REVIEW

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A systematic review: Unfinished nursing care and the impact on the nurse outcomes of job satisfaction, burnout, intention-to-leave and turnover

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Abstract

Aim: To investigate the association of unfinished nursing care on nurse outcomes.

Design: Systematic review in line with National Institute for Health and Care Excellence guideline.

Data sources: CINAHL, the Cochrane Library, Embase, Medline, ProQuest and Scopus databases were searched up until April 2020.

Review Methods: Two independent reviewers conducted each stage of the review process: screening eligibility, quality appraisal using Mixed Methods Appraisal Tool; and data extraction. Narrative synthesis compared measurements and outcomes.

Results: Nine hospital studies were included, and all but one were cross-sectional multicentre studies with a variety of sampling sizes (136–4169 nurses). Studies had low internal validity implying a high risk of bias. There was also a high potential for bias due to non-response. Only one study explicitly sought to examine nurse outcomes as a primary dependent variable, as most included nurse outcomes as mediating variables. Of the available data, unfinished nursing care was associated with: reduced job satisfaction (5/7 studies); burnout (1/3); and intention-to-leave (2/2). No association was found with turnover (2/2).

Conclusion: Unfinished nursing care remains a plausible mediator of negative nurse outcomes, but research is limited to single-country studies and self-reported outcome measures. Given challenges in the sector for nurse satisfaction, recruitment and retention, future research needs to focus on nurse outcomes as a specific aim of inquiry in relation to unfinished nursing care.

Impact: Unfinished nursing care has previously been demonstrated to be associated with staffing, education and work environments, with negative associations with patient outcomes (patient satisfaction, medication errors, infections, incidents and readmissions). This study offers new evidence that the impact of unfinished nursing care on nurses is under investigated. Policymakers can prioritize the funding of

robust observational studies and quasi-experimental studies with a primary aim to understand the impact of unfinished nursing care on nurse outcomes to better inform health workforce sustainability.

1 | INTRODUCTION

The World Health Organization postulates that healthcare systems should seek to make improvements in six dimensions of quality. These quality dimensions are effectiveness, efficiency, accessibility, acceptability/patient-centredness, equity and safety (World Health Organization, 2006). Delivering quality nursing care is a central premise to meeting all the dimensions of healthcare systems (Lake et al., 2020; Rooddehghan et al., 2018). Incomplete delivery of nursing care is a distinct form of underuse known to impact the quality of care and is of growing healthcare concern internationally (Jones et al., 2015). The phenomenon has been defined and studied from various perspectives and contexts (Braun et al., 2018; Cho et al., 2016; Mandal et al., 2020), and is conceptualized as a three-pronged phenomenon consisting of a problem (e.g. resource/time scarcity), a process (clinical decision-making to prioritize and ration care) and an outcome (care unfinished; Jones et al., 2015).

This rationing of nursing care has been referred to using different terms in previous studies (Bassi et al., 2018), and terms have included: missed nursing care or omitted or delayed nursing care (Kalisch et al., 2009), task incompletion (Al-Kandari & Thomas, 2009), implicit rationing of nursing care (Schubert et al., 2013), care left undone (Ausserhofer et al., 2014), unfinished nursing care (Jones et al., 2015), failure to maintain function and cognition of inpatients (Bail & Grealish, 2016) and unmet nursing care needs (Bagnasco et al., 2020). To capture the full range of the meaning of these terms it has been proposed to use the term 'care rationed or missed' which also incorporates the Italian preference for 'compromised nursing care' (Schubert et al., 2020). Other experts (Blatter et al., 2021) however recommended 'unfinished nursing care' to ensure inclusivity of all related concepts and to strengthen transparent reporting of quantitative research. Therefore, this term is used in this systematic review.

1.1 | Background

Unfinished nursing care is regarded as an indicator of the quality of nursing care (Bail & Grealish, 2016; Kalisch et al., 2011; VanFosson et al., 2016). The prevalence of unfinished care has been reported between 55% and 98% among nursing staff in acute-care hospitals internationally (Jones et al., 2015; Kalisch et al., 2009; Kalisch et al., 2011; Lake et al., 2020). It remains challenging to synthesize the results on outcomes associated with unfinished nursing care for reasons of organizational constraints because former studies predominately rely on reporting by nurses and on secondary analysis of administrative data. Existing research has identified that any care that is unfinished has been associated with potential negative nursing, patient and organizational outcomes (Cho et al., 2016; Jones et al., 2015; Recio-Saucedo et al., 2018). Furthermore, it has revealed that any unfinished nursing care is strongly correlated with patient satisfaction, medication errors, urinary tract infections, patient falls, pressure ulcers, critical incidents, quality of care and patient readmissions. However, the outcome of mortality has an uncertain association with unfinished nursing care (Recio-Saucedo et al., 2018).

The ability to attract and retain nurses in the profession is critical to maintaining quality patient-care (Kalisch et al., 2011; Mandal et al., 2020; Papastavrou et al., 2014; Winters & Neville, 2012), and has become even more pertinent given the increasing pressure on nursing workforce and shortages in the COVID-19 pandemic (Dzau et al., 2021). Nurses are the largest healthcare workforce who provide direct patient-care and are consequently one of the most significant ingredients of health system infrastructure (Salsberg, 2014). Often described as the fourth pillar of healthcare, the workforce satisfaction and competency of a healthcare workforce should be a primary focus of any public health system (Bloland et al., 2012). The context of this workforce is important with research on the health of the work environment––including skilled communication, true collaboration, effective decision-making, meaningful recognition, appropriate staffing and authentic leadership––known to be associated with patient outcomes (Ulrich et al., 2019). Yet, attention, to the health of nurse work environments and job satisfaction, and the use of standardized reporting of workforce data, has not been readily adopted in health service delivery (Salsberg, 2014; Ulrich et al., 2019). In a recent systematic review of nurse work environments, 54 articles revealed that healthy work environments positively impact nurse outcomes such as psychological health, emotional strains, job satisfaction and retention. Environments were found to influence nurse job performance and productivity; patient-care quality; and hospital accident and safety. This review shows that nurses are the foundation for patient safety and care quality and that more satisfied nurses will result in better job performance, quality of care and staff retention (Wei et al., 2018).

