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Workplace violence against healthcare workers: prevalence, underreporting, risk factors, consequences and prevention. A protocol for a systematic review

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ADMINISTRATIVE INFORMATION

Support - This review has received no external financial support. It is conducted within the framework of the research activities of Hospital Clinico San Carlos. No grant number applies.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

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 27 May 2026 and was last updated on 27 May 2026.

INTRODUCTION

Review question / Objective Main objective: To synthesise the available evidence (2015–2026) on the prevalence, underreporting, risk factors, physical and psychological consequences, and prevention strategies of workplace violence (WPV) against healthcare workers (HCWs), with specific attention to the Spanish and European context.

Main research question: What is the global and national (Spain) prevalence of WPV against HCWs, what is the extent and determinants of its underreporting, which risk factors are associated with exposure to WPV, what are its physical and mental health consequences, and which preventive interventions have demonstrated effectiveness?

PICO framework:
P (Population): Healthcare workers of any professional category, specialty and care setting.
I/E (Exposure): Workplace violence perpetrated by patients, relatives, companions or co-workers (Types I–IV, NIOSH classification), including physical, verbal, psychological and sexual violence.
C (Comparator): Non-exposure to WPV or comparison between preventive interventions.
O (Outcomes): Prevalence, underreporting rates, risk factors, PTSD, burnout, depression, absenteeism, staff turnover, medical errors, and efficacy of interventions.

Secondary research questions:
1. What is the rate of WPV underreporting and which individual and institutional factors explain it?
2. Which professional groups present the highest vulnerability according to care setting (emergency departments, ICU, primary care, mental health)?
3. What causal relationship exists between WPV exposure and psychological consequences (PTSD, burnout, depression, anxiety)?

4. Which preventive interventions (training, organisational, environmental, multicomponent, legislative) have demonstrated efficacy in reducing WPV incidence or its consequences?
5. What are the main knowledge gaps remaining in WPV research in healthcare?

Rationale Workplace violence against healthcare workers is a globally growing occupational hazard that affects between 50% and 92% of healthcare professionals at some point in their career, yet remains substantially underreported. In Spain, the Ministry of Health recorded 18,563 aggressions in 2025 (24.37 per 1,000 professionals), representing an 8.74% increase over 2024. Carballo-López et al. (2025, Ansiedad y Estrés) demonstrated that official records capture only 1.6% of actual WPV, against a real survey-estimated prevalence of 16.9% in a Spanish university hospital — an underreporting rate of 83.1%. This evidence gap has profound implications for public health policy and occupational health planning.

A prior search of PROSPERO and INPLASY databases was conducted before submission of this protocol. No registered or published systematic review was found that simultaneously addresses all five dimensions covered by this review (prevalence, underreporting, risk factors, consequences and prevention) in a comprehensive manner, with explicit inclusion of the Spanish institutional data, and with a search updated to 2026. Existing reviews are either restricted to specific settings (emergency departments: Gheri et al., 2025; ICU: Berger et al., 2024, PROSPERO ID CRD42023388449), limited to specific outcomes (burnout: Gümüş et al., 2025), or have an earlier search cutoff (O'Brien et al., 2024, narrative review). The present review therefore fills a genuine methodological and content gap in the evidence base.

This review will contribute evidence directly applicable to: (a) public health policy-makers designing national WPV prevention plans; (b) hospital and primary care managers implementing reporting systems and multicomponent interventions; (c) occupational health professionals advising on risk assessment; and (d) researchers identifying priority areas for future investigation.

Condition being studied Workplace violence (WPV) against healthcare workers. WPV is defined by the ILO/ICN/WHO/PSI (2002) as the intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community, that results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation, in the context of the health sector workplace.

The condition encompasses all forms of WPV: physical violence (hitting, pushing, biting, weapon use), verbal violence (insults, threats, screaming), sexual harassment, psychological harassment/bullying, and homicide. The review will address both patient/visitor-perpetrated violence (Type II, most prevalent) and co-worker/supervisor violence (Type III), following the NIOSH four-type classification. Special attention will be given to the underreporting phenomenon and its determinants, which represent a critical obstacle to effective prevention.

METHODS

Search strategy PubMed/MEDLINE search strategy (adapted for other databases):

(("Violence, Workplace"[MeSH] OR "workplace violence"[tiab] OR "occupational violence"[tiab] OR "aggression"[tiab] OR "assault"[tiab] OR "abuse"[tiab]) AND ("Health Personnel"[MeSH] OR "healthcare worker*"[tiab] OR "health care worker*"[tiab] OR "nurs*"[tiab] OR "physician*"[tiab] OR "doctor*"[tiab] OR "paramedic*"[tiab] OR "emergency medical technician*"[tiab]) AND ("underreporting"[tiab] OR "under-reporting"[tiab] OR "under reporting"[tiab] OR "incident reporting"[tiab] OR "notification"[tiab] OR "prevalence"[tiab] OR "risk factor*"[tiab] OR "consequence*"[tiab] OR "burnout"[tiab] OR "post-traumatic stress"[tiab] OR "PTSD"[tiab] OR "depression"[tiab] OR "anxiety"[tiab] OR "prevention"[tiab] OR "intervention*"[tiab] OR "de-escalation"[tiab]))

Filters applied: English and Spanish language; publication date 2015–March 2026; humans.

