INPLASY PROTOCOL

To cite: Huang et al. Sex Differences in the Association of Inflammation With Depression: A protocol for systematic review and meta-analysis. Inplasy protocol 202260037. doi: 10.37766/inplasy2022.6.0037

Received: 09 June 2022

Published: 09 June 2022

Corresponding author:
shuwen huang

528131309@qq.com

Author Affiliation:
None reported.

Support: **NSFC.**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Sex Differences in the Association of Inflammation With Depression: A protocol for systematic review and meta-analysis

Huang, SW[1]; Wu, Y[2]; Ren, QP[3]; Shen, JY[4]; Liang, WN[5]; LI, CD[6].

Review question / Objective: **Thus, the purpose of this systematic review is to determine whether the higher prevalence of depression in women is sex-specific or if inflammation contributes to a higher prevalence of depression in females.**
Condition being studied: **Females are twice as likely as males to experience depression. Recent findings indicate a relationship linking inflammation with depression. Importantly, in the context of the relationship between inflammation and depression, findings about sex differences are also mixed.These mixed findings suggest that further studies are needed to better understand sex differences in this literature.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 June 2022 and was last updated on 09 June 2022 (registration number INPLASY202260037).

INTRODUCTION

Review question / Objective: **Thus, the purpose of this systematic review is to determine whether the higher prevalence of depression in women is sex-specific or if inflammation contributes to a higher prevalence of depression in females.**

Condition being studied: **Females are twice as likely as males to experience depression. Recent findings indicate a relationship linking inflammation with depression. Importantly, in the context of the relationship between inflammation and depression, findings about sex differences are also mixed.These mixed findings suggest that further studies are needed to**

better understand sex differences in this literature.

METHODS

Participant or population: No patients will be involved in this study.

Intervention: None.

Comparator: None.

Study designs to be included: The Studies on sex differences in depression were included in the systematic review, including clinical studies and case-control studies.

Eligibility criteria: Depression will be ascertained using an appropriate instrument which might include (but will not be limited to) WHO International Classification of Diseases (WHO ICD) or Diagnostic and Statistical Manual of Mental Disorders codes, or research scales such as the Center for Epidemiologic Studies Depression Scale, Patient Health Questionnaire-9, Hospital Anxiety and Depression Scale and Hamilton Depression Rating Scale; alternatively unstructured physician-assigned diagnoses may be used. 2. any kind of inflammatory cytokine/chemokine, including IL-1β, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12, CRP, TNF-α, IFN-γ, granulocyte-macrophage colony-stimulating factor (GM-CSF), MIP-1α (a.k.a CCL3) or Eotaxin-1 (a.k.a. CCL11)3.Studies with the outcomes comparing sex (men vs women) and studies that outcome data can be extracted across men and women.

Information sources: PubMed, EMBASE, Medline,Cochrane Library,PsycINFO and Web of Science for English language literatures. While the Chinese literature comes from CNKI, CBM, VIP, and Wangfang database. And articles published up to 1 May 2022 were included.

Main outcome(s): Any kind of inflammatory cytokine/chemokine, including IL-1β, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12, CRP, TNF-α, IFN-γ, granulocyte-macrophage colony-stimulating factor (GM-CSF), MIP-1α (a.k.a CCL3) or Eotaxin-1 (a.k.a.CCL11).

Quality assessment / Risk of bias analysis: According to the quality assessment criteria of Cochrane Handbook for Systematic Reviews, RevMan was used to evaluate the integrity of the methods, whether the random method was correct, whether the distribution of concealment, whether it was used for analysis, and whether the results were complete. Among them, RCT studies used the appropriate standard of Cochrane risk bias assessment tool to divide the studies into low risk, high risk and unknown risk[18, 19]and recorded the basis for judgment.

Strategy of data synthesis: When the measured outcomes are dichotomous data, the risk ratio (RR) with 95% confidence interval (CI) will be adopted.When the measured outcomes are continuous data,Weighted Mean Difference (WMD) with 95% CI will be adopted if we use the same measurement instrument. And the Standardized Mean Difference (SMD) with 95% CI will be applied if we use different measurement instruments. The choice of whether to conduct a meta-analysis and which model to use (fixed or random effects) will depend on the level of statistical heterogeneity assessed by the I2 index. A fixed-effects model was used for meta-analysis in the absence of significant heterogeneity ($p \geq 0.1$, $I2 \leq 0.5$). If significant heterogeneity (p0.5) was present, the source of heterogeneity was first analyzed to exclude the effects of clinical or methodological heterogeneity, and a meta-analysis was performed using a random-effects model. When the meta-analysis could not analyze the data provided by clinical trials, a descriptive analysis was performed. If high heterogeneity was present, sensitivity analysis or subgroup analysis was conducted.The subgroups will be performed according to race ,mean or median age, publication date, type of blood sample, sample detection method, and so on.If there are sufficient studies for its construction and publication bias also exists, we will apply funnel plot and Egger's test to evaluate it.

Subgroup analysis: The subgroups will be performed according to race ,mean or

median age, publication date, type of blood sample, sample detection method, and so on.

Sensitivity analysis: Sensitivity analysis is mainly used to evaluate the robustness of the primary outcome measures.The method is that removing the low-level quality study 1 by 1 and then merge the data to assess the impact of sample size, study quality, statistical method, and missing data on results of meta-analysis.

Country(ies) involved: China.

Keywords: sex differences; depression; inflammation.

Contributions of each author:
Author 1 - shuwen Huang.
Author 2 - you Wu.
Author 3 - qiuping Ren.
Author 4 - jianying Shen.
Author 5 - wenna Liang.
Author 6 - candong LI.