



Contents lists available at ScienceDirect

International Journal of Nursing Studies Advances

journal homepage: www.sciencedirect.com/journal/international-journal-of-nursing-studies-advances

Does moral distress in emergency department nurses contribute to intentions to leave their post, specialisation, or profession: A systematic review

Olivia Boulton^{a,1,*}, Barbara Farquharson^b^a Faculty of Health Sciences & Sport, University of Stirling, Stirling FK9 4LA, UK^b NMAHP Research Unit, University of Stirling, Stirling FK9 4LA UK

ARTICLE INFO

Keywords:

Attrition
Emergency nursing
Emergency service, hospital
Moral distress
Moral injury
Moral distress measures
Nursing shortage
Personnel retention
Review
Systematic

ABSTRACT

Background: There is a global shortfall of nurses. Despite national targets to increase nurse training and retention, the numbers leaving the profession continue to rise. Emergency departments (EDs) consistently record above average staff-turnover. Meanwhile descriptions of moral distress amongst emergency nurses are increasing. It is vital to consider the long-term emotional and psychological impact of moral distress on the emergency nursing workforce. However, the events which trigger moral distress in the emergency department may differ from those described in other clinical areas. A clearer understanding of the effects of moral distress on intention to leave could help identify those at risk and inform decisions on interventions designed to mitigate moral distress, aiding nurse retention and the organisational stability of health services.

Aim: This systematic review aims to synthesise the available evidence on the association between moral distress and intention to leave in emergency nurses.

Methods: A systematic search of studies was performed on MEDLINE, CINAHL, PsychINFO, Web of Science and Cochrane databases (8th -10th June 2022). Results were screened and quality-assessed with cross-checks. The heterogeneity of samples and insufficient data precluded statistical pooling and meta-analysis. Consequently, narrative synthesis was performed.

Results: Five studies reported quantitative results eligible for synthesis. Low to moderate levels of moral distress were reported in emergency nurses; contrasting starkly with the significant proportion who reported having left or considered leaving due to moral distress (up to 51%). Sparse, mostly low-quality evidence was identified, highlighting a need for more robust research. Current tools for measuring moral distress appear not to capture the unique pressures which contribute to moral distress in emergency nurses.

Conclusions: Emergency nurses cite moral distress as a reason for leaving. Further study is required to determine the levels of moral distress associated with intentions to leave and the strength of that association. This is fundamental to the design of effective retention policies. Future research should also explore the applicability of current moral distress measures to the emergency department, with consideration given to developing emergency department specific tools.

* Corresponding author.

E-mail addresses: ofboulton@protonmail.com, olb00042@student.stir.ac.uk (O. Boulton).¹ Present address: Olivia Boulton, Bygdøy Alle 20, 0262, Oslo, Norway.<https://doi.org/10.1016/j.ijnnsa.2023.100164>

Received 24 March 2023; Received in revised form 31 August 2023; Accepted 2 November 2023

Available online 8 November 2023

2666-142X/© 2023 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

PROSPERO Registration number: CRD42022336241 https://www.crd.york.ac.uk/prosperto/display_record.php?RecordID=336241

Contribution of the paper

What is already known about the topic.

- Moral distress has been well explored in intensive care units and palliative care settings.
- Qualitative studies involving nurses working in emergency departments identify different pressures resulting in symptoms of moral distress from those on nurses working in other departments.
- Moral distress has been cited as a reason to stop working in the emergency department.

What this paper adds

- This systematic review is the first to synthesise the available evidence about the relationship between moral distress and intention to leave in emergency nurses.
- It identifies that significant percentages of emergency nurses are leaving or have considered leaving their posts due to moral distress.
- There is some evidence to suggest that the current tools for measuring moral distress do not capture the unique pressures which contribute to moral distress in emergency nurses.

1. Introduction

The nursing workforce has undergone significant change in recent years, driven in part by increased responsibilities in practice, structural changes in health services, insufficient numbers entering the profession, and a growing shortfall in filled positions (Dietermann et al., 2021; Salmond and Echevarria, 2017; World Health Organisation 2020). In 2020, the World Health Organization (WHO) estimated the global shortfall of nurses to be 5.9 million, with the greatest shortages in South-East Asia and Africa (World Health Organisation 2020). Nurses comprise approximately 59% of the global healthcare workforce; (World Health Organisation 2020) as 1 in 6 nurses expect to retire before 2030, (International Council of Nurses 2022) this poses a substantial risk to future health provision globally. If Sustainable Development Goal 3 on health and well-being is to be reached by 2030, the WHO estimates that an additional nine million nurses and midwives are needed (World Health Organisation 2020).

Pressures on the global nursing workforce have been further compounded by the COVID-19 pandemic. National nursing associations have reported increases in nurses leaving the profession (International Council of Nurses 2022) despite national targets committing countries to increase the training and retention of nurses to address both current and future shortfalls in the nursing workforce.

Even prior to COVID-19, emergency departments consistently polled above national averages for staff turnover rates (McDermid et al., 2020; Sawatzky and Enns, 2012; Winters, 2016). Although many factors influence staff attrition and retention rates, the unpredictable and high volume, high acuity nature of the emergency department has often been identified as an influential factor in nurses leaving (McDermid et al., 2020; Li et al., 2018). The pandemic has significantly amplified existing pressures on emergency nursing staff; (International Council of Nurses 2022; British Medical Association (BMA) 2022) the effects of which are predicted to continue long past its peak as the backlog of patients with urgent health issues continues to grow alongside increasing workforce shortages (International Council of Nurses 2022).

Studies completed since the height of the pandemic are showing that burnout rates amongst emergency nurses continue to increase, (Lavoie et al., 2022; Yang et al., 2022) with emotional well-being and mental health concerns being identified as frequent reasons for staff leaving (Ahorsu et al., 2021; De Wijn et al., 2022; İlhan and Küpeli, 2022). A growing number of studies have also described nurses suffering from moral distress, and links between moral distress and post-traumatic stress disorder (PTSD) and burnout have been made (Giwa et al., 2021; Karakachian and Colbert, 2017). Moral distress as a motivator for nurses to leave their post has also been identified, in a 2007 study (Hamric and Blackhall, 2007). 45% of survey respondents in one hospital stated they had considered leaving or had left a post due to moral distress. More recent studies have reported intensive care nurses leaving due to moral distress suggesting a relationship between moral distress and nursing attrition in high acuity areas (Morley, 2018; Rushton et al., 2015).

Moral distress describes the psychological and emotional anguish resulting from acting in a way inconsistent with an individual's own moral and ethical principles due to external constraints or requirements. It was a term first proposed by philosopher Andrew Jameton describing a condition that "arises when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action." (Jameton, 1984, p. 06) It has become more widely characterised as a slow-burn response to a series of morally challenging events in which the ethically correct course of action is identified and yet not taken and culminates in a "painful psychological disequilibrium" (Corley et al., 2001, p. 250). This has been termed the crescendo effect (Epstein and Hamric, 2009) and it is proposed that the experience of moral distress will have effects "in the long term, emotionally,

psychologically, behaviourally, spiritually, and socially" (Litz et al., 2009, p. 695).

To better identify moral distress, a number of tools have been developed. One of the first was the Moral Distress Scale (MDS) (Corley et al., 2001). The MDS was initially tested on intensive care nurses in the United States (USA) and has since been revised to the MDS-R, (Hamric et al., 2012) which remains the most widely used and studied tool and has been tested in a variety of settings scoring well for validity and reliability (Giannetta et al., 2020).

In their systematic review of 2020, Giannetta et al. (2020) identified four other tools currently in use: the Moral Distress Thermometer, the Moral Distress Risk Scale, the Ethical Stress Scale, and the Moral Distress in Dementia Care Survey, but after testing found that the MDS and MDS-R continued to provide the most useful results for clinical practice and research. Nevertheless, Tian et al. (2021) review of moral distress tools found that most tools were not validated across different cultures and working environments. None of the tools in either review was developed for use specifically in the emergency department.

The MDS-R has recently been revised to the Measure of Moral Distress for Healthcare Professionals (MMD-HP), (Epstein et al., 2019) and this may represent the most up-to-date understanding of the causes of moral distress, demonstrating good reliability across a number of healthcare settings (Epstein et al., 2019). Also developed recently is the COVID-19 Moral Distress Scale (COVID-MDS), (Cramer et al., 2022) which was reported as showing satisfactory levels of validity and reliability for both intensive care and emergency nurses.

