

Review Article

Cite this article: Berger RS, Wright RJ, Faith MA, Stapleton S (2022). Compassion fatigue in pediatric hematology, oncology, and bone marrow transplant healthcare providers: An integrative review. *Palliative and Supportive Care* 20, 867–877. <https://doi.org/10.1017/S147895152100184X>

Received: 19 April 2021

Revised: 30 August 2021

Accepted: 31 October 2021


Key words:

Bone marrow transplant; Compassion fatigue; Healthcare providers; Hematology; Oncology; Pediatrics

Author for correspondence:

Rebecca S. Berger,
Johns Hopkins All Children's Hospital,
Cancer and Blood Disorders Institute,
501 6th Ave South, St. Petersburg, FL 33701,
USA. E-mail: rberge16@jhmi.edu

Compassion fatigue in pediatric hematology, oncology, and bone marrow transplant healthcare providers: An integrative review

Rebecca S. Berger, M.S.N.¹ , Rebecca J. Wright, PH.D., B.SC. (HONS), R.N.²,
Melissa A. Faith, PH.D., A.B.P.P.^{3,4} and Stacie Stapleton, M.D.¹

¹Johns Hopkins All Children's Hospital, Cancer and Blood Disorders Institute, St. Petersburg, FL; ²Johns Hopkins School of Nursing, Baltimore, MD; ³Center for Behavioral Health, Johns Hopkins All Children's Hospital, St. Petersburg, FL and ⁴Department of Psychiatry and Behavioral Sciences, Johns Hopkins University, St. Petersburg, FL

Abstract

Objective. Compassion fatigue (CF), which includes burnout and secondary traumatic stress, is highly prevalent among healthcare providers (HCPs). Ultimately, if left untreated, CF is often associated with absenteeism, decreased work performance, poor job satisfaction, and providers leaving their positions. To identify risk factors for developing CF and interventions to combat it in pediatric hematology, oncology, and bone marrow transplant (PHOB) HCPs.

Methods. An integrative review was conducted. Controlled vocabulary relevant to neoplasms, CF, pediatrics, and HCPs was used to search PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, and Web of Science MEDLINE. Inclusion criteria were the following: English language and PHOB population. Exclusion criteria were the following: did not address question, wrong study population, mixed study population where PHOB HCPs were only part of the population, articles about moral distress as this is a similar but not the same topic as CF, conference abstracts, and book chapters.

Results. A total of 16 articles were reviewed: 3 qualitative, 6 quantitative, 3 mixed methods, and 4 non research. Three themes were explored: (1) high-risk populations for developing CF, (2) sources of stress in PHOB HCPs, and (3) workplace interventions to decrease CF.

Significance of results. PHOB HCPs are at high risk of developing CF due to high morbidity and mortality in their patient population. Various interventions, including the use of a clinical support nurse, debriefing, support groups, respite rooms, and retreats, have varying degrees of efficacy to decrease CF in this population.

Introduction

Compassion fatigue (CF) is often described as the cost of caring by those caregivers [i.e., healthcare providers (HCPs) who perform direct clinical activities with patients] who experience trauma and suffering, as well as a caregiver's emotional burden of being unable to resolve suffering (Boyle and Bush, 2018; Sullivan et al., 2019). CF, according to the Professional Quality of Life Scale V, consists of both secondary traumatic stress and burnout (Stamm, 2010). Secondary traumatic stress is defined as stress related to learning about other people's previously suffered trauma (Stamm, 2010). Secondary traumatic stress is often associated with difficulty sleeping, intrusive images, and avoiding situations that remind the person of the stressful events (Stamm, 2010). Burnout, which is more gradual, is associated with hopelessness and difficulty doing one's work (Stamm, 2010). CF is linked with depression, exhaustion, anger, frustration, decreased job satisfaction, intrusive thoughts, and hopelessness (Stamm, 2010; Sullivan et al., 2019). HCPs as caregivers are at high risk of developing CF. Factors that increase HCPs' likelihood of developing CF include unresolved guilt and trauma, having limited experience in the healthcare profession, and utilizing ineffective coping skills (Wu et al., 2016; Boyle and Bush, 2018; Sullivan et al., 2019). Ultimately, CF often predicts HCPs' increased absenteeism and tardiness, providers' decreased work performance, and providers leaving their position (Boyle and Bush, 2018). Because CF is intricately linked with provider burnout, scholars recommend that researchers consider both constructs simultaneously (Wu et al., 2016).

In contrast to CF is compassion satisfaction, which is the pleasure a person obtains from their work and from helping other people (Stamm, 2010). Some research in HCPs indicates that CF can be mitigated by increasing resilience, the psychological concept that describes a person's ability to overcome negative experiences through personal growth and change (Zander et al., 2013). In one study of resilience, Zander et al. (2013) found that HCPs believe that resilience is a skill that can be cultivated life long, using their past positive and negative

experiences, and various self-care strategies including talking, seeking out support, and self-care.

A population of HCPs at particularly high risk of developing CF is those who work in pediatric hematology, oncology, and bone marrow transplant (PHOB). PHOB HCPs have elevated CF risk related to their repeated exposure to patients with significant morbidity and mortality (Boyle and Bush, 2018). Some PHOB HCPs may sacrifice their own psychological well-being for their patients, and these providers can develop long-standing relationships with families because of patients' prolonged, complex treatment courses (Wu et al., 2016). Additionally, PHOB HCPs must often cope with emotional burden as part of patient care, including burden associated with chemotherapy and other medical treatments, moral and ethical dilemmas, grief, bereavement, and managing boundaries with patients and families (Zander et al., 2013). Pediatric cancer, impacting children from birth through age 19, impacts approximately 300,000 children per year worldwide (World Health Organization, 2018). Cancer occurs globally; therefore, it is critically important that medical institutions recruit and retain enough HCPs to care for patients' physical and emotional needs. CF and workplace stress among PHOB HCPs occur globally, which can increase staff turnover and decrease the availability of providers for the vulnerable pediatric oncology population (Gi et al., 2011).