The nurse–patient relationship is one of intimacy, with close communication required to achieve shared goals of care. Consequently,

it is crucial to understand that there are two sides to the experience of unfinished care: the patient experience and the nurse experience. The 'nurse satisfaction, quality of care and patient satisfaction chain' has long been known (Newman & Maylor, 2002). Research highlights that nurses and patients agree on which hospitals provide good care and can be recommended and that poor-quality care is associated with burnout, job dissatisfaction and intention-to-leave (Aiken et al., 2012). Job satisfaction is negatively correlated with nurse turnover intention and patient satisfaction is positively correlated with nurses' job satisfaction (De Simone et al., 2018; Nurmeksela et al., 2021).

Therefore, it is a logical rationale to consider that unfinished nursing care may have a direct impact on patient outcomes and would impact on nurse outcomes (De Simone et al., 2018). A contemporary and critical examination of current evidence is needed to investigating nurse outcomes and unfinished nurse care.

2 | THE REVIEW

2.1 | Aim

The review aims to investigate the impact of unfinished nursing care on nurse outcomes related to moral and psychological distress, burnout, job and occupational satisfaction and intention-to-leave and turnover.

2.2 | Design

This systematic review was conducted in line with National Institute for Health and Care Excellence (NICE) guidelines for healthcare (National Institute for Clinical Excellence [NICE], 2012), and reported according to the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guideline (Page et al., 2021). It was conducted according to a priori review protocol published on the Rationing of Care (RANCARE) website (https://www.rancare-action.eu/).

2.3 | Search methods

Database searches to identify relevant publications were conducted by an experienced academic librarian using a combination of keywords and subject headings. Two groups of search terms were used and were combined using the Boolean operators AND and OR as per the example search strategy shown in Table 1. Search terms were applied consistently across seven databases and one register that were searched separately and included CINAHL, the Cochrane Library (Database of Systematic Reviews and Central Register of Controlled Trials), Embase, Medline via PubMed, ProQuest (Nursing and Allied Health Database, Health and Medical Collection and Theses and Dissertations A&I database), PsycINFO and Scopus. Searches were conducted between March and April 2020.

Where subject headings were not available to search in a database only keywords were used. To capture as many eligible studies as possible, no limits were placed on the date or language of publication. Reference lists of the included studies were hand-searched to identify additional studies to improve the inclusiveness in this review.

2.4 | Inclusion criteria

Primary studies that provided quantitative evidence were eligible for inclusion. Studies were included where nurse outcomes were

TABLE 1 Example database search, MEDLINE

Date of search: 17/03/2020			
Symbols used in this document:			
' '—finds a phrase			
Asterisk (*)—finds various endings to a word stem			
?—finds alternate spellings of a word			
MH—Main Heading (MeSH heading)			
+—explodes the Main Heading			
Search no.	Concept/Explanation	Search terms/Strategy	No. of results
#1	Care rationing	'rationing of nursing care' OR 'missed nursing care' OR 'implicit rationing of care' OR 'prioriti?ation of care' OR 'unmet care need*' OR 'unfinished care' OR 'omissions in nursing care' OR 'care left undone'	373
#2	Nurse-related outcomes	'moral distress' OR 'psychological distress' OR 'job satisfaction' OR 'occupational satisfaction' OR 'intention to leave the job' OR 'personnel turnover' OR (MH 'Stress, Psychological+') OR (MH 'Job Satisfaction+') OR (MH 'Personnel Turnover')	164,398
#3	Association of unfinished nursing care on nurse outcomes	#1 AND #2	43

the dependent variable but excluded if unfinished nursing care was treated as an outcome measure. Different qualification groups of nursing staff, that is, registered nurses with different levels of education, nurse aids and nurse assistants, in both acute and institutional long-term care settings were included. All patient groups were included irrespective of clinical or demographic characteristics. Qualitative studies, reviews, editorials, letters and commentaries were excluded.

2.5 | Search outcomes

Titles and abstracts of papers returned by the literature search were exported to Endnote and then transferred to Covidence software for de-duplication and the study selection process. For study selection, studies were screened in two stages––title and abstract screening and then the screening of full-text. This process was pilot-tested and evaluated in 10 studies for stage one and two studies for stage two.

In stage one, two reviewers from a team of four independently screened titles and abstracts against the inclusion and exclusion criteria and consensus between the researchers was required for the inclusion of a study in stage two. In stage two, two researchers read the full- text of the potentially relevant studies and then independently decided, based on the inclusion and exclusion criteria, whether a study would proceed to data extraction. Where there was disagreement between the researchers, a lead researcher led further discussion until consensus was reached. Reasons for excluding studies at the full-text review stage are documented in the PRISMA flow diagram.

2.6 | Quality appraisal

Quality appraisal of the included studies was integrated into the data extraction process and used the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018). The Mixed Methods Appraisal Tool was used because it integrates the quality appraisal with respect to different study designs, allowing the methodological quality of multiple methods of studies to be assessed (Hong et al., 2018).

2.7 | Data abstraction

A data extraction tool was developed and piloted with two studies to ensure that the categories were meaningful. Then, all studies were reviewed independently by two reviewers from a team of five using the finalized data extraction tool. The extracted data of the included studies covered: (1) general study information (e.g. first author, publication year, title, country); (2) study characteristics, (3) study design; (4) setting and population; (5) definition of the concept under study and measurement; (6) outcomes of interest examined; (7) any mediating or other variables; (8) quality appraisal; (9) findings; (10) remarks including strengths and limitations.

2.8 | Synthesis

Synthesis was based on comparability of measures across the included studies, which resulted in a narrative synthesis based on significant results and weighted towards better internal validity.

