Journal of Pediatric Nursing 63 (2022) 9–19

Contents lists available at ScienceDirect

Journal of Pediatric Nursing

journal homepage: www.pediatricnursing.org

Caring for sick kids: An integrative review of the evidence about the prevalence of compassion fatigue and effects on pediatric nurse retention

Lori A. Forsyth, DNP, CPN, RN [a,b], Sandra Lopez, MSN, RN-BC [c], Kimberly A. Lewis, PhD, RN [b,d,*]

[a] Dell Children's Medical Center of Central Texas, Pediatric Emergency Department, Austin, TX, USA
[b] The University of Texas at Austin, School of Nursing, Austin, TX, USA
[c] Dell Children's Medical Center of Central Texas, Pediatric Multi-Specialty Clinic, Austin, TX, USA
[d] Ascension Seton, Nursing Research, Austin, TX, USA

ARTICLE INFO

Article history:
Received 26 July 2021
Revised 7 November 2021
Accepted 9 December 2021

Keywords:
Pediatric nursing
Compassion fatigue
Retention
Burnout
Integrative review

ABSTRACT

Problem: Compassion Fatigue (CF) in healthcare professionals has been explored in multiple studies, but few focused on hospital-based pediatric nurses. The purpose of this integrative review is to synthesize the evidence about CF prevalence in nurses caring for pediatric patients, and to describe its effects on retention and job satisfaction.

Eligibility criteria: Included studies were in English from any date describing research or quality improvement studies about CF in pediatric nurses.

Sample: An integrative review of nine electronic databases yielded 13 articles about 1921 nurses. Data were synthesized from four qualitative and nine quantitative studies separately before integrating results. A risk of bias analysis was included for evidence level and quality.

Results: Overall CF prevalence was low, but 14% of nurses were at high risk of burnout and 10% were at high risk for secondary traumatic stress. Studies examining the effects of CF on retention found no significant relationship. Most studies were about critical care or oncology nurses.

Conclusions: A subset of pediatric nurses is highly vulnerable to CF, but more high-quality evidence is needed to fully address this topic. Leaders should study CF prevalence, protective and exacerbating factors, relationships between CF and retention, and targeted strategies to resolve CF in high-risk nurses.

Introduction

An estimated 180,521 registered nurses (RN) and 23,399 pediatric advanced practice nurses (APRN) provide patient care in a hospital setting to a pediatric population in the United States (U.S. Department of Health and Human Services et al., 2019; Institute for Pediatric Nursing, 2021). Pediatric RNs and APRNs care for the smallest and most vulnerable of patients—children—as well as providing support for their parents. At best, the pediatric nurse achieves compassion satisfaction from this work—a feeling of a meaningful job well done and a perception of making a positive difference in the world (Stamm, 2010). Yet a subset of pediatric nurses experiences an emotional and physical cost to caring (Buckley et al., 2020; Figley, 1995). The emotional demands of pediatric nursing have been linked to increased burnout, psychosomatic problems, and intent to leave their job (Buckley et al., 2020).

Compassion fatigue (CF) is characterized by feeling overwhelmed, unable to leave work behind, anxious, depressed, disillusioned, and more (Sorenson et al., 2017; Todaro-Franceschi, 2013). CF contains two elements: burnout and secondary traumatic stress (Figley, 1995; Stamm, 2010). Burnout is characterized by anger, frustration, and depression related to work (Figley, 1995) and develops over time, hence a cumulative effect. Secondary traumatic stress can occur from caring for someone else that is experiencing a traumatic event, resulting in post-traumatic stress disorder (PTSD) type symptoms in the caregiver (Sorenson et al., 2017). CF symptoms may include biological, physiological, and emotional exhaustion from prolonged exposure to another's stress and suffering (Figley, 1995). CF and secondary traumatic stress terms can be used interchangeably per Figley (1995). Unaddressed CF may lead nurses to leave a unit, a hospital, or nursing profession (Sorenson et al., 2017).

CF has been found in a subset of vulnerable healthcare workers across diverse healthcare settings (Cavanagh et al., 2020; Yang & Kim, 2012; Zhang et al., 2018). Although CF and burnout have been studied in a variety of nursing specialties and settings, previous evidence specific to the pediatric nursing population has been mixed about the CF

* Corresponding author at: Department of Physiological Nursing School of Nursing, The University of California, San Francisco, USA.
E-mail address: Kimberly.lewis@ucsf.edu (K.A. Lewis).

https://doi.org/10.1016/j.pedn.2021.12.010
0882-5963/

prevalence, precipitating factors, and appropriate interventions (Buckley et al., 2020; Cavanagh et al., 2020; Yang & Kim, 2012; Zhang et al., 2018). For example, a review by Yang and Kim (2012) found that CF levels ranged from low to severe in four studies about nurses caring for pediatric patients. Yang and Kim (2012) recommended additional research using standardized tools, such as the Professional Quality of Life Scale (PRO-QOL), to identify consistent patterns. Further, studies included in previous reviews and meta-analyses were found to have high heterogeneity, which poses a challenge to synthesizing the findings with the least amount of bias and limits the generalizability of the findings (Cavanagh et al., 2020; Fletcher, 2007; Yang & Kim, 2012). As a result, a synthesis specific to the pediatric nursing setting is needed for greater understanding of this phenomenon.

Therefore, the purpose of this integrative literature review is to describe the characteristics of the literature on CF in pediatric nurses, the prevalence of CF, and its effects on pediatric nurse retention or turnover. This paper presents the findings of an integrative literature review of both quantitative and qualitative studies. A risk of bias analysis was also completed to describe the level and quality of the existing evidence.

Methods

The integrative literature review search was conducted in nine search engines. Peer reviewed articles were searched in PubMed, PsycInfo, Web of Science, Academic Search Complete, CINAHL, Medline, JSTOR, and Health Source Nursing Edition. Unpublished dissertations were also reviewed via Proquest.

The search was conducted using different combinations of the terms *paediatric nurs** or *pediatric nurs**; *compassion fatigue*; and *retention* or *turnover*. Peer-reviewed research articles from any date were included if they were available in English, were qualitative or quantitative research studies, or evidence-based practice projects, and that studied CF in samples of pediatric nurses.

Quantitative and qualitative studies were reviewed and synthesized separately. Data were extracted from the articles about study design, sample characteristics, location and setting, instrumentation, key findings, and limitations as stated by the authors. Sample characteristics include the nurses' age, sex, race, ethnicity, education level, and experience. The setting included the country and city or state where the research was conducted, type of facility (e.g., hospital, community, school, etc.), and the unit or department type (e.g., pediatric intensive care unit (PICU), emergency department (ED), etc.). Instrumentation included the type of tool that they used to measure CF, other variables that are commonly included in studies about CF, and measures of retention or turnover data, when applicable.

Data extracted about key findings included: prevalence data by setting; differences in experience or results based on the nurses' sex, race, ethnicity, experience level, or practice setting; descriptions of protective factors, exacerbating factors, or both; and relationships between CF and turnover, retention, job satisfaction, and the other previously mentioned nurse or organizational characteristics. When possible, a weighted average was calculated for each measure.

A risk of bias analysis was conducted using the Johns Hopkins Evidence Appraisal model (Dang & Dearholt, 2018). The tool assesses risk of bias analyzing the study design, sample size, settings, and instrumentation. Studies were assigned an evidence level and quality level based on the Johns Hopkins Evidence Appraisal model criteria (Dang & Dearholt, 2018). The evidence levels range from I-III, with I being the highest evidence level. Quality was rated as A (high), B (good), or C (low).