This paper presents an integrative review of what is known about CF in PHOB HCPs. As stress is a precursor to and is intricately linked with CF and burnout, a review of stress in PHOB HCPs is included. The following specific research questions guided the review: (1) "What leads to CF in PHOB HCPs and (2) What interventions are best to decrease CF in this population?" Although CF research among PHOB HCPs is limited, (Sullivan et al., 2019) a clear synthesis of best available evidence to characterize HCPs who are at the highest CF risk, identify risk factors and effective and emerging CF interventions may help guide clinical and policy decision-makers.

Methods

The integrative review followed the methodology of Whittemore and Knafl (2005). The search strategy was developed in consultation with a medical librarian. The following databases were used to search the literature: PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, and Web of Science MEDLINE. The search was performed in September 2020 with no limits placed on age, publication date, language, or type of article initially. The search strategy included the keywords "child" OR "adolescent" OR "infant" AND "physician assistant" OR "nurse" OR "nursing staff" OR "physician" AND "neoplasm" OR "hematologic diseases" OR "oncology" AND "CF" OR "vicarious trauma" OR "burnout" as Medical Subject Headings (MeSH) and individually as text words in titles and abstracts. Synonyms were included and truncation was used when appropriate to broaden the search.

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram in Figure 1 provides an overview of the process (Moher et al., 2009). COVIDENCE software was used to streamline and organize the review. The database search resulted in 192 records, with no other records added from other sources. After duplicates were removed, 117 records remained. Titles and abstracts were assessed for eligibility based on the following inclusion criteria: English language and PHOB population. Records were excluded for the following reasons: did not address question, wrong study population, mixed

study population where PHOB HCPs were only part of the population, articles about moral distress as this is a similar but not the same topic as CF, conference abstracts, and book chapters. The remaining 57 full-text articles were further reviewed. Additional reasons for exclusion on full-text review included inability to locate full text, personal interviews, and student course papers. For full articles that could not be located, an extensive search was completed to attempt to locate including contacting the authors and using the medical librarian. Sixteen records were included in the final synthesis (Figure 1).

Results

Characteristics of selected articles

A total of 16 articles published between 1997 and 2020 met the inclusion criteria for this review and were included in the final analysis. The Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) model was used to evaluate the quality and strength of records (Dang and Dearholt, 2017). This model, developed by Johns Hopkins University, guides the researcher to ask a question, search the evidence for answers, and critically appraise the evidence for value and relevance and helps the researcher to incorporate new findings into patient care (Dang and Dearholt, 2017). The studies included the following designs: literature review, quality improvement project, qualitative descriptive, quasi-experimental, mixed methods, and non-experimental.

Using the JHNEBP approach, articles were classified as research or non-research. Out of the included articles, three were qualitative, six were quantitative, three were mixed methods, and four were non-research papers. Research studies were given an evidence level of I, II, or III, while non-research articles were given a level of IV or V. Studies ranged from level III to V except for one study with evidence rating II. All studies had quality ratings of A/B or B except for one study with quality rating A. Refer to Table 1 for a summary of the evidence.

Studies took place in Australia (2), Brazil (1), Canada (1), Israel (1), the UK (1), and the USA (8). Studies included various types of PHOB HCPs, including nurses, nursing technicians, physicians, social workers, pharmacists, psychologists, and child life specialists. Ten articles focused solely on nurses. In two studies, participants worked only in pediatric bone marrow transplant. Except for Fanos (2007), who reported majority male participants, studies had a majority of female participation. Three distinct themes were identified: (1) groups at high risk of experiencing stress, (2) common sources of stress in PHOB HCPs, and (3) workplace interventions to mitigate stress.

High-risk populations for PHOB HCPs

PHOB HCPs with fewer years of work experience, especially those with less than 5 years of work experience, and those under age 40 years, were at higher risk than their colleagues of developing CF (Chang et al., 2007; Gallagher and Gormley, 2009; Hecktman, 2012; Boyle and Bush, 2018). Those who work the night shift reported higher levels of stress and perceived having less emotional support than day shift colleagues (Chang et al., 2007; Gallagher and Gormley, 2009). Females tended to report greater depressive symptoms (Fanos, 2007) and have higher rates of CF than men (Weintraub et al., 2020). PHOB HCPs with a history of a close friend or family member's death and/or unresolved trauma in their personal lives were more likely to experience burnout and