3 | RESULTS

3.1 | Study selection

The search in the databases yielded 228 studies. An additional study was found from backward citation tracking of the included studies, 115 studies were duplicates and therefore removed. In total, 114 titles and abstracts were reviewed against the inclusion and exclusion criteria. Twenty studies were assessed in full and from which 11 studies were excluded for the following reasons:

- study treats rationing as an outcome measure ($n = 8$),
- study explored patient-related outcomes ($n = 1$),
- translation was not feasible ($n = 1$),
- editorial ($n = 1$).

A total of nine studies were finally included in the review (Figure 1).

3.2 | Characteristics of the included studies

An overview of the characteristics and outcomes of the included studies is presented in Table 2.

Four studies were conducted in the USA (Jones, 2014; Kalisch et al., 2011; Ogboenyiya, 2019; Tschannen et al., 2010), two in China (Liu et al., 2018; Liu et al., 2019) and one each in Canada (Rochefort & Clarke, 2010), Korea (Cho et al., 2020) and South Africa (Bekker et al., 2015). All studies were carried out in hospitals and two studies were implemented in neonatal intensive care units (Ogboenyiya, 2019; Rochefort & Clarke, 2010).

The study population consisted of nurses with varying levels of qualifications. In most studies, the predominant sample of nurses was professional or registered nurses. However, the proportion of nurses with a bachelor's degree or higher was relatively small. The research design was mainly a cross-sectional multicentre study, except for one study that was a secondary analysis of a longitudinal observational single centre study (Ogboenyiya, 2019).

Only one study directly aimed to measure the effects of care rationing on nurse outcomes (Bekker et al., 2015). Instead, most studies examined unfinished care as a mediator variable. This was primarily because most studies used a conceptual framework of missed nursing care that incorporates Donabedian's structure/process/outcome model, and places missed nursing care as a process variable (Cho et al., 2020; Jones, 2014; Kalisch et al., 2011; Liu et al., 2018; Liu et al., 2019; Rochefort & Clarke, 2010; Tschannen et al., 2010). Another study targeted missed nursing care as a
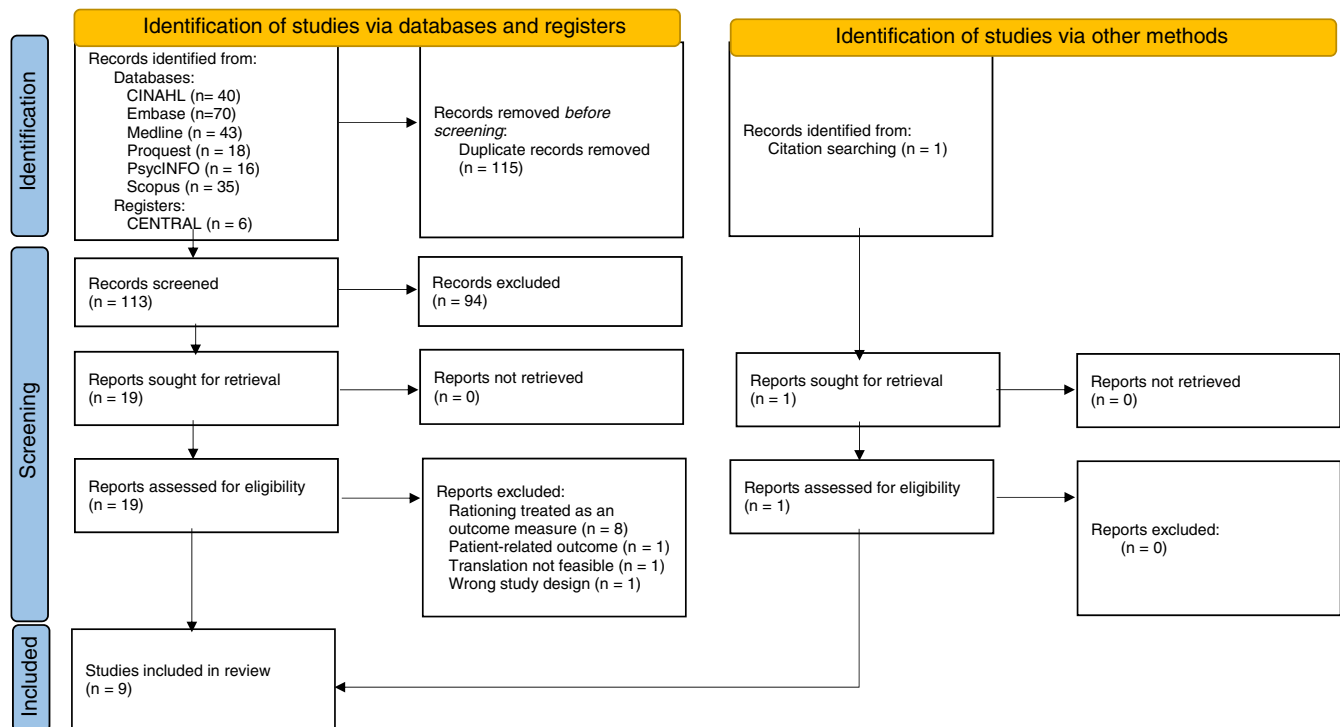
FIGURE 1 PRISMA flow chart (Page et al., 2021)

mediator of an association between burnout and job satisfaction (Ogboenyiya, 2019). Across the studies, the attention of a theoretical framework varied. In two studies (Bekker et al., 2015; Liu et al., 2019) no framework was used. Three studies (Kalisch et al., 2011; Ogboenyiya, 2019; Tschannen et al., 2010) refer to the missed nursing care framework. One study (Liu et al., 2018) specifically cited Donabedian's structure––process––outcome model as the guiding framework. Three studies (Cho et al., 2020; Jones, 2014; Rochefort & Clarke, 2010) articulated a link between the nursing work environment and the nurse and patient-related outcomes without mentioning an explicit model. In each of these frameworks, unfinished nursing care serves as a mediating variable between structural variables such as staffing, workload or nurse–physician relationship and nurse outcomes.

