

# INPLASY

## What Can Postmortem Evidence Tell Us About Suicide Deaths? A Systematic Review Protocol

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - The review has not yet started.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202620025

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 February 2026 and was last updated on 6 February 2026.

### INTRODUCTION

**Review question / Objective** (1) To systematically synthesize postmortem and forensic autopsy studies focused on suicide deaths published since 2000; (2) To summarize the main research domains and methodological approaches employed in autopsy-based suicide research; (3) To critically evaluate and integrate key findings across studies, and to conduct meta-analysis where sufficient and comparable data are available, in order to identify knowledge gaps and emerging directions in the use of postmortem evidence for understanding suicide deaths.

**Rationale** Postmortem and forensic autopsy research occupies a unique position at the intersection of legal medicine, pathology, psychiatry, and public health. Autopsy findings not only underpin the accurate classification of suicide deaths but also provide critical empirical evidence that cannot be obtained through living populations

or self-report data. However, existing autopsy-based suicide studies are dispersed across disciplines and vary widely in focus, methodology, and scope. To date, there is no comprehensive synthesis that systematically evaluates and integrates how autopsy data have been used to study suicide deaths, what research questions have been prioritized, and where substantial gaps remain. By conducting a systematic review, and performing meta-analysis where appropriate, this study aims to provide an integrated overview of postmortem suicide research, assess the consistency and robustness of key findings, clarify its contributions and limitations, and inform future methodological development and interdisciplinary collaboration in suicide research.

**Condition being studied** Suicide death is a major global public health problem and one of the leading causes of preventable mortality worldwide. In this review, the condition of interest is death classified as suicide, as determined through postmortem, forensic, or autopsy-based

investigations. Postmortem evidence—including forensic autopsy findings, psychological autopsy data, toxicological analyses, and postmortem biological or neuropathological assessments—provides critical information for accurately determining the cause and manner of death and for understanding the physical, biological, psychological, and contextual characteristics associated with suicide. This review focuses exclusively on suicide deaths (not non-fatal attempts or ideation) and examines how postmortem evidence has been used to study suicide since 2000.

## METHODS

**Search strategy** A systematic search will be conducted in four English-language electronic databases: PubMed, EMBASE, PsycINFO and Web of Science. The search strategy will combine terms related to suicide and postmortem examination using Boolean operators (AND). Controlled vocabulary (eg, MeSH terms) will be applied where appropriate. Database-specific search strategies are predefined and adapted to each database.

To ensure comprehensive coverage, supplementary searches will also be performed using Google Scholar, and the reference lists of all included articles and relevant reviews will be hand-searched to identify additional eligible studies not captured in the primary database search.

(1) Suicide-related: Suicid\*

(2) Postmortem-related: post mort\*, post-mort\*, forens\*, autops\*, necrops\*.

**Participant or population** The population of interest includes human individuals whose deaths were classified as suicide and who underwent postmortem, forensic, or autopsy examination.

**Intervention** Not applicable. This review does not evaluate therapeutic, preventive, or clinical interventions. Instead, it focuses on postmortem and forensic investigation approaches used to examine suicide deaths.

**Comparator** Not applicable. No explicit comparator or comparison intervention is defined, as this review aims to synthesize evidence derived from postmortem investigations rather than compare intervention effects between groups.

**Study designs to be included** This review will include original empirical postmortem or forensic studies of suicide deaths (e.g., case series, observational, psychological autopsy, or qualitative

studies) and will exclude all reviews and other non-original publications.

### Eligibility criteria Inclusion criteria

Studies will be included if they meet all of the following criteria:

(a) Published between January 1, 2000 and February 8, 2026;

(b) Published in peer-reviewed journals and written in English;

(c) Focus explicitly on suicide deaths, with the deceased individual as the primary unit of analysis;

(d) Employ postmortem investigation methods aimed at examining the strategies, circumstances, risk factors, or causes of suicide death. Eligible methods include psychological autopsy, forensic examination, analysis of suicide notes or other farewell communications (eg, written suicide notes, digital messages, social media posts, or audio/video recordings left prior to death), postmortem biological or neuropathological assessments (eg, cerebrospinal fluid or brain tissue analyses), and postmortem medical or administrative record review;

(e) Present original empirical findings derived from systematic examination of the decedent after death.

### Exclusion criteria

Studies will be excluded if they:

(a) Did not involve postmortem investigation of suicide deaths, defined as the use of data from the deceased individual—whether collected before or after death—to examine the suicide death retrospectively.

(b) Focus exclusively on non-fatal suicide attempts, self-harm without death, or suicidal ideation;

(c) Address physician-assisted suicide or euthanasia without examining suicide death mechanisms or postmortem evidence;

(d) Are reviews of any type, including systematic reviews, meta-analyses, scoping reviews, or narrative reviews;

(e) Are editorials, commentaries, conference abstracts, dissertations, theses, book chapters, reports, or other forms of grey literature;

(f) Lack sufficient methodological or descriptive detail to allow data extraction or assessment of study quality.

**Information sources** A comprehensive systematic search will be conducted in the following electronic databases:

(a) PubMed

(b) EMBASE

(c) PsycINFO

(d) Web of Science

The search strategy will combine suicide-related terms (e.g., Suicid\*) and postmortem-related terms (e.g., post mort\*, autops\*, forens\*, necrops\*), using Boolean operators and controlled vocabulary (e.g., MeSH terms) where appropriate.

