Review

Moral injury and mental health outcomes in nurses: A systematic review

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Abstract

Introduction: Moral injury involves the adverse psychological, biological, spiritual, behavioural, and social consequences of actions that violate moral values. It can lead to anxiety, depression, burnout, and post-traumatic stress disorder. Nurses, who often face ethical dilemmas, are particularly vulnerable. Despite its significance, the relationship between moral injury and mental health outcomes in nurses remains underexplored.

Aim: This systematic review aimed to describe the associations among moral injury, anxiety, depression, and quality of life in nurses.

Methods: The review was registered in PROSPERO (CRD42023438731) and was conducted following the PRISMA guidelines. A literature search was performed in December 2023 across PubMed, CINAHL, Scopus, and Web of Science. Peer-reviewed primary research involving nurses, published in English or Italian, without time restrictions, was considered eligible. The risk of bias and the quality of evidence were assessed using the Joanna Briggs Institute checklist and the GRADE approach.

Results: Out of 4730 articles identified, eight met the inclusion criteria. The analysis revealed significant positive associations between moral injury, anxiety, and depression, along with a significant negative association with quality of life.

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Conclusion: These findings highlight the need for healthcare systems to implement strategies that mitigate moral injury among nurses. Future research should prioritize longitudinal studies to explore causal relationships and develop targeted interventions. Additionally, standardizing the concept and measurements of moral injury is crucial for enhancing the comparability and understanding of this phenomenon.

Introduction

Moral injury is a complex phenomenon characterized by profound psychological and emotional disturbances, including feelings of shame, guilt, loss of trust, and betrayal.[1–3] It often results in social isolation, increased substance and alcohol use, self-harm behaviours, and spiritual crises.[4–7] Furthermore, moral injury is commonly associated with mental health issues such as anxiety, depression, burnout, post-traumatic stress disorder (PTSD), and suicidal ideation.[6,8–12]

This condition is notably prevalent among nurses,[13–15] significantly impacting their well-being and clinical practice.[12,13,16,17] However, to the best of our knowledge, there is a limited understanding of the relationship between moral injury and psychological outcomes among nurses. Therefore, this manuscript aims to fill this knowledge gap, exploring the association between moral injury, anxiety, depression, and quality of life in the nursing profession.

Background

The concept of moral injury was first identified by Shay in the 1990s among military veterans whose experiences could not be fully explained by PTSD diagnoses.[18] Shay described moral injury as 'a betrayal of what is morally right by someone who holds legitimate authority in a high stakes situation'.[19] The definition has been expanded by Litz and colleagues,[20] who define moral injury as 'the lasting psychological, biological, spiritual, behavioural, and social impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations'.

Moral injury has typically emerged from extreme circumstances, predominantly observed within military or war settings,[8,18] where individuals experience potentially morally injurious events (PMIEs), such as witnessing severe violence against human life or the killing of civilians.[4] Research has extensively documented the occurrence of moral injury among military personnel,[21–23] linking it to severe mental health outcomes, including depression, anxiety, PTSD, and an increased risk of suicide.[2,24–27] However, it is increasingly recognized that moral injury is not exclusive to the military. Professionals such as police officers,[28] firefighters, paramedics,[29] journalists,[30] teachers,[31] and other essential workers[32] also suffer from moral injury. Civilians are similarly affected, including refugees,[33] individuals exposed to war trauma,[34] and those dealing with the consequences of abortion.[35] Furthermore, Dean and colleagues[36] extended the concept of moral injury to the healthcare sector, suggesting that conditions often categorized as physician burnout may reflect moral injury, which they describe as 'the challenge of simultaneously knowing what care patients need but being unable to provide it due to constraints beyond our control'.

Despite its broader recognition, there is an ongoing debate within the scientific community about whether moral injury should be distinguished from related phenomena such as moral distress (MD), burnout, and PTSD, with no consensus on a definitive description of moral injury.[6,37–39] Signs and symptoms of moral injury often overlap with MD, burnout, and PTSD, further complicating clarity.[6,40] Nonetheless, many researchers advocate recognizing

moral injury not merely as a mental health disorder as per burnout and PTSD but as a distinct condition with its own unique moral and ethical dimensions.[6,11] Therefore, researchers have attempted to delineate the distinction between MD, burnout, PTSD, and moral injury. Gibbons and colleagues,[4] for instance, differentiate MD, which occurs when 'an individual makes a moral judgment about a patient situation but does not act accordingly' from moral injury, defined as 'a deeper emotional wound unique to those who witness intense human suffering and cruelty'. This distinction has been further elaborated by Čartolovni et al.,[6] highlighting that while MD and moral injury may share common elements, such as impacts on moral integrity and feelings of guilt, regret, and helplessness, they vary significantly in severity. They further clarified that 'moral distress represents a form of situational problem (due to external or internal constraints), while moral injury represents an experience of a problem that results in a long-lasting change to an individual's sense of losing hope, trust, integrity'.[6] This perspective is corroborated by Rosen and colleagues,[41] suggesting that, although related, MD, moral injury, and burnout may be viewed along a continuum, where unresolved MD might escalate, leading to moral injury through a 'crescendo effect',[42] and moral injury, if remains unmanaged, may culminate in burnout.[43] Furthermore, they suggest that progression along this continuum is not always predictable, remarking that sometimes a single morally stressful event can lead directly to burnout,[41] according to other authors.[44] Mewborn and colleagues[11] have recently discussed the continuum of moral injury in clinical practice. They distinguish between morally and ethically challenging events that may not result in harm,[45] such as an error in administering therapy without damage to the patient, and PMIEs, which involve severe moral breaches and outcomes,[16] such as the patient's death. They argue that while both event types can precipitate moral injury, morally stressful events first cause MD and subsequently – accumulating and not resolving – could lead to moral injury,[11] as suggested by other authors,[41,42,46] while PMIEs pose a higher risk of moral injury due to their severity.[11] Furthermore, Mewborn and colleagues reiterate that burnout is a consequence of moral injury,[11] aligning with Shay's earlier insights and supported by other theoretical analyses.[18,19,41] Indeed, while moral injury is marked by emotional suffering due to engaging in or witnessing actions that breach moral beliefs,[4,20,36] burnout manifests as emotional exhaustion,[47] where individuals 'are no longer distressed at the violation of deeply held moral beliefs, because they are beyond feeling'.[41] Similarly, while PTSD typically arises from traumatic events and involves symptoms like re-experiencing the trauma and hyperarousal,[48] moral injury specifically relates to breaks in moral and ethical values rather than direct threats to personal safety.[11] This distinction places both burnout and PTSD at the end of the spectrum as a possible outcome of moral injury, but not as moral injury itself.[6,46,49]

Furthermore, the COVID-19 pandemic has highlighted parallels between military personnel and healthcare workers (HCWs), often described as frontline workers,[12] promoting further exploration of moral injury within the healthcare sector.[36,50] In fact, there has been a notable increase in moral injury–related publications since the onset of the pandemic,[5] with a surge in academic interest evidenced by numerous recent literature reviews and analyses.[6,11,41] This expanded focus has revealed the presence of moral injury in a broad range of HCWs, including physicians, nurses,[10,51,52] midwives,[53] speech-language therapists and audiologists,[54] respiratory therapists,[55] paramedics,[56] neurosurgeons,[57] radiologists,[58] and veterinarians,[59] highlighting the widespread impact of moral injury in healthcare, recently defined as a 'parallel pandemic'.[60]

The ethically stressful situations that HCWs face can leave profound emotional traces, contributing to the development of moral injury.[6,11] HCWs handle ethical dilemmas daily,[61] with studies indicating that moral injury levels among them are comparable to those observed in soldiers deployed in combat zones,[62] reaching up to 69% during the COVID-19 crisis.[56] Indeed, the pandemic posed various PMIEs, as HCWs struggled to respond quickly to critical situations[51] and the inability to provide acceptable care,[63] compounded by guilt over the scarcity of resources, knowledge, and staffing.[55] Such factors laid the groundwork for the emergence of moral injury.[64] Furthermore, throughout the pandemic, HCWs were forced to make hard decisions about prioritization of patient care and resource allocation,[40,65] such as who would receive a ventilator or hospital bed.[66] These acts often conflicted with their personal and professional values, increasing the risk of moral injury.[67,68] Additionally, HCWs faced individual, occupational, and social challenges, including the fear of

infecting themselves and their families,[63,69] undergoing long work hours in stressful conditions with in-sufficient staffing, support, and protective equipment,[51,70,71] facing public defamation,[72] and witnessing high patient mortality.[68]

The prevalence and implications of moral injury in HCWs have been thoroughly documented in the scientific literature.[6,11] In particular, some studies have specifically addressed the nursing profession, in-dicating a higher prevalence of moral injury in nurses compared to other HCWs,[13–15] with incidence rates reaching up to 71.5%,[73] and examining the effects of moral injury on both the well-being and clinical practice of nurses.[12,13,16,17] However, despite the high incidence of moral injury among nurses and its wide range of negative outcomes, there appears to be a lack of knowledge about the relationships between moral injury and psychological outcomes among nurses.

Aim

This systematic review aims to describe the association between moral injury and anxiety, depression, and quality of life among nurses.

Methods

Study design

This systematic review was performed according to the updated guidelines reported in the Preferred Re-porting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.[74,75] In addition, to improve the scientific rigour of the study, the PRISMA Checklist was used (see Supplemental) and the research protocol was registered in the PROSPERO (International Prospective Register of Systematic Reviews) database (ID: CRD42023438731).

Eligibility criteria

The eligibility criteria for this systematic review were established and justified following the review's scope and methodology.[74,75] Based on the PICO model,[76] these criteria were formulated through collaborative consensus among the research team. The inclusion criteria were primary empirical research studies published in peer-reviewed journals in any year, written in English or Italian, focused on any healthcare setting, in-volving nurses of all genders, and addressing the association between moral injury and anxiety, depression, and/or quality of life. To ensure the reliability and validity of the review, exclusion criteria were also defined. Non-empirical studies, secondary research, grey literature, and non–peer-reviewed articles were excluded. The review did not impose time constraints to improve completeness, and articles in languages other than English or Italian were excluded due to translation resource limitations. Studies focusing on nurses in military or police settings or other worker populations such as soldiers or healthcare practitioners other than nurses were also excluded. Furthermore, research investigating the association between moral injury and other outcomes, such as PTSD or suicidal tendencies, was not considered for inclusion.

Information sources

To identify potentially pertinent records, a comprehensive literature search was systematically conducted on the subsequent databases: PubMed (via MEDLINE), CINAHL (via EBSCO), Scopus, and Web of Science (via EBSCO). The search was executed on 31 December 2023.