The rationing concepts under study were missed nursing care, nursing care left undone, implicit rationing and rationing of neonatal nursing care. Missed nursing care was measured using the Missed Nursing Care Survey (MISSCARE; Cho et al., 2020; Kalisch et al., 2011; Tschannen et al., 2010) and a questionnaire specific to the Neonatal Nursing Care Quality Study (Ogboenyiya, 2019). Nursing care left undone was measured through the RN4CAST survey (Bekker et al., 2015; Liu et al., 2019) and the questionnaire of the International Hospital Outcomes Study (Liu et al., 2018). Implicit rationing was measured using the Perceived Implicit Rationing of Nursing Care (PIRNCA) instrument (Jones, 2014). To measure the rationing of nursing care in the specific neonatal setting the Neonatal Extent of Work Rationing Instrument (NEWRI) was applied (Rochefort & Clarke, 2010). The basic premise of the phenomena of unfinished nursing care was similar in all these instruments.

3.3 | Quality appraisal

In general, the evaluation of the internal validity showed that the included studies fulfilled the quality criteria in four dimensions. Non-response was a major weakness of the included studies as shown in Table 3. Only three studies were assessed as having a low risk of bias due to non-response (Kalisch et al., 2011; Rochefort & Clarke, 2010; Tschannen et al., 2010).

3.4 | Nurse outcomes and findings

The studies included all nurse outcomes specified in this review, namely: job satisfaction, occupation satisfaction, intention-to-leave, moral distress, psychological distress and personnel turnover (see Tables 4 and 5). Moral distress and psychological distress were covered by the concept of 'burnout' in the studies evaluated.

3.5 | Job satisfaction

Seven out of nine studies defined job satisfaction as a nurse outcome. The validated measurements used to operationalize job satisfaction were derived from the RN4CAST survey (Bekker et al., 2015; Liu et al., 2019), the MISSCARE Survey (Kalisch et al., 2011), single-item measures (Cho et al., 2020; Rochefort & Clarke, 2010) and the 36-item Job Satisfaction Survey (JSS); (Ogboenyiya, 2019). Jones (2014) used the concept of overall job

TABLE 2 Characteristics of the studies

Reference	Country	Study population	Design	Theoretical/conceptual framework
Bekker et al. (2015)	South Africa	1166 PNs from 61 public and private hospitals across 60 medical and surgical units Participant breakdown: participants on unit types: medical $n = 507$, surgical $n = 659$; bachelor degree $n = 156$; female $n = 1080$; average age 41.9 years old	Cross-sectional multicentre study	Not stated
Cho et al. (2020)	Korea	2114 RNs from 49 general hospitals across 156 units. Participant breakdown: participants on unit types: medical $n = 983$, surgical $n = 946$, mixed $n = 185$; bachelor degree $n = 138$; mean working experience as RN 5.6 years. Age and gender not reported.	Cross-sectional multicentre study	The conceptual framework was visually displayed, and included nurse staffing, nurses' prioritization, missed nursing care and outcomes; these related to nurses time, missed nursing activities, prioritization processes and then to the quality of nursing care and outcomes.
Jones (2014)	USA	226 nurse participants Participant breakdown: RNs $n = 94$, LVNs $n = 63$, NMs $n = 69$; practicing on or managing inpatient medical-surgical nursing units; bachelor degree $n = 70$; mean working experience 19 years; female $n = 201$; average age 49 years old	Cross-sectional multicentre study	Implicit rationing serves as an intermediate step in the mechanism linking the nurse work environment to nurse and patient outcomes
Kalisch et al. (2011)	USA	4074 participants, including 3135 RNs; and 939 NAs working in 110 ICU, intermediate, medical-surgical and rehabilitation units. Participant breakdown: graduate degree RNs $n = 108$; NAs $n = 20$; bachelor degree RNs $n = 1639$; NAs $n = 105$, associate degree RNs $n = 1332$; NAs $n = 202$; female RNs $n = 2816$; NAs $n = 777$; average years of working experience RNs $n = 2020$ from ≤6 months to ≤10 years and $n = 1093 ≥ 10$ years; NAs $n = 743$ from ≤6 months to ≤10 years and $n = 189 ≥ 10$ years; average age RNs $n = 2849$ from ≤25 years to 54 years; and NAs $n = 883$ from ≤25 years to 54 years	Cross-sectional multicentre study	The Missed Nursing Care Model (based on Donabedian's structure, process and outcome framework)
Liu et al. (2019)	China	459 ICU nurses from 22 hospitals working in 22 units. Participant breakdown: bachelor or higher degrees $n = 247$, secondary or advanced diploma $n = 377$; mean working experience 5.89 years; female $n = 370$; average age 27.4 years old	Cross-sectional multicentre study	Not stated
Liu et al. (2018)	China	1542 nurses are responsible for direct care from 23 hospitals working in 111 medical and surgical units Participant breakdown: bachelor degree and higher degrees $n = 144$, secondary or advanced diploma $n = 1364$; mean working experience 6.6 years; female $n = 1454$; average age 27.5 years old	Cross-sectional multicentre study	Donabedian's Structure-Process-Outcome Model
Ogboenyiya (2019)	USA	136 RNs providing direct care from one hospital working in a 52-bed NICU. Participant breakdown: bachelor or higher degrees $n = 114$; secondary or advanced diplomas $n = 22$; mean working experience 9.02 years; age, gender not reported	Secondary analysis of data from a longitudinal observational study; nurse-level data, single centre study	Maslach's Multidimensional Theory of Burnout and the Missed Nursing Care Model (structure, process and outcome)

TABLE 2 (Continued)