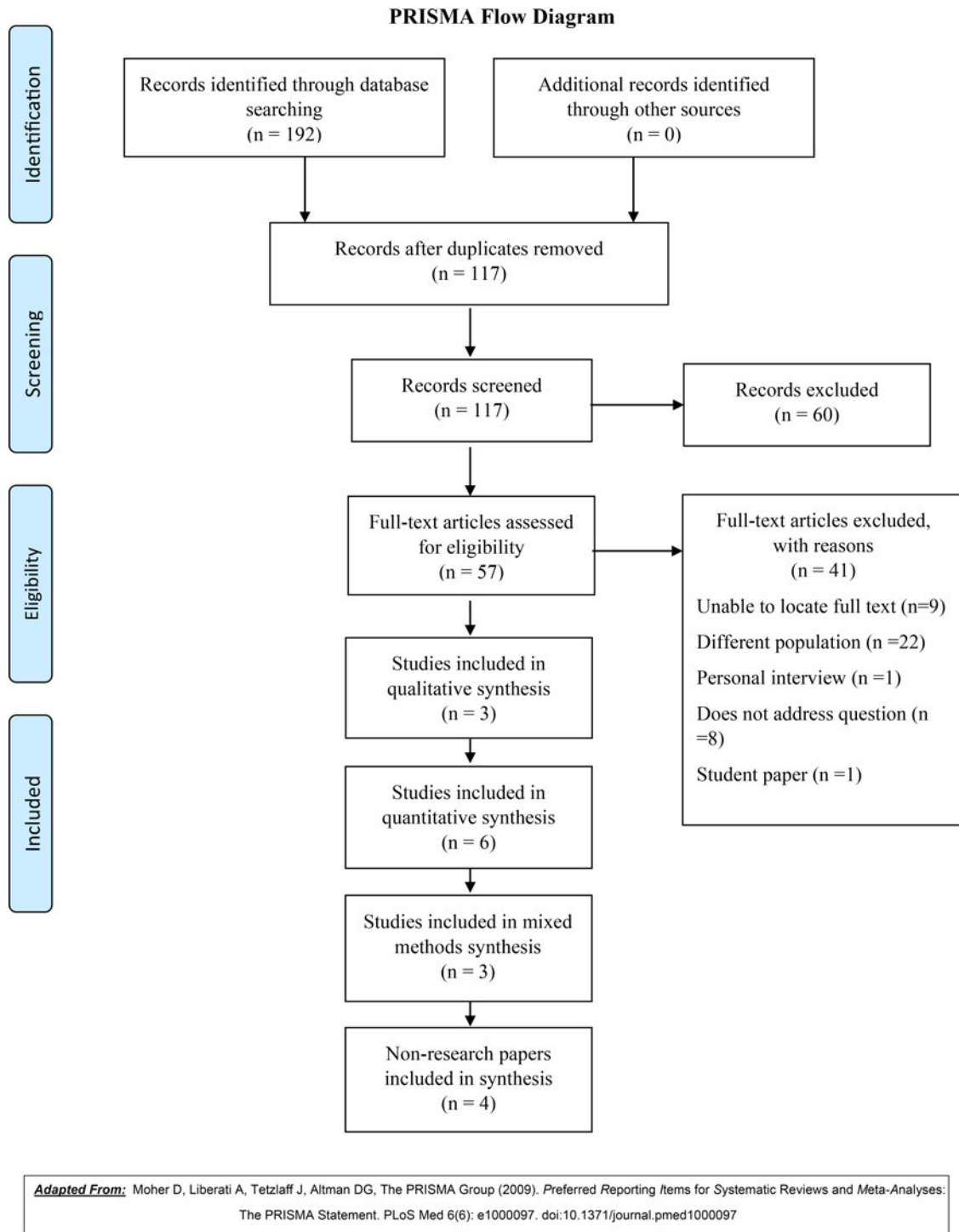


Fig. 1. PRISMA flow diagram.

CF (Fanos, 2007; Boyle and Bush, 2018). Personal history of health issues including childhood illness was associated with increased emotional exhaustion (Fanos, 2007; Zanatta and Lucca, 2015).

Sources of stress in PHOB HCPs

Not surprisingly, working with children who are dying and frequently witnessing multiple deaths in a short time were the most stressful facets PHOB HCPs reported about their career

(Kushnir et al., 1997; Fanos, 2007; Gallagher and Gormley, 2009; Zander et al., 2013; Bowden et al., 2015). Additionally, HCPs reported that witnessing suffering while feeling helpless to fix it and witnessing patients' deterioration following relapse are stressful (Kushnir et al., 1997; Fanos, 2007; Zander et al., 2013; Bowden et al., 2015; Boyle and Bush, 2018).

Nurses, specifically, reported additional sources of stress. These included having complex role responsibilities because of the demanding field in which they work (Heckman, 2012;

Table 1. Individual evidence summary

Author and date	Evidence type	Sample, sample size, setting	Study purpose	Findings that help answer the EBP question	Observable measures	Limitations	Evidence level, quality
Altounji et al. (2013)	Convergent Mixed Methods Nonexperimental with Qualitative Descriptive Study	Pediatric hematology & oncology nurses at Children's Hospital Los Angeles, USA (<i>n</i> = 64) Attended one of three 8-h self-care retreats	Create three off-site self-care retreats for pediatric hematology & oncology nurses to decrease stress and provide coping strategies for ongoing stress	Retreat overall created sense of rejuvenation among nurses, especially yoga and massage Participants reported increased morale and revived passion for job after retreat Participants reported feeling appreciated with the retreat	5-point Likert-type scale evaluating the self-care retreat Written comments on the evaluation form following the self-care retreat	No surveys of nurses' stress or burnout pre-retreat for comparison Copy of the survey not shown, reliability not discussed, survey created by institution for the purpose of study Single institution may limit ability to generalize	Level III Quality B
Beresford et al. (2018)	Nonexperimental	Pediatric oncology staff-physicians, nurses, pharmacists, social workers, radiologists, play specialists, youth workers across 19 UK pediatric cancer Principal Treatment Centres (PTC)	Explore staff support systems available in children's cancer PTC in the UK	Reported on various on-off and ongoing support available to pediatric cancer staff	Survey designed for the study performed on Survey Monkey to evaluate support available to pediatric cancer staff	Only 1–2 people responded to survey at each PTC Copy of the survey not shown, reliability not discussed, survey created by institution for the purpose of study	Level III Quality B
Bowden et al. (2015)	Nonexperimental	Pediatric oncology staff at two hospitals in Melbourne, Australia (<i>n</i> = 107) Medical <i>n</i> = 16 Nursing <i>n</i> = 67 Allied health <i>n</i> = 24	Examine sources of stress and reward for pediatric oncology staff	Discuss intensity of sources of workplace stress & reward for various pediatric oncology staff highlighting differences by provider type	Work stressors Scale — Pediatric Oncology Work Rewards Scale — Pediatric Oncology	Majority of participants nurses (from authors): Low response rate of around 50% Mostly female participants Burnout and stress sensitive topic for some people who may not want to participate	Level III Quality B
Boyle and Bush (2018)	Literature Review	141 articles ranging from 1980 to 2018 Setting of articles not specified	Describe emotional sequela of pediatric oncology nurses' jobs including possible interventions to support them	Describe causes of distress in pediatric oncology nurses Describe at length types of distress prevalent including: • Burnout • CF • Moral distress • Grief Describe possible interventions to decrease distress	Literature review looking at emotional sequela of pediatric oncology nursing	No limitations	Level V Quality A
Chang et al. (2007)	Quasi-experimental	Pediatric oncology nurses at a large Canadian health and research center (67 eligible, 58 completed)	Explore impact of clinical support nurse (CSN) on pediatric oncology nurses' stress	Significantly lower levels of stress during shift with CSN Nurses age 40 and younger experienced more work-related stress when CSN not present	Stressor Scale for Pediatric Oncology Nurses (SSPON)	From authors: small sample size and one unit in one hospital True pre-test/post-test not feasible as CSN role already implemented at time of study Authors analyzed subscales of SSPON which has not been tested, it is meant for total scores	Level II Quality B