Search strategy

A comprehensive search strategy based on the PICO model[76] was implemented across various databases to identify relevant sources of information, employing specific terms tailored to each component of the model (P = population, I = intervention/exposition, and O = outcomes). The strategy focused on nurses (P), moral injury (I), and anxiety, depression, or quality of life (O). The comparison component (C), which is outside the scope of this review, was omitted. The search strings were formulated by integrating keywords from the thesaurus of the respective databases, such as MeSH, along with other pertinent terms and Boolean operators (AND/OR). Search strings were designed to suit specific databases. The selection of keywords was guided by predefined eligibility criteria, with no filters applied during the search to avoid limiting the results. Following methodological guidelines,[74,75] the complete search strategy for PubMed and the final search strings for each database were documented to improve the transparency and reproducibility of the research process. A detailed report is available for reference in the Supplemental Material.

Selection process

The study selection process consisted of two main phases: screening titles and abstracts, followed by full-text screening. To perform these steps, all potentially relevant studies identified during the research phase were imported into Zotero© software, ensuring a transparent and traceable process. A combination of automated Zotero© tools and manual examination was used to eliminate duplicates. This approach helped address discrepancies, such as variations in the letter casing, that might not be detected by the software alone. Once duplicates were removed, the records were imported into Rayyan©, a free and time-saving online software known to improve the efficiency and traceability of article screening in systematic reviews.[77]

A dedicated research team conducted the screening procedure: a researcher (FG) who was not involved in the study selection uploaded the records to the Rayyan© software, while two reviewers (GA and PB) independently evaluated them. This method ensures that the entire process remains impartial and is not influenced by any prior knowledge of the records evaluated by the reviewers. The two reviewers (GA and PB) independently conducted the screening phases, and any disagreements regarding study inclusion were addressed primarily through discussions. When required, a third researcher (RL) intervened to resolve the discrepancies.

The initial phase of the selection process involved screening titles and abstracts of potentially relevant records based on eligibility criteria. To proceed to the screening phase, full texts of the records identified by title and abstract screening were acquired using various methods. Most of these full texts were found using the specific Zotero© function. The remaining were obtained through online research and through access to the journals in which the articles were published. Despite efforts, five full texts remained inaccessible, even after attempting to contact the respective authors and refer to the journals. Therefore, the full-text articles were screened for eligibility according to the predefined inclusion and exclusion criteria.

Data collection process

A data charting template was used to efficiently extract relevant information from the selected studies, ensuring alignment with the objectives of this systematic review. This template was designed and customized following the latest version of the Cochrane Handbook for Systematic Reviews of Interventions.[78] The template construction and the subsequent data extraction were performed using Microsoft Excel© and Zotero© software. According to the recommended methodology,[74,75] two independent reviewers (GA and PB) collected data from each study, improving the reliability of the extraction process. To address any discrepancies that arose during data collection, a structured discussion session was conducted with a third

researcher (RL). This session aimed to harmonize differing viewpoints and reach a consensus on the data extracted, ensuring accuracy and consistency in the findings of the review.

Data items

Data extracted from the included studies were systematically classified into distinct categories for comprehensive reporting and detailed analysis, as suggested by the Cochrane methodology.[78,79] These dimensions included bibliographic details (authors and year of publication); study design (e.g. longitudinal, cross-sectional, or phenomenological study); country; context; sample size; investigated condition (moral injury or exposures to morally injurious events) and related assessment instruments; outcomes investigated (anxiety, depression, or quality of life) and related assessment instruments; direction of association (positive, neutral, or negative); and main findings (e.g. significance level of observed association).

Study risk of bias assessment

Aligned with the PRISMA guidelines,[74,75] a comprehensive assessment of the potential bias was performed for each included study. This evaluation was conducted independently by two reviewers (GA and FG) to ensure the robustness and reliability of the process. The assessment used the latest versions of the Joanna Briggs Institute (JBI) Critical Appraisal Checklists[80] to systematically examine the quality of the studies. Each checklist item was evaluated with possible responses of 'Yes', 'No', 'Unclear', or 'Not Applicable'. Scores for each study were calculated based on the cumulative count of 'Yes' responses. The maximum achievable scores were 11 for longitudinal studies and 9 for cross-sectional studies. The classification of bias risk was determined as follows: studies scoring less than 50% of the maximum possible 'Yes' responses were deemed to have a high risk of bias; those with scores between 50% and 70% were considered to have a moderate risk; and studies scoring above 70% were classified as low risk. Disagreements between reviewers (GA and FG) were subjected to careful examination and detailed discussion involving a third researcher (RL) and continued until a consensus was reached. This structured approach provides a comprehensive and transparent assessment of the integrity and validity of the studies.

Effect measures

Following the PRISMA guidelines,[74,75] the synthesis and presentation of the results were based on the quantitative elements extracted from the included studies. These elements encompassed a range of statistical metrics, including means (M), standard deviations (SD), odds ratios (OR), effect size indicators (r-indexes), correlation coefficients (Pearson's coefficient), and significance values (p), which were used to evaluate the associations between the independent variables (moral injury) and outcomes (anxiety, depression, and/or quality of life). Additionally, standardization of statistical significance between studies was not applied. Instead, the original presentation of statistical significance was maintained to preserve the integrity of the study. Consistent with recognized scientific standards, only results with p-values $\leq .05$ were considered statistically significant. Results that did not meet this threshold were excluded from the analysis to ensure the clarity and relevance of the findings. This approach ensured a coherent and consistent representation of the insights pertinent to the objective of the systematic review.

Synthesis methods

Although recognizing the potential advantages of a meta-analysis, the varied methodological approaches and measures across the studies included in this review precluded a pooled quantitative synthesis, as suggested by

the latest edition of the Cochrane Handbook for Systematic Reviews of Interventions.[78] Specifically, significant heterogeneity was identified in the instruments used to measure variables of interest (such as different tools assessing moral injury, anxiety, depression, and quality of life) and in the analytical methods quantifying their relationships. These factors contributed to a lack of methodological and statistical uniformity. Following these challenges, a formal narrative synthesis was performed according to the Synthesis Without Meta-analysis (SWiM) reporting guidelines.[81] This approach ensured a transparent and robust quantitative data synthesis, adhering to the PRISMA methodology.[74,75]

To shed light on the intricate interplay between the variables of interest, a vote-counting approach was adopted according to the SWiM guideline.[81] This method is considered suitable when dealing with varying effect measures, as indicated in the Cochrane methodology,[78,79] as it effectively captures the directional effects between the variables. Each association was classified using a tripartite system: '+' for a significant positive association, indicating that higher moral injury was associated with increased outcomes; '−' for a significant negative association, implying that higher moral injury was associated with decreased outcomes; and '0' for non-significant association in either direction. In the vote-counting process, where the studies provided more measures of association, they were counted for each reported measure. For example, if a study explored two associations of moral injury (e.g. depression and quality of life), both were considered in the synthesis. The narrative synthesis components are detailed in the Results section using a combination of thematic textual segments and tables. The studies were organized by reference and grouped according to their findings to facilitate the synthesis process.

A Harvest plot[82] was used to visually represent the direction of the effects and further details of the studies, as suggested by the Cochrane guidelines.[78,83] In the Harvest plot, the reference displayed the source of information, the bar heights reflected the nurse sample size, the shade indicated the nature of the association (black for positive, grey for negative, and white for no association), and the labels reported the respective *p*-values.

The quality of evidence for each outcome was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE)[84] approach, according to established guidelines.[74,75,78,79] The assessment was independently performed by two reviewers (GA and FG), employing a four-level system (high, moderate, low, and very low quality of evidence) to determine the quality of evidence. In the GRADE approach, five criteria (risk of bias, inconsistency, indirectness, imprecision, and publication bias) can decrease the level of evidence, whereas three criteria (large magnitude of effect, dose-response, and consideration of all plausible confounding factors) can increase the level of evidence. Evidence was downgraded by one level for serious limitations and by two levels for very serious limitations identified in any of the five dimensions.

Results

Study selection

An initial search of four electronic databases identified 4730 potentially relevant articles. Subsequent deduplication reduced this number to 3862 records, which were advanced to the title and abstract screening phase. Following a manual assessment of relevance, 156 records were identified as pertinent and advanced to the full-text screening phase. Notably, five of these full-text articles were inaccessible, leaving 151 full-text articles for the final screening phase. During this phase, 143 articles were excluded for various reasons: one was written in a language other than English or Italian, 87 were not primary empirical research studies (e.g. editorials and psychometric studies), 27 focused on non-target populations (e.g. soldiers and teachers), two did not include results pertinent to nurses, and 26 did not address the relationship between the variables of interest. Ultimately, only eight studies satisfied the inclusion criteria for this systematic review. To clearly illustrate the article selection process, a PRISMA flow diagram[74,75] is provided in Figure 1. This diagram visually details the number of records included and excluded in each phase and provides explanations for the exclusions.

