

# INPLASY PROTOCOL

To cite: Cai et al. Prevalence of suicidal behaviors in patients with major depressive disorder: a meta-analysis and systematic review of comparative studies. Inplasy protocol 202120078. doi: 10.37766/inplasy2021.2.0078

Received: 24 February 2021

Published: 24 February 2021

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**Support:** MYRG2019-00066-FHS.

**Review Stage at time of this submission:** Data extraction.

**Conflicts of interest:**  
None declared.

## Prevalence of suicidal behaviors in patients with major depressive disorder: a meta-analysis and systematic review of comparative studies

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**Review question / Objective:** Participants (P): patients with major depressive disorder according to international or local diagnostic criteria, such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) , and the International Statistical Classification of Diseases and Related Health Problems (ICD) systems. Intervention (I): not applicable. Comparison (C): persons without MDD or other major psychiatric disorders such as schizophrenia and bipolar disorder; Outcomes (O): the prevalence of suicidal behaviors including suicidal ideation, suicide plan, suicide attempt, and completed suicide or data that could generate prevalence of suicidal behaviors; Study design (S): case-control or cohort studies (only the baseline data of cohort studies were extracted). Studies involving MDD patients combined with other disorders or other special populations (e.g., children and/ or adolescent, pregnant women, soldier) were also excluded.

**Condition being studied:** Suicidality are common in major depressive disorder (MDD). The objective of this meta-analysis and systematic review is to estimate the risk of all aspect of suicidality in patients with MDD compared with non-MDD.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 February 2021 and was last updated on 24 February 2021 (registration number INPLASY202120077).

### INTRODUCTION

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and Statistical Manual of Mental Disorders (DSM) , and the International Statistical Classification of Diseases and Related Health Problems (ICD) systems. Intervention (I): not applicable. Comparison (C): persons without MDD or other major

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## METHODS

**Search strategy:** Two investigators independently searched literature in PubMed, PsycINFO, Web of Science, EMBASE, Chinses Nation knowledge Infrastructure (CNKI) and WANFANG from their commencement dates until 12 January 2021, using the following search terms: ((suicid\* ideation) OR (suicid\* idea) OR (suicide thought) OR (suicide plan) OR (self-injurious behavior) OR (self-harm) OR (self-injury) OR (suicid\*) OR (self-mutilation) OR (self-immolation) OR (self-inflicted) OR (self-slaughter) OR (self-destruction)) AND ((major depress\*) OR (unipolar depress\*) OR (Depressive Disorder, Major)) AND ((epidemiology) OR (prevalence) OR (rate)). The same two investigators independently screened the titles and abstracts, and then read full texts of relevant papers for eligibility. Moreover, reference lists of relevant reviews were checked manually to identify potentially missing studies. Uncertainty in literature search was resolved by a discussion with a third investigator (XYT).

**Participant or population:** Patients with major depressive disorder according to standardized diagnostic criteria, such as the ICD and DSM systems.

**Intervention:** NA.

**Comparator:** People without MDD or other major psychiatric disorders such as schizophrenia and bipolar disorder.

**Study designs to be included:** Case-control study or cohort study (only baseline data of cohort studies will be included).

**Eligibility criteria:** The inclusion criteria were made according to the PICOS acronym as follows: Participants (P): patients with major depressive disorder according to international or local diagnostic criteria, such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) (Akiskal & Benazzi, 2006), and the International Statistical Classification of Diseases and Related Health Problems (ICD) systems (Akiskal & Benazzi, 2006). Intervention (I): not applicable. Comparison (C): persons without MDD or other major psychiatric disorders such as schizophrenia and bipolar disorder; Outcomes (O): the prevalence of suicidal behaviors including suicidal ideation, suicide plan, suicide attempt, and completed suicide or data that could generate prevalence of suicidal behaviors; Study design (S): case-control or cohort studies (only the baseline data of cohort studies were extracted). Studies involving MDD patients combined with other disorders or other special populations (e.g., children and/ or adolescent, pregnant women, soldier) were also excluded. If more than one paper was published based on the same dataset, only the one with the largest sample size was included.

**Information sources:** Studies involving MDD patients combined with other disorders or other special populations (e.g., children and/ or adolescent, pregnant women, soldier) were also excluded. If more than one paper was published based on the same dataset, only the one with the largest sample size was included.

**Main outcome(s):** The prevalence of suicidal behaviors including suicidal ideation, suicide plan, suicide attempt, and

completed suicide or data that could generate prevalence of suicidal behaviors.

**Quality assessment / Risk of bias analysis:**

Study quality was assessed using a standardized instrument for epidemiological studies with 8 items as follows: (1) Target population was defined clearly, (2) Probability sampling or entire population surveyed (3) Response rate was equal or greater than 80%, (4) Non-responders clearly described (5) Sample representative of the target population (6) Data collection methods standardized (7) Validated criteria used to diagnose MDD (8) Prevalence estimates given with confidence intervals and detailed by subgroups (if applicable). The total score ranges from 0 to 8. Studies with a total score of “7-8” were considered as “high quality”, “4-6” as “moderate quality” and “0-3” as “low quality”.

**Strategy of data synthesis:** This meta-analysis was conducted with Comprehensive Meta-Analysis (CMA) Version 2.0 (Biostat Inc., Englewood, New Jersey, USA). The random-effects model was used to calculate the pooled prevalence of suicidality and their 95% confidence intervals (95% CIs). Heterogeneity between studies was assessed with I<sup>2</sup> statistic, and I<sup>2</sup> > 50% was considered high heterogeneity. Sensitivity analyses were performed to identify outlying studies by excluding studies one by one. Publication bias of the included studies was estimated with funnel plots and Eegg’s test. A  $p < 0.05$  was considered as statistically significant (two-tailed).

**Subgroup analysis:** If result of the study are significantly heterogenous, subgroup analysis of the control groups might be performed.

**Sensitivity analysis:** If sufficient studies are identified, we plan to conduct a sensitivity analysis comparing the results using all studies with high methodological quality.

**Country(ies) involved:** China.

**Keywords:** major depressive disorder, suicidality, meta-analysis.

**Contributions of each author:**

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Author 2 - Xiao-meng Xie.

Author 3 - Ling Zhang.

Author 4 - Qinge Zhang.

Author 5 - Yutao Xiang.