1.1. Existing literature

Experiences of moral distress have been well documented for intensive care nurses, oncology nurses, and nurses providing end of life care (Wolf, 2019). However, it is suggested that the extent to which nurses experience moral distress is, in part, a function of the environment in which they work (Corley et al., 2005; Morley et al., 2019) and that moral distress in emergency nurses is stimulated by a set of moral and ethical conflicts different from those described by intensive care or palliative care nurses (Houghtaling, 2012). The nature of these conflicts is being brought to light in exit interviews from emergency departments (Skene, 2021).

Qualitative studies conducted in emergency departments have identified a number of ethical conflicts associated with moral distress in this setting. In a much-cited study, Wolf et al. (2016) reported nurses' distress at the reduction of emergency nursing care to statistics (e.g., waiting times and time to treatment targets), forcing out the intimacy and personal connection, which nurses believed to be an integral part of providing care in favour of achieving local and national targets. Other studies report issues such as the obligation to nurse patients in corridors rather than equipped patient bays; (Clark et al., 2022; Rubio-Navarro et al., 2020) stepping patients down from high acuity areas 'too soon' to make space for the next patient; (Clark et al., 2022; Robinson and Stinson, 2016) not having time to talk and provide basic nursing care to patients; (Houghtaling, 2012; Schwab et al., 2016; Wolf et al., 2016) or rushing from one trauma to the next without time to debrief (Houghtaling, 2012; Rubio-Navarro et al., 2020; Schwab et al., 2016; Wolf et al., 2016). The majority of these studies have been undertaken in the USA using small convenience samples of under 20 respondents, indicating a need for further qualitative investigation into moral distress in the emergency department environment in different cultural settings.

However, in the last three years, an increasing number of quantitative studies have assessed levels of moral distress in emergency nurses internationally. Such studies, from China, (Hou et al., 2021) Iran, (Babamohamadi et al., 2021) Saudi Arabia, (Almutairi et al., 2019) the Netherlands, (De Wijn et al., 2022) and multi-site international studies, (Druwé et al., 2021) have however provided varied results as to whether moral distress is causing emergency nurses to leave their posts.

The increased data available, coupled with the growing global problem of nursing shortages after a period of intense emotional and psychological pressures, make it timely to undertake a systematic review looking at the relationship between moral distress and intention to leave or attrition rates in emergency nurses. A better understanding of this relationship can inform policy and practice in the development of interventions aimed at increasing the retention of emergency nursing staff. To our knowledge, there has yet to be a systematic review which has explored this relationship with the aim of assessing causality or strength of the relationship.

1.2. Aim of review

This review aims to answer the question of whether moral distress in emergency department nurses contributes to their intentions to leave either their post, the emergency department, or the nursing profession.

2. Methods

In order to adhere to the principles of best practice of open scientific data (Wilkinson et al., 2016) and with the aim of improving the quality of the review, (Dundar and Fleeman, 2017; Bruce et al., 2018) a protocol was developed and made fully available on PROSPERO International prospective register of systematic reviews based at the University of York and is available at: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=336241.

2.1. Inclusion/exclusion criteria

Studies were included if they met the following eligibility criteria.

2.1.1. Population

Studies that reported data from registered or qualified nurses working in emergency departments were included. "Nurses" included

adult or paediatric nurses, advanced nurse practitioners (ANPs), emergency nurse practitioners (ENPs), or local equivalents, all qualified nurses from junior to senior level. Studies were excluded if they did not differentiate between staff groups, i.e., referring to emergency staff but not specifying professional groups.

It was accepted that there are differences in the environments in which nurses are identified as emergency department employees, including major trauma centres and non-major trauma centres, minor injuries units, walk-in centres, or ambulatory care units. Therefore, studies were included if a key feature of the 'emergency department' or 'Accident & Emergency' environment was the unscheduled and unpredictable nature of the work. Studies in which data were not specific to these environments were excluded.

2.1.2. Exposure

The exposure of interest was moral distress. Only studies that included moral distress scores measured using a validated tool or item were included. Studies that referred to moral distress but measured related concepts such as PTSD, Burnout, or Well-being were excluded.

2.1.3. Outcome

Studies that reported nurses' intentions to leave their posts, the emergency department, or the nursing profession and used a validated measure or item to record this were included.

The preferred outcome measure would have been reports of actual attrition rates in relation to moral distress on an individual level. However, it was doubted that these studies existed as attrition rates are most frequently reported on a departmental or hospital level (Department of Health, 2022).

2.1.4. Study design

Primary quantitative research designs, including but not limited to cross-sectional, cohort studies, or correlational studies were eligible. Mixed-methods studies would also be included if quantitative data for both moral distress levels and intention to leave could be extracted. Excluded designs were studies collecting purely qualitative data, reviews, and opinion or editorial pieces.

Results were restricted to English language papers or those with full text translations readily available. This was a pragmatic decision given the time and resources for completing this unfunded review (Greenhalgh, 1997). No limits were set on publication dates.

2.2. Search strategy

Scoping searches and the consensus of published authors appeared to suggest that there would be limited data available. For this reason, the decision was made to tip the balance in favour of sensitivity over specificity in the generation of search terms, resulting in a larger number of irrelevant reports but improving the potential for gathering the maximum amount of data in the field.

Search terms were developed in collaboration with an expert librarian and relate to the three key concepts of the question: emergency nurses, moral distress, and intention to leave. It was also decided to search the full text for terms related to both emergency department nurses and intention to leave and not rely on them being reported in the abstract as key groups or primary outcomes within the research (Shaw et al., 2004; Bramer et al., 2018). The search was performed using the same structure on each database. Keywords and index terms within each of the three concepts were searched separately using the Boolean operator 'OR' before combining the three concepts with 'AND'. Keywords were kept the same on each database, and only index terms changed; for example, CINAHL used the index term "Morals +" whilst MEDLINE used "Moral status".

2.2.1. Data sources

CINAHL, MEDLINE and PsychINFO databases were searched. The Cochrane Library and Web of Science were also searched for the further identification of eligible studies and for forward and backwards citation tracking as a strategy to identify key articles, providing a comprehensive picture of the current research in the field (Bruce et al., 2018; Jones, 2019; O'Rourke, 2005). Reference lists of the eligible studies identified were then searched for further relevant studies (Anthony, 2019; Aveyard, 2014; Methley et al., 2014).

For pragmatic reasons, the decision was made not to search for grey literature. Constraints of time and resources in completing the review meant the practice of contacting experts in the field or viewing conference abstracts (Aveyard, 2014; Higgins et al., 2022) was not feasible, although it is recognised that this omission could have led to publication bias. However, after the planned search strategy was completed, a study was identified by chance on the ResearchGate platform that had not been identified during the systematic search for the review. Although the identification of this study was a deviation from the protocol, where no active search of grey literature was undertaken, it was felt that the inclusion of serendipitous findings should not be overlooked, especially in a small field (Greenhalgh and Peacock, 2005).

2.3. Study selection and screening process

Two reviewers independently screened the titles and abstracts of the studies during the initial screening and excluded any which were obviously irrelevant. The full texts of any potentially relevant studies were then obtained, and both reviewers independently applied the eligibility criteria and documented their decisions. Disagreement existed over the inclusion of one paper; both reviewers then re-reviewed the paper, and a consensus was reached through discussion.

2.4. Quality assessment

The eligible studies were then assessed for their methodological rigour using the Quality Assessment Tool for Quantitative Studies (EPHPP) (Effective Public Health Practice Project (EPHPP) 1998). The EPHPP tool was chosen due to its strong performance in tests of content and construct validity and test-retest reliability (Thomas et al., 2004) and its versatility in assessing quantitative studies that use non-RCT methods (Armijo-Olivo et al., 2012).

Using the EPHPP, studies were assessed as strong, medium or weak in the categories of selection bias, reporting bias, blinding strategies, study design, data collection methods, control of confounders, and withdrawals and dropouts. A global score was then assigned to each paper based on the results of the individual sections, and papers were rated strong, medium, or weak overall. One reviewer performed the quality assessment, with a selection of 10% ($n = 1$) being assessed by a second (as apriori protocol), no discrepancies were found between the reviewers' assessments (Booth et al., 2016). The quality appraisal informed decisions on which studies to take forward to the planned data synthesis stage, with studies judged to be at high risk of bias to be synthesised separately from those at low risk to attempt to provide the highest certainty of recommendations resulting from the data synthesis (Schünemann et al., 2013).