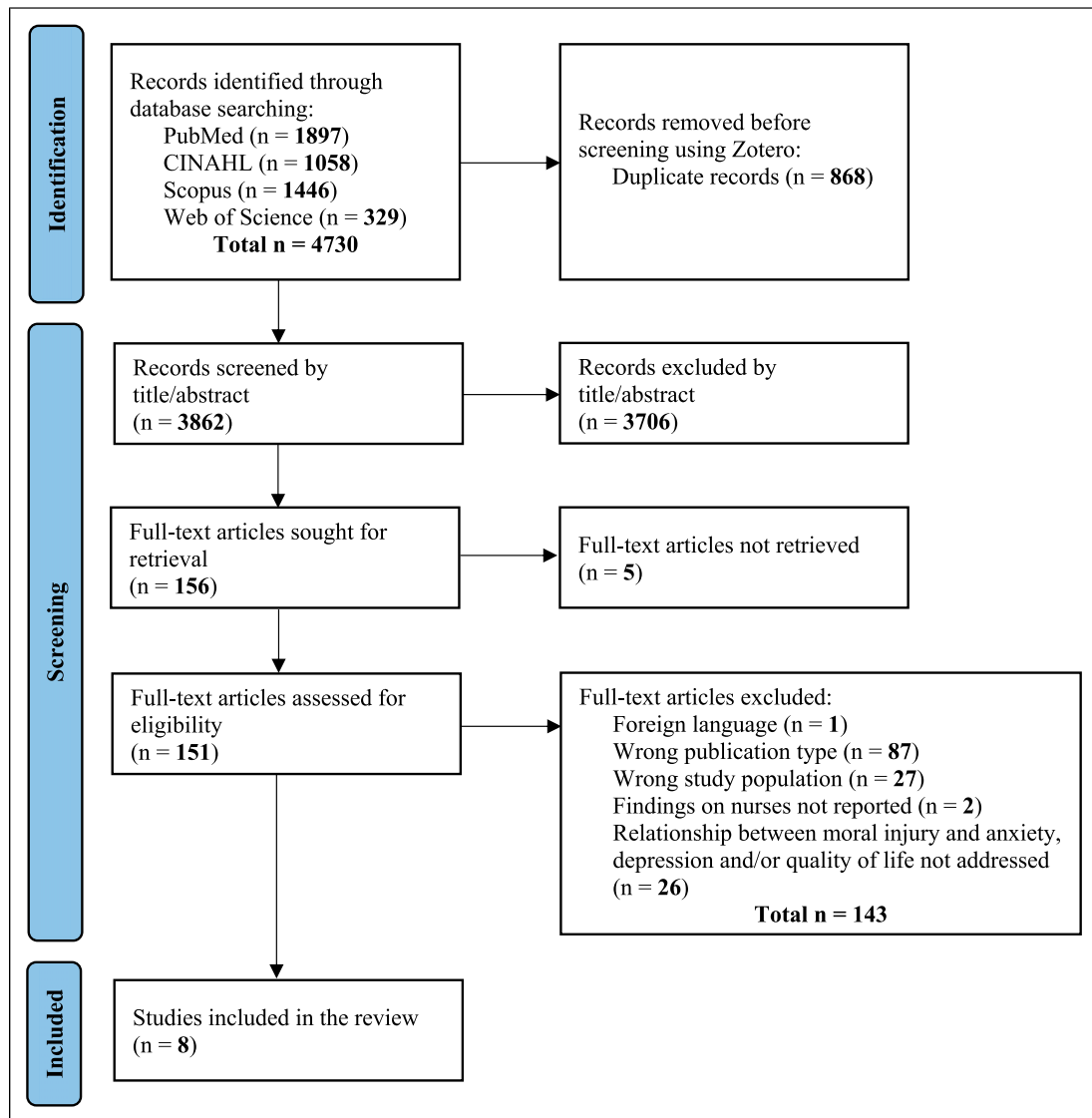**Figure 1.** PRISMA flow chart reporting the records screening procedure, the numbers of sources included and excluded, and the reasons.

Study characteristics

In this review, eight articles were systematically analysed. Table 1 provides a detailed overview of these studies and their characteristics, including publication year, study design, country, context, sample size, variables investigated, instruments used, direction of association between variables, and the main findings.

The years of publication of the included studies ranged from 2021 to 2022. Most articles (62.5%; *n* = 5)[7,15,71,85,86] were published in 2021, while the remaining 37.5% (*n* = 3)[87–89] emerged in 2022. Importantly, no eligible studies have been published before 2021.

Table 1. Characteristics of sources of evidence.

Authors and years	Study design	Country	Context	Sample (nurses)	Investigated condition (instruments)	Outcome (instruments)	Direction of association	Main findings
Amsalem et al., 2021	Longitudinal	United States of America	Healthcare (during COVID-19)	350 HCWs (237 nurses)	Exposure to morally injurious events (MIES)	Anxiety (GAD-7) Depression (PHQ-9)	+ +	1. Prevalences (anxiety and depression): T0 = 62% and 58%, day 30 = 52% each, day 90 = 54% and 55%. 2. MIES score (means ± SD): T0 = 17.8 ± 6.5, day 30 = 17.2 ± 6.8, day 90 = 17.0 ± 6.6. 3. Exposure to morally injurious events was positively associated ($p < .001$) with anxiety and depression at all time points (MIES and anxiety: T0 r = 0.56, day 30 r = 0.50, day 90 r = 0.47) (MIES and depression: T0 r = 0.59, day 30 r = 0.56, day 90 r = 0.47).
Benatov et al., 2022	Cross-sectional	Israel	Healthcare (during COVID-19)	296 HCWs (128 nurses, including midwives)	Moral injury symptoms (MISS-HP) Exposure to morally injurious events (MIES)	Anxiety (GAD-7) Depression (PHQ-9) Anxiety (GAD-7) Depression (PHQ-9)	+ + + +	1. Prevalences: moral injury = 40.7%; anxiety = 21.3%; depression = 33.4%. 2. Exposure to morally injurious events was positively associated ($p < .001$) with anxiety (r = 0.41), depression (r = 0.42) and moral injury (r = 0.65). 3. Moral injury symptoms were positively associated ($p < .01$) with anxiety (r = 0.32) and depression (r = 0.31).

Table 1. (continued)

Authors and years	Study design	Country	Context	Sample (nurses)	Investigated condition (instruments)	Outcome (instruments)	Direction of association	Main findings
Lamb et al., 2021	Cross-sectional	United Kingdom	Healthcare (during COVID-19)	4378 HCWs (1107 nurses)	Exposure to morally injurious events (MIES)	Anxiety (GAD-7) Depression (PHQ-9)	+ +	1. Prevalences: anxiety = 23.2%; depression = 27.3%. 2. Scales total scores (means, CI): MIES = 15.5 (15.1 to 16.0); GAD-7 = 6.5 (6.3 to 6.8); PHQ-9 = 7.1 (6.8 to 7.3). 3. Exposure to morally injurious events was positively associated with anxiety [medium MIES score: OR = 1.6 (1.1 to 2.1), $p < .01$, CI 95%; high MIES score: OR = 3.0 (2.2 to 4.0), $p < .001$, CI 95%] and depression [medium MIES score: OR = 1.4 (1.0 to 1.8), $p < .05$, CI 95%; high MIES score: OR = 2.9 (2.2 to 3.9), $p < .001$, CI 95%].

Table 1. (continued)

Authors and years	Study design	Country	Context	Sample (nurses)	Investigated condition (instruments)	Outcome (instruments)	Direction of association	Main findings
Nieuwsma et al., 2022	Cross-sectional	United States of America	Healthcare (during COVID-19)	2099 HCWs (551 nurses)	Exposure to morally injurious events (MIES)	Depression (PROMIS Emotional Distress-Depression scale) Quality of life (PROMIS Global Health scale)	+ −	1. Prevalence of potential moral injury: other-induced = 50.7%; self-induced = 18.2%. 2. HCWs who experienced potential moral injury (other-induced) had higher levels of depression (M = 54.43 vs 50.67, p < .001) and lower quality of life (M = 3.98 vs 4.16, p < .001), compared to those who did not experience it. 3. HCWs who experienced potential moral injury (self-induced) had higher levels of depression (M = 55.67 vs 51.75, p < .001) and lower quality of life (M = 3.88 vs 4.12, p < .001), compared to those who did not experience it.

Table 1. (continued)

Authors and years	Study design	Country	Context	Sample (nurses)	Investigated condition (instruments)	Outcome (instruments)	Direction of association	Main findings
Rodriguez et al., 2021	Cross-sectional	Honduras	Healthcare (during COVID-19)	169 HCWs (23 nurses)	Moral injury symptoms (MISS-HP)	Anxiety (GAD-7) Depression (PHQ-9)	+ +	1. MISS-HP score (mean ± SD) and moral injury prevalence = 34.80 ± 15.81; 45.6%. 2. Moral injury symptoms were positively associated ($p < .001$) with anxiety (Cohen's d = −1.06) and depression (Cohen's d = −1.11). 3. Moral injury significantly predicted anxiety [$F_{(4, 164)} = 2.465$, $p = .047$, $r^2 = 0.057$]. 4. Moral injury did not predict depression [$F_{(4, 164)} = 1.86$, $p = .119$, $r^2 = 0.044$].
Wang et al., 2021	Cross-sectional	China (mainland)	Healthcare (during COVID-19)	3006 HCWs (583 nurses)	Moral injury symptoms (MISS-HP)	Anxiety (GAD-7) Depression (PHQ-9)	+ +	1. Scales total scores (means ± SD): MISS-HP = 46.2 ± 12.2; GAD-7 = 8.3 ± 5.3; PHQ-9 = 10.6 ± 6.0. 2. Moral injury symptoms were positively associated ($p < .01$) with anxiety (MISS-HP score: +0.406, B = 0.96) and depression (MISS-HP score: +0.437, B = 0.91).

Table 1. (continued)

Authors and years	Study design	Country	Context	Sample (nurses)	Investigated condition (instruments)	Outcome (instruments)	Direction of association	Main findings
Wang et al., 2022	Cross-sectional	China (mainland)	Healthcare (during COVID-19)	3006 HCWs (583 nurses)	Moral injury symptoms (MISS-HP)	Anxiety (GAD-7) Depression (PHQ-9)	+ +	1. Prevalences: moral injury = 41.3%; anxiety = 28.6%; depression = 55.3%. 2. Scales total scores (means ± SD): MISS-HP = 46.9 ± 12.7; GAD-7 = 8.3 ± 5.3; PHQ-9 = 10.6 ± 6.0. 3. Moral injury symptoms were positively associated ($p < .01$) with anxiety ($r = 0.41$) and depression ($r = 0.44$).
Zerach et al., 2021	Cross-sectional	Israel	Healthcare (during COVID-19)	296 HCWs (128 nurses, including midwives)	Moral injury symptoms (MISS-HP) Exposure to morally injurious events (MIES)	Anxiety (GAD-7) Depression (PHQ-9) Anxiety (GAD-7) Depression (PHQ-9)	+ + + +	1. Prevalences: moral injury = 40.7%; anxiety = 21.5%; depression = 33.6%. 2. Scales total scores (means ± SD): MIES = 22.54 ± 10.48; MISS-HP = 33.90 ± 12.72; GAD-7 = 5.65 ± 5.00; PHQ-9 = 7.74 ± 6.14. 3. Exposure to morally injurious events was positively associated ($p < .001$) with anxiety ($r = 0.32$), depression ($r = 0.30$), and moral injury ($r = 0.64$). 4. Moral injury symptoms were positively associated ($p < .001$) with anxiety ($r = 0.41$), depression ($r = 0.42$).

Legend: HCWs: health care workers; MIES: Moral Injury Events Scale; MISS-HP: Moral Injury Symptom Scale-Health Professional; GAD-9: Generalized Anxiety Disorder-7; PHQ-9: Patient Health Questionnaire-9; CI: confident interval; OR: odds ratio; SD: standard derivation.
Direction of Association (Campbell et al., 2020): Significant positive association between moral injury and anxiety, depression, and/or quality of life was denoted by a plus sign (+); significant negative association between moral injury and anxiety, depression, and/or quality of life was denoted by a minus sign (−); non-significant association was denoted as 0.