Results

The PRISMA diagram (Fig. 1) provides an overview of the search strategy. After eliminating duplicates and applying inclusion criteria, a total of $N = 13$ studies remained in the final sample, representing $N = 1921$ RNs and APRNs. The thirteen remaining articles and dissertations included four qualitative and nine quantitative studies. The studies included in the final sample of this integrative review are described in an evidence summary table (Table 1). An overview of the sample characteristics by study type is presented in Table 2.

Quantitative studies

Quantitative studies were synthesized by study characteristics, prevalence of or risk for CF (including differences between subgroups), protective factors, and relationships between CF and retention. We extracted data about the instruments that were used to measure compassion fatigue.

Study characteristics

Data extracted about study characteristics included study design, total sample, and sample characteristics. Sample characteristics include the nurses' age, sex, race, ethnicity, education level, experience, and primary work unit. Results from these characteristics are detailed in Table 2. All nine quantitative studies were conducted in the United States. The study designs for the nine quantitative studies included 4 cross-sectional (Branch & Klinkenberg, 2015; Johnson, 2014; Merk, 2018; Thornton, 2017), 2 quasi-experimental pre- and post-test design (Cooper, 2019; Flanders et al., 2019), two longitudinal studies (Li et al., 2014; Meyer et al., 2015), and one randomized controlled trial (Ruehl, 2013). The Li and Meyer articles utilized the same dataset for different research questions. For any synthesis of sample characteristics, the participants in this sample were only counted once.

The nine quantitative studies represent a total sample of $n = 1921$ nurses. The sample sizes ranged from 19 to 503, with a mean of $n = 213$. The quantitative study sample was 93% female based on the 6 studies that reported sex of the sample ($n = 1249$). Ages ranged from 21 to 73 years old, and the weighted mean age was 37.3 years based on the four studies that reported a mean instead of age groups (Cooper, 2019; Johnson, 2014; Ruehl, 2013; Thornton, 2017). The two remaining studies reported ages by groups, but the group size was not standardized across the studies (Branch & Klinkenberg, 2015; Meyer et al., 2015).

The sample in those studies reporting race or ethnicity data was 80% White, 14% Asian/Pacific Islander, 3% African American, and 3% Other, and 28.6% Hispanic or Latino ethnicity. Five studies, representing 78% of the sample, did not report any race or ethnicity data (Branch & Klinkenberg, 2015; Flanders et al., 2019; Merk, 2018; Cooper, 2019; Johnson, 2014). Although ethnicity is typically distinguished from race, some articles reported Hispanic or Latino ethnicity as if it were a race. The 'Not Reported' and 'Other' race categories were grouped together in some studies, making it indistinguishable how many people were mixed race or identified as other racial and ethnic categories.

Eight studies reported the education level of participants ($n = 1418$ nurses). A majority (67%) held a bachelor's degree or higher. Eighteen percent of the sample were identified only as new graduate residency RNs and it is unknown if they held associate's or bachelor's degrees. Seven studies reported nursing experience levels (Branch & Klinkenberg, 2015; Flanders et al., 2019; Meyer et al., 2015; Li et al., 2014; Cooper, 2019; Johnson, 2014; Thornton, 2017). Nursing experience in these studies ranged from 1 to 44 years with weighted mean experience of 8.94 years. Age-related differences were inconclusive, due to either a lack of reporting of age-related findings or due to mixed results when comparing the studies. Several studies stated that CF and compassion satisfaction scores did not differ significantly by age (Branch & Klinkenberg, 2015; Johnson (2014); Ruehl, 2013; Thornton, 2017). However, other studies stated that younger nurses had statistically significant higher levels of burnout and CF and lower compassion satisfaction (Merk, 2018) and that increased years of work experience was positively associated with higher levels of both compassion satisfaction and work engagement (Flanders et al., 2019).

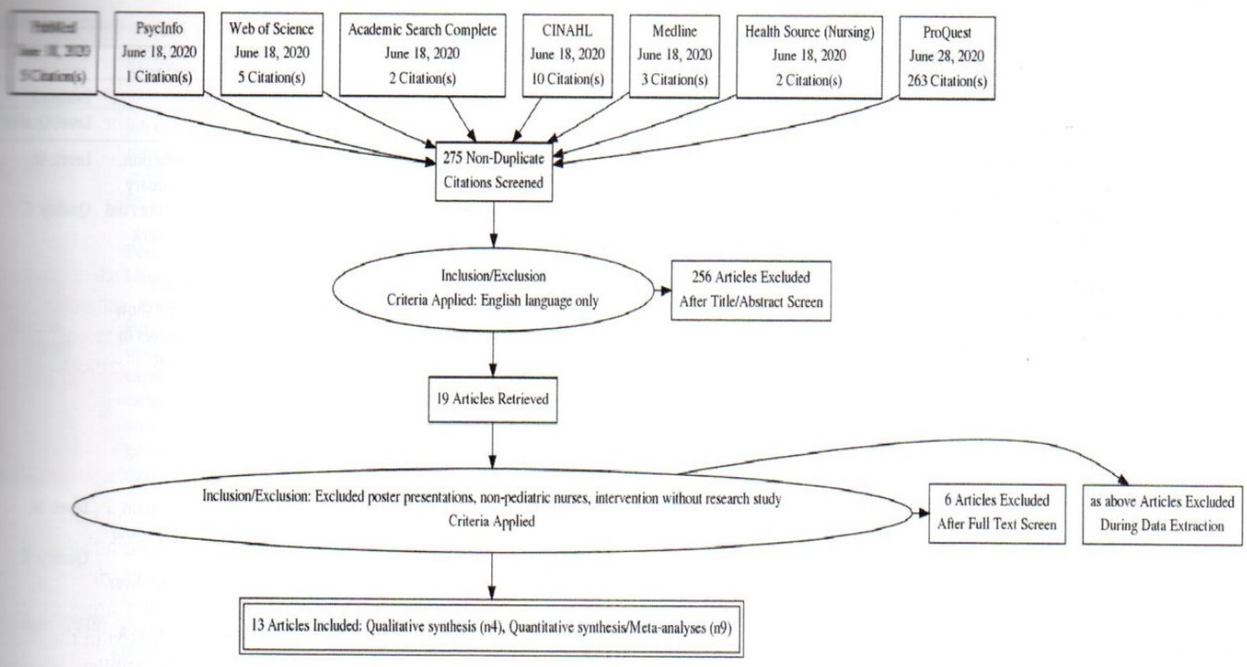


Fig. 1. Prisma flow diagram: ((paediatric nurs* or pediatric nurs* AND (compassion fatigue)) AND (retention or turnover).

CF instrumentation and prevalence

Table 3 presents an overview of the CF prevalence from the nine articles that reported results. Three different instruments were used by study authors in this final sample: The Professional Quality of Life Scale Version 5 (Pro-QOL), the Compassion Fatigue Self-Test (CSF test), and the Occupational Fatigue Exhaustion Recovery Scale-Revised (OFER-15). Results are summarized separately by each instrument (Table 3, Figs. 2-4).

Pro-QOL (Fig. 2). Six studies measured CF using the Pro-QOL (Branch & Klinkenberg, 2015; Flanders et al., 2019; Merk, 2018; Cooper, 2019; Johnson, 2014; Thornton, 2017.) The Professional Quality of Life Scale (ProQOL) is a three-part instrument that measures compassion fatigue (burnout and secondary traumatic stress) and compassion satisfaction, each section having ten Likert-scale questions (Stamm, 2010). Overall CF was low, but 14% of those using the ProQOL were at high risk of burnout and 10% were at high risk of secondary traumatic stress.