2.5. Data extraction

One reviewer performed data extraction with a random sample of 10% ($n = 1$) checked for accuracy by a second reviewer as planned apriori, with no issues being identified. A data extraction template was developed in Microsoft Excel and tested on two studies. Data extracted included: study location (country); study year; study design; study recruitment; target population; number of participants; moral distress scores (including subscales where available); and departmental role. The outcomes assessed were attrition rates and/or intention to leave scores (including subscales where available).

It was anticipated that the most commonly reported measures of effect for categorical data such as intention to leave would be Odds Ratios (ORs), where these were reported they were extracted together with any variables adjusted for in the individual studies when reporting the adjusted effects. However, the majority of studies reported percentages of staff leaving due to moral distress, and therefore these were also extracted. Continuous data extracted included means and medians of moral distress for those who intended to leave and for those who did not. Standard deviation values and associated P values, confidence intervals, or interquartile ranges were extracted where reported.

2.6. Data synthesis

The results for each study were tabulated in groups according to which measure of moral distress had been used and which summary statistics were reported.

A systematic assessment was made as to whether the participants, study design, the inclusion of covariates in the production of summary statistics, and outcomes were similar enough across the studies to make combining their effects meaningful. To this end, the demographic characteristics of participants were tabulated, and the effect of Moral distress on Intention to Leave was reported for each study using a combination of means, medians, and Odds Ratios with 95% CI. It was planned that effect sizes (odds ratios) of the individual studies suitable for pooling of effects would be combined with random effects meta-analysis, at least for a subset of studies. However, due to the heterogeneity of the samples and reporting practices, and the insufficient data for statistical pooling, meta-analysis was not feasible, the results have been synthesised narratively.

Narrative synthesis was guided by the four main stages identified in the *Guidance on the Conduct of Narrative Synthesis in Systematic Reviews* from the Economic and Social Research Council Methods Programme (Popay et al., 2006).

- 1) Exploration of current thinking and theories on moral distress and attrition rates in emergency departments; to inform the interpretation of the review's findings and assess how applicable the findings may be.
- 2) Development of a preliminary synthesis; to explore how and why the outcome results across the studies have occurred and to look for patterns using techniques such as textual description, tabulation, and identification of groups or clusters.
- 3) Exploration of relationships within the data; to try to understand differences or similarities across the studies, using techniques such as idea webbing and identification of variability within study populations.
- 4) Assessment of the robustness of the synthesis; to assess the strength of evidence and the potential for making recommendations based on the review's results by undertaking a GRADE analysis and critically reflecting on the review process and results.

3. Results

3.1. Study selection

The final database searches took place between the 8th and 10th of June 2022 and identified 122 articles (102 once duplicates were removed). Following a search of the reference lists of related systematic reviews and eligible studies, and including the serendipitous finding, an additional four potential studies were identified, giving a total of 106 studies for title and abstract screening. 19 studies went forward for full-text screening during which 13 studies were excluded, the most common reasons for exclusion were the lack of emergency department specific data and no quantitative data being available for moral distress measures. Six studies were assessed as

eligible for inclusion. Inter-rater reliability of full-text screening was evaluated using Cohen's Kappa and showed good agreement (Marston, 2010) (0.756. 95% CI 0.705 to 0.807).

3.2. Results of quality appraisal

The results of the quality assessment using the EPHPP tool (Effective Public Health Practice Project (EPHPP) 1998) are provided in Table 1 and show all six studies scoring weak overall.

All studies used a cross-sectional survey design, making an assessment of withdrawal or drop-out rates non-applicable. The chosen study design and recruitment processes resulted in blinding not being attempted in any of the studies. Four studies (Hou et al., 2021; Druwé et al., 2021; Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016) discussed the risk of bias this posed in attracting participants who perceived themselves to be suffering from high levels of moral distress or from deterring participants. As a result of the lack of blinding of either participants or outcome assessors, all six studies were scored weak for Study Design and Blinding.

None of the studies provided information on confounding variables in relation to intention to leave, which would have been useful information to contextualise the relationship between moral distress and intention to leave and provide a meaningful interpretation of the strength of any relationship found between the two variables. All six studies scored weak in relation to reporting confounders and attempts to control for them in the analysis.

A power analysis of sample size was only reported in two studies (Trautmann et al., 2015; Zavotsky and Chan, 2016). No other studies identified how decisions were made in relation to sample size. Five (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016; Arinda et al., 2019) of the six studies describe processes of convenience sampling. Four of these studies were rated as weak due to a lack of clear reporting, (Arinda et al., 2019) self-selection of participants, (Trautmann et al., 2015; Zavotsky and Chan, 2016) or small sample sizes (Fernandez-Parsons et al., 2013; Arinda et al., 2019) resulting in them being judged unlikely to be representative of the target population. The fifth study (Hou et al., 2021) describes a clear process of sampling methods, recruitment, and informed consent with a large sample. Nevertheless, the possibility of gatekeeping or coercive participation in their sampling processes has not been adequately addressed, and therefore they scored as medium risk of selection bias. The remaining study (Druwé et al., 2021) scored strong due to a large, multi-site sample, reporting robust sampling methods.

Also concerning were the items scored as "can't tell" on the EPHPP tool, possibly indicating selective reporting in relation to methodologies and study characteristics, which may translate into reporting bias when viewing the results. It was similarly noted that there were reporting errors in one of the studies; (Arinda et al., 2019) values for the intensity of moral distress presented in tables varied from values given in the text. Due to the unreliability of the reported data, it was decided to omit this study from data synthesis for this review. Although scoring weak, the remaining five studies proceeded for data synthesis; however, the findings of the quality assessment should inform any interpretation of the results of this review.

3.3. Study characteristics of included studies

All five studies included in the review used a cross-sectional survey design. The main characteristics of the studies are presented in Table 2 below.

3.3.1. Study setting

The studies took place from 2013 (Fernandez-Parsons et al., 2013) until 2021 (Hou et al., 2021). Three papers presented multi-site studies, (Druwé et al., 2021; Trautmann et al., 2015; Zavotsky and Chan, 2016) two across hospitals in the USA (Trautmann et al., 2015; Zavotsky and Chan, 2016) and one international study recruiting in 168 emergency departments (Druwé et al., 2021). Data on the size or acuity levels of individual hospitals was unclear in both the international (Druwé et al., 2021) and one of the American studies, (Trautmann et al., 2015) with the American study only reporting the majority of respondents (52%) worked in a "medium" facility type. The second American multi-site study reported that the majority of sites (38.9%) were level 1 trauma centres (Zavotsky and Chan, 2016). One study reports on a single emergency department in a 242-bed community hospital in northern California (Fernandez-Parsons et al., 2013). The final study (Hou et al., 2021) is located across 5 emergency departments in hospitals in China with greater than 400 beds that provides comprehensive speciality services.

3.3.2. Participant characteristics

A total of 2109 emergency department nurses were recruited across the five studies. There was a higher percentage of female than male participants in two of the studies, (Trautmann et al., 2015; Zavotsky and Chan, 2016) 81% and 85.4% female. A higher proportion of male participants was reported in only one study, (Hou et al., 2021) which reported only 39% female participation. Two studies (Druwé et al., 2021; Fernandez-Parsons et al., 2013) did not report gender demographics of the participants.

Ethnicity data was presented in only two studies, (Fernandez-Parsons et al., 2013; Trautmann et al., 2015) both of which identified white as the largest group amongst participants: one study (Fernandez-Parsons et al., 2013) reporting 45% as white, 31% as Asian, 11% as Hispanic, 4% as African American, and 4% as "other." In contrast, the second study (Trautmann et al., 2015) reported 95% white, with the next largest group Hispanic/ Latino at only 3% of respondents. The absence of ethnicity data means the prevalence of moral distress within ethnic groups or the effect this may have on attrition rates for those groups has not been measured in the studies.

Years of experience in the emergency department were reported differently across the studies. Departmental nursing roles were only presented in two of the studies, (Hou et al., 2021; Trautmann et al., 2015) with both identifying senior nurses as the largest group in their samples: one sample consisting of nurse practitioners 52.32%, nurse in charge 31.65%, and associate chiefs of nursing 3.38%,

Table 1

EPHPP (Effective Public Health Practice Project (EPHPP) 1998) Quality Assessment Results.

