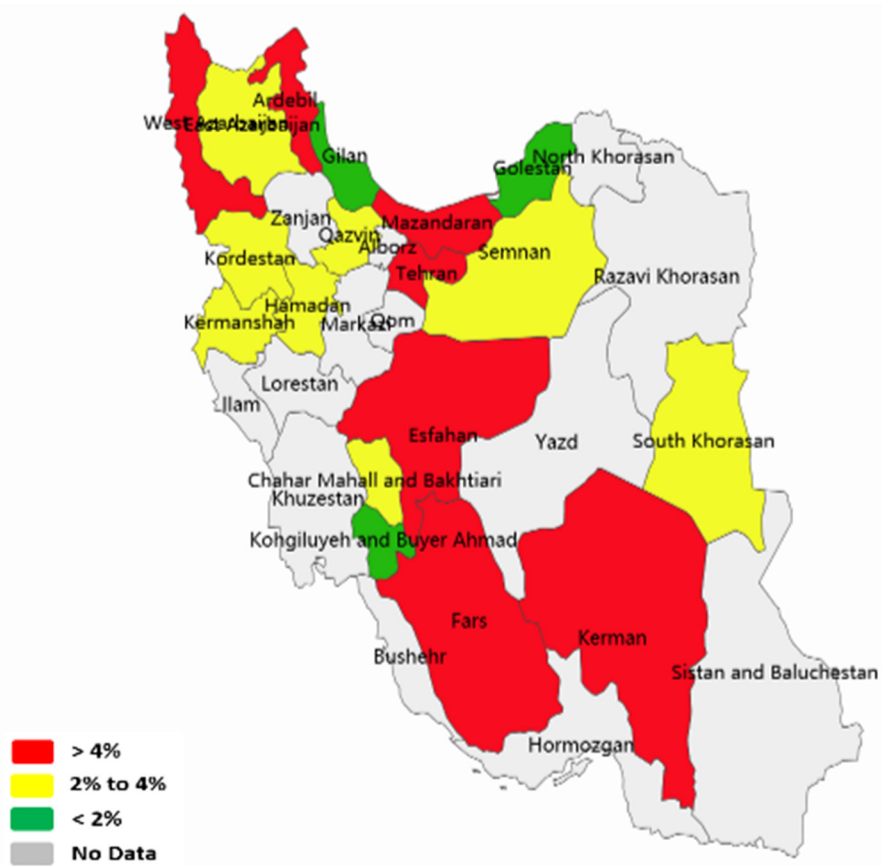

Fig. 3. Spatial distribution of point prevalence of major depressive disorder in Iran

a systematic and meta-analysis study. This study conducted a systematic review and meta-analysis of the studies conducted on the prevalence of major depressive disorder in Iran from 1990 to 2018. Also, through the precise and almost strict inclusion and exclusion criteria, this study aimed to select those papers that use accurate methods for diagnosing major depressive disorder and whose samples represented the general population.

The results of this study revealed a 4.1% point prevalence of major depressive disorder in Iran, where women, with a 4.8% probability, were exposed to risk twice as men, with a 2.3% probability. These results indicated that
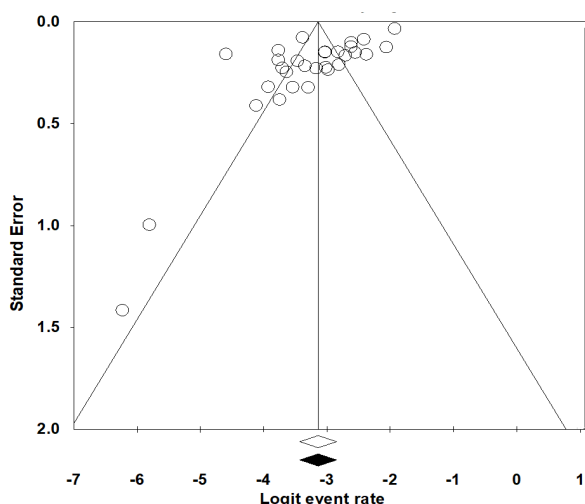
Fig. 4. Funnel plot of the studies assessing the point prevalence of major depressive disorder

the point prevalence obtained in this study was slightly lower than that of the World Health Organization (WHO) in 2015 (4.9%), whose cause may be the much larger sample of the study by World Health Organization (51). According to the results of this study, the point prevalence of major depressive disorder in Iran among Asian countries is similar to Bangladesh (4.1%) and Sri Lanka (4.1%) and has lower statistics than countries such as Qatar (5.1%), United Arab Emirates (5.1%), Lebanon (4.7%), Oman (4.7%), India (4.5%) and Thailand (4.4%). Also, Iran is more vulnerable than many other countries such as Indonesia (3.7%), North Korea (3.7%), Maldives (3.7%), Yemen (6.3%), and Nepal (2.3%) (52).

The results of this study are also consistent with the Systematic Review of Sadeghirad et al (2010) (10), both of which representing a 4.1% point prevalence of major depressive disorder in Iran. The results of the present study showed that the incidence in women was slightly higher than that of men, which is in line with findings of many previous studies (8, 12, 53). This gender difference in major depressive disorder is highlighted in psychiatric literature, and some of its reasons can be attributed to psychological characteristics, biological differences, and gender roles (54, 55). The point prevalence of major depressive disorder in this study was more than twice the reported point prevalence of 1.8% in the 2001 National Research (56). This difference may be due to several reasons. First, because of the intervals of more than 17 years between the 2 studies, the possibility of an increase in the prevalence of major depressive disorder in Iran was not far from impossible, as the prevalence of major depressive disorder in many countries has increased in recent years (2, 52). Second, the tool used in the 2001 National Research (SADS) was different from many of the studies used in the present study, which can be one of the reasons for the difference in the disorder prevalence rates. Also, the number of sample of the 2 studies was different, which could be one of the reasons for the change in the reported prevalence rates.

Since many studies were from different regions of the

country, it was not possible to compare the prevalence of the disease in different years. However, a comparison of the results of the 2 national studies in 2001 (48) and 2015 (47) showed a significant increase in the prevalence of depression from 1.8 to 12.7. Altough it is recommended that further studies should be designed to find the possible causes of this increase, changing trends in sociological and economic issues can have effective roles in this increase.

Limitation
This study has some limitations that are to be considered. First, despite the high efforts of the researchers, some unpublished studies were inevitably omitted due to lack of access to their information. Second, due to the lack of reporting detailed information by many pieces of research, subgroup analysis was conducted solely based on gender, and no comparison was made between rural and urban areas, educational levels, and different social and economic levels. Finally, the failure to use multivariate analysis to control the moderating variables in the present study can affect the reported prevalence.

Conclusion
The current meta-analysis revealed a noticeable point prevalence of major depressive disorder in Iran, which was twice more in women than in men. Considering this information and the high cost of this disorder for communities, the need to formulate and implement preventive and treatment programs is felt more than ever. Also, no precise study has been conducted in many provinces of the country, and thus the prevalence rate of major depressive disorder is unclear in those areas, which can create problems for the health system in the future.

Conflict of Interests
The authors declare that they have no competing interests.

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