Reference	Country	Study population	Design	Theoretical/conceptual framework
Rochefort and Clarke (2010)	Canada	339 nurses from nine NICUs. Participant breakdown: bachelor or higher degrees additional to college diploma n = 278; secondary or advanced diploma n = 217; mean working experience 16.8 years; female n = 334; average age 39.4 years old	Cross-sectional multicentre study	The research built on existing conceptualizations of nurses' work environments and theoretical models in nursing management research. These frameworks suggest that work environment and staffing levels influence nurse and patient outcomes through their impact on care delivery processes
Tschannen et al. (2010)	USA	4169 nurses (RNs n = 3143, LPNs n = 83, NAs n = 943) from 10 hospitals working in 110 medical-surgical, rehabilitative, intermediate and intensive care units. Participant breakdown: bachelor or higher degrees 46%; mean working experience >5 years 54%; female 90%; age >35 years 55%	Cross-sectional multicentre study	The Missed Nursing Care Model (hospital characteristics, unit characteristics, missed nursing care, staff outcomes, patient outcomes), informed by the Donabedian model, (structure, process and outcome)

Abbreviations: ICU, intensive care unit; LPN, licensed practical nurse; LVN, licensed vocational nurses; NA, nurse assistant; NICU, neonatal intensive care unit; NM, nurse manager; Nurse, nurse type not specified in the manuscript; PN = professional nurse; RN, registered nurse.

satisfaction, using the PIRNCA Instrument and a 10-point, single-item indicator to measure it.

The five studies used three different instruments to capture unfinished care and four different instruments to measure job satisfaction, which made it hard to derive a sound conclusion even though the quality appraisal of these studies revealed good to fair results.

Consistently, five studies reported a significant negative relationship between unfinished nursing care and job satisfaction (Bekker et al., 2015; Cho et al., 2020; Jones, 2014; Kalisch et al., 2011; Liu et al., 2019). Bekker et al. (2015) found that job satisfaction correlated negatively with 12 nursing tasks left undone, including administering medications on time, skincare and planning nursing care. The studies by Kalisch et al. (2011) and Cho et al. (2020) also showed significant negative associations between the perception of missed nursing care and job satisfaction. The number of missed care activities were associated with the degree of dissatisfaction. A Chinese study identified similar results (Liu et al., 2019). Nurses who reported on at least one aspect of care that remained undone were more likely to report dissatisfaction at work (Liu et al., 2019). Jones (2014) reported a significant inverse relationship between implicit rationing and overall job satisfaction. However, two studies examining the association between unfinished nursing care and job satisfaction found no significant relationship (Ogboenyiya, 2019; Rochefort & Clarke, 2010). All five studies were located in an adult care setting, while the two studies that found no association (Ogboenyiya, 2019; Rochefort & Clarke, 2010) were conducted in neonatal intensive care units. Therefore, the differing results about the association between unfinished nursing care and job satisfaction need to be interpreted with caution and consideration of the instruments used in the specific setting.

The studies that investigated the relationship between perceived staffing levels and job satisfaction showed a significant positive association, that is, where staffing levels were perceived as sufficient, job satisfaction levels were higher (Cho et al., 2020; Jones, 2014; Kalisch et al., 2011). Cho et al. (2020) also studied the relationship between the patient-to-registered nurse (RN) ratios with job satisfaction. After controlling for the effect of missed care they found no significant association.

Kalisch et al. (2011) also examined the association between missed care and occupation satisfaction: occupation satisfaction meaning a focus on being a nurse in general, rather than specific employment status. Compared with job satisfaction the results went in the same direction. Employees who indicated more missed care were less satisfied with their occupation. Additionally, the rating of staffing levels as low was associated with a higher degree of job dissatisfaction.

3.6 | Burnout

Psychological or moral distress was interpreted as burnout in the studies examined. All reviewed studies made use of the Maslach Burnout Inventory-Human Service Survey (MBI-HSS) to measure

TABLE 3 Methodological quality of the included studies using the mixed methods appraisal tool

	1) Is the sampling strategy relevant to address the research question?	2) Is the sample representative of the target population?	3) Are the measurements appropriate?	4) Is the risk of nonresponse bias low?	5) Is the statistical analysis appropriate to answer the research question?
Bekker et al. (2015)	Yes	Yes	Yes	Cannot tell	Yes
Cho et al. (2020)	Yes	Yes	Yes	Cannot tell	Yes
Jones (2014)	Yes	Yes	Yes	Cannot tell	Yes
Kalisch et al. (2011)	Yes	Yes	Yes	Yes	Yes
Liu et al. (2019)	Yes	Yes	Yes	Cannot tell	Yes
Liu et al. (2018)	Yes	Yes	Yes	Cannot tell	Yes
Ogboenyiya (2019)	Yes	Cannot tell	Yes	Cannot tell	Yes
Rochefort and Clarke (2010)	Yes	Yes	Yes	Yes	Yes
Tschannen et al. (2010)	Yes	Yes	Yes	Yes	Yes

burnout. Liu et al. (2019) and Ogboenyiya (2019) applied the entire inventory with the three subscales emotional exhaustion, depersonalization and personal accomplishment however, Rochefort and Clarke (2010) used only emotional exhaustion subscale. The results showed a contradictory association with unfinished nursing care. The study conducted by Liu et al. (2019) found a positive association between burnout and missed care. Nurses who reported at least one aspect of care rationing were more likely to report high burnout in emotional exhaustion and depersonalization but not in personal accomplishment. In contrast, Ogboenyiya (2019) discovered no significant association between unfinished nursing care and any burnout subscale. Rochefort and Clarke (2010) confirmed the hypothesis that rationing of nursing care acts as a mediator variable between work environment characteristics and nurses' perceptions of job outcomes. The significant association between the nurse–physician relationship (a nurse work environment issue) and emotional exhaustion lost its significance after the rationing of patient surveillance (a care rationing issue) was added to the model.

Two studies (Liu et al., 2019; Rochefort & Clarke, 2010) found a positive association between unfinished nursing care and emotional exhaustion as one sub dimension of burnout, whereas one study (Ogboenyiya, 2019) found no association. These three studies used the same instrument to measure emotional exhaustion, but three different instruments to capture unfinished nursing care.