Study	Hou, Y. et al., 2021 ^[39]	Druwé, P. et al., 2020 ^[42]	Fernandez-Parsons, R. et al., 2013 ^[64]	Trautmann, J. et al., 2015 ^[66]	Zavotsky, K.E. & Chan, G.K., 2016 ^[65]	Arinda, R. et al., 2019 ^[67]
1. Is the sample representative of the target population?	2	1	3	3	3	3
2. Participation rates (%)	1	1	2	3	5	3
Overall selection bias score	2	1	3	3	3	3
3. Study Design	7	7	7	7	7	7
4. Was the study randomised?	N	N	N	N	N	N
5. If yes, was randomisation described?	–	–	–	–	–	–
6. If yes, was the method appropriate?	–	–	–	–	–	–
Overall Study Design Score	3	3	3	3	3	3
7. Were there differences between groups prior to the intervention?	1	1	3	1	1	1
8. % of relevant confounders controlled for	3	4	3	3	3	3
Overall score Confounders	3	3	3	3	3	3
9. Was exposure status of participants known to outcome assessors?	1	1	1	1	1	1
10. Were participants aware of the research question?	1	3	1	1	1	1
Overall Score Blinding	3	3	3	3	3	3
11. Were data collection tools shown to be valid?	1	1	1	2	3	1
12. Were data collection tools shown to be reliable?	1	2	1	1	1	2
Overall score Data Collection Methods	1	2	1	3	3	2
13. Withdrawals and dropouts reported?	4	4	4	4	4	4
14. % of participants completing the questionnaire?	1	4	3	1	4	4
Overall Score withdrawals and dropouts	1	3	3	1	3	3
15. % of participants receiving the intervention	4	4	4	4	4	4
16. Was the consistency of exposure measured?	2	2	2	2	2	2
17. May an unintentional co-intervention have influenced the results?	3	3	3	3	3	3
18. Unit of Allocation	4	4	4	4	4	4
19. Unit of Analysis	4	4	4	4	4	4
20. Are the statistical methods used appropriate?	1	1	1	1	1	1
21. Is analysis done by intervention allocation/Intention to treat?	2	2	2	2	2	2
Global rating for each paper	3	3	3	3	3	3

Key to Table 2: Overall section scores and Global rating scores: 1. Strong, 2. Medium, 3. Weak.

Table 2
Summary Table of Study Characteristics.

Author and Year	Hou et al. (2021)	Druwé et al. (2021)	Fernandez-Parsons et al. (2013)	Trautmann et al. (2015)	Zavotsky and Chan (2016)
Study Design	Cross-sectional survey	Cross-sectional survey	Cross-sectional survey	Cross-sectional survey	Cross-sectional survey
Country	China	Multi-centre study across 24 countries, coordinated by the University of Ghent, Belgium	USA	USA	USA
Study period	-	March 2015 – November 2015	-	-	July 1st - August 1st, 2014
No. of participants	291	1313	61	246	198
Participation rate	97%	Not reported for nursing group. Overall rate- 86.9%	53%	31%	-
Average age/ majority age range	30–39 years	-	-	49.8 years	43.4 years
Gender% female	39%	-	-	81%	85.4%
Average Years worked in ED/ majority range	4 – 10 years	-	-	7.8 years	14.2 years
Study setting	5 EDs in public, grade 3 hospitals, >500 bed/ specialist services, in the capital of Shanxi Province, China.	168 EDs in 21 countries. (3 additional locations included only ambulance services).	1 ED of a 242-bed community hospital in northern California.	Multiple EDs across USA. Majority (52%) in “medium facility type.”	Multiple EDs across USA. Majority (38.9%) level 1 trauma centres.
Inclusion/ exclusion criteria	Registered nurses working in the ED, a minimum of one year’s experience, aged 18 years or older and volunteered to participate in the study.	Healthcare professionals directly involved in treating cardiac arrest in the prehospital setting or the emergency department.	Registered nurses, >18 years, actively working in the emergency department, regardless of the number of hours worked, during the time frame of the study	Nurse Practitioners currently working or having worked in an ED setting, civilian or military.	ED nurses currently practising full-time, part-time, or per diem in an ED environment and fluent in English.
Tool used to measure Moral Distress	MDS-R Chinese version	APPROPRICUS study questionnaire.	MDS-R registered nurse version	MDS-R (version not specified)	MDS-R (version not specified)
Tool used to measure Intention to Leave	MDS-R Chinese version	APPROPRICUS study questionnaire.	MDS-R registered nurse version	MDS-R (version not specified)	MDS-R (version not specified)

(ED = emergency department. Blank cells represent data which are not reported or are presented in a format which is incomparable with the majority report).

with emergency department “nurses” or “ward nurses” representing just 12.66%; (Hou et al., 2021) the other study (Trautmann et al., 2015) purposely recruiting only nurse practitioners. The remaining studies did not report data on departmental nursing roles.

3.3.3. Moral distress measurement tools

Four of the five studies (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) used a version of the Moral Distress Scale-Revised (MDS-R) (Hamric et al., 2012). The MDS-R uses a 21-item Likert-style survey (22 items in the Chinese version used by Hou et al. (Hou et al., 2021)), with a total score ranging from 0 to 336. Each item is scored by the frequency and intensity levels of the moral distress experienced. The responses range from 0 (never or none) to 4 (very frequently or to a great extent). The total MDS-R score is achieved by multiplying the frequency by the intensity and then calculating the sum (Hamric et al., 2012).

The Chinese modified version of the MDS-R and the registered nurse version of the MDS-R were used in two separate studies (Hou et al., 2021; Fernandez-Parsons et al., 2013). The other two studies (Trautmann et al., 2015; Zavotsky and Chan, 2016) using the MDS-R do not specify which version was used. The final study (Druwé et al., 2021) used a modified survey based on a validated questionnaire from the APPROPRICUS study (Piers et al., 2014). The survey used a 4-point rating scale ranging from “fully agree” to “fully disagree” to answer questions relating to moral distress.

3.3.4. Outcome measurement tools: intention to leave

All five studies used the same tool for collecting Intention to Leave data as for Moral Distress data. The MDS-R survey used by four of

Table 3Percentages (%) of staff reporting intention to leave due to moral distress where reported ($n = 4$).

Study (Author and date)	% Had considered leaving but did not due to MD	% Had left position due to MD	% Currently considering leaving due to MD	% Not currently considering leaving due to MD	% Had never left a position due to MD
Hou et al. (2021)	50.89	0.89	13.45	86.55	48.21
Fernandez-Parsons et al. (2013)	20	6.60	13.30	–	–
Zavotsky and Chan, (2016)	36.90	12	30.30	51	51
Trautmann et al. (2015)	27	25	–	–	47

Table 4

Moral Distress scores as presented by the Studies using the MDS-R tool.

Study	Total MDS-R Score Means	Total MDS-R Score Medians	Mean of items on MDS-R	Possible Score Range	MDS-R Version
Trautmann et al. (2015)	74.4 (SD39.6)	–	–	0–336	unclear
Zavotsky and Chan, (2016)	80.18 (SD53.27)	–	–	0–336	unclear
Fernandez-Parsons et al. (2013)	–	–	3.18 (Results range 0.90–5.35)	0–16	Registered nurse
Hou et al. (2021)	–	35.00 (Q1 15.0; Q3 64.5)	–	0–198	Chinese

the studies (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) contains two supplementary categorical items asking respondents about their intentions to leave their positions, both current and previous, due to moral distress. These items are not included in the MDS-R score. The remaining study (Druwé et al., 2021) again used the modified survey from the APPROPICUS study (Piers et al., 2014) which asks respondents if they thought about leaving their current position using a four-point scale from “fully agree” to “fully disagree”.

3.4. Narrative synthesis of results

3.4.1. Intention to leave due to moral distress

Four studies (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) reported percentages of staff intending to leave due to moral distress (Table 3). The proportion who had considered leaving as a consequence of moral distress was reported as between 20 and 50.89%, with up to 25% already having left.