CSF (Fig. 3, Table 3). Two studies (Li et al., 2014; Meyer et al., 2015) used the CSF which is a 66-item self-report questionnaire. The test produces three subscales: compassion satisfaction, burnout, and CF/secondary traumatic stress (Stamm & Figley, 1996). Both studies reported results from the same sample of nurse residents and are only counted once ($N = 231$). The CSF was administered after 3 months of bedside experience. In these new graduate nurses, the mean CF score was 23.56 ± 13.29 and fell within the extremely low risk range, but 18.5% of them met partial or full criteria for post-traumatic stress disorder after 3 months of working as a new nurse.

OFER-15 (Fig. 4). This scale measures chronic and acute occupational fatigue as well as intershift recovery, with higher scores on the subscales representing more of the concept. Nineteen nurses recorded baseline scores on the OFER-15 (Ruehl, 2013). The respondents reported lower levels of chronic fatigue ($M = 25.76 \pm 15.56$ on a scale of 0–60), moderate-to-high levels of acute fatigue (51.56 ± 18.60 on a scale of 33–73.3), and moderate-to-high levels of intershift recovery (61.55 ± 18.47 on a scale of 30–83.3).

CF by subgroup

Of the four quantitative studies that measured differences in CF by age group, three studies found no difference and one study found a significant difference (Branch & Klinkenberg, 2015; Johnson (2014); Thornton, 2017; Ruehl, 2013). Merk (2018) found that younger nurses had statistically significant higher burnout and CF scores compared to the nurses who were aged 40 years and older. Other characteristics and their relationships with CF were reported by one or more studies: relationship status (Ruehl, 2013; Thornton, 2017), typical shift (Cooper, 2019), income (Thornton, 2017; Ruehl, 2013), and presence of children in the nurse's home (Thornton, 2017). None of these characteristics were statistically significantly different between groups and/or related to CF in any of the studies that reported on those characteristics.

Protective factors

The factors that were protective against CF included group cohesion and staff support, effective leadership, differentiation of self and role, higher levels of compassion satisfaction, and acute physical fatigue (Johnson, 2014; Li et al., 2014; Ruehl, 2013). Ruehl (2013) found that nurses whose colleagues reported they looked exhausted or burned out by their job scored higher on the depersonalization and emotional exhaustion subscales of Maslach's burnout scale, suggesting that strong coworker support could be protective by helping to identify at-risk individuals. Li et al. (2014) measured organizational commitment as a potential protective factor but found no significant relationship with burnout or CF. Although Branch and Klinkenberg (2015) did not measure protective factors, they speculated that the meaningful interactions with patients, such as those experienced by hematology-oncology nurses, may be a protective mechanism against burnout.

Relationships between CF, job satisfaction, and retention

Only one study measured turnover during the study period (Flanders et al., 2019). Turnover decreased by a non-statistically significant 6% after a resilience intervention that included pet, art, and music therapy and formal debriefing sessions. Three studies that measured job satisfaction used the Mueller & McCloskey scale (Li et al., 2014; Meyer et al., 2015) and one used the job-in-general satisfaction scale (Ruehl, 2013). Li et al. (2014) and Meyer et al. (2015) both reported job satisfaction scores at 6 months into the new graduate RN residency program ($M = 68.69$, range 23–115, $N = 216$). They found that higher levels of exposure to stressful events did not predict job satisfaction

Table 1
Characteristics of studies measuring compassion fatigue and retention in pediatric nurses with risk of bias assessment.

Author and Date	Evidence Type	Sample Information	Observable Measures	Limitations	Key Findings	Evidence Level/Quality
Branch and Klinkenberg (2015)	Purpose: To identify prevalence of compassion fatigue among staff nurses and other allied healthcare personnel AND to determine the relationship between demographic variables and risk for compassion fatigue Design: Descriptive cross-sectional quantitative survey	Sample: Direct Care providers (RN, APRN, allied health personnel) Size: $N = 274$ ($n = 179$ nurses, $n = 92$ allied healthcare professionals) Setting: St. Louis Children's Hospital	Professional Quality of Life Scale version 5 (ProQOL)	Staff on higher acuity patient units surveyed; response bias due to self-response measures; measures done at one single point in time	Compassion satisfaction, burnout, and secondary traumatic stress scores did not differ by age, work category, level of education, or work experience, but did show significant differences in scores by work unit	Level: III Quality: C
Flanders et al. (2019)	Purpose: To evaluate the impact of a staff resilience program on nursing turnover, employee engagement and compassion satisfaction among nurses Design: Quality Improvement Project, Retrospective pre-test and post-test design	Sample: Nurses working in PICU for minimum of 3 months Size: $N = 150$ Setting: 34 bed PICU in USA Children's Hospital in	Survey using 6 Press Ganey Employee engagement items on Likert scale; ProQOL	Time frame of evaluation; only post evaluation of engagement; single center study; turnover assessed during intervention so unsure of sustained impact.	Staff resilience program reduced RN turnover and improved employee engagement. RN turnover reduced by 6%, small statistical significance. A longitudinal study would be of interest to determine long-term results.	Level: III Quality: C
Li et al. (2014)	Purpose: To determine if group cohesion and organizational commitment can serve as protective factors against the negative effects of preexisting stress exposure and PTSD symptoms and current stress exposure and PTSD symptoms on negative nurse outcomes. Also, to determine if group cohesion and organizational commitment promote positive nurse outcomes Design: Descriptive longitudinal quantitative study design survey with time intervals at beginning of residency, after 3 months, and evaluating job satisfaction after 6 months.	Sample: Convenience sample of Nurses entering a Versant RN Residency Program Size: $N = 251$ Setting: Children's Hospital in Los Angeles	Life Events Checklist; PTSD Checklist Civilian Version; Compassion Satisfaction and Fatigue Test; Nurse Job Satisfaction Scale; Group Cohesion Scale; Organizational Commitment Scale	Not generalizable to other institutions, non-pediatric nurses, and veteran nurses; misalignment of data collection times, confounding variables could have influenced results	Group cohesion was effective in moderating the negative effects of current stress exposure and post-traumatic stress symptoms on negative nurse outcomes	Level: III Quality: C
Merk (2018)	Purpose: To determine the prevalence of compassion fatigue, burnout, and compassion satisfaction among nurses at study site AND to determine if there is an association between compassion fatigue, burnout, and compassion satisfaction and age, years of nursing experience, and nursing specialty Design: Cross sectional quantitative descriptive design using convenience sampling	Sample: RN Size: $N = 503$ Setting: Cincinnati Children's Hospital	Pro-QOL	Self-selection limitations. Results may not be representative of those who did not participate	Younger nurses and those working in critical care (PICU, ER) had higher levels of CF and burnout. ER and PICU scored higher CF and burnout scores vs Ambulatory, Per-operative, and Med-Surg. Generation-specific strategies suggested to address issues of CS, burnout, and secondary traumatic stress	Level: III Quality: C
Meyer et al. (2015)	Purpose: To investigate whether compassion fatigue mediated associations between nurse stress exposure and	Sample: Nurses entering the RN Versant Residency Program Size: N = 251	Life Events Checklist; Compassion Fatigue Self-Test; Mueller McCloskey Satisfaction Scale	Stressful life events measured generally and not specific to job stress; novice nurses; job satisfaction only	Stressful events exposure significantly related to more burnout and lower levels of job satisfaction and increased compassion	Level: III Quality: C

Table 1 (*continued*)