To enhance coverage, supplementary searches will be performed in Google Scholar. In addition, the reference lists of all included articles and relevant reviews will be manually screened to identify additional eligible studies. Only peer-reviewed articles published in English will be included.

**Main outcome(s)** The primary outcomes of this review are descriptive and analytical characteristics of postmortem evidence in suicide research, including:

- (a) Types and domains of postmortem findings (e.g., injury patterns, toxicological profiles, pathological or neuropathological features)
- (b) Suicide methods and their associated physical or biological characteristics
- (c) Methodological approaches and analytical levels at which postmortem data are applied (e.g., cause-of-death determination, reconstruction of risk factors or circumstances, exploration of biological or psychological mechanisms)

Where sufficient and comparable data are available, quantitative outcomes (e.g., prevalence estimates, pooled proportions, or effect estimates related to specific postmortem findings) will be synthesized using meta-analytic techniques. Timing of outcomes corresponds to the postmortem examination conducted after death.

**Data management** A standardized data charting form will be developed to extract and organise key information from included studies. Extracted data will include bibliographic information (eg, author, year, country), study design, data sources, sample characteristics, and type of postmortem examination (eg, forensic autopsy, psychological autopsy, postmortem biological or neuropathological assessment). Additional variables will capture suicide methods, categories of postmortem findings (eg, injury patterns, toxicology results, pathological or neuropathological features), and the analytical level at which postmortem data were applied (eg, cause-of-death determination, reconstruction of risk factors or circumstances, or exploration of biological or psychological mechanisms). Where reported, the stated objectives, intended applications, and translational implications of the postmortem data will also be extracted.

Given the anticipated methodological and clinical heterogeneity of autopsy-based suicide studies, findings will primarily be synthesised using descriptive and narrative approaches, supported by structured tables. Quantitative synthesis will be considered only where studies are sufficiently comparable in design, measures, and outcomes.

The methodological quality of included studies will be assessed using the Joanna Briggs Institute (JBI) critical appraisal tools, with the specific checklist selected according to study design (eg, case series, cross-sectional, prevalence, or qualitative studies). Quality appraisal will focus on the clarity of case definition, appropriateness of data sources, completeness of postmortem examination, and transparency of analytical procedures. Quality assessment will be conducted independently by two reviewers, with disagreements resolved through discussion or adjudication by a third reviewer.

**Quality assessment / Risk of bias analysis** The methodological quality of included studies will be assessed using the Joanna Briggs Institute (JBI) critical appraisal tools, with specific checklists selected according to study design (e.g., case series, cross-sectional, prevalence, or qualitative studies). Quality assessment will focus on aspects such as clarity of case definition, appropriateness and completeness of postmortem data sources, validity of measurement methods, and transparency of analytical procedures. All studies will be independently appraised by two reviewers, with disagreements resolved through discussion or adjudication by a third reviewer.

**Strategy of data synthesis** Given the anticipated methodological and clinical heterogeneity across autopsy-based suicide studies, data will primarily be synthesized using descriptive and narrative methods, supported by structured summary tables. Studies will be grouped according to key characteristics such as type of postmortem investigation, research domain, and analytical focus.

Where studies are sufficiently comparable in design, measures, and outcomes, quantitative synthesis (meta-analysis) will be conducted using appropriate statistical methods. Heterogeneity will be assessed, and the choice of fixed- or random-effects models will be guided by the degree of between-study variability.

**Subgroup analysis** Subgroup analyses will be conducted only if sufficient and comparable data are available to permit meta-analysis. Where

applicable, subgroup analyses may be performed based on:

- (a) Type of postmortem investigation (e.g., forensic autopsy vs psychological autopsy vs biological/neuropathological assessment);
- (b) Suicide method;
- (c) Geographic region or country;
- (d) Study period or publication era.

If the available data are insufficient for quantitative synthesis, findings will be summarized using descriptive and narrative approaches, and subgroup analyses will not be conducted.

**Sensitivity analysis** Sensitivity analyses will be conducted only if sufficient and comparable data are available to permit meta-analysis. Where applicable, the robustness of pooled estimates will be examined by:

- (a) Excluding studies rated as low methodological quality;
- (b) Restricting analyses to studies with similar designs or outcome definitions;
- (c) Assessing the impact of individual studies on the pooled results.

If the available data are insufficient for quantitative synthesis, findings will be presented using descriptive and narrative approaches, and sensitivity analyses will not be performed.

**Language restriction** Studies in English will be included in the review.

**Country(ies) involved** China.

**Keywords** Suicide; Suicide death; Autopsy; Postmortem examination; Forensic science; Necropsy.

#### **Contributions of each author**

Author 1 - Jintao Guo - Conceptualisation; Drafting Original Manuscript; Data Collection; Editing Manuscript.

Author 2 - Wenye Zou - Conceptualisation; Drafting Original Manuscript; Data Collection; Editing Manuscript.

Author 3 - Jiaxun Yu - Conceptualisation; Editing Manuscript; Supervision.

Author 4 - Yutong An - Conceptualisation; Editing Manuscript; Supervision.

Author 5 - Diyang Qu - Conceptualisation; Editing Manuscript; Supervision.

Author 6 - Runsen Chen - Conceptualisation; Editing Manuscript; Supervision.