Across the results, one study (Hou et al., 2021) provides the lowest level of 0.89% having left and the highest level of 50.89% having considered leaving but not. The same study (Hou et al., 2021) also reports that there were statistically significant differences in median scores regarding the total level, frequency, and intensity of moral distress amongst the groups that had never left or never considered leaving (22.00; 95%CI = 6.00 - 40.00) and those which were currently considering leaving their position (75.00; 95%CI = 34.50 - 110.50) for which they report the P value as < 0.05 . Two other studies (Trautmann et al., 2015; Zavotsky and Chan, 2016) similarly reported that mean MDS-R scores were higher for those who had considered leaving or had left a position due to moral distress and lower for those who had never considered leaving a position due to moral distress.

One study (Trautmann et al., 2015) compared MDS-R scores between males and females currently considering leaving and suggested there was no statistically significant difference based on a P value of 0.44.

Two studies (Trautmann et al., 2015; Druwé et al., 2021) calculated Odds ratios (ORs) for moral distress and Intention to Leave. One study reporting the estimated relative odds of nurses' intention to leave the job was 0.88 [95% CI = 0.68 – 1.14], (Druwé et al., 2021) associated both with the frequency of perceived inappropriate CPR and with moral distress. However, this result is an adjusted

Table 5

Summary of GRADE assessment findings for outcomes related to intention to leave.

Outcome	Effect	Number of participants (studies)	Certainty in the evidence
1. Measured levels of Moral Distress (MD) in emergency nurses by intention to leave	4 studies reported low to moderate levels of MD and 1 study reported lower levels compared to physicians. 3 also reported higher levels of moral distress in those considering leaving.	$n = 2160$ (5 observational studies)	Very Low ⊕○○○ Due to serious risk of bias and inconsistency of results
2. Reports of emergency nurses leaving due to moral distress (MD) (%)	4 studies reported significant percentages of staff leaving due to MD.	$n = 796$ (4 observational studies)	Low ⊕⊕○○ Due to serious risk of bias but upgraded due to consistent reporting of a significant effect on intention to leave and attrition.

OR comparing the intention of nurses to leave against the baseline group, which was physicians. The other study (Trautmann et al., 2015) found that the only significant correlation in their model was between intention to leave and MDS-R scores with an odds ratio of 1.034, indicating that a 1 point increase in the MDS-R score corresponds to 1.034 increased odds of having left or having considered leaving, with an adjusted MDS-R score showing a 10 point increase corresponding to 1.397 increased odds of having left or considered leaving (Trautmann et al., 2015).

3.4.2. Moral distress scores

The reporting of total moral distress scores varied across the studies. Four studies (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) used the MDS-R tool and reported means or medians for either total MDS-R scores or for the individual items on the MDS-R (see Table 4). The remaining study (Druwé et al., 2021) used a tool from the APPROPRIUS survey (Piers et al., 2014). All four of the studies using the MDS-R (Hou et al., 2021; Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) identified that moral distress levels amongst emergency department nurses in their samples were lower than those of intensive care nurses reported in previous studies, with two studies (Hou et al., 2021; Fernandez-Parsons et al., 2013) discussing this as a result of the differing nature of the emergency department where nurses typically spend less time with each patient than intensive care nurses. One study (Trautmann et al., 2015) sampling only nurse practitioners reported high levels of practice independence using the Dempster Practice Behaviour Scale (DPBS) and suggested this may be a modifier of moral distress in emergency nurses, but after multiple linear regression modelling, controlling for age, gender, department type and staff experience levels, no statistically significant correlation between the two was found (multiple correlation coefficient (r) = -0.071 , $p = 0.312$); and it was suggested that the DPBS measure was not a statistically significant predictor of MDS-R scores citing a P Value of 0.854. Similarly, another study (Hou et al., 2021) found no significant relationship between moral distress levels and different levels of education, professional titles, or positions. In contrast, the study not using the MDS-R tool (Druwé et al., 2021) observed levels of moral distress in senior staff to be lower than in junior staff. However, these levels were linked specifically to the perceived inappropriateness of cardiopulmonary resuscitation, and the authors speculate that their results could be attributed to the hierarchical nature of decision making in healthcare settings.

3.4.3. Frequency

Two studies (Hou et al., 2021; Zavotsky and Chan, 2016) reported total means for the frequency of morally distressing events, reporting mean frequencies of 25.53 (SD 12.52) and 27.26 (SD 13.7); the frequency range was 0–73, with a lower value indicating higher frequency. The three highest scoring experiences for frequency of moral distress across studies using the MDS-R were: #1 “carrying out physician orders for what I consider to be unnecessary treatments”; (Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016) #2 “initiating extensive life-saving actions which I believe will only prolong death”; (Hou et al., 2021; Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016) and #3 “following the family’s wishes to continue life support even though I believe it is not in the best interests of the patient” (Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016).

Of the three studies (Hou et al., 2021; Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016) which reported frequency data for individual items, the two American studies (Fernandez-Parsons et al., 2013; Zavotsky and Chan, 2016) were in agreement on the top three. The third study was from China, (Hou et al., 2021) and although identifying item #2 as the top scoring event for frequency of moral distress, identified items #4 “continuing to participate in care for a hopelessly ill person who is being sustained on a ventilator, when no one will make a decision to withdraw support” and #5 “following the family’s request to conceal the condition of dying or cancer patients” as the 2nd and 3rd highest scoring reasons respectively. These differences may indicate cultural or clinical differences between American and Chinese attitudes towards morally distressing events, but without more fulsome ethnicity data from the studies, it is not possible to draw any conclusions.

3.4.4. Intensity

All five studies reported the events that elicited the highest moral distress levels in nursing staff. The three American based studies (Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) offer broad similarities in their results, reporting that working with unsafe or incompetent staff and poor team communication are key events resulting in the highest intensity scores of moral distress. One other study (Hou et al., 2021) identifies issues of patient advocacy in regard to “following the family’s wishes to continue life support even though I believe it is not in the best interest of the patient” and “participating in care for a hopelessly ill person who is being sustained on a ventilator, when no one will make a decision to withdraw support”. The final study (Druwé et al., 2021) reports that witnessing a resuscitation attempt, perceived as inappropriate, was a morally distressing event for 58% of their sample. Further investigation of the mechanisms behind these events would be valuable in order to identify ways to de-escalate potentially morally distressing events. From these limited results, it appears that the events responsible for high intensity levels of moral distress have their backgrounds in communication, training, and team-working.

3.4.5. Predictors of moral distress

Results of the multiple regression analysis run by one study (Zavotsky and Chan, 2016) found that poor access to speciality services and high patient to nurse ratios may be predictors of moral distress in emergency nurses with correlation coefficients of $r = 0.30$ and $r = 0.37$, respectively. However, the multiple comparisons (>20 variables) in their statistical testing increases the chance of a type 1 error in these results (Marston, 2010).

A statistically significant difference between female and male respondents in mean MDS-R scores ($f = 77.7$ and $m = 59.2$) was reported in one study (Trautmann et al., 2015). However, the study with the greatest proportion of male to female respondents ($m =$

83.54%, $f = 16.46\%$) reported no statistically significant difference in the levels of moral distress between genders, with medians of 32.00 for male and 35.00 for female (Hou et al., 2021). Previous studies have found statistically significant relationships between moral distress levels and demographic characteristics including gender (Hatamizadeh et al., 2019; Wenwen et al., 2018). Disparities may arise from the greater proportion of male respondents in this single contrasting study, 83.5% (Hou et al., 2021) compared to the other studies in this review, with the next highest reported proportion of male respondents being 19% (Trautmann et al., 2015).

3.5. Grading of recommendations assessment, development and evaluation (GRADE)

A GRADE assessment was undertaken to evaluate the strength of the overall evidence this review presents (Schünemann et al., 2013). The outcome measures of “Measured levels of Moral Distress in emergency nurses by intention to leave” and “Reports of emergency nurses leaving due to moral distress (%)” were considered separately. This was done to acknowledge the discrepancy in the data, which showed low to moderate levels of measured moral distress but significant percentages of nurses reporting leaving or considering leaving due to moral distress. Table 5 summarises the findings of the assessment. The lack of blinding or randomisation across all of the studies, and the limited consideration of confounders, small sample sizes, and low or unclear participation rates in the majority of studies contributed to a serious risk of bias for both outcomes. The inconsistency of results reporting for outcome 1 also contributed to a serious risk of bias. Their overall scores of low and very low, indicate limited to little confidence in the reported effect.