Fanos (2007)	Convergent Mixed Methods Nonexperimental with Qualitative Descriptive Study	Pediatric oncologists throughout the USA (n = 30)	Identify early experiences with illness and death and identify coping strategies for dealing with stress among pediatric oncologists	Themes emerged about impact of childhood illness and trauma on career choices Themes emerged regarding sources of stress and sources of support personal coping strategies emerged	Open-ended interviews regarding experiences of childhood death and illness and current coping strategies in pediatric oncologists Anxiety and depression scales	Physicians interested in discussing their personal experiences with death and stress more likely to participate Majority of participants male (n = 25) Copies of anxiety and depression surveys not shown, reliability not discussed	Level III Quality B
Gallagher and Gormley (2009)	Nonexperimental	Inpatient pediatric bone marrow transplant (BMT) nurses in a large, academic pediatric medical center in the midwestern USA (n = 30)	Identify pediatric BMT nurses' perceptions of stress and burnout and current support systems available at work	Majority of participants reported high levels of emotional exhaustion As years of nurse increased, feelings of depersonalization and emotional exhaustion decreased, and personal accomplishment increased Most stressful factors of nursing were identified Majority of nurses uncertain of helpfulness of support systems that are in place	Maslach Burnout Inventory Demographic Questionnaire	From authors: small sample size Single setting Use of self-reports only	Level III Quality B
Heckman (2012)	Literature Review	Studies from 2000 to 2011 from PubMed Plus, CINAHL, Medline, PsycINFO, Sociological Abstracts, & Social Work Abstracts	Provide general overview of stress experienced by pediatric oncology nurses and provide interventions to combat CF and burnout	Define stress, compassion fatigue, & burnout providing etiologies in PHOB nurses Defines groups at high risk of experiencing various types of stress, burnout, and CF Provide various interventions that have been explored in the literature	Literature review looking at stress in PHOB nurses and interventions to decrease CF and burnout	Literature review about PHOB nurses, however included several articles about adult oncology nurses Discussed inclusion criteria, but not exclusion criteria Description about CF and burnout and factors leading to them is brief	Level V Quality B
Hinds (2000)	Literature Review	Review of six studies at St. Jude Children's Research Hospital (SJCRH), USA	Summarize series of six studies conducted at SJCRH looking at role-related stress in pediatric oncology nurses including description of two models that guided the research	Identified common stressors of nurses Single time limited grief support workshop did not decrease stress in nurses	Literature review about work-related stress in pediatric oncology nurses	Review of studies from single institution Reason for inclusion of these specific studies not defined	Level V Quality B
Kushnir et al. (1997)	Qualitative Descriptive Study	Pediatric oncology nurses in one hospital, country not identified (n = 15)	Describe sources of stress in group of pediatric oncology nurses and provide description of attempted intervention	Multiple sources of stress for nurses Death and dying most prevalent and distressing source of stress	Every other week in person Balint-type group sessions for 1 year to reduce stress and prevent burnout in pediatric oncology nurses	All participants female Timing of sessions limited who could participate based on shifts Nurses more interested in seeking support and speaking publicly about stress more likely to participate which may limit ability to generalize to all nurses	Level III Quality A/B

(Continued)

Table 1. (Continued.)

Author and date	Evidence type	Sample, sample size, setting	Study purpose	Findings that help answer the EBP question	Observable measures	Limitations	Evidence level, quality
Moody et al. (2013)	Convergent Mixed Methods Randomized Control Study Mixed with Qualitative Descriptive Study	Pediatric oncology HCPs (physicians, nursing, child life, social work, psychology) in Children's Hospital Montefiore, NYC, USA and Schneider Children's Hospital, Petach Tikva, Israel • Control group ($n = 24$) • Intervention group ($n = 23$)	Test efficacy of mindfulness course given to pediatric oncology HCPs in the reduction of stress, burnout, and depression	No difference in baseline or follow up in burnout, stress, or depression scales in either group Scores reflected high levels of burnout and stress in majority of participants Intervention group reported on major themes regarding burnout and stress in journals	Intervention group participated in 8-week mindfulness-based course- narrative data analyzed from their journals Maslach Burnout Inventory Perceived Stress Scale 14 Beck Depression Inventory	From authors: small sample size Majority of participants female Lack of intervention in control group Lack of blinding	Level III Quality B
Morrison and Morris (2017)	Qualitative Descriptive Study	Pediatric BMT nurses in large midwestern hospital in the USA ($n = 24$) General focus groups with managers ($n = 2$) and caregivers of patients ($n = 7$) held to add support to participant data	Describe and analyze the experiences and care meanings of pediatric BMT nurses within the context of their clinical practice	Identified numerous sources of work-place stress for BMT nurses BMT nurses brought up feelings of conflict with other HCPs BMT nurses reported on coping skills	Focus groups using inquiry guide about practices and meanings of care in pediatric BMT nurses	Nurses interested in discussing stress may be more likely to participate in focus groups From authors: majority of nurses new graduates Unit where study was performed may be unique: 24 beds dedicated to BMT with multiple BMT-specific resources Majority of patients with immune system disorders, other pediatric BMT centers may see more malignant disorders	Level III Quality A/B
Sullivan et al. (2019)	Quality Improvement Project	Pediatric oncology nurses at St. Jude Children's Research Hospital, USA 59 nurses enrolled, 37 completed follow up	Design evidence-based CF program for pediatric oncology nurses and evaluate it's impact on CF and compassion satisfaction of nurses	Structured intervention for CF for pediatric oncology does not exist; authors used variety of interventions found in literature Overall scores of burnout and secondary traumatic stress improved minimally although was not statistically significant	Professional Quality of Life Scale V Connor-Davidson Resilience Scale-2 Brief COPE Scale	Single institution may limit ability to generalize From authors: young age of participants (majority age 20–29) Short duration of study (6 months) Inpatient setting only	Level V Quality B
Weintraub et al. (2020)	Nonexperimental	Practicing PHOB physicians throughout the USA 1,771 surveys delivered, 496 returned, 363 used in final analysis	Study relationship between burnout, compassion satisfaction, and CF in pediatric oncologists and identify risk factors	Personal and work-related factors leading to burnout and CF explored Strong positive correlation between compassion fatigue and burnout	Modified version of CF and satisfaction self-test for helpers	From authors: majority of respondents female & white Majority of respondents work in academic medical centers & are junior level faculty Low response rate, however, within acceptable rate for online surveys	Level III Quality B

