International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

The global prevalence and risk of post-stroke depression: A protocol for a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 May 2026 and was last updated on 25 May 2026.

INTRODUCTION

Review question / Objective To quantitatively synthesize the available observational evidence on the risk of developing depression among stroke survivors compared to stroke-free individuals, and to obtain a pooled relative risk (RR) of post-stroke depression (PSD) for subsequent integration into the Global Burden of Disease (GBD) comparative risk assessment framework.

Condition being studied Post-stroke depression (PSD) – the occurrence of clinically significant depressive symptoms or major depressive disorder following a stroke event, compared with stroke-free individuals.

METHODS

Participant or population Participants: Adults (≥18 years) with acute or chronic stroke (ischemic or hemorrhagic, confirmed by clinical assessment and neuroimaging). Control group: participants without any history of stroke or transient ischemic attack. Studies exclusively involving transient ischemic attack (TIA) or subarachnoid hemorrhage will be excluded.

Intervention Stroke (ischemic or hemorrhagic, confirmed by clinical and neuroimaging criteria).

Comparator No stroke (stroke-free individuals).

Study designs to be included Observational studies, including prospective/retrospective cohort studies and case-control studies. Cohort studies are preferred for deriving relative risks. Case-control studies will be included only if they report an adjusted odds ratio for the association between stroke and depression, and no cohort study exists for the same population/region.

Eligibility criteria Inclusion: Cohort studies (prospective/retrospective) of adults (≥18y) with confirmed stroke vs. stroke-free controls; reporting RR/HR/OR for post-stroke depression diagnosed by validated criteria/scales. No restrictions on language/year/region.

Exclusion: Cross-sectional studies, case reports/series, TIA only, no clear PSD definition, animal studies.

Information sources We will systematically search the following electronic databases from inception to present with no language restrictions: PubMed/MEDLINE, EMBASE, PsycINFO, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), Scopus, and China National Knowledge Infrastructure (CNKI). All searches will be conducted by [Date to be filled]. We will also search clinical trial registries (ClinicalTrials.gov, WHO ICTRP) for ongoing or unpublished trials. Grey literature will be identified via ProQuest Dissertations & Theses and OpenGrey. Additionally, we will manually screen the reference lists of all included studies and relevant systematic reviews to identify additional eligible studies. Where necessary, we will contact study authors to request missing or unpublished data.

Main outcome(s) The primary outcome is the relative risk (RR) of post-stroke depression (PSD) in stroke survivors compared to stroke-free individuals. Where RR is not reported, hazard ratios (HR) or odds ratios (OR) will be extracted and, where appropriate, considered equivalent to RR. Effect estimates with 95% confidence intervals (CIs) will be pooled using random-effects meta-analysis. If sufficient data are available, subgroup analyses will be performed by study design (prospective vs. retrospective), stroke type (ischemic vs. hemorrhagic), and geographic region.

Quality assessment / Risk of bias analysis The methodological quality of included cohort studies will be assessed using the Newcastle-Ottawa Scale (NOS) for cohort studies. Two reviewers will independently evaluate each study across three domains: selection of study groups (4 items), comparability of cohorts (1 item), and ascertainment of exposure/outcome (3 items). Disagreements will be resolved by discussion or consultation with a third reviewer. We will not compute a summary quality score but will present domain-specific judgments in a summary table and explore the potential impact of study quality on pooled effect estimates via sensitivity analyses.

Strategy of data synthesis Effect measure: Pooled relative risk (RR) with 95% CI. HR and OR will be treated as equivalent to RR.

Model: Random-effects meta-analysis (DerSimonian-Laird estimator) due to anticipated heterogeneity.

Heterogeneity: Assessed using I^2 statistic(p6 months), and sex.

Sensitivity analyses: Leave-one-out, high-quality studies only (NOS≥7), prospective only, diagnostic interview only, Knapp-Hartung adjustment, and publication bias assessment (funnel plot + Egger's test + trim-and-fill) if ≥10 studies.

Software: Stata 18.0 or R 4.3+.

If inappropriate: Narrative synthesis will be provided.

Subgroup analysis Subgroup analyses will be performed, where data permit, by:
Study design (prospective vs. retrospective cohort)
Stroke type (ischemic vs. hemorrhagic)
Geographic region (GBD super-regions or World Bank income groups)
PSD assessment method (diagnostic interview vs. rating scale)
Timing of outcome assessment (≤6 months vs. >6 months post-stroke)
Sex (male vs. female, if sex-specific RRs reported).

Sensitivity analysis Sensitivity analyses will include: (1) leave-one-out analysis; (2) restricting to high-quality studies (NOS≥7); (3) restricting to prospective cohort studies; (4) restricting to studies using diagnostic interviews for PSD; (5) excluding studies where ORs were used as approximations of RRs; (6) using Knapp-Hartung adjustment; (7) trim-and-fill method for publication bias.

Country(ies) involved China.

Keywords Post-stroke depression, Global Burden of Disease, Disability-adjusted life years, Meta-analysis, Risk assessment.

Contributions of each author
Author 1 - yuling ouyang - Literature search, study selection, data extraction, quality assessment (risk of bias), and writing – review & editing.
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Author 3 - chenyao zhai - Disagreement resolution (third reviewer), data validation, meta-analysis implementation (software), and writing – review & editing.