4. Discussion

All of the included studies identified that moral distress was a factor which contributed to emergency department nurses leaving or considering leaving their jobs. Nevertheless, total levels of moral distress amongst emergency nurses were found to be low to moderate and lower than has been reported for intensive care nurses in previous studies (Tian et al., 2021; Altaker et al., 2018; Emami Zeydi et al., 2022). However, the tools used to determine these levels (MDS-R) do not measure emergency department specific contributors to moral distress, such as the high numbers of patients present in the environment or the time targets for treatment, admission or discharge, and thus may under-estimate. Yet the 20 to 50.89 percent of emergency nurses who considered leaving their job because of moral distress is important and is consistent with qualitative studies of emergency nurses' experiences of moral distress, which suggest a negative effect on well-being, career trajectories, and psychological resilience (Clark et al., 2022; McDermid et al., 2020; Rubio-Navarro et al., 2020).

As health services grapple with the challenges of increased patient volumes, deteriorating aspects of population health such as poor mental health and obesity, and widening inequalities increasing mortality rates in deprived populations, (Walsh and McCartney, 2023) they must also cope with chronic nursing staff shortages. As nurses' wellbeing and morale decline staff shortages will increase; this will have repercussions on safety for patients, their relatives, and staff. In the emergency department patients are waiting longer than the safe recommended time for triage, and they will continue to wait longer for admission, necessitating the delivery of clinical care in areas which are not fit for the purpose, such as waiting rooms and corridors (Castro-Ayala et al., 2022). However, the impact of emergency nurse shortages is not only measured by efficiency or safety, but by the standards and quality of care given. Moral distress described by emergency nurses is a direct result of not being able to give the care they are trained to and want to give to their patients. The relationship between staff shortages and moral distress may well be cyclical in nature. Identifying how to break this cycle is of utmost importance to the provision of safe and high-quality healthcare.

The ‘dysfunctional practice arena’ (Wolf et al., 2016) of the emergency department has been proposed by a number of authors (McDermid et al., 2020; Corley et al., 2005; Morley et al., 2019; Pauly et al., 2009; Wolf et al., 2016) as an obstruction curbing nurses' ability to provide the care they would like to give, presenting a different set of morally distressing events from other areas (Wolf et al., 2016; Clark et al., 2022; Morley et al., 2022). This point was touched upon by two of the studies in this review (Hou et al., 2021; Druwé et al., 2021) concerning the differences between intensive care and emergency nursing practices that may have influenced their findings. With this in mind, it is possible that the MDS-R being devised initially for the intensive care unit does not reflect the pressures of the emergency department in relation to moral distress. Hamric et al., (Hamric et al., 2012) who revised the tool from Corley et al.'s (Corley et al., 2001) original, did not claim that the instrument had demonstrated validity in specialities other than intensive care units but encouraged its use in other areas to expand research. Therefore a criticism that could be levelled at the MDS-R is that it omits emergency department specific pressures such as constant patient flow resulting in high patient numbers, (McDermid et al., 2020) corridor nursing, (Patey et al., 2019) and the requirement to rush from one acutely ill patient to the next in the course of a shift without time to debrief (Wolf et al., 2016). It is not known by the authors of this review whether the next iteration of the tool, the Measure of Moral Distress for Healthcare Professionals (MMD-HP), (Epstein et al., 2019) will take these pressures into account.

The impact of gender on levels of moral distress was unclear from this review. The two studies (Hou et al., 2021; Trautmann et al., 2015) included in the review where gender was assessed against moral distress levels disagreed as to whether gender influenced levels of moral distress. Similarly, in a 2022 systematic review of moral distress in intensive care nurses, (Emami Zeydi et al., 2022) no significant differences in moral distress between male and female respondents were found; however, their sample was predominantly female, underlining the need for further study of how different genders experience moral distress.

As in this review, ethnicity data in the wider literature on moral distress is lacking, (Altaker et al., 2018; Morley et al., 2022) making it difficult to assess the impact of either ethnicity or culture on moral distress and subsequently to implement appropriate and effective interventions to mitigate the effects of moral distress for specific groups. Cautious restraint is appropriate when interpreting findings from one culture to other cultures or systems; as Hamric et al (Hamric et al., 2012). point out, international research differs in its

approaches to studying moral distress. This can be seen in the contrasting data between the American studies (Fernandez-Parsons et al., 2013; Trautmann et al., 2015; Zavotsky and Chan, 2016) and the Chinese based study (Hou et al., 2021) in this review, particularly when looking at the types of incidents that scored highest for intensity of moral distress. The design and testing of culturally specific instruments (Tian et al., 2021; Eizenberg et al., 2009) may be one approach to successfully measuring the differing practices and attitudes within cultures that give rise to moral distress. However, the drawback of this is that it would limit the generalisability of those studies.

There is also a need for more high-quality data exploring the effect that departmental role and seniority have on the presence or effects of moral distress on nursing staff. This review has likewise been unable to identify whether certain departmental roles are at higher risk from the effects of moral distress. It would be useful for future investigations into this subject to take into consideration nurses' perceptions of autonomy, years of nursing experience and gender.

Due to the cross-sectional survey designs of the included studies, it has not been possible to identify causal relationships between moral distress and intention to leave. Longitudinal study designs could have provided a clearer analysis of the dynamics between the variables whilst also accounting for baseline and time-varying confounders and, therefore, better answering the question of causality.

Overall, this review has not identified evidence of sufficiently high quality to come to a definitive conclusion about the significance of moral distress on nursing attrition rates. However, the evidence that is available suggests that moral distress does play a role in nurses' decisions to leave the emergency department. Further research to identify the specific determinants of moral distress in the emergency department and to robustly explore the relationship between moral distress and attrition is urgently required.

4.1. Limitations

Inconsistency in how results were reported for both moral distress and intention to leave in the included studies prevented data synthesis from being undertaken and reduced confidence in the overall results of the review. This issue may have been resolved by contacting authors to request access to the original data, although this approach was restricted by time and resources. This highlights the importance for studies to adhere to the FAIR principles of open scientific data (Wilkinson et al., 2016). Similarly, the pragmatic decision not to search grey literature may have resulted in publication bias and not including papers not readily available in English may have inadvertently excluded evidence.

4.2. Implications of the review for future research

Improved methodology and reporting are required in order to comprehensively analyse levels of moral distress by intention to leave in emergency nurses and enhance the strength of future research recommendations on this topic. To do this, it would also be useful to further understand the root causes of moral distress, thereby developing tools more closely aligned to the underlying causes and perhaps making them more suited to the different environments in which they are used. Longitudinal studies could provide more opportunity to make causal associations between moral distress and intention to leave and would allow for an examination of the slow burn or crescendo effect (Epstein and Hamric, 2009) that moral distress is characterised by.

5. Conclusions of the review

There is a sparsity of good quality evidence exploring the relationship between moral distress and intention to leave in emergency nurses. However, the best quality evidence available indicates that up to approximately 51 percent of emergency nurses have considered leaving or have left a post due to moral distress. Further efforts to understand this relationship are urgently required in order to provide timely, appropriate, and effective interventions and retain essential skilled nurses in the emergency department.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Patient consent for publication

Not required.

Data sharing

Available on request

CRediT authorship contribution statement

Olivia Boulton: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft. **Barbara Farquharson:** Conceptualization, Validation, Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.ijnnsa.2023.100164](https://doi.org/10.1016/j.ijnnsa.2023.100164).