All included articles used quantitative methods, predominantly cross-sectional designs (87.5%; $n = 7$),[7,15,71,86–89] except for a single study (12.5%)[85] that employed a longitudinal approach. Notably, none of the included records belonged to the experimental, quasi-experimental, or qualitative categories.

The studies originated from five countries, with the following distribution: the United States of America,[85,88] China[15,89] and Israel[86,87] (25% each; $n = 2$ each), Honduras,[71] and the United Kingdom[88] (12.5% each; $n = 1$ each). Oceania and Africa were not represented in the included records.

Regarding the research context, all reviewed studies were conducted within the healthcare system of the respective countries during the COVID-19 pandemic. In particular, none of the included studies was performed before the onset of the epidemic.

The sample composition in all articles exhibited heterogeneity, encompassing various HCWs, rather than being restricted to nurses. The sample sizes varied significantly, ranging from 169 to 4378 HCWs, with 13,600 participants (M = 1700; SD = ±1641). For the subsamples of nurses, the sample size also remained significantly variable, ranging from 23 to 1107 nurses per study ($n = 3340$; M = 417.5; SD = ±359.3). The percentage of nurses per study ranged from 13.6% to 67.7% (M = 32.3%; SD = ±18%). Notably, two studies also included midwives in the nursing cohort.[86,87]

Moral injury was evaluated using two distinct instruments: the Moral Injury Symptom Scale-Health Professional (MISS-HP) and the Moral Injury Events Scale (MIES). Most studies used only one of these instruments (75%; $n = 6$),[7,15,71,85,88,89] while two used both scales (25%).[86,87] In general, there was a balanced use of MISS-HP and MIES ($n = 5$ each).

Regarding the outcomes of interest, namely anxiety, depression, and quality of life, all included studies examined at least two of these, resulting in a total of 20 evaluations. Depression was the most studied outcome, investigated 10 times (50%), using the Patient Health Questionnaire-9 (PHQ-9) in all studies,[7,15,71,85–87,89] except in one,[88] that used the PROMIS Emotional Stress-Depression scale. Anxiety was investigated nine times (45%), and all articles[7,15,71,85–87,89] used the Generalized Anxiety Disorder-7 (GAD-7) questionnaire. Quality of life was investigated in only one case (5%),[88] using the PROMIS Global Health scale.

Regarding the association between moral injury, anxiety, depression, and quality of life, most evaluations (95%; $n = 19$)[7,15,71,85–87,89] reported a positive statistically significant association. Only one study (5%; $n = 1$)[88] found a negative association between exposure to morally injurious events and quality of life. Interestingly, two studies[86,87] that used both the MISS-HP and MIES scales reported a positive statistically significant association between exposure to morally injurious events and MI.

Synthesis of findings

Prevalence and severity of moral injury and mental health outcomes. This systematic review provides insights into the prevalence and severity of moral injury nurses. It also explores the impact of moral injury on mental health outcomes, such as anxiety, depression, and quality of life, within this population.

The prevalence of moral injury was reported in four studies,[71,86,87,89] involving 3767 HCWs and 862 nurses. The prevalence rates of moral injury ranged from 40.7%[86,87] to 45.6%,[71] with an average rate of 42.07% (SD = ±2.37%). The severity of moral injury symptoms, assessed using the MISS-HP, was reported in four studies,[15,71,86,89] involving 6477 HCWs and 1317 nurses. The mean severity scores ranged from 33.9[86] to 46.9,[89] with an average score of 40.45 (SD = ±7.06), indicating a significant impairment in social, professional, or familiar functioning, according to the scale's cut-off ($\geq$36).[39]

Only one study[88] addressed the prevalence of exposure to morally injurious events, involving 2099 HCWs and 551 nurses. The rates were 50.7% for other-induced potential moral injury and 18.2% for self-induced potential moral injury. Furthermore, the severity of exposure to moral injury events, measured using the MIES, was documented in three studies.[7,85,86] The mean scores ranged from 15.5[7] to 22.54,[86] with a mean of

18.61 (SD ± 3.59). According to the scale, higher scores on the MIES indicate greater exposure to morally injurious events (range 9–54).[27]

The prevalence of anxiety was investigated in five studies,[7,85–87,89] involving 8326 HCWs and 2183 nurses. Its prevalence ranged from 21.3%[87] to 62%,[85] with an average of 31.32% (SD ± 17.40%). Furthermore, the severity of anxiety symptoms, measured with the GAD-7 scale, was described in four studies.[7,15,86,89] The mean scores ranged from 5.65[86] to 8.3,[15,89] with a mean of 7.19 (SD ± 1.33), indicating mild anxiety according to the scale's cut-off (5–9 mild, 10–14 moderate, and 15–21 severe anxiety).[90]

The prevalence of depression was explored in the same five studies,[7,85–87,89] involving 8326 HCWs and 2183 nurses. The prevalence ranged from 27.3%[7] to 58%,[85] with an average of 41.52% (SD ± 14.07%). The severity of depressive symptoms, assessed using the PHQ-9, was reported in four studies.[7,15,86,89] The mean score ranged from 7.1[7] to 10.6,[15,89] with an average of 9.01 (SD ± 1.85), indicating mild depression according to the scale's cut-off (5–9 mild, 10–14 moderate, 15–19 moderately severe, and 20–27 severe depression).[91]

Quality of life was examined in only one study,[88] which involved 2099 HCWs and 551 nurses. However, this study did not report specific prevalence values or average scores on the PROMIS Global Health scale.[92]

Associations between moral injury and mental health outcomes. This systematic review aims to describe the relationships between moral injury and mental health outcomes, specifically anxiety, depression, and quality of life, in nurses. These associations are illustrated in Figure 2.
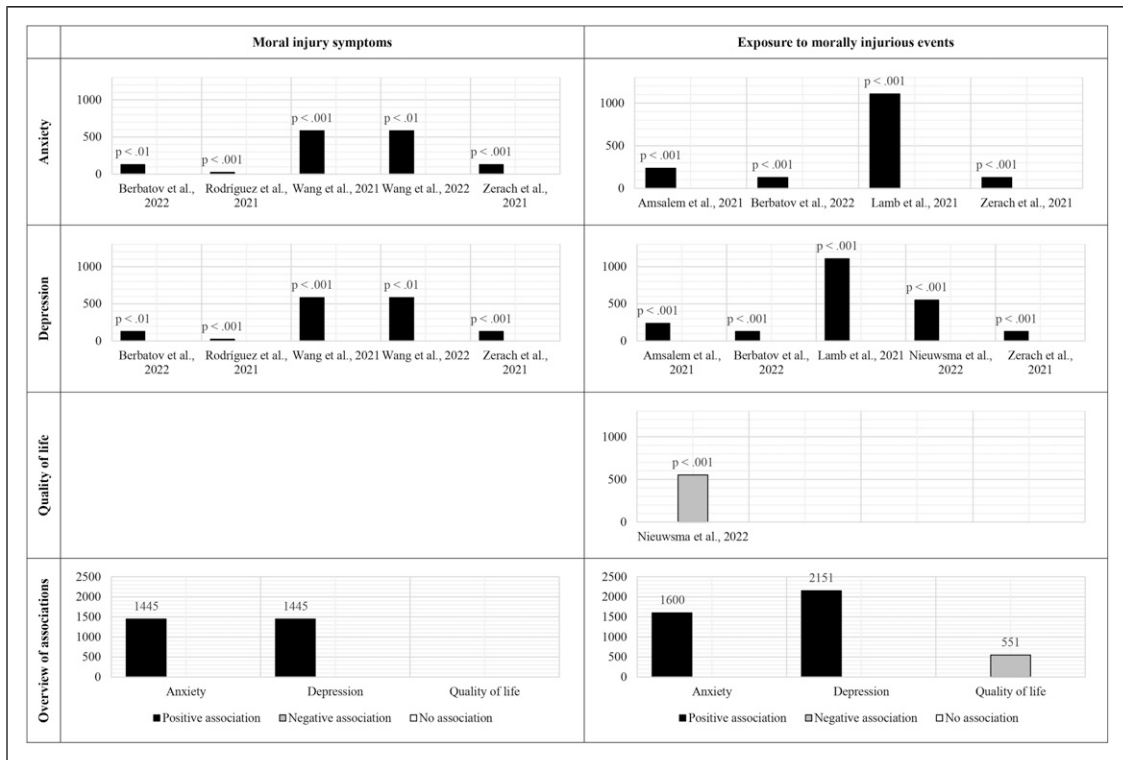
Figure 2. Harvest plot: association between moral injury and exposure to morally injurious events with anxiety, depression, and quality of life in nurses.

An analysis of five studies,[15,71,86,87,89] involving 6773 HCWs and 1445 nurses, consistently reveals a statistically significant positive association between moral injury and anxiety ($p < .01$). The correlation indices range from 0.32[87] to 0.41,[15,89] with effect sizes including Cohen's d = -1.06[71] suggesting a robust relationship. Notably, one study[71] identifies moral injury as a significant predictor of anxiety, while another[71] highlights a positive association between anxiety and increased MISS-HP score (+0.406).

Similarly, the relationship between moral injury and depression was explored across five studies,[15,71,86,87,89] involving 6773 HCWs and 1445 nurses, showing a consistently positive and statistically significant association ($p < .01$). The correlation indices range from 0.31[87] to 0.44,[89] with varying effect sizes such as Cohen's d = -1.11[71] reinforcing the strength of this association. Although one study[71] suggests that moral injury may not predict depression, another[15] finds a positive association between depression and an increased MISS-HP score (+0.437).

The association between exposure to morally injurious events and anxiety is substantiated through a comprehensive analysis of four studies,[7,85–87] involving 5320 HCWs and 1600 nurses, showing a significant correlation ($p < .01$) with correlation indices ranging from 0.32[86] to 0.56.[85] A longitudinal study[85] underscores the enduring nature of this relationship, while another[7] reports that medium and high scores on the MIES correlate with higher anxiety levels.

Investigation into the association between exposure to morally injurious events and depression in five studies,[7,85–88] involving 7419 HCWs and 2151 nurses, reveals a positive significant relationship ($p < .05$), with correlation indices from 0.30[86] to 0.59.[85] A longitudinal study[85] reinforces the persistence of this association, and further research[7] shows that medium to high MIES scores are associated with increased depression levels. Additionally, another study[88] finds that both other-induced and self-induced potential moral injury contribute to elevated depression levels.

Finally, a single cross-sectional study,[88] involving 2099 HCWs and 551 nurses, identified a negative and statistically significant relationship between exposure to morally injurious events and quality of life ($p < .001$). Those experiencing other-induced moral injury reported lower quality of life scores (M = 3.98 vs 4.16, $p < .001$), as did those with self-induced moral injury (M = 3.88 vs 4.12, $p < .001$), compared to their counterparts.