Same conceptual strategy adapted with Emtree (Scopus/EMBASE), CINAHL subject headings, and PsycINFO thesaurus terms for the remaining databases.

Additional Spanish-language search in IBECS (Instituto de Salud Carlos III) using terms: «violencia laboral», «agresiones sanitarios», «infradeclaración», «personal sanitario».

Supplementary strategies: (1) snowball searching from reference lists of all included systematic reviews; (2) institutional sources: Spanish Ministry of Health annual reports, OMC Observatory; (3) Google Scholar for non-indexed studies.

Participant or population Inclusion: Healthcare workers (HCWs) of any professional category (physicians, nurses, emergency medical technicians, nursing assistants, social workers, orderlies/porters, administrative/reception staff), specialty, and level of care (primary care, hospital care, emergency departments, ICUs, mental health units, home care, pre-hospital emergency services). No restrictions on sex, age, country, or socioeconomic level of the health system.

Exclusion: Students in exclusively academic settings without clinical practice; non-healthcare service sector workers; studies reporting data for HCWs without disaggregating them from other workers.

Handling of mixed populations: If a study includes both healthcare and non-healthcare workers, it will be included only if results are reported separately for HCWs or if HCWs represent ≥75% of the sample.

Intervention Exposure (observational component): Any form of workplace violence perpetrated against HCWs by patients, relatives, companions or co-workers/supervisors, in any healthcare setting, including:
– Physical violence: hitting, pushing, biting, kicking, scratching, use of objects or weapons.
– Verbal violence: insults, threats, screaming, derogatory language.
– Psychological harassment: bullying, mobbing, intimidation, humiliation.
– Sexual harassment: unwanted sexual comments, touching or advances.

Intervention (preventive component): Any intervention aimed at preventing, reducing or managing WPV in the healthcare setting, including: (a) training programmes (de-escalation, conflict management, communication skills); (b) organisational interventions (zero-tolerance policies, reporting systems, post-incident support, staffing); (c) environmental interventions (access control, alarms, security design); (d) multicomponent interventions; (e) legislative measures.

Comparator For observational/epidemiological studies (prevalence, underreporting, risk factors): No comparator required.

For studies on consequences: HCWs not exposed to WPV, or with lower exposure levels, serving as the reference group.

For intervention studies: (a) control group with no intervention; (b) minimal/usual care control; (c) waiting-list control; or (d) alternative active intervention. Both active comparison and placebo/no-treatment comparisons will be accepted.

Study designs to be included Systematic reviews and meta-analyses (for evidence synthesis and umbrella review), Narrative reviews (for contextual and theoretical background), Observational original studies: cross-sectional, cohort and case-control, Intervention studies: randomised controlled trials (RCTs), quasi-experimental studies, before-after studies, Qualitative and mixed-method studies (for underreporting barriers and professional experiences).

Eligibility criteria Language: English and Spanish (to ensure coverage of Spanish institutional evidence, including Carballo-López et al., 2025).

Publication period: January 2015 – March 2026. Studies published before 2015 may be incorporated exceptionally when they constitute unavoidable conceptual references (e.g., ILO/WHO 2002 framework guidelines; seminal meta-analyses).

Publication status: Published articles in peer-reviewed journals, institutional reports with methodological documentation, and preprints from established repositories (medRxiv, PsyArXiv) if the study has not yet been peer-reviewed. Grey literature will be included when from authoritative institutional sources.

Geographic scope: No geographic restriction. Special attention to Spanish and European data, but global evidence will be synthesised.

Conflict of interest exclusion: Studies funded exclusively by security/technology companies marketing WPV prevention products will be flagged and subjected to sensitivity analysis.

Information sources Electronic bibliographic databases:
1. PubMed/MEDLINE (National Library of Medicine, USA)
2. Scopus (Elsevier)
3. PsycINFO (American Psychological Association)
4. CINAHL (EBSCO)
5. Cochrane Library – CENTRAL (Wiley)
6. Web of Science – Core Collection (Clarivate Analytics)
7. IBECS – Índice Bibliográfico Español en Ciencias de la Salud (Instituto de Salud Carlos III, Spain)

Additional sources:
– Spanish Ministry of Health: Informe Anual de Agresiones al personal del SNS (2015–2026)
– OMC Observatory against aggressions (annual reports 2015–2026)
– Snowball searching from reference lists of included systematic reviews
– Google Scholar (first 200 results for main search string)

Search period: January 2015 – March 2026
Language restrictions: English and Spanish.