3.7 | Intention-to-leave

Two research groups investigated the association between missed care and nurses' intention-to-leave their job and found similar results. The relationship between perceived staffing adequacy and missed nursing care with the intent-to-leave was significant even though different measurements were applied. Cho et al. (2020) took single-items while Tschannen et al. (2010) made use of the MISSCARE Survey. A higher number of missed care activities was associated with an increase in the intention-to-leave the job (Cho et al., 2020;

Tschannen et al., 2010). Once more the patient-to-RN ratio had no significant relevance after controlling for the effect of missed care (Cho et al., 2020). The results of these two studies are based on the evaluation of the data of 6283 RNs working on 266 units in 59 hospitals. The quality appraisal was good to fair. Cho et al. (2020) and Tschannen et al. (2010) applied the same instrument (the MISSCARE survey) to capture unfinished nursing care however they used different tools to find out the intention of nurses to leave their job. While Tschannen et al. (2010) did not specify the time frame about the plan of nurses to leave the job, Cho et al. (2020) defined a time frame and set it to the period of 1 year. However, this time frame is so long that it probably has no or only little effect on the outcome. In summary, it can be assumed that the association between unfinished nursing care and intention-to-leave can be confirmed.

3.8 | Turnover

Two studies investigated turnover as an indicator to measure nurses' outcomes. Both studies detected no statistically significant association between unfinished nursing care as the independent variable and turnover rates as the dependent variable. In a cross-sectional study of 10 patient-care units in 10 acute-care hospitals (4169 nurses) Tschannen et al. (2010) found that higher percentages of females on the unit were associated with lower turnover rates ($\beta = -.235$, $p = .010$). Ogboenyiya (2019), reported no significant turnover in the secondary analysis that was conducted in a single neonatal intensive care (NICU) with 136 nurses. The researchers applied a dichotomous 'yes' or 'no' question to indicate the turnover rate in the context of examining the role of missed nursing care as a mediator between burnout and turnover and found no significant results across their analysis. The quality appraisal revealed uncertainties both in answering the question of the representativeness of the sample about the target population and in the risk of non-response bias. As far as a conclusion could be drawn from these two studies there is no association between unfinished nursing care and personnel turnover (see Table 4).

TABLE 4 Outcomes and findings (*Outcomes **bolded** to indicate outcome related to the review question)

Reference	Definition of concepts under study and measurements	Outcomes of interest examined*	Findings
Bekker et al. (2015)	Non-nursing tasks, nursing tasks left undone and job satisfaction were measured with the RN4CAST paper-based survey	Association between non-nursing tasks, nursing tasks left undone and **job satisfaction**	Job satisfaction correlated negatively with 12 nursing tasks left undone: adequate patient surveillance ($r = -.30$), skin care ($r = -.38$), oral hygiene ($r = -.30$), pain management ($r = -.32$), educating patients and family ($r = -.26$), treatments and procedures ($r = -.31$), administer medications on time ($r = -.39$), prepare patients and families for discharge ($r = -.32$), adequately document nursing care ($r = -.33$), develop or update nursing care plans/pathways ($r = -.37$), planning care ($r = -.33$), frequent changing of patient position ($r = -.28$)
Cho et al. (2020)	Missed care was measured using the Korean version of Missed Nursing Care Survey (MISSCARE); Nurse staffing was measured using two variables: the patient-to-RN ratio and perceived staffing adequacy; Job satisfaction was measured on a four-point scale (very dissatisfied to very satisfied) and intent to leave in a year with a dichotomous variable (yes or no)	Association between nurse staffing and missed care with **job satisfaction** and **intent-to-leave**	There were significant relationships between perceived staffing adequacy and also missed nursing activities, job satisfaction and intent to leave ($p < .001$). Every additional missed activity was associated with a 7% to 8% increase in job dissatisfaction, and a 4% increase in the intent to leave. The patient-to-RN ratio had no significant relationship with job satisfaction or intent to leave, after controlling for the effect of missed care
Jones (2014)	Implicit Rationing of Nursing Care was measured with the Perceived Implicit Rationing of Nursing Care'(PIRNCA) instrument; Nursing work environment was measured through PIRNCA and scores on the Essentials of Magnetism II (EOM II); overall job satisfaction was measured using PIRNCA and a 10-point, single item indicator	Association between work environment and implicit rationing and overall **job satisfaction**	A significant inverse relationship was demonstrated between implicit rationing and overall job satisfaction ($r = -.482$) and work environment ($r = -.440$). The strongest association was found with the perceived adequacy of the staffing subscale ($r = -.53$)
Kalisch et al. (2011)	Missed Nursing Care was measured with the MISSCARE Survey: job satisfaction was measured with the variables missed nursing care, age, perceptions of staffing adequacy and type of unit; occupation satisfaction was measured with the variables: missed nursing care, gender, job title, education and staffing adequacy	Association between unit and staff characteristics and missed nursing care and **job satisfaction** or **occupation satisfaction**	The greater the perception of missed nursing care on the unit, the higher the dissatisfaction level with their job ($p < .001$). Perception of staffing adequacy was also positively associated with job satisfaction ($p < .001$). Staff who reported less missed care were satisfied with their occupation, while those who reported more missed care were less satisfied with their occupation (OR = 0.57; 95% CI = 0.41–0.80). Also, those who rated the adequacy of staffing lower reported a higher level of occupation dissatisfaction (OR = 1.49, 95% CI = 1.35–1.64)
Liu et al. (2019)	Nursing care left undone was measured with the Chinese translation of the RN4Cast-Instrument; Work environment was measured with the Practice Environment Scale of Nursing Work Index (PES-NWI); Job satisfaction was measured with a global rating scale asking the nurses to report their perceptions of their jobs, considering all aspects of the job derived from the RN4CAST-instrument; Burnout was measured with the Maslach Burnout Inventory-Human Service Survey (MBI-HSS)	Association between work environment and nursing care left undone, **job satisfaction** and **burnout**	Nurses who perceived more supportive work environments were less likely to report nursing care left undone (OR, 0.470; 95% confidence interval [CI], 0.262–0.844). Nurses who reported at least one aspect of nursing care left undone were more likely to report job dissatisfaction (OR, 2.170; 95% CI,1.196–3.938), high burnout on emotional exhaustion (OR, 2.349; 95% CI, 1.228–4.493) and depersonalization (OR, 2.092; 95% CI, 1.321–3.314). The relationship between nursing care left undone and personal accomplishment was not statistically significant