References

- Ahorsu, D., Lin, C., Marznaki, Z., 2021. The association between fear of COVID-19 and mental health: the mediating roles of burnout and job stress among emergency nursing staff. *Nursing Open* 9 (2), 1147–1154.
- Almutairi, A., Salam, M., Adlan, A., Alturki, A., 2019. Prevalence of severe moral distress among healthcare providers in Saudi Arabia. *Psychol. Res. Behav. Manag.* 11 (12), 107–115.
- Altaker, K., Howie-Esquivel, J., Cataldo, J., 2018. Relationships among palliative care, ethical climate, empowerment, and moral distress in intensive care unit nurses. *Am. J. Crit. Care* 27 (4), 295–302.
- Anthony, D., 2019. Online Research in Health. In: Saks, M., Allsop, J. (Eds.), *Researching Health: Qualitative, Quantitative and Mixed Methods*, 3rd ed. SAGE, London, pp. 506–524.
- Arinda, R., Prawesti, A., Widiyanti, E., 2019. Nurses' moral distress in the emergency department. *J. Nurs. Care* 2 (3), 223–230.
- Armijo-Olivo, S., Stiles, C., Hagen, N., Biondo, P., Cummings, G., 2012. Assessment of study quality for systematic reviews: a comparison of the cochrane collaboration risk of bias tool and the effective public health practice project quality assessment tool: methodological research. *J. Eval. Clin. Pract.* 18 (1), 12–18.
- Aveyard, H., 2014. *Doing a Literature Review in Health and Social care: a Practical Guide*. Open University Press, Berkshire.
- Babamohamadi, H., Bakuei Katrimi, S., Paknazar, F., 2021. Moral distress and its contributing factors among emergency department nurses: a cross-sectional study in Iran. *Int. Emerg. Nurs.* 56 (May), 100982.
- Booth, A., Sutton, A., Papaioannou, D., 2016. *Systematic Approaches to a Successful Literature Review*, 2nd ed. SAGE, London.
- Bramer, W., de Jonge, G., Rethlefsen, M., Mast, F., Kleijnen, J., 2018. A systematic approach to searching: an efficient and complete method to develop literature searches. *J. Med. Libr. Assoc.* 106 (4), 531–541.
- British Medical Association (BMA), 2022. *NHS Delivery and Workforce: NHS Backlog Data Analysis*. BMA, London.
- Bruce, N., Pope, D., Stanistreet, D., 2018. *Quantitative Methods For Health research: a Practical Interactive Guide to Epidemiology and Statistics*. Wiley Blackwell, Chichester.
- Castro-Ayala, A., Borneo, A., Holden, J., Maynard, E., Oakley, P., Tamburello, H., 2022. *Nursing Under Unsustainable pressures: Staffing For Safe and Effective Care in the UK*. Royal College of Nursing, London.
- Clark, P., Hulse, B., Polivka, B., 2022. Resilience, moral distress, and job satisfaction driving engagement in emergency department nurses: a qualitative analysis. *J. Nurs. Adm.* 52 (2), 112–117.
- Corley, M., Elswick, R., Gorman, M., Clor, T., 2001. Development and evaluation of a moral distress scale. *J. Adv. Nurs.* 33 (2), 250–256.
- Corley, M., Minick, P., Elswick, R., Jacobs, M., 2005. Nurse moral distress and ethical work environment. *Nurs. Ethics* 12 (4), 381–390.
- Cramer, E., Smith, J., Rogowski, J., Lake, E., 2022. Measuring moral distress in nurses during a pandemic: development and validation of the COVID-MDS. *Res. Nurs. Health* 45 (5), 549–558.
- Department of Health., 2022. *NHS Workforce Statistics - March 2022 (Including Selected Provisional Statistics For April 2022)*. Department of Health, London.
- De Wijn, A., Fokkema, M., Van der Doef, M., 2022. The prevalence of stress-related outcomes and occupational well-being among emergency nurses in the Netherlands and the role of job factors: a regression tree analysis. *J. Nurs. Manage.* 30 (1), 187–197.
- Dietermann, K., Winter, V., Schneider, U., Schreyögg, J., 2021. The impact of nurse staffing levels on nursing-sensitive patient outcomes: a multilevel regression approach. *Eur. J. Health Econ.* 22 (5), 833–846.
- Druwé, P., Monsieus, K., Gagg, J., Nakahara, S., Cocchi, M., Éló, G., van Schuppen, H., Alpert, E., Truhlar, A., Huybrechts, S., Mpotos, N., Paal, P., Björshol, C., Xanthos, T., Joly, L., Roessler, M., Deasy, C., REAPPROPRIATE and s. group, 2021. Impact of perceived inappropriate cardiopulmonary resuscitation on emergency clinicians' intention to leave the job: results from a cross-sectional survey in 288 centres across 24 countries. *Resuscitation* 154 (Jan), 41–48.
- Dundar, Y., Fleeman, N., 2017. Developing my search strategy. In: Boland, A., Cherry, G., Dickson, R. (Eds.), *Doing a Systematic Review: A Student's Guide*, 2nd ed. SAGE, London, pp. 61–78.
- Effective Public Health Practice Project (EPHPP), "Quality assessment tool for quantitative studies," 1998. [Online]. Available: <https://www.nccmt.ca/knowledge-repositories/search/14>. [Accessed 05 05 2022].
- Eizenberg, M., Desivilya, H., Hirschfeld, M., 2009. Moral distress questionnaire for clinical nurses: instrument development. *J. Adv. Nurs.* 65 (4), 885–892.
- Emami Zeydi, A., Ghazanfari, M., Suhonen, R., Adib-Hajbaghery, M., Karkhah, S., 2022. Effective interventions for reducing moral distress in critical care nurses. *Nurs. Ethics* 29 (4), 1047–1065.
- Epstein, E., Hamric, A., 2009. Moral distress, moral residue, and the crescendo effect. *J. Clin. Ethics* 20 (4), 330–342.
- Epstein, E., Whitehead, P., Prompahakul, C., Thacker, L., Hamric, A., 2019. Enhancing understanding of moral distress: the measure of moral distress for health care professionals. *AJOB Empir. Bioeth.* 10 (2), 113–124.
- Fernandez-Parsons, R., Rodriguez, L., Goyal, D., 2013. Moral distress in emergency nurses. *J. Emerg. Nurs.* 39 (6), 547–552.
- Giannetta, N., Villa, G., Pennestri, F., Sala, R., Mordacci, R., Manara, D., 2020. Instruments to assess moral distress among healthcare workers: a systematic review of measurement properties. *Int. J. Nurs. Stud.* 111 (Nov), 103767.
- Giwa, A., Crutchfield, D., Fletcher, D., Gemmill, J., Kindrat, J., Smith, A., Bayless, P., 2021. Addressing moral injury in emergency medicine. *The journal of emergency medicine*. *J. Emerg. Med.* 61 (6), 782–788.
- Greenhalgh, T., 1997. How to read a paper: papers that summarise other papers (systematic reviews and meta-analyses). *Br. Med. J.* 315 (7109), 672–675.
- Greenhalgh, T., Peacock, R., 2005. Effectiveness and efficiency of search methods in systematic reviews of complex evidence: audit of primary sources. *Br. Med. J.* 331 (7524), 1064–1065.
- Hamric, A., Borchers, C.T., Epstein, E., 2012. Development and testing of an instrument to measure moral distress. *Healthcare Professionals* 3 (2), 1–9.
- Hamric, A.B., Blackhall, L.J., 2007. Nurse-physician perspectives on the care of dying patients in intensive care units: collaboration, moral distress, and ethical climate. *Crit. Care Med.* 35 (2), 422–429.
- Hatamizadeh, M., Hosseini, M., Bernstein, C., Ranjbar, H., 2019. Health care reform in Iran: implications for nurses' moral distress, patient rights, satisfaction, and turnover intention. *J. Nurs. Manage.* 27 (2), 396–403.
- Higgins, J., Lasserson, T., Chandler, J., Tovey, D., Thomas, J., Fleming, E., Churchill, R., 2022. *Methodological Expectations of Cochrane Intervention Reviews*. Cochrane, London.