Zanatta and Lucca (2015)	Nonexperimental	Physicians, nurses, and nursing technicians of a pediatric oncology unit in Brazil (<i>n</i> = 188)	Identify prevalence of burnout in pediatric oncology HCPs in hospital in Sao Paulo	Underlying health issues positively correlated with emotional exhaustion and depersonalization	Biosocial questionnaire Maslach Burnout Inventory Human Services Survey version	Majority of participants female Majority of participants nursing technicians Single institution Surveys taken at one point in time, no intervention to assess change in burnout scores	Level III Quality B
Zander et al. (2013)	Qualitative Descriptive Study	Pediatric oncology nurses of an Australian tertiary metropolitan pediatric hospital (<i>n</i> = 5)	Explore pediatric oncology nurses' perceptions of resilience and how it helps them cope with work-related stressors	Nurses discussed: <ul style="list-style-type: none"> • sources of stress in their field and among all nurses • personal forms of strength to build resilience • how personal and professional experiences impact experiences with stress and resiliency 	Semi-structured interviews regarding resilience and workplace stressors in pediatric oncology nurses	Nursing care in Australia may be different than other countries From authors: Australian pediatric oncology units smaller than others internationally, impacting number of nurses to pull from intended focus group did not occur as no participants consented	Level III Quality A/B

Zander et al., 2013; Boyle and Bush, 2018). Other causes for increased stress were frequent short staffing, shift work, and conflicts with colleagues (e.g., perceiving that their opinions are not valued by management and/or medical staff) (Kushnir et al., 1997; Gallagher and Gormley, 2009; Hecktman, 2012; Zander et al., 2013; Morrison and Morris, 2017; Weintraub et al. (2020) similarly reported conflicts with colleagues as a source of stress for physicians. Because of the nature and chronicity of the diagnoses, many PHOB HCPs described having complex relationships with patients' families, sometimes perceiving that they have been surrogate caregivers (i.e., performing the parental role) for patients when parents cannot be at the bedside. The advent and increasing usage of social media exacerbate these issues, leading to the increasingly common blurring of professional boundaries with families (Kushnir et al., 1997; Gallagher and Gormley, 2009; Hecktman, 2012; Morrison and Morris, 2017; Boyle and Bush, 2018). Social media leads to increased opportunities for the crossing of professional boundaries by allowing HCPs to have relationships with patients and their families outside of work. Through social media, HCPs share personal information, pictures, and videos and write messages to families outside of work, which may impact their personal life (Boyle and Bush, 2018). All of this that has been found about social media is consistent with decades of research that has shown nurses are at particularly high risk of breaching therapeutic relationships with their patients (Manfrin-Ledet et al., 2015).

Workplace interventions to mitigate stress in PHOB HCPs

Per the integrative review, most interventions to mitigate PHOB provider stress have not been widely studied. Various types of group offerings, such as debriefing sessions following patient deaths and support groups, appear to have some benefit for PHOB HCPs (Kushnir et al., 1997; Beresford et al., 2018; Boyle and Bush, 2018). However, Hinds (2000) reported that a single group workshop without continued follow-up may be harmful because such an offering could bring stressful feelings to the forefront of the HCPs' minds without a further outlet. Specific for nurses, having access to a clinical support nurse (CSN) may decrease nurses' work-related stress (Chang et al., 2007; Hecktman, 2012; Boyle and Bush, 2018). The CSN does not have a patient assignment, but rather provides additional assistance to nurses and patients, thus increasing nurses' perceptions of workplace support (Chang et al., 2007). Social workers, psychologists, and chaplains are important parts of intervention programs to provide additional expertise and support (Hecktman, 2012; Beresford et al., 2018; Boyle and Bush, 2018). Education regarding sources of stress and ways to mitigate stress also appears to decrease PHOB HCPs' stress levels (Boyle and Bush, 2018; Sullivan et al., 2019).

Published studies discussed several unique, comprehensive intervention programs. Moody et al. (2013) reported on an 8-week mindfulness-based course for PHOB HCPs, for which subjective data from diaries show benefits of the course with decreased stress, more inner peace, fewer somatic complaints, and improved compassion and joy. Altounji et al. (2013) trialed a full-day retreat away from the hospital for PHOB nurses consisting of multiple presentations and discussions, yoga, massage, and a walk on the beach with participants reporting rejuvenation and revived passion for their job following the retreat. Sullivan et al. (2019) created a program that included various types of education (i.e., sleep hygiene, nutrition, and CF), development of a respite

room with yoga mats for PHOB HCPs, and monthly remembrance times to honor deceased patients. The utility of such programs is variable. Despite the subjectively reported benefits of these comprehensive interventions to decrease provider stress and burnout, objective findings are less consistent. For example, Sullivan et al. (2019) and Moody et al. (2013) did not find statistically significant decreases in objectively assessed burnout and stress.