Author and Date	Evidence Type	Sample Information	Observable Measures	Limitations	Key Findings	Evidence Level/Quality
	job satisfaction, compassion satisfaction, and burnout, controlling for pre-existing stress Design: Quantitative Longitudinal study	Setting: Children's Hospital Los Angeles		measured at 6-month interval and not 3 months	fatigue scores; suggests employers should be aware of negative effects of job stress (compassion fatigue) and focus on a supportive work environment to alleviate negative outcomes	
Beaglas (1998)	Purpose: To gain an understanding of the experience of nurses caring for very, very low birth weight infants and to generate a substantive theory based on the analysis of the experience Design: Grounded Theory Study, Descriptive, Qualitative research study	Sample: Purposive sampling of neonatal nurses Size: 7 Setting: a NICU in Boston, MA, USA	Semi-structured interviews with 7 neonatal nurses, focus group with 4 neonatal nurses, consultation with 2 neonatal nurse experts and informal interviews and discussions with neonatal nurses	Limitations listed are constraints imposed by time, resources and researcher skill. Other limitations are general limitations of qualitative research. Small sample size may limit generalizability of results.	Ethical dilemmas faced by NICU nurses were associated with high job turnover. Compassion fatigue and vicarious suffering are referenced in terms of the cumulative effects of caring for very, very low birthweight babies.	Level: III Quality: C
Cooper (2019)	Purpose: To implement an evidence-based, educational intervention among pediatric oncology nurses who are at risk of developing compassion fatigue Design: Evidence-based, educational intervention with pre and post quantitative surveys using the ProQOL5 and a knowledge assessment survey for a DNP project, Voluntary, descriptive survey.	Sample: pediatric oncology nurses Size: 30 (21% response rate) Setting: inpatient acute care pediatric oncology/hematology/bone marrow transplant unit at Phoenix Children's Hospital	Pre and one-month post intervention survey using the ProQOL5 and CF knowledge assessment survey with demographics before and after an educational intervention	Limitations: Small sample size and lower response rate. Convenience sample that overrepresented women and day shift nurses. Only four weeks before the pre and post surveys.	Positive review of intervention and knowledge of compassion fatigue and resources improved post-intervention; however, no significant improvement in ProQOL scores. Literature reveals that compassion fatigue can lead to high turnover rates. Half of survey participants considered leaving pediatric oncology and 2 considered leaving nursing.	Level: II Quality: C
Herrle (2017)	Purpose: To explore how nurses in two pediatric critical care units use shared behaviors to help manage work-related grief and continue providing care in the stressful pediatric critical care environment Design: Focused ethnography qualitative survey design/interviews	Sample: PICU and CICU nurses Size: 33 (20 PICU and 13 cardiac ICU (CICU) nurses Setting: Cincinnati, Ohio	Structured study of focused ethnographies to observe every aspect of people groups through participant observation and culture immersion.	All nurses interviewed worked at one large pediatric hospital and thus findings may be limited and not necessarily transferable.	PICU and CICU have different strategies regarding grief management. Difficulty managing grief can lead to burnout and thereby contribute to attrition. Turnover is also expensive for hospitals; thus, the cost of unresolved grief is organizationally high. Both PICU and CICU nurses valued peer support. Leadership of both units provided similar support however was perceived differently by staff.	Level: III Quality: C
Johnson (2014)	Purpose: To examine the prevalence of compassion fatigue among pediatric nurses in free standing pediatric hospitals; to explore personal, experiential, and work characteristics as potential antecedents to compassion fatigue; and to determine whether or not these antecedents can help identify nurses with compassion fatigue or proclivity for compassion fatigue Design: Descriptive correlational quantitative research design	Sample: RNs and APRNs at 3 freestanding pediatric medical centers providing clinical care at least 50% of the time Size: 463 (16% response rate. Setting: Children's Healthcare Association freestanding pediatric medical centers: 1 in the American Southwest, 2 in the Midwest.	Established self-report survey instruments: ProQOL and Differentiation of Self & Role Inventory	Poor response rate (16%). Not representative of the entire US, only SW and MW represented. Results may not translate to pediatric nurses in other settings. ProQOL only measures at one point in time, not on a continuum. Methodological problems: over half of participants did not score into any of the five group categories of No Compassion fatigue, STS, Burnout, High-risk Situation, or Compassion Fatigue. The Zoomerang survey used had errors in the questions, particularly	11% of the study group identified as having compassion fatigue: significant enough to warrant further study. Site 1 had 16%, Site 2 had 8.6%, and Site 3 had 10%. Variables that tended to result in greater compassion fatigue were lower level of education and higher differentiation of self and role. The latter reflects difficulty separating personal from professional roles. Age, years as a pediatric nurse, years on unit and certification were not significantly related to	Level: III Quality: C

(*continued on next page*)

Table 1 (*continued*)

Author and Date	Evidence Type	Sample Information	Observable Measures	Limitations	Key Findings	Evidence Level/Quality
				the question about race and error not identified prior to distribution.	compassion fatigue. There were mixed results regarding critical care settings. Regarding practice implications, compassion fatigue can negatively impact RN satisfaction, unit morale, and staff turnover. Staff professional education and resources should be made available to RNs managing the demands and emotions caused by caring for suffering children.	
Johnson (2015)	Purpose: To describe and find meaning in the experiences of pediatric nurses who are exposed to and participate in the suffering and traumatic experiences of their patients Design: Qualitative interpretive descriptive design study	Sample: Pediatric RNs, English speaking, with at least one year of pediatric nursing experience. Maximum variation and snowball purposive sampling of Pediatric nurses Size: 17 Setting: variety of pediatric RNs practicing in a variety of pediatric specialties in diverse pediatric facilities, including school nurses with a wide range of years of experience.	Semi-structured interview guide that explored meaning and clinical implications on dealing with workplace pediatric traumatic events, particularly the themes of Defining Traumatic Experiences and Preventing Further Traumatization, Managing the Burden, and Making a Difference.	None identified	Pedi nurses' perception of being unable to provide quality care can increase turnover and intent to leave the nursing profession. High turnover on units can affect the well-being of the nurses on that unit and decrease their job satisfaction and mental well-being. Important measures to prevent negative consequences are professional boundaries, informal venting, humor, and support from colleagues/leadership. Added workplace stressors are insufficient staffing and this also impacts job satisfaction and retention.	Level: III Quality: B
McGibbon (2004)	Purpose: To undertake a reformulation of the nature of stress from a critical sociological stance, and from a feminist stance Design: Qualitative institutional ethnography study using interviews and observation methods	Sample: PICU nurses Size: 18 nurses Setting: PICU nurses in Toronto, Ontario, Canada	Study of nature of PICU nurse's stress using in depth interviews, observation, and focus groups	Limitations: some difficulty in coding some kinds of stress.	Nurses' stress is a complex phenomenon: its social mapping not only includes occupational stress., but also moral distress, and vicarious traumatic stress. It is ongoing and inescapable. Healthcare organizations may be complicit in not addressing it because nursing is primarily a female profession and much of nursing tasks are undervalued. For many nurses, the only escape is leaving the unit, organization, or even the nursing profession.	Level: III Quality: C
Ruehl (2013)	Purpose: To determine the effects of expressive writing on physical and psychological stress, occupational burnout, absenteeism, and coping behaviors in a population of nurses, considered to be most at risk for negative physical, psychological, ad behavioral outcomes Design: Randomized controlled quantitative study	Sample: pediatric hematology/oncology, PICU and NICU nurses employed at least 30 h/week, excluded individuals with significant physical or mental illness. Size: 29, attrition rate of 31% with only 19 in final analysis Setting: Rady Children's Hospital; SanDiego, CA, U.S.	Pennebaker written emotional expression intervention (30 min of expressive writing 1× weekly x 3 weeks). Pre and post intervention measures were obtained from Beck Depression Inventory, Profile of Mood States-Vigor Subscale, Maslach Burnout Inventory, Occupational Fatigue Exhaustion Recovery Scale, Dimensions of Stress-Control, Secondary	Limitations: Low sample size due to recruitment difficulties and then 31% attrition rate. Those who quit said they were too busy to continue.	Written disclosure has been found to help with emotional stress. No significant improvement in job satisfaction, absenteeism, but some improvement over time on depression, physical health symptoms, and secondary traumatic stress. Further research is needed due to low sample size and high attrition rate.	Level: I Quality: C