Risk of bias

The results of the quality assessment procedure are presented in the Supplemental Material, reporting the total score for each study, the corresponding percentage, and the classification of bias risk. In summary, the quality evaluation scores ranged from 62.5% to 81.8%, with an average bias risk of 71.16% (SD = ± 7.53%), categorizing the overall bias risk as low. Specifically, a majority of the studies (62.5%; $n = 5$)[7,15,85,86,88] exhibited a low risk of bias, while the remaining studies (37.5%; $n = 3$)[71,87,89] were assessed as having a moderate risk of bias. Notably, none of the included records were classified as having a high risk of bias.

Quality of evidence

The results of the quality of evidence assessment using the GRADE approach are presented in the Supplemental Material, detailing the quality of evidence supporting the associations between MI, anxiety, depression, and quality of life. The quality of evidence for anxiety and depression was conservatively rated low. This reflects the predominantly observational nature of the studies involved, and the absence of criteria justifying a modification in the quality of the evidence. In contrast, the quality of evidence for the association between exposure to morally injurious events and quality of life has been downgraded to very low. This assessment is based on the availability of only one study which exhibits significant biases, thus influencing the reliability of the findings.

Discussion

This systematic review describes the relationship between moral injury and its effects on anxiety, depression, and quality of life among nurses. Our findings underscore the significant psychological burdens associated with moral injury, highlighting the need for healthcare systems to implement targeted interventions aimed at mitigating these impacts on nurses' mental health and well-being.

The data consistently revealed a statistically significant association between moral injury and psychological symptoms among nurses. This aligns with previous studies that have identified links between moral injury and various mental health issues such as depersonalization, reduced quality of life, depression, anxiety, burnout, and PTSD among HCWs.[10,16,52,63,93–95] Indeed, several authors describe the quality of life as a multidimensional concept.[96,97] Importantly, our review supports the recent findings that moral injury not only compromises personal well-being but also adversely affects professional performance,[22] potentially leading to less humanized patient care,[98] emotional distancing,[99] and increased turnover and suicide rates among HCWs.[65]

Focusing specifically on nurses, evidence suggests a significant correlation between the nursing role and the development of moral injury.[10,63,95] There is a stronger association between moral injury and depression and anxiety when a higher proportion of nurses are included in the study samples.[93] Nurses affected by moral injury often experience diminished well-being and general health,[100,101] along with increased levels of PTSD and burnout.[73,101,102] This scenario is particularly concerning given the implications of adverse mental health outcomes on the mental health and overall well-being of the nursing population. The scientific literature indicates that symptoms of anxiety and depression in nurses are significantly associated with critical issues such as insomnia,[103,104] alcohol, tobacco, and substance abuse,[105–107] self-harm,[108] and a greater risk of suicidal ideation and suicide.[109,110] Additionally, burnout and PTSD are linked to a higher prevalence of sleep disorders,[111,112] substance misuse,[113] decline in quality of life,[114] and suicidal ideation.[115,116]

Moreover, moral injury can lead to several organizational challenges, such as higher turnover rates,[117] reduced work performance,[118] and diminished clinical competence.[119] The mental health issues related to moral injury can further exacerbate these challenges, influencing clinical decision-making processes,[120] leading to increased clinical errors,[121,122] decreased job satisfaction,[123] higher staff turnover,[124] and greater suicide risks.[109]

Given the significant prevalence and severe implications of moral injury among nurses, who constitute 59% of the global healthcare workforce,[125] and the potential for moral injury to evolve into complex mental health syndromes such as burnout and PTSD,[6,11] healthcare institutions must undertake substantial structural, organizational, and cultural reforms to manage moral injury effectively.[6,17] These changes should aim to foster moral resilience as a protective factor against moral injury,[56,126] enhance nursing leadership to manage moral injury effectively,[13,117] and improve workplace safety to prevent PMIEs.[127,128]

Competent nurse leaders are crucial in recognizing the signs of moral injury and guiding targeted interventions,[17,129] cultivating an organizational culture that promotes ethical practices, facilitates open discussions about ethical dilemmas, and provides clear guidance in decision-making processes.[17,130,131] An organized and supportive work environment serves as a safeguard against moral injury,[132] contrasting the lack of support from management and colleagues, which represents a major risk factor for its development.[95] Additionally, peer support programs, empowerment initiatives, and personality-strengthening measures can effectively mitigate moral injury.[17,41] Promoting resilience traits such as light personality styles,[94] spirituality,[52] and proper exercise of authority[133] can be beneficial. Furthermore, addressing PMIEs experienced in clinical practice,[17,134] such as patient safety incidents[12] and workplace violence,[4,135] and treating them as occupational hazards,[127] could also be appropriate. Measures aimed at improving safety, such as using security technologies[136] and providing personal equipment,[16,17] could be instrumental in this perspective. Moreover, assessing the needs of groups more susceptible to moral injury development within the nursing

workforce, such as women,[56] younger individuals,[10] smokers,[137] and less experienced nurses,[13] as those who may feel less religiosity and job satisfaction[11] could be useful. Comprehensive education and training on moral injury awareness for all HCWs, particularly nursing leaders[17] and mental health professionals,[138] are crucial to improving understanding and management of moral injury. Lastly, encouraging self-care strategies among nurses could improve moral injury management.[139] Techniques such as mindfulness,[140] art therapy,[141] acceptance and commitment therapy,[142] therapeutic touch,[143] and spiritual practices such as pastoral care and prayer,[144,145] inspired by military interventions, could be not only therapeutic but also protective against moral injury. These approaches can significantly benefit HCWs, helping nurses deal with the profound moral challenges inherent in their profession.[139]

Limitations

To the best of our knowledge, this is the first systematic review focused on moral injury in nurses and its impact on mental health outcomes. However, despite the rigorous methodology employed, some limitations need to be acknowledged.

   First, although we consulted four authoritative databases, the exclusion of Embase and PsycINFO may have resulted in the involuntary omission of relevant studies. Additionally, restricting eligibility to articles written only in English and Italian potentially excluded records published in other languages. Consequently, only eight articles were included, which may limit the generalizability of our findings. This relatively small number of studies underscores the urgent need for more primary research on the phenomenon and its impact on nurses' well-being. Another limitation is the predominance of cross-sectional designs among the included studies. Cross-sectional studies provide a picture at one point in time, making it difficult to draw conclusions about the causality and directionality of the associations observed. Accordingly, the quality of evidence assessed using the GRADE approach was rated as low, suggesting caution in interpreting findings. Therefore, to establish causal relationships and understand the long-term effects of moral injury on nurses, future research should prioritize longitudinal studies. The inconsistency in moral injury measurement tools across studies further complicates the comparability and generalizability of findings. Different instruments used to assess moral injury, focusing on either exposure to morally injurious events or the severity of moral injury symptoms, highlight the need for standardization. Standardizing moral injury measurement instruments in healthcare research, particularly in the nursing field, would enhance the consistency of findings and facilitate better comparisons across studies. Moreover, the conceptual ambiguity surrounding moral injury, including its overlap with related phenomena like moral distress and burnout,[36,146] could complicate the interpretation and application of findings. Addressing this conceptual confusion through further theoretical studies and developing standardized definitions of moral injury would improve comparability and understanding across studies. Lastly, the review highlights a significant gap in targeted and tested interventions for reducing moral injury among nurses. While it is suggested that healthcare systems implement strategies to mitigate moral injury, there is limited evidence available on the effectiveness of specific interventions. Future research should focus on developing and testing interventions to reduce moral injury in nurses. Drawing from holistic interventions used in military populations, such as those for veterans, could provide valuable insights and should be adapted and tested for effectiveness in the nursing profession.

Conclusions

This review describes the widespread and significant impact of moral injury on nurses, emphasizing its profound implications for their mental health and overall well-being. The pervasive nature of moral injury necessitates a comprehensive approach by healthcare systems, calling for significant reforms to enhance ethical decision-making and strengthen nurse support mechanisms.

Efforts should include the implementation of leadership programmes that cultivate an understanding of moral injury, promote resilience, and encourage supportive managerial practices. Furthermore, establishing peer support programs and improving workplace safety can provide nurses with the resources and networks they need to manage the stress associated with their roles. Additionally, incorporating spiritual interventions and other complementary strategies can help address the emotional and existential challenges associated with moral injury, providing nurses with additional coping mechanisms and contributing to their emotional resilience. These initiatives are not only crucial to improving the well-being of nurses but could also have a direct impact on the quality of care they provide, leading to more resilient healthcare systems and better patient outcomes.

The effective management of moral injury has the potential to transform healthcare settings into supportive, empathetic spaces that benefit all members of the healthcare community. By prioritizing nurses' mental health, healthcare systems can foster a more stable, effective, and compassionate response to the myriad challenges faced in clinical settings. This focus ultimately enhances patient health and strengthens system resilience, ensuring that healthcare environments are both supportive of staff and effective for patients.

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GA: conceptualization, writing – original draft preparation, visualization, validation, methodology, data collection, and formal analysis; FG: conceptualization, methodology, writing – original draft preparation, visualization, validation, and methodology; PB: visualization, methodology, data collection; SB: conceptualization, methodology, and writing – review and editing; AS: conceptualization, methodology, and writing – review and editing; RL: conceptualization, supervision, methodology, and writing – review and editing.

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Data availability statement

Data sharing is not applicable as no data was generated or analysed in this study.

Supplemental Material

Supplemental material for this article is available online.

References

1. Griffin BJ, Purcell N, Burkman K, et al. Moral injury: an integrative review. *J Trauma Stress* 2019; 32: 350–362. DOI: 10.1002/jts.22362.

2. Koenig HG, Youssef NA and Pearce M. Assessment of moral injury in veterans and active duty military personnel with PTSD: a review. *Front Psychiatr* 2019; 10: 443. DOI: 10.3389/fpsyt.2019.00443.

3. Hegarty S, Lamb D, Stevelink SAM, et al. 'It hurts your heart': frontline healthcare worker experiences of moral injury during the COVID-19 pandemic. *Eur J Psychotraumatol* 2022; 13: 2128028. DOI: 10.1080/20008066.2022.2128028.

4. Gibbons SW, Shafer M, Hickling EJ, et al. How do deployed health care providers experience moral injury? *Narrat Inq Bioeth* 2013; 3: 247–259. DOI: 10.1353/nib.2013.0055.

5. Williamson V, Murphy D, Castro C, et al. Moral injury and the need to carry out ethically responsible research. *Research Ethics* 2021; 17: 135–142.