Main outcome(s) Primary outcome 1 – WPV prevalence: Proportion (%) of HCWs reporting exposure to any form of WPV during the study reference period. Measured by validated questionnaires (WVS, SOAS-R, QuINVIP16, VIF or equivalent), institutional records, or administrative data.

Primary outcome 2 – Underreporting rate: Difference between WPV prevalence estimated by survey/questionnaire and prevalence recorded in official reporting systems, expressed as the percentage of incidents not formally declared out of total self-reported incidents. Reference value: Carballo-López et al. (2025) documented an 83.1% underreporting rate in the Spanish hospital context.

Additional outcome(s) 1. WPV risk factors: Variables at the patient, professional, environmental and organisational levels associated with increased WPV exposure – measured as odds ratios, risk ratios or regression coefficients.

2. Psychological consequences:
a) Post-traumatic stress disorder (PTSD): IES-R, PCL-5 or equivalent validated scales
b) Burnout: Maslach Burnout Inventory (MBI) — emotional exhaustion, depersonalisation, personal accomplishment
c) Depression: PHQ-9 or equivalent
d) Anxiety: GAD-7 or equivalent

3. Physical consequences: Documented physical injuries, days of sick leave, somatic symptoms.

4. Organisational consequences: Intention to leave the post or profession; absenteeism; perceived medical errors.

5. Efficacy of preventive interventions: Reduction in WPV incidence or severity (incident rate per time period); improvement in knowledge and self-efficacy (ad hoc scales); post-intervention reporting rate.

6. Underreporting barriers and facilitators: Reasons for non-reporting identified by quantitative or qualitative methods.

Data management Study selection:
Phase 1 (title and abstract screening): Two independent reviewers will screen all records identified by the search. Disagreements will be resolved by discussion or, if consensus is not reached, by a third reviewer. Cohen's kappa will be calculated to assess inter-rater reliability.

Phase 2 (full-text assessment): Pre-selected records will be evaluated against the eligibility criteria. The reasons for exclusion will be documented for all full-text articles assessed but not included.

Data extraction:
A standardised data extraction form (designed ad hoc) will be used, including: authors and year; country; study design; sample size and characteristics; care setting; type of WPV assessed; measurement tool used; main quantitative results (prevalence, effect sizes, p-values, confidence intervals); quality assessment; limitations. Extraction will be performed independently by two reviewers, with disagreements resolved by consensus. For missing data, study authors will be contacted by email.

Quality assessment / Risk of bias analysis Quality appraisal tools by study design:
– Systematic reviews and meta-analyses: AMSTAR-2 (A MeaSurement Tool to Assess systematic Reviews, version 2)
– Cross-sectional and cohort studies: Newcastle-Ottawa Scale (NOS) adapted for observational studies
– Randomised controlled trials: Cochrane Risk of Bias tool 2.0 (RoB 2.0)
– Non-randomised intervention studies (quasi-experimental, before-after): ROBINS-I (Risk Of Bias In Non-randomised Studies of Interventions)
– Qualitative studies: Critical Appraisal Skills Programme (CASP) qualitative checklist

Overall quality of evidence for primary outcomes will be assessed using the GRADE framework (Grading of Recommendations Assessment, Development and Evaluation) and presented in Summary of Findings (SoF) tables generated with GRADEpro GDT software.

Strategy of data synthesis The primary synthesis strategy will be structured narrative synthesis organised by thematic blocks (prevalence,

underreporting, risk factors, consequences, prevention), given the expected high methodological and conceptual heterogeneity across included studies.

Meta-analysis of proportions (for prevalence and underreporting):
If ≥3 studies are identified that are sufficiently homogeneous in terms of population and measurement tool, a meta-analysis of proportions will be conducted using R software (packages 'meta' and 'metafor'). A random-effects model (DerSimonian and Laird, 1986) will be used, as substantial heterogeneity is anticipated. Proportions will be Freeman-Tukey double arcsine transformed prior to pooling to stabilise variance. Results will be back-transformed and reported as percentages with 95% confidence intervals.

Heterogeneity assessment:
Heterogeneity will be quantified using the I^2 statistic (Higgins et al., 2003). I^2 values of 25%, 50% and 75% will be considered low, moderate and high heterogeneity, respectively. The 95% prediction interval will also be reported. If I^2 >75%, only narrative synthesis will be provided, with results tabulated by subgroup.

For intervention studies:
If designs are sufficiently homogeneous, meta-analysis will be performed using standardised effect sizes (Cohen's d or Hedges' g for continuous outcomes; odds ratio or risk ratio for dichotomous outcomes), with 95% confidence intervals. A random-effects model will be applied.