Table 1 (*continued*)

Author and Date	Evidence Type	Sample Information	Observable Measures	Limitations	Key Findings	Evidence Level/Quality
			Traumatic Stress Scale, Pennebaker Inventory of Limbic languidness, Posttraumatic Growth Inventory, Traumatic Life Events Questionnaire, Five-Facet Mindfulness Questionnaire, Ambivalence Expression Questionnaire, and Life Orientation Test.			
Thornton (2017)	Purpose: To determine the levels of compassion satisfaction and compassion fatigue among nurses caring for pediatric patients and how they relate to patient satisfaction Design: Descriptive quantitative design study	Sample: convenience sample Size:231 (51% response rate) Setting: Nurses working with children in inpatient or outpatient settings in a USA Southwest academic medical center	Online (web-based) demographic questionnaire and the ProQOL 5 tool for nurses; Press Ganey Patient Satisfaction Survey for patients/families	Limitations: relatively small sample size of nurses in pediatric units from one academic medical center system in one geographic location. Self-selection bias.	Nurses had a moderate to high level of compassion satisfaction, low burnout and low to moderate level of secondary traumatic stress. Unable to see relationship of patient satisfaction and nurse's compassion satisfaction in results. Open-ended responses on survey reflected work environment concerns and burnout which can affect morale and staff retention. Management support and interventions to promote work-life balance may help.	Level: III Quality: C

RN = registered nurse; APRN = advanced practice registered nurse; ProQOL = Professional Quality of Life Scale; CICU = cardiovascular critical care unit; PICU = pediatric critical care unit; NICU = neonatal critical care unit; USA = United States of America.

(i.e., nurses can be exposed to higher or lower levels of stress and job satisfaction scores are unaffected). A writing intervention by Ruehl et al. (2013) did not produce a significant change in job satisfaction, possibly because satisfaction was high in both groups at baseline (range = 31–54, scale 0–54). A fourth study by Cooper (2019) did not directly measure job satisfaction, but found that at baseline, 50% of pediatric oncology nurses expressed an intent to leave the specialty and 6.7% intended to leave the nursing profession. Due to the nature of the study, it is unknown to what extent this finding is related to CF.

Qualitative studies

Characteristics of the four qualitative studies included in the final sample are detailed in Table 2. Two were ethnography studies (Herrle, 2017; McGibbon, 2004), one was interpretive descriptive (Johnson, 2015), and one was a grounded theory study (Beoglas, 1998). Three of the studies were conducted in the USA (Beoglas, 1998; Herrle, 2017; Johnson, 2015) and one in Canada (McGibbon, 2004).

The qualitative studies represent a total sample of $n = 75$ participants, with a sample size ranging from 7 to 33 participants per study ($M = 19$). The overall sample included 9 males (12%). No studies reported trans, non-binary, or other gender identification categories, nor did they discuss how those populations may be affected by CF. Race data were reported in two of the four studies, and the sample was 86% White, 12% Black or African American, and 2% Multi-racial or Pacific Islander (Herrle, 2017; Johnson, 2015). Three of the studies involved samples of nurses from critical care settings (PICU, NICU, or CICU), and one involved nurses from mixed units, including school nurses' responses with the hospital-based nurses' responses (Johnson, 2015).

Several common themes and factors related to CF were described in the qualitative studies. Unresolved grief was described in two articles as a component of CF, burnout, and secondary traumatic stress (Beoglas, 1998; Herrle, 2017). The articles also described processing other distressing emotions related to traumatic experiences including dealing with feelings of powerlessness, uncertainty, conflicting emotions, and overcoming fear (Beoglas, 1998; Herrle, 2017; Johnson, 2015).

Moral-ethical conflict appeared in all four articles. Examples of moral-ethical conflict included disagreement with the treatment plan, withdrawal of care, resuscitation of complex patients, and concern about causing harm or pain to the patient. A related theme included attempting to make peace with patient outcomes (Beoglas, 1998; Johnson, 2015; McGibbon, 2004).

The Beoglas (1998) Grounded Theory Model explains the five stages of 'sustaining a precarious existence,' or the process of dealing with the daily cumulative trauma, uncertainty, and lack of control associated with care of fragile, critically ill, neonatal patients. The five stages include Overcoming Fear, Creating Normalcy, Connecting with the Baby and Family, Sustaining Life and the Connections, and Making Peace with the Outcomes. Although this theory was created in the context of neonatal patient care, it has relevance to other pediatric hospital-based patient care settings.

The theme of balancing professional and personal needs included the struggles of managing the burden of professional responsibility, connecting with the baby and family, sustaining life and connections, and believing they were making a difference (Beoglas, 1998; McGibbon, 2004). Creating some sense of balance and normalcy was a common thread woven in these qualitative articles as these nurses strived to maintain compassion satisfaction (Beoglas, 1998; Herrle, 2017; Johnson, 2015 & McGibbon, 2004).

Preventing further traumatization by building a protective shell and identifying protective factors were important to the nurses interviewed for these studies (Herrle, 2017; Johnson, 2015). Some strategies of self-protection, such as withdrawal and hiding feelings, could have negative implications for patient care if taken to an extreme (Herrle, 2017;

Table 2
Sample characteristics by qualitative or quantitative study design.

Variable	Quantitative Study Result (n/%)	Qualitative Study Result	Total (n/% of total)
Total Sample	$n = 1846$	n = 75	$N = 1921$
Sex ($n = 1244$)			
Female	1166 (63%)	66 (88%)	1232 (64%)
Male	78 (4%%)	9 (12%)	87 (5%)
Not Reported	602 (33%)	-	602 (31%)
Race ($n = 420$)			
White	286 (15%)	43 (57%)	329 (17%)
Black	12 (1%)	6 (8%)	18 (1%)
Asian/Pacific Islander	58 (3%)	1 (1%)	59 (3%)
American Indian	2 (<1%)	-	2 (<1%)
Other	12 (<1%)	-	12 (<1%)
Not Reported	1476 (80%)	25 (33%)	1501 (78%)
Ethnicity ($n = 405$)			
Hispanic or Latino	116 (6%)	-	116 (6%)
Not Hispanic or Latino	289 (16%)	-	289 (15%)
Not Reported	1441 (78%)	75 (100%)	1516 (79%)
Education Level ($n = 1179$)			
Diploma	10 (1%)	4 (5%)	14 (<1%)
Associate	207 (11%)	2 (3%)	209 (11%)
BSN	810 (44%)	10 (13%)	820 (43%)
MSN	127 (7%)	8 (11%)	135 (7%)
PhD/DNP	1 (<1%)	-	1 (<1%)
Not Reported	691 (37%)	51 (68%)	742 (39%)
Experience Level ($n = 1042$)			
Weighted Mean	8.94 years	11.72	9.12
Range	0–10+ years	0–37 years	0–37 years
Not Included	871 (47%)	8 (11%)	879 (46%)
Settings - Unit Type ($n = 981$)			
Critical Care (NICU, PICU, CVICU)	477 (26%)	62 (83%)	539 (28%)
ED/Urgent Care	105 (6%)	1 (1%)	106 (6%)
Acute Care	106 (6%)	1 (1%)	107 (6%)
Hem/Onc	90 (5%)	3 (4%)	93 (5%)
OR/PACU	43(2%)	-	43 (2%)
School/Community	60 (3%)	4 (5%)	64 (3%)
Other (Mental Health, Perinatal Special Care Unit)	27 (1%)	2 (3%)	29 (2%)
Not Reported or Unclear	938 (51%)	2 (3%)	940 (49%)