Discussion

Minimizing the PHOB HCPs' CF is imperative for healthcare organizations because it can lead to a myriad of HCPs' physical and psychological problems that can predict provider burnout, provider absenteeism, and HCPs leaving their positions (Stamm, 2010; Boyle and Bush, 2018; Sullivan et al., 2019). PHOB is a field with constant exposure to suffering, death, relapses, difficult family scenarios, and challenging treatment regimens, all of which increase the likelihood of provider CF (Zander et al., 2013; Boyle and Bush, 2018). Although PHOB HCPs should learn personal techniques to cope with stress, hospitals should proactively have interventions in place to minimize the stress and CF for which this vulnerable population is at risk. This integrative review highlights sources of stress for PHOB HCPs as well as interventions that may mitigate PHOB HCPs' CF.

Four of 16 included articles found that younger HCPs and those newer to the field are at particularly high risk of stress that may contribute to developing CF (Chang et al., 2007; Gallagher and Gormley, 2009; Hecktman, 2012; Boyle and Bush, 2018). Organizations should be aware of CF risk and should tailor interventions for new employees. Additional research is needed to determine whether new PHOB HCPs would benefit from education about CF, CF resources, and appropriate CF coping during new-employee orientation, as part of a broader intervention. Future studies may also evaluate whether new PHOB HCPs could benefit from CF-specific mentorship from a more senior member of their department. Future studies may evaluate the relative value of education, mentorship, and other sources of support for new employees. Additionally, given that there tends to be more support available during the day, nightshift HCPs often report additional stress in comparison to their day-shift colleagues (Chang et al., 2007; Gallagher and Gormley, 2009). When looking at interventions to decrease CF, organizations should be aware and should look at interventions that are available for nightshift as well, to ensure that all staff are equally supported.

This integrative review sought to answer the question "What leads to CF in PHOB HCPs?" The literature uncovered multiple likely contributors to PHOB HCPs' stress. Although factors such as witnessing death and suffering cannot be changed, HCPs report several potentially modifiable sources of workplace stress, including short staffing, shift working, and conflict with colleagues (Kushnir et al., 1997; Gallagher and Gormley, 2009; Hecktman, 2012; Zander et al., 2013; Morrison and Morris, 2017; Weintraub et al., 2020). Management should be aware of the impact of short staffing and conflict on the psychological health of their employees and do their best to minimize these experiences from occurring. Future research should evaluate whether team-building exercises, conflict resolution training, and/or rounding meetings in which HCPs can voice staffing/shift concerns with administrators could help mitigate PHOB HCPs' workplace stress and, ultimately, their CF.

Although not yet studied, factors associated with HCPs' self-selected career paths (e.g., individual characteristics and personality traits) could also explain variance in HCPs' CF over time. Using non-HCP samples, previous studies have found that personality characteristic variation tends to predict workplace stress and burnout (Alarcon et al., 2009). Furthermore, scholars have posited that HCPs' personality traits play a role in their choice of healthcare discipline and subspecialty (Vijendren et al., 2016), making HCPs' personality characteristics a potential confound in evaluating CF across disciplines. Consistent with the notion that some HCPs may self-select their discipline and subspecialty based on preexisting individual characteristics, researchers have found that a subset of nurses enters the nursing profession as an opportunity to care for other people and that nurses tend to be high in traits related to empathy and altruistic ideals (Eley et al., 2002). Regarding physicians, extant research has shown that physicians' personality traits tend to differ by subspecialty (Pappas et al., 2016; Surbeck et al., 2020), but that physicians, in general, may be particularly high in extroversion compared to other personality dimensions (Kwarta et al., 2016). Individual characteristics, like personality traits, that vary across and within different HCP subspecialties may play a role in the extent to which some HCPs may be at greater CF risk than others. Indeed, HCPs' individual characteristics, including characteristics that may have influenced their decision to enter their chosen discipline and field, may offer an important avenue for future research to identify potential CF predictors. Further research is needed to further identify individual characteristics that predict CF as well as whether CF intervention effectiveness may be moderated by these individual characteristics. This integrative review also sought to answer the question "What interventions are best to decrease CF in PHOB HCPs?". The literature identifies various interventions to combat PHOB HCPs' CF. Unfortunately, most interventions lack robust empirical efficacy data, and additional research is needed to identify specific protective mechanisms of change in these interventions. These data are similar to that found in adult oncology nurses. In an integrative review of interventions to combat CF for adult oncology nurses, Wentzel and Brysiewicz (2017) found that single-day retreats, yoga, education-based classes, use of psychosocial professionals in interventions, music-based interventions, and mindfulness-based courses were the most effective. Although multi-day courses may be of benefit, when they occur outside regular work hours, they may be challenging for staff who must balance their demands at home with work life. For single-day retreats, employers should consider offering several sessions and should work with staff to allow adequate clinical coverage for everyone interested in attending the retreat. Given that many PHOB HCPs are consistently exposed to stressors that put them at risk of developing CF, additional studies of interventions that span greater periods are warranted. These studies should also longitudinally track PHOB HCPs' stress, burnout, and CF to evaluate whether initial intervention gains persist over time (Boyle and Bush, 2018).