6. Čartolovni A, Stolt M, Scott PA, et al. Moral injury in healthcare professionals: a scoping review and discussion. *Nurs Ethics* 2021; 28: 590–602. DOI: 10.1177/0969733020966776.

7. Lamb D, Gnanapragasam S, Greenberg N, et al. Psychosocial impact of the COVID-19 pandemic on 4378 UK healthcare workers and ancillary staff: initial baseline data from a cohort study collected during the first wave of the pandemic. *Occup Environ Med* 2021; 78: 801–808. DOI: 10.1136/oemed-2020-107276.

8. Currier JM, McCormick W and Drescher KD. How do morally injurious events occur? A qualitative analysis of perspectives of veterans with PTSD. *Traumatology* 2015; 21: 106–116. DOI: 10.1037/trm0000027.

9. Williamson V, Stevelink SAM and Greenberg N. Occupational moral injury and mental health: systematic review and meta-analysis. *Br J Psychiatry* 2018; 212: 339–346. DOI: 10.1192/bjp.2018.55.

10. Mantri S, Song YK, Lawson JM, et al. Moral injury and burnout in health care professionals during the COVID-19 pandemic. *J Nerv Ment Dis* 2021; 209: 720–726. DOI: 10.1097/nmd.0000000000001367.

11. Mewborn EK, Fingerhood ML, Johanson L, et al. Examining moral injury in clinical practice: a narrative literature review. *Nurs Ethics* 2023; 30: 960–974. DOI: 10.1177/09697330231164762.

12. Stovall M, Hansen L and van Ryn M. A critical review: moral injury in nurses in the aftermath of a patient safety incident. *J Nurs Scholarsh* 2020; 52: 320–328. DOI: 10.1111/jnu.12551.

13. Rushton CH, Nelson KE, Antonsdottir I, et al. Perceived organizational effectiveness, moral injury, and moral resilience among nurses during the COVID-19 pandemic: secondary analysis. *Nurs Manag* 2022; 53: 12–22. DOI: 10.1097/01.NUMA.0000834524.01865.cc.

14. Rushton CH, Thomas TA, Antonsdottir IM, et al. Moral injury and moral resilience in health care workers during COVID-19 pandemic. *J Palliat Med* 2022; 25: 712–719. DOI: 10.1089/jpm.2021.0076.

15. Wang Z, Al Zaben F, Koenig HG, et al. Spirituality, moral injury and mental health among Chinese health professionals. *BJPsych Open* 2021; 7: e135. DOI: 10.1192/bjo.2021.972.

16. Riedel PL, Kreh A, Kulcar V, et al. A scoping review of moral stressors, moral distress and moral injury in healthcare workers during COVID-19. *Int J Environ Res Publ Health* 2022; 19: 19031666. DOI: 10.3390/ijerph19031666.

17. Rowlands SL. Understanding and mitigating moral injury in nurses. *Nurs Stand* 2021; 36: 40–44. DOI: 10.7748/ns.2021.e11703.

18. Shay J. *Achilles in Vietnam: combat trauma and the undoing of character*. New York, NY: Simon & Schuster, 1995.

19. Shay J. Casualties. *Daedalus* 2011; 140: 179–188. DOI: 10.1162/daed_a_00107.

20. Litz BT, Stein N, Delaney E, et al. Moral injury and moral repair in war veterans: a preliminary model and intervention strategy. *Clin Psychol Rev* 2009; 29: 695–706. DOI: 10.1016/j.cpr.2009.07.003.

21. Frankfurt S and Frazier P. A review of research on moral injury in combat veterans. *Mil Psychol* 2016; 28: 318–330. DOI: 10.1037/mil0000132.

22. Norman SB, Nichter B, Maguen S, et al. Moral injury among U.S. combat veterans with and without PTSD and depression. *J Psychiatr Res* 2022; 154: 190–197. DOI: 10.1016/j.jpsychires.2022.07.033.

23. Richardson NM, Lamson AL, Smith M, et al. Defining moral injury among military populations: a systematic review. *J Trauma Stress* 2020; 33: 575–586. DOI: 10.1002/jts.22553.

24. Bryan CJ, Morrow CE, Etienne N, et al. Guilt, shame, and suicidal ideation in a military outpatient clinical sample. *Depress Anxiety* 2013; 30: 55–60. DOI: 10.1002/da.22002.

25. Koenig HG, Ames D, Youssef NA, et al. The moral injury symptom scale-military version. *J Relig Health* 2018; 57: 249–265. DOI: 10.1007/s10943-017-0531-9.

26. Koenig HG, Ames D, Youssef NA, et al. Screening for moral injury: the moral injury symptom scale - military version short form. *Mil Med* 2018; 183: e659–e665. DOI: 10.1093/milmed/usy017.

27. Nash WP, Marino Carper TL, Mills MA, et al. Psychometric evaluation of the moral injury events scale. *Mil Med* 2013; 178: 646–652. DOI: 10.7205/milmed-d-13-00017.

28. Papazoglou K, Blumberg DM, Chiongbian VB, et al. The role of moral injury in PTSD among law enforcement officers: a brief report. *Front Psychol* 2020; 11: 310. DOI: 10.3389/fpsyg.2020.00310.

29. Lentz LM, Smith-MacDonald L, Malloy D, et al. Compromised conscience: a scoping review of moral injury among firefighters, paramedics, and police officers. *Front Psychol* 2021; 12: 639781. DOI: 10.3389/fpsyg.2021.639781.

30. Feinstein A, Pavisian B and Storm H. Journalists covering the refugee and migration crisis are affected by moral injury not PTSD. *JRSM Open* 2018; 9: 2054270418759010. DOI: 10.1177/2054270418759010.

31. Sugrue EP. Moral injury among professionals in K–12 education. *Am Educ Res J* 2020; 57: 43–68. DOI: 10.3102/0002831219848690.

32. Gaitens J, Condon M, Fernandes E, et al. COVID-19 and essential workers: a narrative review of health outcomes and moral injury. *Int J Environ Res Publ Health* 2021; 18: 1446.

33. Nickerson A, Schnyder U, Bryant RA, et al. Moral injury in traumatized refugees. *Psychother Psychosom* 2015; 84: 122–123. DOI: 10.1159/000369353.

34. Temoney KE. The war came alive inside of them. *J Relig Ethics* 2021; 49: 479–494. DOI: 10.1111/jore.12366.

35. Carleton TC and Snodgrass JL. *Moral injury after abortion: exploring the psychospiritual impact on Catholic women*. London, UK: Routledge, 2022.

36. Dean W, Talbot S and Dean A. Reframing clinician distress: moral injury not burnout. *Fed Pract* 2019; 36: 400–402.

37. Hodgson TJ and Carey LB. Moral injury and definitional clarity: betrayal, spirituality and the role of chaplains. *J Relig Health* 2017; 56: 1212–1228. DOI: 10.1007/s10943-017-0407-z.

38. Lindert J. Moral injury and moral distress. *Eur J Publ Health* 2021; 31: 454. DOI: 10.1093/eurpub/ckab164.454.

39. Mantri S, Lawson JM, Wang Z, et al. Identifying moral injury in healthcare professionals: the moral injury symptom scale-HP. *J Relig Health* 2020; 59: 2323–2340. DOI: 10.1007/s10943-020-01065-w.

40. Kopacz MS, Ames D and Koenig HG. It's time to talk about physician burnout and moral injury. *Lancet Psychiatr* 2019; 6: e28. DOI: 10.1016/s2215-0366(19)30385-2.

41. Rosen A, Cahill JM and Dugdale LS. Moral injury in health care: identification and repair in the COVID-19 era. *J Gen Intern Med* 2022; 37: 3739–3743. DOI: 10.1007/s11606-022-07761-5.

42. Epstein EG and Hamric AB. Moral distress, moral residue, and the crescendo effect. *J Clin Ethics* 2009; 20: 330–342.

43. Linzer M and Poplau S. Eliminating burnout and moral injury: bolder steps required. *EClinical Med* 2021; 39: 101090. DOI: 10.1016/j.eclinm.2021.101090.

44. Dzeng E and Wachter RM. Ethics in conflict: moral distress as a root cause of burnout. *J Gen Intern Med* 2020; 35: 409–411. DOI: 10.1007/s11606-019-05505-6.

45. Ramos AM, Barlem ELD, Barlem JGT, et al. Cross-cultural adaptation and validation of the moral distress scale-revised for nurses. *Rev Bras Enferm* 2017; 70: 1011–1017. DOI: 10.1590/0034-7167-2016-0518.

46. Koenig HG and Al Zaben F. Moral injury: an increasingly recognized and widespread syndrome. *J Relig Health* 2021; 60: 2989–3011. DOI: 10.1007/s10943-021-01328-0.

47. Maslach C and Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatr* 2016; 15: 103–111. DOI: 10.1002/wps.20311.

48. Kirkpatrick HA and Heller GM. Post-traumatic stress disorder: theory and treatment update. *Int J Psychiatr Med* 2014; 47: 337–346. DOI: 10.2190/PM.47.4.h.

49. Bartzak PJ. Moral injury is the wound: PTSD is the manifestation. *Medsurg Nurs* 2015; 24(3): 10–11.

50. Dean W, Jacobs B and Manfredi RA. Moral injury: the invisible epidemic in COVID health care workers. *Ann Emerg Med* 2020; 76: 385–386. DOI: 10.1016/j.annemergmed.2020.05.023.

51. Hines SE, Chin KH, Glick DR, et al. Trends in moral injury, distress, and resilience factors among healthcare workers at the beginning of the COVID-19 pandemic. *Int J Environ Res Publ Health* 2021; 18: 18020488. DOI: 10.3390/ijerph18020488.

52. Mantri S, Lawson JM, Wang Z, et al. Prevalence and predictors of moral injury symptoms in health care professionals. *J Nerv Ment Dis* 2021; 209: 174–180. DOI: 10.1097/nmd.0000000000001277.

53. Beck CT. Secondary qualitative analysis of moral injury in obstetric and neonatal nurses. *J Obstet Gynecol Neonatal Nurs* 2022; 51: 166–176. DOI: 10.1016/j.jogn.2021.12.003.

54. Nagdee N and Manuel de Andrade V. I don't really know where I stand because I don't know if I took something away from her': moral injury in South African speech-language therapists and audiologists due to patient death and dying. *Int J Lang Commun Disord* 2023; 58: 28–38. DOI: 10.1111/1460-6984.12765.

55. Adeyemo OO, Tu S, Falako S, et al. Stressors on frontline healthcare workers during the COVID-19 pandemic: a focus on moral injury and implications for the future. *Int Arch Occup Environ Health* 2022; 95: 1755–1762. DOI: 10.1007/s00420-022-01867-3.

