

INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Hormone about the major depressive disorder: a systematic review and meta-analysis

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Review question / Objective: This study was designed to explore the associations between different hormones and MDD based on available shreds of evidences. **P:** MDD without other mental disorders, **I:** Determination of different hormone concentrations in body fluids (saliva, blood), **C:** Healthy control, **O:** Predicting the occurrence of depression, **S:** Cohort study and cross-sectional study.

Eligibility criteria: Inclusion criteria: (1) Participants who met the Diagnostic and Statistical Manual of Mental Disorders (DSM) or International Classification of Diseases (ICD) criteria for MDD; (2) The control group with no psychiatric disorder or relevant history of mental illness. (3) Hormone levels in both patients with MDD and controls were reported. Excluded criteria: (1) Case series or case reports. (2) Cases with bipolar disorder on depressive episodes. (3) MDD participants with comorbidities of major mental disorders (e.g., anxiety disorder or schizophrenia) or somatopathy (e.g., diabetes or endocrine-metabolic disorders). (4) No relevant data available or incomplete information.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 March 2022 and was last updated on 28 March 2022 (registration number INPLASY202230156).

INTRODUCTION

Review question / Objective: This study was designed to explore the associations between different hormones and MDD based on available shreds of evidences. **P:** MDD without other mental disorders, **I:** Determination of different hormone

concentrations in body fluids (saliva, blood), **C:** Healthy control, **O:** Predicting the occurrence of depression, **S:** Cohort study and cross-sectional study.

Condition being studied: Hormone levels, major depressive disorder (MDD).

METHODS

Search strategy: The literature search was conducted in the Cochrane Library, PsycINFO, PubMed, Embase, Web of Science, and three major Chinese databases (CNKI, WAN FANG, VIP) before February 1, 2022. The main search terms included 'Major Depressive Disorder OR depression OR depressive' AND 'Hormone'. The following search formula was an example of the strategy used to dig through the PubMed database: ((Depression [Title]) OR (Major Depressive Disorder [Title])) AND (hormones [MeSH Major Topic]) AND ((Correlate) OR (Prevalence) OR (Factor) OR (Epidemiology) OR (Predictor)).

Participant or population: Participants are the major depressive disorder (MDD) without other psychiatric disorders. MDD groups need to meet the Diagnostic and Statistical Manual of Mental Disorders (DSM) or International Classification of Diseases (ICD) criteria.

Intervention: Determination of different hormone levels in body fluids (saliva, blood). The hormones include Cortisol hormone, ACTH, DHEA, adiponectin, leptin, thyroid hormone, and melatonin.

Comparator: Comparators are healthy controls. The control groups are with no psychiatric disorder or relevant history of mental illness.

Study designs to be included: Study design is cohort study or cross-sectional study.

Eligibility criteria: Inclusion criteria: (1) Participants who met the Diagnostic and Statistical Manual of Mental Disorders (DSM) or International Classification of Diseases (ICD) criteria for MDD; (2) The control group with no psychiatric disorder or relevant history of mental illness. (3) Hormone levels in both patients with MDD and controls were reported. Excluded criteria: (1) Case series or case reports. (2) Cases with bipolar disorder on depressive episodes. (3) MDD participants with comorbidities of major mental disorders

(e.g., anxiety disorder or schizophrenia) or somatopathy (e.g., diabetes or endocrine-metabolic disorders). (4) No relevant data available or incomplete information.

Information sources: Electronic databases (the Cochrane Library, PsycINFO, PubMed, Embase, Web of Science, and three major Chinese databases (CNKI, WAN FANG, VIP)), contact with authors and the reference lists.

Main outcome(s): Main outcome is to predict the occurrence of MDD. Standardized Mean Difference (SMD) with 95% confidence intervals (CI) were calculated for meta-analysis. P-value < 0.05 indicated there was a statistically significant difference between MDD and control groups.

Quality assessment / Risk of bias analysis: The quality of the included studies was evaluated by Newcastle-Ottawa Scale (NOS). Corresponding versions were respectively used to evaluate the case-control studies and the cohort studies.

Strategy of data synthesis: Forest plots will be performed to evaluate the difference in hormone levels between the MDD group and control group. Data will be pooled by random-effects model or fixed-effect model. Standardized Mean Difference (SMD) with 95% confidence intervals (CI) were calculated for meta-analysis. The heterogeneity of the statistical merger of each group was evaluated by χ^2 and I^2 statistics. Meanwhile, p-value < 0.05 or I^2 > 50% indicated the heterogeneity between the merged studies. The publication bias was detected by Funnel plot, Begg's test and Egger's test. We will use the software of Revman5.3 and Stata.

Subgroup analysis: The meta-analysis results will be tested in subgroups stratified by different countries, sampling sites, and sampling times.

Sensitivity analysis: The sensitivity analysis was detected by Funnel plot, Begg's test and Egger's test. We will use the software of Revman5.3 and Stata.

Country(ies) involved: China.

Keywords: Hormone, major depressive disorder, meta-analysis, correlator.

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