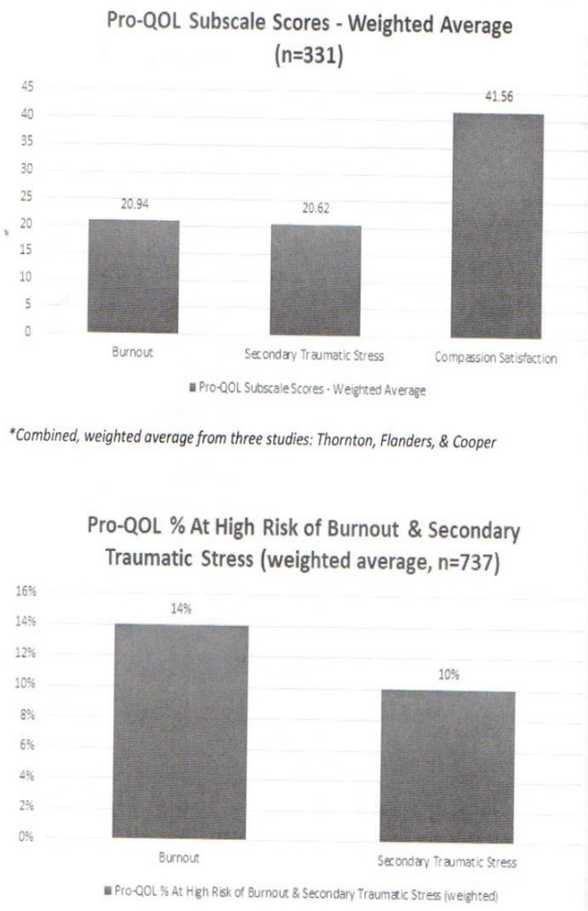


Fig. 2. Compassion fatigue in pediatric nurses – Results by Pro-QOL survey instrument.

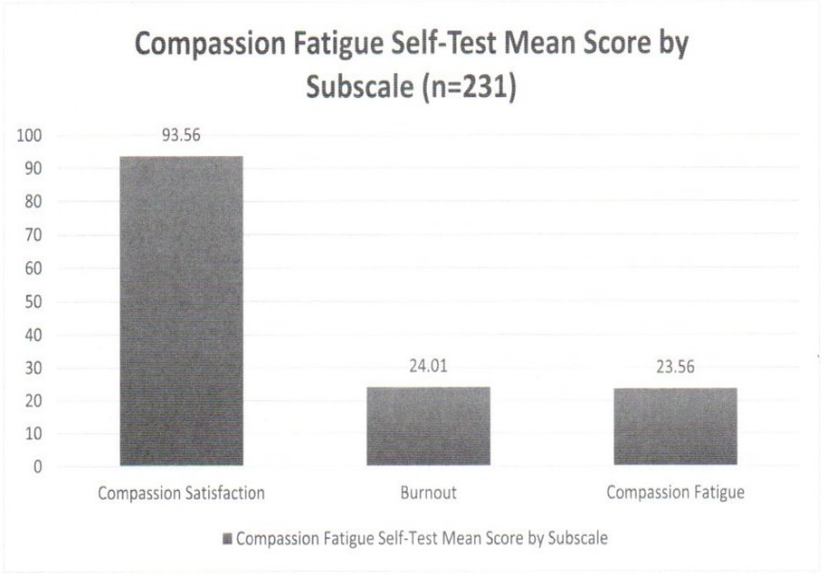
Johnson, 2015). As such, balancing withdrawal or hiding emotions with vulnerability was a protective factor. Two studies described the key role that leadership and peer support play in mitigating the effects of CF on turnover (Herrle, 2017; Johnson, 2015). Compassionate, appropriate leadership and peer support were described as protective factors. As found by Herrle (2017), although the leadership support structure was objectively similar across two units, the perception of the leadership support from the nurses on one unit was more negative. The quality of the relationships between leaders and the nurses who work for them can make the difference between a culture that protects against CF and burnout, and one that promotes it.

The articles described job satisfaction as arising from nurses' believing in the significance of their work, from facilitating peaceful transitions for patients, from continually learning on the job, and from leveraging love for their job on the best days to endure the hard days (Herrle, 2017; Johnson, 2015; McGibbon, 2004). Organizational support, debriefing, storytelling, and remaining open or vulnerable were suggested as strategies to improve retention and prevent burnout (Herrle, 2017). Although the authors speculate that preventing and addressing CF will reduce turnover, there was no direct evidence found that supports a relationship. Nonetheless, McGibbon (2004) concludes that hospital systems are dependent upon nurses enduring traumatic stress from shift to shift, and that unlike other types of trauma, in

Table 3
Compassion fatigue in pediatric nurses - results by compassion fatigue satisfaction survey instrument.

Variable	Measure of Compassion Fatigue		
	Pro-QOL* Prevalence (% at high risk)	CSF*	OEFR-15
Burnout	Low (14%)	Low	–
Secondary Traumatic Stress	Low (10%)	–	–
Compassion Satisfaction	High	High	–
Acute Fatigue	–	–	Moderate
Chronic Fatigue	–	–	Low
Intershift Recovery	–	–	High
Current PTSD Symptoms	–	Met Full Criteria - 7.3% Met Partial Criteria - 11.2%	–
Stress Exposure	–	89.2% of sample	–

* Based on weighted mean for studies reporting means for each instrument.



Survey Scale: Compassion Satisfaction, 0-130; Burnout, 0-80; Compassion Fatigue, 0-115

Fig. 3. Compassion fatigue in pediatric nurses – Results by compassion fatigue self-test survey instrument.

many cases nurses cannot withdraw from the trauma or stressor without leaving their job or the profession.

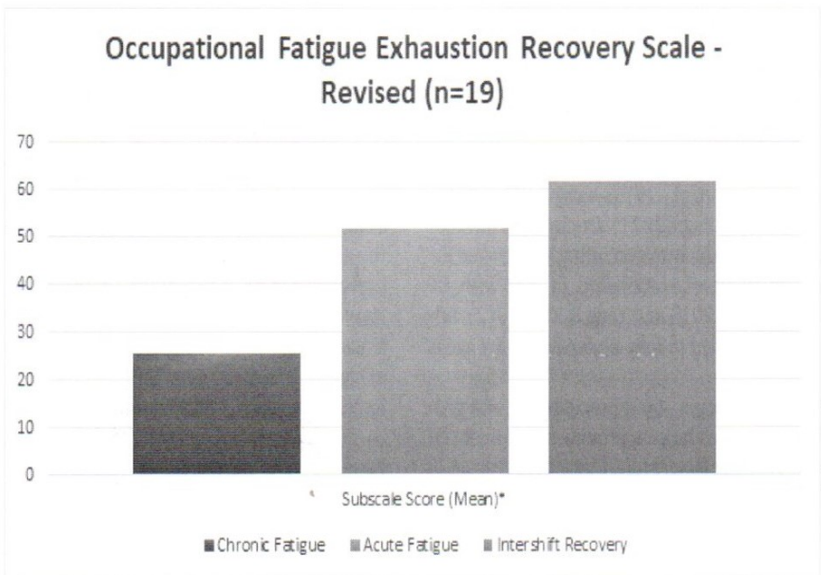
Risk of bias analysis

The evidence level and study quality were evaluated based on the Johns Hopkins Evidence Appraisal Criteria appropriate for the study design (qualitative or quantitative) and are detailed in Table 1. Eleven studies (85%) were Level 3, non-experimental and qualitative data. Most (85%) studies were considered low quality due to the risk of bias inherent in descriptive, cross-sectional, and qualitative study designs; lack of representative samples; small or convenience samples recruited from single sites; or use of general questionnaire responses that are not specific to the intervention being tested and may be measured at time points distal from the intervention or other study measures. (i.e., use of Press Ganey survey questions).