Multiple studies about PHOB HCPs reported on the benefit of debriefing after patient deaths and noted the importance of including psychological support in any intervention to combat CF (Kushnir et al., 1997; Hecktman, 2012; Beresford et al., 2018; Boyle and Bush, 2018). Hospitals can implement regular group debriefing sessions for PHOB HCPs following patient deaths and challenging patient experiences in collaboration with social workers, psychologists, and chaplains. Additionally,

hospitals may implement one-on-one sessions for PHOB HCPs with psychological support staff for individual concerns. Due to the benefit of a CSN in decreasing stress for PHOB nurses, PHOB institutions should consider opening a position of CSN to offer additional support to the bedside nurse (Chang et al., 2007; Hecktman, 2012; Boyle and Bush, 2018). In general, the CSN is a more senior nurse who does not hold a clinical assignment that day, which nurses report aids in decreasing work-related stress (Chang et al., 2007). For hospitals that are unable to hire CSNs, nurses with greater experience in the field and leadership potential may be able to fill the functions of this role. For example, charge nurses and other senior nurses in leadership positions are often available to assist bedside nurses, even in the absence of a true CSN.

Based on current literature, it is unclear which interventions are the best to reduce PHOB HCPs' CF. Findings from this paper should be taken as suggestions until additional research is able to replicate the findings. Interventions may be different for everyone, and some staff may not require interventions. A combination of several of the interventions discussed may be beneficial to ensure that all staff can benefit. PHOB leadership should consider the specific needs of their staff, funding, and their organization's feasibility when identifying interventions to combat CF. Management must consider the financial implications of these programs, and institutions may need to seek grant funding for more costly intervention programs (e.g., retreats and multi-session courses). These financial considerations should consider the financial burden associated with PHOB provider burnout and turnover, which may be mitigated by effective CF intervention programs. Given that some institutions do not have funding to devote to CF interventions, research is needed to identify low-cost and no-cost interventions.

A gap in this literature is that most of the research on PHOB provider CF is specific to nurses. In this review, 10 of the articles were specific to nurses, 2 focused on physicians only, and 4 included multiple types of caregivers, including physicians, nurses, psychologists, child life specialists, and social workers. Although physicians were in only a minority of the studies, these studies were included as the paper aimed to evaluate the role of the interdisciplinary team on CF. Similar to the research in nurses, Fanos (2007) discovered that physicians find the time of relapse and death to be the most stressful time. Additionally, male physicians struggle to discuss their emotions more than female physicians, similar to the literature with nurses (Fanos, 2007). Physicians with a history of personal life-threatening illness, loss of loved one, and survival of violence have higher rates of CF and burnout (Fanos, 2007; Weintraub et al., 2020). PHOB physicians find a variety of ways to cope with the stress of the career, including focusing on the patients who survive, immersing themselves in research, exercise, engaging in creative arts, prayer, socializing with others, and developing hobbies (Fanos, 2007; Weintraub et al., 2020). Nurses are at the patient bedside at all hours day and night, while other HCPs may more readily come and go, which may explain why much of the CF literature focuses solely on nurses. Additional research is needed to further explore CF in physicians, physician assistants, nurse practitioners, and other members of the team, including factors that predict CF and interventions to mitigate CF, as sources of stress may be different from those of bedside nurses. Future work may also choose to evaluate CF among the psychosocial team members who support PHOB populations, as a dearth of literature has explored this group's risk factors.

Limitations

There were several limitations of this integrative review. Five of the articles occurred outside of the USA, although all in Western countries, with a sixth (Moody *et al.*, 2013) set in both the USA and Israel. Given the vast differences in healthcare delivery worldwide, results may vary based on the nationality of each study's sample. The settings and outcomes of interest varied widely across studies, making a comparison between the studies challenging. Articles including both PHOB and non-PHOB HCPs in the study population were excluded, which may have eliminated some CF intervention studies. Additional research is needed to determine whether the unique stressors associated with PHOB care provision do place PHOB HCPs at heightened risk of CF and burnout. As the interventions discussed are not replicated and are not of high quality, they should be taken as suggestions until additional research is completed about interventions to decrease CF.

Conclusion

This integrative review provides a better understanding of which HCPs are at greatest risk for CF precursors (i.e., stress and burnout), specific predictors of PHOB HCPs' CF, and interventions to help mitigate CF. Repeated exposures to death, dying, relapse, and suffering without agency to mitigate these family stressors have been linked with PHOB HCPs' secondary trauma responses. Unfortunately, although researchers have begun evaluating several interventions to minimize PHOB HCPs' CF, the literature does not support a specific approach. Rather, multiple interventions, including retreats, education sessions, mindfulness training, debriefing sessions, use of a CSN, and inclusion of psychosocial team members (e.g., chaplains, psychologists, and clinical social workers), are likely to have the greatest impact. Additional research is needed to identify the most efficacious and effective interventions to combat CF, including interventions that can feasibly be offered regularly. Research about CF specific to disciplines other than nurses, including physicians, physician assistants, nurse practitioners, and psychosocial team members, is needed to better understand CF causes, correlates, and universality of intervention approach effectiveness. The psychological health of employees is vital to the functioning of healthcare institutions. Hospital leaders can use the information presented in this integrative review to better evaluate CF risk for their PHOB staff and to create appropriate interventions to alleviate this concern.

Funding. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Conflict of interest. The authors have no disclosures to report.