(Continues)

TABLE 4 (Continued)

Reference	Definition of concepts under study and measurements	Outcomes of interest examined*	Findings
Liu et al. (2018)	Nursing care left undone was measured with the questionnaire of the International Hospital Outcomes Study; Work environment was measured with the Practice Work Environment Scale of the Nursing Work Index (PES-NWI); Workload was measured using: day shift patient–nurse ratio and non-professional tasks; Nurse burnout was measured by the emotional exhaustion subscale of the Maslach Burnout Inventory-Human Services Survey	Association between work environment, workload and nursing care left undone and nurses **burnout**	Better work environment and lower day shift patient–nurse ratio had significant relationships with less nursing care left undone and less nurse burnout ($p < .01$). Fewer non-professional tasks significantly related to less nursing care left undone and less burnout ($p < .01$). A better work environment and a lower ratio of patients to nurses on the day shift had significant associations with less unfinished care and less burnout among nurses ($p < .01$). Fewer non-work tasks were significantly associated with less unfinished care and less burnout ($p < .01$)
Ogboenyiya (2019)	Missed nursing care was measured through a questionnaire specific to the Neonatal Nursing Care Quality study; Burnout was measured with the Maslach Burnout Inventory (MBI-HSS); job satisfaction was measured through the Job Satisfaction Survey (JSS), turnover was measured with a dichotomous , 'yes' or 'no' question	Association between burnout, missed nursing care, **turnover status** and **job satisfaction**	The study showed no significant relationships between any three subscales of burnout and missed nursing care scores. There was no statistically significant relationship between missed nursing care and job satisfaction. No statistically significant association was found to verify the hypothesis that missed nursing care acts as a mediator between burnout and turnover or job satisfaction
Rochefort and Clarke (2010)	Rationing of neonatal nursing care was measured with Neonatal Extent of Work Rationing Instrument (NEWRI); Work environment characteristics were measured with Revised Nursing Work Index (NWI-r); Burnout was measured with the nine-item Emotional Exhaustion subscale of the Maslach Burnout Inventory (MBI); Job satisfaction was measured using single items	Association between professional work environment characteristics and nurses' perceptions of care rationing and **burnout**, and **job satisfaction**	No statistically significant association was found between care rationing and job satisfaction. But the association between nurse–physician relationships (work environment characteristic) and emotional exhaustion (burn out) went from being statistically significant ($B = \_0\text{Æ}26$, $P = 0\text{Æ}03$) to non-statistically significant ($B = \_0\text{Æ}20$, $P = 0\text{Æ}06$) after including rationing of patient surveillance (an item of care rationing) into the calculation models
Tschannen et al. (2010)	Missed nursing care as well as intention-to-leave and staffing data (e.g. education, experience, absenteeism, overtime) were measured with MISSCARE Survey; Turnover rates and Case Mix Index were collected from the administrative databases of the hospitals	Association between unit characteristics (nurse staffing), nurse characteristics (education, experience, age, gender), absenteeism, work schedule, overtime, Case Mix Index and missed care and **turnover rates** and **intention-to-leave**	No statistically significant association was found between missed care as the independent variable and turnover rates as the dependent variable. But larger amounts of missed care were associated with greater intention-to-leave ($r = .40$, $p < .01$). Units with higher rates of missed care ($\beta = .302$, $p < .0001$) and absenteeism ($\beta = .247$, $p = .034$) had more staff with plans to leave

4 | DISCUSSION

Despite a large number of studies on aspects of nursing care rationing (Ausserhofer et al., 2014; Griffiths et al., 2018; Papastavrou et al., 2014), this review found only nine studies that specifically examined the effects of unfinished nursing care on nurse outcomes. These studies were conducted in Canada, China, Korea, South Africa and the USA. Notably, there were no studies conducted in Europe or Australia that met the inclusion criteria. All studies reviewed evaluated the data collected in hospitals and importantly none of these studies was conducted in institutional long-term care nursing homes. The research designs were cross-sectional multicentre

studies, except for one study that was a secondary analysis of a single centre longitudinal study. To capture unfinished nursing care, the following concepts were used in the studies included: missed care, omitted care, implicit rationing and rationing of neonatal care. Different instruments and tools were applied to operationalize the nurse outcomes evaluated. Because of the clinical heterogeneity, a meta-analysis was not indicated.

The most frequently used outcome to record the effect of unfinished nursing care on nurses' experiences was job satisfaction. An association between job satisfaction and unfinished nursing care was supported by five out of seven studies examining these characteristics. In this systematic review, five studies reported a significant