56. Akhtar M, Faize FA, Malik RZ, et al. Moral injury and psychological resilience among healthcare professionals amid COVID-19 pandemic. *Pakistan J Med Sci* 2022; 38: 1338–1342. DOI: 10.12669/pjms.38.5.5122.

57. Mackel CE, Alterman RL, Buss MK, et al. Moral distress and moral injury among attending neurosurgeons: a national survey. *Neurosurgery* 2022; 91: 59–65. DOI: 10.1227/neu.0000000000001921.

58. Woerner AJ, Greenberg CH, Chick JFB, et al. Moral injury among interventional radiologists. *Acad Radiol* 2024; 31: 1122–1129. DOI: 10.1016/j.acra.2023.09.015.

59. Williamson V, Murphy D and Greenberg N. Experiences and impact of moral injury in U.K. veterinary professional wellbeing. *Eur J Psychotraumatol* 2022; 13: 2051351. DOI: 10.1080/20008198.2022.2051351.

60. Borges LM, Holliday R, Barnes SM, et al. A longitudinal analysis of the role of potentially morally injurious events on COVID-19-related psychosocial functioning among healthcare providers. *PLoS One* 2021; 16: e0260033. DOI: 10.1371/journal.pone.0260033.

61. Ulrich CM, Taylor C, Soeken K, et al. Everyday ethics: ethical issues and stress in nursing practice. *J Adv Nurs* 2010; 66: 2510–2519. DOI: 10.1111/j.1365-2648.2010.05425.x.

62. Hines SE, Chin KH, Levine AR, et al. Initiation of a survey of healthcare worker distress and moral injury at the onset of the COVID-19 surge. *Am J Ind Med* 2020; 63: 830–833. DOI: 10.1002/ajim.23157.

63. Dale LP, Cuffe SP, Sambuco N, et al. Morally distressing experiences, moral injury, and burnout in Florida healthcare providers during the COVID-19 pandemic. *Int J Environ Res Publ Health* 2021; 18: 182312319. DOI: 10.3390/ijerph182312319.

64. Safdar CA and Qayyum R. Moral injury, emotional labor and burnout: an unbearable burden for health professionals. *Pakistan J Med Sci* 2021; 37: 1256–1258. DOI: 10.12669/pjms.37.5.4794.

65. Kingston AM. Break the silence: physician suicide in the time of COVID-19. *Mo Med* 2020; 117: 426–429.

66. Rosenbaum L. Facing covid-19 in Italy - ethics, logistics, and therapeutics on the epidemic's front line. *N Engl J Med* 2020; 382: 1873–1875. DOI: 10.1056/NEJMp2005492.

67. Litam SDA and Balkin RS. Moral injury in health-care workers during COVID-19 pandemic. *Traumatology* 2021; 27: 14–19. DOI: 10.1037/trm0000290.

68. Greenberg N, Docherty M, Gnanapragasam S, et al. Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ* 2020; 368: m1211. DOI: 10.1136/bmj.m1211.

69. Silverman HJ, Kheirbek RE, Moscou-Jackson G, et al. Moral distress in nurses caring for patients with Covid-19. *Nurs Ethics* 2021; 28: 1137–1164. DOI: 10.1177/09697330211003217.

70. Fauci AJ, Latina R, Iacorossi L, et al. Allocation of scarce critical care resources during public health emergencies: which ethical principles support decision making. *Clin Ter* 2022; 173: 384–395. DOI: 10.7417/ct.2022.2450.

71. Rodríguez EA, Agüero-Flores M, Landa-Blanco M, et al. Moral injury and light triad traits: anxiety and depression in health-care personnel during the coronavirus-2019 pandemic in honduras. *Hisp Health Care Int* 2021; 19: 230–238. DOI: 10.1177/15404153211042371.

72. Shimizu K and Lin L. Defamation against healthcare workers during COVID-19 pandemic. *Int J Health Pol Manag* 2022; 11: 720–721. DOI: 10.34172/ijhpm.2020.184.

73. Weissinger GM, Swavely D, Holtz H, et al. Critical care nurses' moral resilience, moral injury, institutional betrayal, and traumatic stress after COVID-19. *Am J Crit Care* 2024; 33: 105–114. DOI: 10.4037/ajcc2024481.

74. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021; 372: n71. DOI: 10.1136/bmj.n71.

75. Page MJ, Moher D, Bossuyt PM, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ* 2021; 372: n160. DOI: 10.1136/bmj.n160.

76. Richardson WS, Wilson MC, Nishikawa J, et al. The well-built clinical question: a key to evidence-based decisions. *ACP J Club* 1995; 123: A12–A13.

77. Ouzzani M, Hammady H, Fedorowicz Z, et al. Rayyan—a web and mobile app for systematic reviews. *Syst Rev* 2016; 5: 210. DOI: 10.1186/s13643-016-0384-4.

78. Higgins JPTTJ, Chandler J, Cumpston M, et al. *Cochrane handbook for systematic reviews of interventions version 6.4*. London, UK: Cochrane, 2023.

79. McKenzie JE, Brennan SE, Ryan RE, et al. Summarizing study characteristics and preparing for synthesis. In: *Cochrane handbook for systematic reviews of interventions*. London, UK: Cochrane, 2019, 229–240.

80. Moola SMZ, Sears K, Sfetcu R, et al. Chapter 7: systematic reviews of etiology and risk. In: Aromataris EMZ (ed) *JBI manual for evidence synthesis*. Adelaide, SA: JBI, 2020.

81. Campbell M, McKenzie JE, Sowden A, et al. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. *BMJ* 2020; 368: l6890. DOI: 10.1136/bmj.l6890.

82. Ogilvie D, Fayter D, Petticrew M, et al. The harvest plot: a method for synthesising evidence about the differential effects of interventions. *BMC Med Res Methodol* 2008; 8: 8. DOI: 10.1186/1471-2288-8-8.

83. Moola S, Munn Z, Tufanaru C, et al. Chapter 7: systematic reviews of etiology and risk. *Joanna Briggs Institute Reviewer's Manual The Joanna Briggs Institute* 2017; 5: 217–269.

84. Schünemann HJ, Oxman AD, Brozek J, et al. Grading quality of evidence and strength of recommendations for diagnostic tests and strategies. *BMJ* 2008; 336: 1106–1110. DOI: 10.1136/bmj.39500.677199.AE.

85. Amsalem D, Lazarov A, Markowitz JC, et al. Psychiatric symptoms and moral injury among US healthcare workers in the COVID-19 era. *BMC Psychiatr* 2021; 21: 546. DOI: 10.1186/s12888-021-03565-9.

86. Zerach G and Levi-Belz Y. Moral injury and mental health outcomes among Israeli health and social care workers during the COVID-19 pandemic: a latent class analysis approach. *Eur J Psychotraumatol* 2021; 12: 1945749. DOI: 10.1080/20008198.2021.1945749.

87. Benatov J, Zerach G and Levi-Belz Y. Moral injury, depression, and anxiety symptoms among health and social care workers during the COVID-19 pandemic: the moderating role of belongingness. *Int J Soc Psychiatr* 2022; 68: 1026–1035. DOI: 10.1177/00207640221099421.

88. Nieuwsma JA, O'Brien EC, Xu H, et al. Patterns of potential moral injury in post-9/11 combat veterans and COVID-19 healthcare workers. *J Gen Intern Med* 2022; 37: 2033–2040. DOI: 10.1007/s11606-022-07487-4.

89. Wang Z, Koenig HG, Tong Y, et al. Moral injury in Chinese health professionals during the COVID-19 pandemic. *Psychol Trauma* 2022; 14: 250–257. DOI: 10.1037/tra0001026.

90. Spitzer RL, Kroenke K, Williams JB, et al. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006; 166: 1092–1097. DOI: 10.1001/archinte.166.10.1092.

91. Kroenke K, Spitzer RL and Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16: 606–613. DOI: 10.1046/j.1525-1497.2001.016009606.x.

92. Hays RD, Bjorner JB, Revicki DA, et al. Development of physical and mental health summary scores from the patient-reported outcomes measurement information system (PROMIS) global items. *Qual Life Res* 2009; 18: 873–880. DOI: 10.1007/s11136-009-9496-9.

93. Coimbra BM, Zylberstajn C, van Zuiden M, et al. Moral injury and mental health among health-care workers during the COVID-19 pandemic: meta-analysis. *Eur J Psychotraumatol* 2023; 15: 2299659. DOI: 10.1080/20008066.2023.2299659.

94. Lei Q, He Z, Koenig HG, et al. Light personality style and moral injury among Chinese health professionals. *J Relig Health* 2023; 62: 3942–3956. DOI: 10.1007/s10943-023-01921-5.

95. Williamson V, Lamb D, Hotopf M, et al. Moral injury and psychological wellbeing in UK healthcare staff. *J Ment Health* 2023; 32: 890–898. DOI: 10.1080/09638237.2023.2182414.

96. Cecere L, de Novellis S, Gravante A, et al. Quality of life of critical care nurses and impact on anxiety, depression, stress, burnout and sleep quality: a cross-sectional study. *Intensive Crit Care Nurs* 2023; 79: 103494. DOI: 10.1016/j.iccn.2023.103494.

97. Gravante F, Toscano G, Cecere L, et al. Quality of life, Stress, and Burnout of Italian nurses during the outbreak of COVID-19: a cross-sectional study. *Prof Inferm* 2023; 75: 28–38. DOI: 10.7429/pi.2022.751028.

98. Testoni I, Brondolo E, Ronconi L, et al. Burnout following moral injury and dehumanization: a study of distress among Italian medical staff during the first COVID-19 pandemic period. *Psychol Trauma* 2022: 1346. DOI: 10.1037/tra0001346.

99. Larsson G, Nilsson S, Hyllengren P, et al. Stress reactions following acute situations involving moral challenges among health care professionals. *Scand J Psychol* 2018; 59: 177–185. DOI: 10.1111/sjop.12425.

100. Fitzpatrick JJ, Pignatiello G, Kim M, et al. Moral injury, nurse well-being, and resilience among nurses practicing during the COVID-19 pandemic. *J Nurs Adm* 2022; 52: 392–398. DOI: 10.1097/nna.0000000000001171.

101. Liang T, Kaka Mirza H, Malakoutikhah A, et al. Moral injury and its correlates among Iranian nurses in the second year of the COVID-19 pandemic: a multicenter cross-sectional study. *J Relig Health* 2023; 62: 3979–3994. DOI: 10.1007/s10943-023-01938-w.

