

INPLASY PROTOCOL

An Overview of the systematic review of the global gender difference in depression or depressive symptoms

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The authors declare that they have no conflict of interest.

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Review question / Objective: **P:** Adult female diagnosed with depression (including students with college degree or above) **I:** Medication or psychotherapy **I:** Medication or psychotherapy **C:** Adult males **O:** Proportion of women (overall participation rate, regional distribution, ethnic distribution, education, income occupation) prevalence rate, age of intervention effectiveness **S:** Systematic review and meta-analysis.

Condition being studied: Depression is characterized as feeling sad or having a depressed mood; experiencing loss of interest or pleasure; loss of energy or increased fatigue; increase in purposeless physical activity; feeling worthless or guilty; and having difficulty thinking, concentrating, or making decisions (Pelayo, 2018). The World Health Organization (WHO) cites depression as the leading cause of disability worldwide, and is a major contributor to the overall global burden of disease (WHO, 2017). Therefore, the trend remains unclear. A reliable estimation of the prevalence of depressive symptoms among the global is essential to inform tailored efforts to prevent, identify, and treat mental distress. Further, the study of sex and gender differences represents an increasingly significant line of research, involving all levels of biomedical and health sciences, from basic research to population studies. We will conduct an overview of systematic review combined with a bibliometric analysis aimed to answer the following question: In existing studies, whether there is a gender difference in the sample size of patients with depression? At the same time, whether the effectiveness of the same treatment effectiveness varies by different gender?

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 August 2020 and was last updated on 13 August 2020 (registration number INPLASY202080053).

INTRODUCTION

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METHODS

Search strategy: Cochrane (3575): #1 MeSH descriptor: [Depressive Disorder, Major] explode all trees #2 MeSH descriptor: [Depression] explode all trees #3 MeSH descriptor: [Depressive Disorder] explode all trees #4 MeSH descriptor: [Patient Health Questionnaire] explode all trees #5 MeSH descriptor: [Sadness] explode all trees #6 Depress* OR Ideation OR Sadness OR distress OR "center for epidemiological survey, depression scale" OR CES-D OR "beck depression inventory" OR BDI OR "self-rating depression scale" OR SDS OR "hamilton depression scale" OR HAMD OR "montgomery and asberg depression scale" OR MADS OR "Newcastle depression index" OR NDI OR "Patient Health Questionnaire" OR PHQ #7=#1 OR

#2 OR #3 OR #4 OR #5 OR #6(124365) #8 MeSH descriptor: [Meta-Analysis as Topic] explode all trees #9 MeSH descriptor: [Systematic Reviews as Topic] explode all trees #10 "meta analysis" OR "systematic review" OR systematic OR review OR "impact evaluation" OR synthesis OR "Meta-synthesis " OR "Meta-Syntheses" #11= #8 OR #9 OR #10(48920) #12=#7 AND #11 (8097).

Participant or population: Adult female diagnosed with depression (including students with college degree or above).

Intervention: Medication or psychotherapy.

Comparator: Adult male diagnosed with depression.

Study designs to be included: Systematic review and meta-analysis.

Eligibility criteria: 1. Systematic review and meta-analysis 2. Detailed sample size of patients with depression of different genders 3. Exclude postpartum and antenatal depression.

Information sources: A comprehensive search for relevant studies published in English timespan was from the seven databases built to August 12,2020 (Cochrane, Campbell, SAGE, ProQuest, PubMed, EMBASE, and Web of Science) Moreover, the reference lists of the studies were searched manually to identify additional studies not indexed in databases. Reference lists of identified review articles were manually scanned to identify any other relevant studies.

Main outcome(s): 1. Participation-to-prevalence ratio 2. Various intervention effectiveness by different gender 3. GRADE assessment (AmSTAR-2 and PRISMA) of the included systematic review and meta-analysis studies

Additional outcome(s): 1. Appropriate use of the terms "sex" and "gender" according to SAGER guidelines 2. Description of

PROGRESS health determinants 3.sex-related analysis and reporting.

Quality assessment / Risk of bias analysis: Assessing the Quality of SRs : A Measurement Tool to Assess SRs (AMSTAR) (Shea et al.,2007), which consists of 11 items was used to evaluate the methodological quality of all included SRs. For each item, a judgement of “Yes,” “No,” “Can’t answer” or “Not applicable” was assigned according to judgment criteria of AMSTAR. **Assessing the Quality of Evidence:** For the primary outcome measures with detailed information, GRADE (Guyatt et al., 2008) was used to evaluate the quality of evidence following the GRADE handbook (Guyatt et al., 2008) by two researchers independently and disagreements were resolved by a third author. GRADE classified the quality of evidence into four levels: high, moderate, low, and very low.

Strategy of data synthesis: A narrative description of the included SRs was conducted. Review-level summaries for all the primary and secondary outcomes from the included SRs were tabulated. We extracted and reported pooled effect sizes, when outcomes were meta-analyzed within a SR. If there was no quantitative pooling of effect sizes, we reported results with a standardized language indicating direction of effect and statistical significance. Risk ratio (RR) with 95% confidence interval (CI) was involved when summary the dichotomous outcomes, while weighted mean difference (WMD) or standard mean difference (SMD) and 95% CI was involved when summary the continuous data. The heterogeneity of each included SR was also summary and analyzed, which was detected by I² and Chi² tests.

Subgroup analysis: The region/age/education/income of the depressed person. The therapeutic effects of different interventions (medication and psychotherapy) in different genders.

Sensitivity analysis: To assess the influence of each individual study, leave-one-out sensitivity analysis was performed

iteratively by removing one study at a time to confirm that the findings were not influenced by any single study.

Language: English.

Country(ies) involved: China.

Keywords: depression; gender difference; systematic review; meta-analysis; bibliometric.

Contributions of each author:

Author 1 - Liping Guo - Designed and performed. Do the literature searches and designed the data extraction form. The paper was written by Liping Guo and Jieyun Li.

Author 2 - Jieyun Li - Designed and performed. Do the literature searches and designed the data extraction form. The paper was written by Liping Guo and Jieyun Li.

Author 3 - Jingwen Li - finally checked and revised.

Author 4 - Kehu Yang - finally checked and revised.