TABLE 5 Review questions coverage and quality

	Number of studies	Quality of studies	Studies
Job satisfaction	7	4/5 4/5 5/5 4/5 5/5 3/5 4/5	Bekker et al. (2015) Liu et al. (2019) Kalisch et al. (2011) Cho et al. (2020) Rochefort and Clarke (2010) Ogboenyiya (2019) Jones (2014)
Burnout	9	4/5 4/5 4/5 5/5 4/5 5/5 3/5 4/5 5/5	Bekker et al. (2015) Liu et al. (2019) Liu et al. (2018) Kalisch et al. (2011) Cho et al. (2020) Rochefort and Clarke (2010) Ogboenyiya (2019) Jones (2014) Tschannen et al. (2010)
Intention-to-leave	2	4/5 5/5	Cho et al. (2020) Tschannen et al. (2010)
Turnover	2	3/5 5/5	Ogboenyiya (2019) Tschannen et al. (2010)

negative relationship between unfinished nursing care and job satisfaction (Bekker et al., 2015; Cho et al., 2020; Jones, 2014; Kalisch et al., 2011; Liu et al., 2019), however, two NICU studies found no relationship at all between these variables (Ogboenyiya, 2019; Rochefort & Clarke, 2010). Both studies using intention-to-leave as an outcome (Cho et al., 2020; Tschannen et al., 2010) confirmed a significant positive relationship between unfinished nursing care and intention-to-leave the job. The results about the potential relationship between unfinished nursing care and burnout are less clear. There was confirmation of a positive relationship (Liu et al., 2019; Rochefort & Clarke, 2010), but also the contradictory result that there is no relationship between unfinished nursing care and burnout (Ogboenyiya, 2019). No statistically significant association was discovered between care rationing and personnel turnover (Ogboenyiya, 2019; Tschannen et al., 2010).

These findings are in agreement with a meta-analysis (Li et al., 2018) that found that job satisfaction correlates with nurses' psychological empowerment, and reinforces the understanding that unfinished nursing care is a frustrating experience for nurses.

These findings provide evidence to argue that unfinished nursing care should be included in regular workplace surveys as a mediator to other negative staff outcomes collected. Improved transparency and benchmarking across jurisdictions would better inform effective public and private decision-making to prevent workforce surpluses and shortages (Salsberg, 2014). There is a need to consider unfinished nursing care as an essential ingredient in understanding health workforce data, and the relationships between patient and

nurse satisfaction (De Simone et al., 2018; Nurmeksela et al., 2021; Wei et al., 2018). Further development in refining the science of satisfaction––burnout-intention-to-leave turnover chains will be required that manage the complex set of health services research. Future research options include mining secondary analysis of workforce surveys and administrative data; developing opportunistic cohort studies, (quasi-)experimental studies and building multi-site collaborations.

There is reassurance that nurses are affected by unfinished nursing care because their commitment to quality care delivery is the hallmark of the profession. This commitment warrants complementary devotion by health organizations and funding bodies to the data collection, analysis and translational research informed by the unfinished nursing care field of inquiry.

4.1 | Strengths and limitations

The number of systematic reviews conducted on unfinished nursing care on nurse outcomes is limited. Thus this review fulfilled this gap in the literature by adopting a rigorous methodological process by following NICE guidelines and reported according to the PRISMA 2020 guideline. The inquiry has followed an extensive search strategy with a comprehensive set of search terms and databases without a time limit with hand search of references to retrieve maximum number of research papers in the review.

Limitations of the reviewed studies need to be highlighted, to ensure interpretations of the findings are made with suitable caution. All results are based on cross-sectional designs except for one study that was a secondary analysis of a longitudinal observational study. Both designs are not appropriate for validating a causal relationship between two variables. This means that all results including the validated associations do not prove a causal relationship. The use of retrospective self-reported data from nurses is another weakness of the analysed studies (Jones et al., 2016), not uncommon in unfinished nursing care research due to the nature of the phenomena. It is known that various aspects influence the perception of the extent of unfinished nursing care. In this context, the work environment is highly relevant, especially the nurse–physician relationship (Rochefort & Clarke, 2010) and nurses' perceptions of staffing and resource adequacy (Cho et al., 2020). Another point is the partly incomplete reporting of the studies so that the risk of non-response bias often cannot be assessed. Specific limitations of included studies were representative sample issues (Ogboenyiya, 2019) and level of non-response bias risk (Bekker et al., 2015; Cho et al., 2020; Jones, 2014; Liu et al., 2018; Liu et al., 2019; Ogboenyiya, 2019).

Although this systematic review used an extensive search strategy, studies may have been overlooked that address the relationship between unfinished nursing care and nurse outcomes published in grey literature. Also, a bias may be that studies published in a language where translation was not feasible were excluded. Since the studies only reflect the expected nurse outcomes to a limited extent,

publication bias cannot be ruled out either. The conclusions are based on cross-sectional and longitudinal studies, which does not allow a causal interpretation.

5 | CONCLUSION

In conclusion, there is emerging international evidence about the effects of unfinished nursing care on nurse outcomes that are trending towards the claim that unfinished care puts a strain on nurses. However, international literature does not currently provide strong evidence for this relationship. Given the relevance of this issue, an increase in multicentre, multi-national trials using established measurement tools reported here with control groups is necessary to build better knowledge in this area.

All the studies in the review were conducted in the hospital setting. It is also recommended to explore other settings such as aged care and other residential care settings, subacute, community and critical care areas, to identify any differences in unfinished nursing care and examination of the contributing factors.

Surprisingly, there are no research studies from Europe, Australia or New Zealand on unfinished nursing care and nurse outcomes. Future research from these countries would allow for the investigation of any differences in unfinished nursing care and nurse outcomes influenced by different systems and resource availability. Unfinished nursing care needs to be studied in the context of differences in the healthcare policies in different countries and the differences in the cultural and healthcare practices. This would contribute further insight into the difference in unfinished nursing care and its contributing factors from a global perspective.

The designs of the studies involved in this review are not strong enough to investigate a causal relationship between unfinished nursing care and nurse outcomes. Available evidence demonstrates that unfinished nursing care has a negative effect on nurse and patient-related outcomes. Hence it is important to develop policies and procedures to regularly monitor unfinished nursing care and to minimize the potential causes and reduce the incidences of unfinished nursing care. Further research is suggested aiming at measures to reduce unfinished nursing care and to improve nurse and patient-related outcomes.

AUTHOR CONTRIBUTION

All authors

1. Have made substantial contributions to conception and design, or acquisition of data or analysis and interpretation of data;
2. Been involved in drafting the manuscript or revising it critically for important intellectual content;
3. Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and
4. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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