102. Jovarauskaite L, Murphy D, Truskauskaite-Kuneviciene I, et al. Associations between moral injury and ICD-11 post-traumatic stress disorder (PTSD) and complex PTSD among help-seeking nurses: a cross-sectional study. *BMJ Open* 2022; 12: e056289. DOI: 10.1136/bmjopen-2021-056289.

103. Shen Y, Zhan Y, Zheng H, et al. Anxiety and its association with perceived stress and insomnia among nurses fighting against COVID-19 in Wuhan: a cross-sectional survey. *J Clin Nurs* 2021; 30: 2654–2664. DOI: 10.1111/jocn.15678.

104. Cheung T and Yip PSF. Depression, anxiety and symptoms of stress among Hong Kong nurses: a cross-sectional study. *Int J Environ Res Publ Health* 2015; 12: 11072–11100.

105. Abou Elalla E, Awaad M, Elhabiby M, et al. Substance abuse among nursing staff: prevalence and socio-demographic and clinical characteristics. *Addict Disord Their Treat* 2020; 19: 99–107. DOI: 10.1097/adt.0000000000000191.

106. Junqueira MAB, Santos MA, Araújo LB, et al. Depressive symptoms and drug use among nursing staff professionals. *Escola Anna Nery* 2018; 22: 129.

107. Foli KJ, Zhang L and Reddick B. Predictors of substance use in registered nurses: the role of psychological trauma. *West J Nurs Res* 2021; 43: 1023–1033. DOI: 10.1177/0193945920987123.

108. Cheung T and Yip PSF. Self-harm in nurses: prevalence and correlates. *J Adv Nurs* 2016; 72: 2124–2137. DOI: 10.1111/jan.12987.

109. Silva Ddos S, Tavares NV, Alexandre AR, et al. [Depression and suicide risk among nursing professionals: an integrative review]. *Rev Esc Enferm USP* 2015; 49: 1027–1036. DOI: 10.1590/s0080-623420150000600020.

110. Cheung T, Lee PH and Yip PS. Suicidality among Hong Kong nurses: prevalence and correlates. *J Adv Nurs* 2016; 72: 836–848. DOI: 10.1111/jan.12869.

111. Kousloglou S, Mouzas O, Bonotis K, et al. Insomnia and burnout in Greek nurses. *Hippokratia* 2014; 18: 150–155.

112. Membrive-Jiménez MJ, Gómez-Urquiza JL, Suleiman-Martos N, et al. Relation between burnout and sleep problems in nurses: a systematic review with meta-analysis. *Healthcare* 2022; 10: 954.

113. Foli KJ, Forster A, Cheng C, et al. Voices from the COVID-19 frontline: nurses' trauma and coping. *J Adv Nurs* 2021; 77: 3853–3866. DOI: 10.1111/jan.14988.

114. Mealer M, Burnham EL, Goode CJ, et al. The prevalence and impact of post traumatic stress disorder and burnout syndrome in nurses. *Depress Anxiety* 2009; 26: 1118–1126. DOI: 10.1002/da.20631.

115. Chin WS, Chen YC, Ho JJ, et al. Psychological work environment and suicidal ideation among nurses in taiwan. *J Nurs Scholarsh* 2019; 51: 106–113. DOI: 10.1111/jnu.12441.

116. Kabir H, Chowdhury SR, Roy AK, et al. Association of workplace bullying and burnout with nurses' suicidal ideation in Bangladesh. *Sci Rep* 2023; 13: 14641. DOI: 10.1038/s41598-023-41594-4.

117. Stanojević S and Čartolovni A. Moral distress and moral injury and their interplay as a challenge for leadership and management: the case of Croatia. *J Nurs Manag* 2022; 30: 2335–2345. DOI: 10.1111/jonm.13835.

118. Callis AB, Saul T and Bindler RJ. The impact of moral injury on self-reported work performance in hospital nurses following the global pandemic surge. *J Nurs Adm* 2024; 54: 177–183. DOI: 10.1097/nna.0000000000001404.

119. Teng Y, Dehghan M, Hossini Rafsanjanipoor SM, et al. Is nurses' clinical competence associated with their moral identity and injury? *Nurs Ethics* 2023; 2023: 9697330231209284. DOI: 10.1177/09697330231209284.

120. Polat Ş, Kutlu L, Ay F, et al. Decision-making styles, anxiety levels, and critical thinking levels of nurses. *Jpn J Nurs Sci* 2019; 16: 309–321. DOI: 10.1111/jjns.12240.

121. Betsiou S, Pitsiou G, Panagiotidou E, et al. Nursing errors in intensive care unit and their association with burnout, anxiety, insomnia and working environment: a cross-sectional study. *Hippokratia* 2022; 26: 110–117.

122. Melnyk BM, Tan A, Hsieh AP, et al. Critical care nurses' physical and mental health, worksite wellness support, and medical errors. *Am J Crit Care* 2021; 30: 176–184. DOI: 10.4037/ajcc2021301.

123. Modaresnezhad M, Andrews MC, Mesmer-Magnus J, et al. Anxiety, job satisfaction, supervisor support and turnover intentions of mid-career nurses: a structural equation model analysis. *J Nurs Manag* 2021; 29: 931–942. DOI: 10.1111/jonm.13229.

124. Tabur A, Elkefi S, Emhan A, et al. Anxiety, burnout and depression, psychological well-being as predictor of healthcare professionals' turnover during the COVID-19 pandemic: study in a pandemic hospital. *Healthcare* 2022; 10: 10030525. DOI: 10.3390/healthcare10030525.

125. WHO. *State of the world's nursing 2020: investing in education, jobs and leadership*. Geneva, Switzerland: WHO, 2020. https://www.who.int/publications/i/item/9789240003279

126. Berdida DJE and Grande RAN. Moral distress, moral resilience, moral courage, and moral injury among nurses in the Philippines during the COVID-19 pandemic: a mediation analysis. *J Relig Health* 2023; 62: 3957–3978. DOI: 10.1007/s10943-023-01873-w.

127. Rabin S, Kika N, Lamb D, et al. Moral injuries in healthcare workers: what causes them and what to do about them? *J Healthc Leader* 2023; 15: 153–160. DOI: 10.2147/jhl.S396659.

128. Xue Y, Lopes J, Ritchie K, et al. Potential circumstances associated with moral injury and moral distress in healthcare workers and public safety personnel across the globe during COVID-19: a scoping review. *Front Psychiatr* 2022; 13: 863232. DOI: 10.3389/fpsyt.2022.863232.

129. Johnstone R and Edwards P. Supporting nurse leaders to recognise and mitigate the effects of moral injury. *Nurs Manag*. 2022; e2067. DOI: 10.7748/nm.2022.e2067.

130. Kreh A, Brancaleoni R, Magalini SC, et al. Ethical and psychosocial considerations for hospital personnel in the Covid-19 crisis: moral injury and resilience. *PLoS One* 2021; 16: e0249609. DOI: 10.1371/journal.pone.0249609.

131. Solano T, Gilbert GL, Kerridge IH, et al. Ethical considerations in the management of Ebola virus disease. *Med J Aust* 2015; 203: 193–195. DOI: 10.5694/mja15.00168.

132. Nelson KE, Hanson GC, Boyce D, et al. Organizational impact on healthcare workers' moral injury during COVID-19: a mixed-methods analysis. *J Nurs Adm* 2022; 52: 57–66. DOI: 10.1097/nna.0000000000001103.

133. Austin CL, Saylor R and Finley PJ. Moral distress in physicians and nurses: impact on professional quality of life and turnover. *Psychol Trauma* 2017; 9: 399–406. DOI: 10.1037/tra0000201.

134. Gilbert-Ouimet M, Zahiriharsini A, Biron C, et al. Predict, prevent and manage moral injuries in Canadian frontline healthcare workers and leaders facing the COVID-19 pandemic: protocol of a mixed methods study. *SSM Ment Health* 2022; 2: 100124. DOI: 10.1016/j.ssmmh.2022.100124.

135. Gravante F, Lombardi A, Cecere L, et al. [Emergency nurses and workplace violence: a cross-sectional study in Campania, South Italy]. *Prof Inferm* 2020; 73: 89–97. DOI: 10.7429/pi.2020.732089.

136. Anastasi G and Bambi S. Utilization and effects of security technologies in mental health: a scoping review. *Int J Ment Health Nurs* 2023; 32: 1561–1582. DOI: 10.1111/inm.13193.

137. Sharma ME and Cousins R. Understanding moral injury in frontline health care professionals 2 years after the onset of COVID-19. *J Nerv Ment Dis* 2023; 211: 934–939. DOI: 10.1097/nmd.0000000000001665.

138. Levi-Belz Y and Zerach G. "How can they treat it if they can't identify it?": mental health professionals' knowledge and perspectives of moral injury. *Psychol Trauma* 2023; 15: S436–s445. DOI: 10.1037/tra0001206.

139. Hossain F and Clatty A. Self-care strategies in response to nurses' moral injury during COVID-19 pandemic. *Nurs Ethics* 2021; 28: 23–32. DOI: 10.1177/0969733020961825.

140. Kelley ML, Strowger M, Chentsova VO, et al. Mindfulness to manage moral injury: rationale and development of a live online 7-week group intervention for veterans with moral injury. *Contemp Clin Trials Commun* 2022; 30: 101011. DOI: 10.1016/j.conctc.2022.101011.

141. Williamson V, Lobban J and Murphy D. Moral injury and the potential utility of art therapy in treatment. *BMJ Mil Health* 2023; 169: e6–e8. DOI: 10.1136/bmjmilitary-2021-001947.

142. Borges LM, Barnes SM, Farnsworth JK, et al. Cultivating psychological flexibility to address religious and spiritual suffering in moral injury. *J Health Care Chaplain* 2022; 28: S32–S41. DOI: 10.1080/08854726.2022.2031467.

143. Hanley MA, Coppa D and Shields D. A practice-based theory of healing through therapeutic touch: advancing holistic nursing practice. *J Holist Nurs* 2017; 35: 369–381. DOI: 10.1177/0898010117721827.

144. Emmerich SJ. Contemplative practice, acceptance, and healing in moral injury. *J Health Care Chaplain* 2022; 28: S25–S31. DOI: 10.1080/08854726.2022.2032977.

145. Ames D, Erickson Z, Geise C, et al. Treatment of moral injury in U.S. veterans with PTSD using a structured chaplain intervention. *J Relig Health* 2021; 60: 3052–3060. DOI: 10.1007/s10943-021-01312-8.

146. Talbot SG and Dean W. Physicians aren't 'burning out.' They're suffering from moral injury. *Stat* 2018; 7: 18.