Publication bias:
Publication bias will be assessed using funnel plots and Egger's regression test when ≥10 studies contribute to the same outcome. Trim-and-fill analysis (Duval and Tweedie) will be used to estimate the potential impact of missing studies.

Software: R (v4.4 or later) with packages 'meta', 'metafor', 'dmetar'. Reference manager: Zotero or EndNote.

Subgroup analysis The following subgroup analyses are pre-specified, contingent on availability of sufficient data (≥3 studies per subgroup):

1. By care setting: emergency departments; ICU; primary care; mental health units; pre-hospital emergency services.
2. By professional category: physicians; nurses; emergency technicians; auxiliary/administrative staff.
3. By type of violence: physical; verbal; psychological; sexual.
4. By geographic region: Spain/Europe; North America; Asia; rest of world.
5. By time period: pre-pandemic (before March 2020); pandemic and post-pandemic (March 2020 onward).
6. By country income level: high-income vs. low- and middle-income countries (World Bank classification).

Subgroup analyses will be interpreted cautiously. Any analyses that were not pre-specified but are conducted on the basis of observed data will be labelled as post-hoc exploratory and interpreted accordingly.

Sensitivity analysis This narrative systematic review did not include a statistical meta-analysis; therefore, no formal sensitivity analysis based on pooled effect estimates was applicable. Instead, the robustness of the review was supported through several methodological safeguards.

First, the studies selected for in-depth synthesis (n = 194) were stratified by methodological quality and outcome relevance, giving precedence to umbrella reviews, Cochrane reviews, and meta-analyses. Quality appraisal was conducted using AMSTAR-2, the Cochrane risk-of-bias tool, the Newcastle–Ottawa Scale, and CASP checklists. Evidence derived exclusively from studies rated as critically low quality was not used to support the primary conclusions.

Second, to minimise sensitivity to language and terminology, the international five-database search was complemented with a targeted IBECS/BVS search using Spanish-language terms, given known indexing discrepancies between international and Spanish bibliographic systems. This addition substantially expanded the Spanish-language corpus without altering the direction of any conclusion.

Third, restricting the third Boolean block to explicit outcome terms increased precision but may have reduced recall for studies on risk factors or measurement tools; this trade-off is transparently reported as a limitation. Prevalence findings are presented as ranges stratified by setting and type of violence rather than as pooled estimates, which reduces the impact of heterogeneity in definitions, instruments, and reference periods. Publication bias was acknowledged, although no formal asymmetry tests were conducted, consistent with the narrative design.

Language restriction English and Spanish.

Country(ies) involved Spain.

Other relevant information Second institutional affiliation (if applicable): [Second institution name, City, Spain]

Related published work by the same team on this topic:
Carballo-López ME, Felipe García Martín Á, Olivares Pardo E, Fernández-Pacheco Ignacio B, Sebastián Santiago Sáez A. Aggressions on healthcare workers: prevalence, underreporting, motives, and consequences. Ansiedad y Estrés. 2025;31(1):38-45. doi:10.5093/ANYES2025A6

This systematic review constitutes an extension and comprehensive evidence synthesis building upon the empirical findings documented in that study, which focused on a single Spanish hospital and will serve as a key primary source in the present review.

Target journal: Revista Española de Salud Pública (RESP) – section Revisiones – IMRAD format – Vancouver citation system — maximum 15 pages – up to 100 references – PRISMA 2020 required.

Any deviations from this protocol that occur during the review will be documented and reported transparently in the published article as 'Differences between the protocol and the review'.

Keywords Workplace violence; healthcare workers; underreporting; prevalence; risk factors; prevention; occupational health; Spain.

Dissemination plans Findings will be submitted for publication in a peer-reviewed journal in the fields of occupational health, public health or psychology, targeting Q1/Q2 journals indexed in JCR or SJR. Given the study's particular focus on the Spanish healthcare context, submission to nationally relevant journals such as Revista Española de Salud Pública is also being considered.
Beyond academic publication, results will be shared with the clinical and preventive medicine teams at Hospital Clínico San Carlos, where the study originated, with the aim of informing institutional protocols on aggression reporting and prevention. Dissemination to relevant professional societies, trade unions and health authorities is also planned, given the direct policy implications of the findings regarding underreporting rates and the need for standardised national surveillance systems.
Findings may additionally be presented at occupational health or public health conferences to reach a broader professional audience and stimulate further research in underrepresented settings such as Primary Care and pre-hospital environments.

Contributions of each author
Author 1 - Javier Enrique Leañez-López - Wrote the first draft of the manuscript, revised and improved subsequent versions, and contributed to and approved the final manuscript.
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Author 4 - Elisa Sánchez-Lozano - Conducted literature searches and provided summaries of previous research studies. Revised and improved the manuscript, and contributed to and approved the final manuscript.
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