- Hou, Y., Timmins, F., Zhou, Q., Wang, J., 2021. A cross-sectional exploration of emergency department nurses' moral distress, ethical climate, and nursing practice environment. *Int. Emerg. Nurs.* 55 (Feb), 100972.
- Houghtaling, D., 2012. Moral distress: an invisible challenge for trauma nurses. *J. Trauma Nurs.* 19 (4), 232–239.
- Ilhan, B., Kipeili, I., 2022. Secondary traumatic stress, anxiety, and depression among emergency healthcare workers in the middle of the COVID-19 outbreak: a cross-sectional study. *Am. J. Emerg. Med.* 52, 99–1016.
- International Council of Nurses, 2022. Sustain and Retain 2022 and beyond: The Global Nursing Workforce and the Covid-19 Pandemic: ICNM. International Centre on Nurse Migration, Philadelphia.
- Jameton, A., 1984. *Nursing Practice: Ethical Issues*. Prentice-Hall., New Jersey.
- Jones, K., 2019. Doing a literature review in health. In: Saks, M., Allsop, J. (Eds.), *Researching Health: Qualitative, Quantitative and Mixed Methods*, 3rd ed. SAGE, London, pp. 57–79.
- Karakachian, A., Colbert, A., 2017. Moral distress: a case study. *Nursing (Brux)* 47 (10), 13–15.
- Lavoie, B., Bourque, C., Côté, A., Rajagopal, M., Clerc, P., Bourdeau, V., Ali, S., Doyon-Trottier, E., Castonguay, V., Fontaine-Pagé, É., Burstein, B., Desaulniers, P., Goldman, R., Thompson, G., Berthelot, S., Lagacé, M., Gaucher, N., 2022. The responsibility to care: lessons learned from emergency department workers' perspectives during the first wave of the COVID-19 pandemic in Canada. *Canadian J. Emerg. Med.* 24 (5), 482–492.
- Li, H., Cheng, B., Zhu, X., 2018. Quantification of burnout in emergency nurses: a systematic review and meta-analysis. *Int. Emerg. Nurs.* 39, 46–54.
- Litz, B., Stein, N., Delaney, E., Lebowitz, L., Nash, W., Silva, C., Maguen, S., 2009. Moral injury and moral repair in war veterans: a preliminary model and intervention strategy. *Clin. Psychol. Rev.* 29 (8), 695–706.
- Marston, L., 2010. *Introductory Statistics for Health and Nursing Using SPSS*. SAGE, London.
- McDermid, F., Mannix, J., Peters, K., 2020. Factors contributing to high turnover rates of emergency nurses: a review of the literature. *Australian Critical Care* 33 (4), 390–396.
- Methley, A., Campbell, S., Chew-Graham, C., McNally, R., Cheraghi-Sohi, S., 2014. PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC Health Serv. Res.* 14 (1), 579.
- G. Morley, What is moral distress in nursing and how should we respond to it?, 2018.
- Morley, G., Bradbury-Jones, C., Ives, J., 2022. The moral distress model: an empirically informed guide for moral distress interventions. *J. Clin. Nurs.* 31 (9–10), 1309–1326.
- Morley, G., Ives, J., Bradbury-Jones, C., Irvine, F., 2019. What is 'moral distress'? A narrative synthesis of the literature. *Nurs. Ethics* 26 (3), 646–662.
- O'Rourke, A., 2005. Critical Appraisal. In: Bowling, A., Ebrahim, S. (Eds.), *Handbook of Health Research methods: investigation, Measurement and Analysis*, 1st ed. Open University Press, Maidenhead, pp. 62–84.
- Patey, C., Norman, P., Arae, M., Asghari, S., Heeley, T., Boyd, S., Hurley, O., Aubrey-Bassler, K., 2019. SurgeCon: priming a community emergency department for patient flow management. *Western Journal of Emergency Medicine* 20 (4), 654–665.
- Pauly, B., Varcoe, C., Storch, J., Newton, L., 2009. Registered nurses' perceptions of moral distress and ethical climate. *Nurs. Ethics* 16 (5), 561–573.
- Piers, R., Azoulay, E., Ricou, B., DeKeyser Ganz, F., Max, A., Michalsen, A., Azevedo Maia, P., Owczuk, R., Rubulotta, F., Meert, A.P., Reyners, A.K., Decruyenaere, J., Benoit, D.D., 2014. Inappropriate care in European ICUs: confronting views from nurses and junior and senior physicians. *Chest* 146 (2), 267–275.
- J. Popay, H. Roberts, M. Sowden, L. Arai, M. Rodgers and N. Britten, "Guidance on the Conduct of Narrative Synthesis in Systematic Reviews. ERSC Methods Programme Report. Version 1.," April 2006. [Online]. Available: <https://www.lancaster.ac.uk/media/lancaster-university/contentassets/documents/fhm/dhr/chir/NSsynthesisguidanceVersion1-April2006.pdf>. [Accessed 12 08 2022].
- Robinson, R., Stinson, C., 2016. Moral distress: a qualitative study of emergency nurses. *Dimens. Crit. Care Nurs.* 35 (4), 235–240.
- Rubio-Navarro, A., García-Capilla, D., Torralba-Madrid, M., Rutter, J., 2020. Decision-making in an emergency department: a nursing accountability model. *Nurs. Ethics* 27 (2), 567–586.
- Rushton, C.H., Batcheller, J., Schroeder, K., Donohue, P., 2015. Burnout and resilience among nurses practicing in high-intensity settings. *Am. J. Critical Care* 24 (5), 412–420.
- Salmond, W., Echevarria, S.M., 2017. Healthcare transformation and changing roles for nursing. *Orthopaedic Nursing* 36 (1), 12–25.
- Sawatzky, J., Enns, C., 2012. Exploring the key predictors of retention in emergency nurses. *J. Nurs. Manage.* 20 (5), 696–707.
- H. Schünemann, J. Brożek, G. Guyatt and A. Oxman, "GRADE handbook for grading quality of evidence and strength of recommendations," October 2013. [Online]. Available: <https://guidelinedevelopment.org/handbook>. [Accessed 14 08 2022].
- Schwab, D., Napolitano, N., Chevalier, K., Pettorini-D'Amico, S., 2016. Hidden grief and lasting emotions in emergency department nurses. *Creat. Nurs.* 22 (4), 249–253.
- Shaw, R., Booth, A., Sutton, A., Miller, T., Smith, J., Young, B., Jones, D., Dixon-Woods, M., 2004. Finding qualitative research: an evaluation of search strategies. *BMC Med. Res. Methodol.* 4 (1), 5.
- Skene, I., 2021. The complex issues that lead to nurses leaving the emergency department. In: Murray, E., Brown, J. (Eds.), *The Mental Health and Wellbeing of Healthcare practitioners: Research and Practice*. Wiley and Sons LTD, New Jersey, pp. 88–99.
- Thomas, B., Ciliska, D., Dobbins, M., Micucci, S., 2004. A process for systematically reviewing the literature: providing the research evidence for public health nursing interventions. *Worldviews Evidence Based Nurs* 1 (3), 176–184.
- Tian, X., Jin, Y., Chen, H., Jiménez-Herrera, M., 2021. Instruments for detecting moral distress in clinical nurses: a systematic review. *Inquiry* 58, 46958021996499.
- Trautmann, J., Epstein, E., Rovnyak, V., Snyder, A., 2015. Relationships among moral distress, level of practice independence, and intent to leave of nurse practitioners in emergency departments: results from a national survey. *Adv. Emerg. Nurs. J.* 37 (2), 134–145.
- Walsh, D., McCartney, G., 2023. Changing Mortality Rates in Scotland and the UK: an Updated Summary. Glasgow centre for population health, Glasgow.
- Wenwen, Z., Xiaoyan, W., Yufang, Z., Lifeng, C., Congcong, S., 2018. Moral distress and its influencing factors: a cross-sectional study in China. *Nurs. Ethics* 25 (4), 470–480.
- ... Wilkinson, M.D., Dumontier, M., Aalbersberg, L.J., Appleton, G., Axton, M., Baak, A., Blomberg, N., Boiten, J.W., da Silva Santos, L.B., Bourne, P.E., Bouwman, J., Brookes, A.J., Clark, T., Crosas, M., Dillo, I., Dumon, O., Edmunds, S., Mons, B., 2016. FAIR guiding principles for scientific data management and stewardship. *Sci. Data* 3 (1), 160018.
- Winters, N., 2016. Seeking status: the process of becoming and remaining an emergency nurse. *J. Emerg. Nurs.* 42 (5), 412–419.
- Wolf, A.T., 2019. Palliative care and moral distress: an institutional survey of critical care nurses. *Crit. Care Nurse* 39 (5), 38–49.
- Wolf, L., Perhats, C., Delao, A., Moon, M., Clark, P., Zavotsky, K., 2016. It's a burden you carry": describing moral distress in emergency nursing. *J. Emerg. Nurs.* 42 (1), 37–46.
- World Health Organisation, 2020. State of the World's Nursing 2020: Investing in education, jobs, and Leadership. WHO, Geneva.
- Yang, B., Yen, C., Lin, S., Huang, C., Wu, J., Cheng, Y., Hsieh, C., Hsiao, F., 2022. Emergency nurses' burnout levels as the mediator of the relationship between stress and posttraumatic stress disorder symptoms during COVID-19 pandemic. *J. Adv. Nurs.* 78 (9), 2861–2871.
- Zavotsky, K.E., Chan, G., 2016. Exploring the relationship among moral distress, coping, and the practice environment in emergency department nurses. *Adv. Emerg. Nurs. J.* 38 (2), 133–146.