Discussion

This integrative review of thirteen studies describes CF in a total sample of $N = 1921$ pediatric RNs and APRNs. Results indicate that the overall prevalence of CF was low; however, a subset of nurses are vulnerable to CF and burnout. In the studies that measured the relationships between CF and job satisfaction, there was insufficient evidence to define an association; however, the qualitative studies inform us that CF has the potential to affect turnover. In general, our search revealed a paucity of research on this topic. Additional high-quality research is needed to describe a nuanced understanding of CF in pediatric nurses, along with the protective and precipitating factors, and appropriate interventions.

Study characteristic reporting was disparate, making it challenging to draw conclusions about differences by age, race, ethnicity, experience, work department, and education levels. Standardization is needed



Survey Scale: Chronic Fatigue, 0-60; Acute Fatigue, 3.3-73.3, Intershift Recovery, 30-83.3

Fig. 4. Compassion fatigue in pediatric nurses - Results by occupational fatigue exhaustion recovery scale - revised survey instrument.

to identify the characteristics of the nurses most vulnerable to CF, to understand precipitating factors, and to design targeted interventions. Some studies reported ranges and means, whereas others reported categories. We found inconsistencies in how groups were clustered when reporting results. For example, some studies reported results that included multiple units (e.g., ED and critical care or including school nurses in ED results) instead of reporting units individually, making it difficult to draw conclusions about the implications for specific units or practice settings. It is recommended that future studies include more detailed descriptions of sample characteristics to aid synthesis.

Findings indicate that the voices of racial and ethnic minorities, men, and those nurses who identify as trans- or non-binary gender are underrepresented in the research. Studies of CF in other healthcare professionals have reported higher CF in women than men (Aslan et al., 2021; Mooney et al., 2017; Roney & Acri, 2018). Branch and Klinkenberg (2015) observed that the men in their study tended to score lower on secondary traumatic stress, although the difference was not statistically significant. However, the conclusions may need to be reconsidered in the context of a more expansive definition of gender identification and roles. Instruments should be reviewed and updated as needed to ensure that they are valid for diverse samples. By studying a more representative sample, we may uncover new strengths, define new precipitating factors, or identify unmet needs.

Overall, CF in pediatric nurses is reported to be 27%, much lower than the 53% reported for the general population of nurses (Zhang et al., 2018). Our findings are consistent with previous literature but were found to be even lower in the current sample of articles than in Zhang et al. (2018). The pediatric specialties most frequently studied regarding CF involve caring for the sickest or most injured children: critical care, hematology/oncology, and pediatric emergency departments. The qualitative studies inform us that moral distress may arise from performing painful procedures on children, particularly when the child is not likely to have a positive outcome and the procedures seem to prolong suffering (Beoglas, 1998; McGibbon, 2004). Yet despite this potentially precipitating factor, some studies reported minimal or no CF in their samples (Flanders et al., 2019; Johnson, 2014; Thornton, 2017). Some nurses in high acuity units experienced significant CF (Branch & Klinkenberg, 2015; Cooper, 2019; Merk, 2018). Inconsistencies could be a result of the study design or instrumentation. In studies of nurses working with adult patients, nurses working in emergency departments and medical-surgical units report the highest levels of CF, while oncology and critical care reported lower levels of CF (Mooney et al., 2017; Sorenson et al., 2016).

The evidence about the relationship between age group and CF is inconclusive. Most of the studies in our sample found no difference; however, this may be due to the high risk of bias of the studies included instead of a true lack of difference in the population. The evidence is also inconclusive in the literature regarding nurses caring for adult patients (Aslan et al., 2021; Buckley et al., 2020; Cavanagh et al., 2020; O'Callaghan et al., 2020; Sorenson et al., 2016; Yang & Kim, 2012; Zhang et al., 2018). The Aslan & Pekince (2021) article reported that CF increased with age and years of work; however, other studies and literature reviews reported an inverse relationship of age with CF (Buckley et al., 2020; Sorenson et al., 2016 and Yang & Kim, 2012). Additional high-quality evidence is needed to fully understand how age is related to CF.

Our synthesis uncovered information about precipitating and protective factors. The qualitative studies help to provide some nuanced perspective on what the exacerbating factors for CF may be, particularly unresolved grief (Beoglas, 1998; Herrle, 2017) and moral distress (Beoglas, 1998; McGibbon, 2004). These may be areas for further study or measures to include in future research about the effects of interventions or mediating and moderating factors of CF. Protective factors identified in this review included group cohesion and staff support, effective leadership, differentiation of self and role, higher levels of compassion satisfaction, and acute physical fatigue. Staff support on the job helps nurses to speak with others in the trenches who understand their feelings and experiences. The role of informed and compassionate leadership cannot be understated as well: identifying staff at risk as well as those demonstrating symptoms of secondary traumatic stress is critical. We were surprised to find that noticeable acute fatigue that was detected by work colleagues or leadership was a protective factor. In this case, the emotional intelligence of perceptive leadership can provide interventions like providing a listening ear and needed support may help nurses to experience greater compassion satisfaction in their work again and not feel the need to leave their units, hospitals, or even the nursing profession.

The intervention studies in our sample tested an expressive writing intervention, a staff resilience and mindfulness program, and an educational intervention. Only the resilience program was reported to impact CF findings, but these were all studies with high risk of bias. More high-quality randomized controlled trials are needed to test CF interventions. In designing interventions, it is important that the CF and burnout not be considered as personal impediments or character flaws, but instead are a result of the work environment and healthcare system (Buckley et al., 2020).

The studies in this review found no significant relationship between CF, retention, and job satisfaction. Although many studies in nurses that care for adults or pediatric patients conclude that there is a relationship between CF and job retention, very few to none measured the relationships. Based on our findings, resolving CF may not have a significant effect on retention. However, the two studies that measured these relationships had a high risk of bias and their findings should be confirmed in future high-quality research studies. It is critical to know how much CF is causing pediatric nurses to leave their jobs so that targeted interventions can be created. CF may be more related to mental health outcomes, addiction and substance abuse, sleep and interference with daily activities, and nurse suicide than retention and turnover (Grabbe et al., 2021; Perret et al., 2020).

Limitations of the review

Although this review represents a comprehensive attempt to systematically identify all studies available on this topic, the analysis was limited to articles available in English. Thus, there may be other articles on this topic published in other languages that may provide additional insight into CF in pediatric nurses. Due to the small number of available quantitative studies and lack of standardized instruments to measure CF, a meta-analysis of results was not possible.

Conclusions

Findings from this review demonstrate that there is insufficient high-quality evidence to fully understand CF in pediatric nurses. Overall, CF prevalence was low, but we identified a subset of vulnerable nurses at high risk. There was no relationship between CF and retention in the sample of articles in this study. Knowledge gaps exist about the prevalence of CF, contributing factors, effects on retention, and short- and long-term effects of interventions. Leaders should study CF prevalence, relationships between CF and retention, and targeted strategies in high-risk nurses. Due to the potential implications of CF on the workforce, further research is warranted.

Funding

N/A.

Declaration of Competing Interest

The authors declare no conflict of interest in the conduct of this work.

Acknowledgments

The authors would like to thank the leadership support of Ascension Seton and Dell Children's Medical Center. This project was conducted as part of the RN Scholars Clinical Nursing Research Fellowship at Ascension Seton. Special gratitude is extended to all the pediatric nurses who work so tirelessly to care for the most vulnerable of patients.

References

Arslan, H., Erci, B., & Pekince, H. (2021). Relationship between compassion fatigue in nurses, and work-related stress and the meaning of life. *Journal of Religion and Health, 1–13.* https://doi.org/10.1007/s10943-020-01142-0.

Berglas, A. (1998). Sustaining a precarious existence: A grounded theory of nurses' experiences caring for very, very low birthweight infants. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/304432890?accountid=7118 Accessed November 1, 2021.

Branch, C., & Klinkenberg, D. (2015). Compassion fatigue among pediatric healthcare providers. *MCN, The American Journal of Maternal Child Nursing, 40*(3), 160–166. https://doi.org/10.1097/nmc.0000000000000133.

Buckley, L., Berta, W., Cleverley, K., Medeiros, C., & Widger, K. (2020). What is known about paediatric nurse burnout: a scoping review. *Human Resources for Health, 18*(1), 9–23. https://doi.org/10.1186/s12960-020-0451-8.

Cavanagh, N., Cockett, G., Heinrich, C., Doig, L., Fiest, K., Guichon, J. R., ... Doig, C. J. (2020). Compassion fatigue in healthcare providers: A systematic review and meta-analysis. *Nursing Ethics, 27*(3), 639–665. https://doi.org/10.1177/0969733019889400.

Cooper, J. M. (2019). Compassion fatigue among pediatric oncology nurses. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/2166890569?accountid=7118 Accessed November 1, 2021.

Dang, D., & Dearholt, S. L. (2018). *Johns-Hopkins nursing evidence-based practice: Model & guidelines* (3rd ed.). Indianapolis, IN: Sigma Theta Tau.

Figley, C. R. (1995). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized.* Routledge. https://doi.org/10.4324/9780203777381.

Flanders, S., Hampton, D., Missi, P., Ipsan, C., & Gruebbel, C. (2019). Effectiveness of a staff resilience program in a pediatric intensive care unit. *Journal of Pediatric Nursing, 50,* 1–4. https://doi.org/10.1016/j.pedn.2019.10.007.

Fletcher, J. (2007). What is heterogeneity and is it important? *BMJ, 334*(94). https://doi.org/10.1136/bmj.39057.406644.6.

Grabbe, L., Higgins, M. K., Baird, M., & Pfeiffer, K. M. (2021). Impact of a resiliency training to support the mental well-being of front-line workers: Brief report of a quasi-experimental study of the community resiliency model. *Medical Care, 59*(7), 616–621. https://doi.org/10.1097/MLR.0000000000001535.

Hemle, S. (2017). How pediatric critical care nurses manage their work-related grief: A focused ethnography. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/2225445191?accountid=7118 Accessed November 1, 2021.

Institute for Pediatric Nursing (2021). Pediatric Nursing Workforce Data. Retrieved fromhttps://ipedsnursing.org/pediatric-nursing-workforce-data.

Johnson, K. M. (2014). Prevalence of compassion fatigue among pediatric nurses. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/1546990058?accountid=7118 Accessed November 1, 2021.

Johnson, L. (2015). Exposure to childrens' traumatic events: Pediatric nurses' experiences. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/1682042975?accountid=7118 Accessed November 1, 2021.

Li, A., Early, S., Mahrer, N., Klaristenfeld, J., & Gold, J. (2014). Group cohesion and organizational commitment: Protective factors for nurse residents' job satisfaction, compassion fatigue, compassion satisfaction, and burnout. *Journal of Professional Nursing, 30*(1), 89–99. https://doi.org/10.1016/j.profnurs.2013.04.004.

McGibbon, E. A. (2004). Reformulating the nature of stress in nurses' work in pediatric intensive care: An institutional ethnography. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/305065827?accountid=7118 Accessed November 1, 2021.

Merk, T. (2018). Compassion fatigue, compassion satisfaction & burnout among pediatric nurses. *Air Medical Journal, 37*(5), 292. https://doi.org/10.1016/j.amj.2018.07.014.

Meyer, R. M. L., et al. (2015). Pediatric novice nurses: Examining compassion fatigue as a mediator between stress exposure and compassion satisfaction, burnout, and job satisfaction. *Journal of Pediatric Nursing, 30*(1), 174–183.

Mooney, C., Fetter, K., Gross, B. W., Rinehart, C., Lynch, C., & Rogers, F. B. (2017). A preliminary analysis of compassion satisfaction and compassion fatigue with considerations for nursing unit specialization and demographic factors. *Journal of Trauma Nursing, 24*(3), 158–163. https://doi.org/10.1097/JTN.0000000000000284.

O'Callaghan, E. L., Lam, L., Cant, R., & Moss, C. (2020). Compassion satisfaction and compassion fatigue in Australian emergency nurses: A descriptive cross-sectional study. *International Emergency Nursing, 48,* Article 100785. https://doi.org/10.1016/j.ienj.2019.06.008.

Perret, J. L., Best, C. O., Coe, J. B., Greer, A. L., Khosa, D. K., & Jones-Bitton, A. (2020). Prevalence of mental health outcomes among Canadian veterinarians. *Journal of the American Veterinary Medical Association, 256*(3), 365–375. https://doi.org/10.2460/javma.256.3.365.

Roney, L. N., & Acri, M. C. (2018). The cost of caring: An exploration of compassion fatigue, compassion satisfaction, and job satisfaction in pediatric nurses. *Journal of Pediatric Nursing, 40,* 74–80. https://doi.org/10.1016/j.pedn.2018.01.016.

Ruehl, B. D. (2013). The psychological and physical health effects of written emotional expression in pediatric hematology/oncology, intensive care, and neonatal intensive care nursing staff. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/1368074218?accountid=7118 Accessed November 1, 2021.

Sorenson, C., Bolick, B., Wright, K., & Hamilton, R. (2016). Understanding compassion fatigue in healthcare providers: A review of current literature. *Journal of Nursing Scholarship, 48*(5), 456–465. https://doi.org/10.1111/jnu.12229.

Sorenson, C., Bolick, B., Wright, K., & Hamilton, R. (2017). An evolutionary concept analysis of compassion fatigue. *Journal of Nursing Scholarship, 49*(5), 557–563. https://doi.org/10.1111/jnu.12312.

Stamm, B. H. (2010). *The concise ProQOL manual* (2nd ed.). Pocatello, ID: ProQOL.org.

Stamm, B. H., & Figley, C. R. (1996). Compassion satisfaction and fatigue test. Retrieved fromhttp://www.isu.edu/~bhstamm/tests.htm.

Thornton, M. (2017). Compassion satisfaction and compassion fatigue among pediatric nurses and the impact on patient satisfaction. *ProQuest Dissertations & Theses Global* Retrieved fromhttp://ezproxy.lib.utexas.edu/login?url=https://search-proquest-com.ezproxy.lib.utexas.edu/docview/1948797165?accountid=71 Accessed November 1, 2021.

Todaro-Franceschi, V. (2013). *Compassion fatigue and burnout in nursing.* New York, NY: Springer.

U.S. Department of Health and Human Services, Health Resources and Services Administration, & National Center for Health Workforce Analysis (2019). *Brief Summary Results from the 2018 National Sample Survey of Registered Nurses, Rockville, Maryland.*

Yang, Y. H., & Kim, J. K. (2012). A literature review of compassion fatigue in nursing. *Korean Journal of Adult Nursing, 24*(1), 38–51. https://www.koreascience.or.kr/article/JAKO201217136626082.pdf.

Zhang, Y. Y., Han, W. L., Qin, W., Yin, H. X., Zhang, C. F., Kong, C., & Wang, Y. L. (2018). Extent of compassion satisfaction, compassion fatigue and burnout in nursing: A meta-analysis. *Journal of Nursing Management, 26*(7), 810–819. https://doi.org/10.1111/jonm.12589.