References

- Alarcon G, Eschleman KJ and Bowling NA (2009) Relationships between personality variables and burnout: A meta-analysis. *Work & Stress* 23(3), 244–263.
- Altounji D, Morgan H, Grover M, *et al.* (2013) A self-care retreat for pediatric hematology oncology nurses. *Journal of Pediatric Oncology Nursing* 30(1), 18–23. doi:10.1177/1043454212461951
- Beresford B, Gibson F, Bayliss J, *et al.* (2018) Preventing work-related stress among staff working in children's cancer Principal Treatment Centres in the UK: A brief survey of staff support systems and practices. *European Journal of Cancer Care* 27(2), 1. doi:10.1111/ecc.12535
- Bowden M, Mukherjee S, Williams L, *et al.* (2015) Work-related stress and reward: An Australian study of multidisciplinary pediatric oncology health-care providers. *Psycho-oncology* 24(11), 1432–1438. doi:10.1002/pon.3810
- Boyle D and Bush N (2018) Reflections on the emotional hazards of pediatric oncology nursing: Four decades of perspectives and potential. *Journal of Pediatric Nursing* 40, 63–73. doi:10.1016/j.pedn.2018.03.007
- Chang A, Kicis J and Sangha G (2007) Effect of the clinical support nurse role on work-related stress for nurses on an inpatient pediatric oncology unit. *Journal of Pediatric Oncology Nursing* 24(6), 340–349. doi:10.1177/1043454207308065
- Dang D and Dearholt SL (2017) *Johns Hopkins Nursing Evidence-Based Practice: Model and Guidelines*. Indianapolis, IN: Sigma Theta Tau.
- Eley D, Eley R, Bertello M, *et al.* (2002) Why did I become a nurse? Personality traits and reasons for entering nursing. *Journal of Advanced Nursing* 68(7), 1546–1555. doi:10.1111/j.1365-2648.2012.05955.x
- Fanos J (2007) "Coming through the fog, coming over the moors": The impact on pediatric oncologists of caring for seriously ill children. *Journal of Cancer Education* 22(2), 119–123. doi:10.1007/BF03174360
- Gallagher R and Gormley D (2009) Perceptions of stress, burnout, and support systems in pediatric bone marrow transplantation nursing. *Clinical Journal of Oncology Nursing* 13(6), 681–685. doi:10.1188/09.CJON.681-685
- Gi TS, Devi MK and Kim EAN (2011) A systemic review on the relationship between the nursing shortage and nurses' job satisfaction, stress and burnout levels in oncology/haematology settings. *JBI Library of Systemic Reviews* 9(39), 1603–1649. doi:10.11124/jbisrir-2010-861
- Heckman H (2012) Stress in pediatric oncology nurses. *Journal of Pediatric Oncology Nursing* 29(6), 356–361. doi:10.1177/1043454212458367
- Hinds P (2000) Testing the stress-response sequence in pediatric oncology nursing. *Journal of Pediatric Oncology Nursing* 17(2), 59–68.
- Kushnir T, Rabin S and Azulai S (1997) A descriptive study of stress management in a group of pediatric oncology nurses. *Cancer Nurses* 20(6), 414–421. doi:10.1097/00002820-199712000-00005
- Kwarta P, Pietrzak J, Miśkowiec D, *et al.* (2016) Personality traits and styles of coping with stress in physicians. *Pol Merkur Lekarski* 40(239), 301–307.
- Manfrin-Ledet L, Porche D and Eymard A (2015) Professional boundary violations: A literature review. *Home Healthcare Now* 33(6), 326–332. doi:10.1097/NHH.0000000000000249
- Moher D, Liberati A, Tetzlaff J, *et al.* (2009) Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine* 6(6), e1000097. doi:10.1371/journal.pmed.1000097
- Moody K, Kramer D, Santizo R, *et al.* (2013) Helping the helpers: Mindfulness training for burnout in pediatric oncology — A pilot program. *Journal of Pediatric Oncology Nursing* 30(5), 275–284. doi:10.1177/1043454213504497
- Morrison C and Morris E (2017) The practices and meanings of care for nurses working on a pediatric bone marrow transplant unit. *Journal of Pediatric Oncology Nursing* 34(3), 214–221. doi:10.1177/1043454216688637
- Pappas P, Gouva M, Gourgoulianis K, *et al.* (2016) Psychological profile of Greek doctors: Differences among five specialties. *Psychology, Health & Medicine* 21(4), 439–447.
- Stamm BH (2010) *The Concise ProQOL Manual*, 2nd ed. Pocatello, ID: ProQOL.org.
- Sullivan C, Crabtree V, Baker J, *et al.* (2019) Reducing compassion fatigue in inpatient pediatric oncology nurses. *Oncology Nursing Forum* 46(3), 338–347. doi:10.1188/19.ONF.338-347
- Surbeck W, Samuel R, Spieler D, *et al.* (2020) Neurologists, neurosurgeons, and psychiatrists' personality traits: A comparison. *Acta Neurochirurgica* 162(3), 461–468.
- Vijendren A, Yung M, Sanchez J, *et al.* (2016) An exploratory investigation of personality types attracted to ENT. *The Journal of Laryngology & Otology* 130(6), 587–595.
- Weintraub A, Sarosi A, Goldberg E, *et al.* (2020) A cross-sectional analysis of compassion fatigue, burnout and compassion satisfaction in pediatric hematology-oncology physicians in the United States. *Journal of Pediatric Hematology/Oncology* 42(1), e50–e55. doi:10.1097/MPH.0000000000001548
- Wentzel D and Brysiewicz P (2017) Integrative review of facility interventions to manage compassion fatigue in oncology nurses. *Oncology Nursing Forum* 44(3), 124–140. doi:10.1188/17.ONF.E124-E140

- Whittemore R and Knaf K** (2005) The integrative review: Updated methodology. *Journal of Advanced Nursing* **52**(5), 546–553. doi:10.1111/j.1365-2648.2005.03621.x
- World Health Organization** (2018) *Cancer in Children*. Available at: <https://www.who.int/news-room/fact-sheets/detail/cancer-in-children>.
- Wu S, Singh-Carlson S, Odell A, et al.** (2016) Compassion fatigue, burnout, and compassion satisfaction among oncology nurses in the United States and Canada. *Oncology Nursing Forum* **43**(4), E161–E169. doi:10.1188/16.ONF.E161-E169
- Zanatta A and Lucca S** (2015) Prevalence of burnout syndrome in health professionals of an onco-hematological pediatric hospital. *Revista da Escola de Enfermagem da USP* **49**(2), 253–260. doi:10.1590/S0080-623420150000200010
- Zander M, Hutton A and King L** (2013) Exploring resilience in paediatric oncology nursing staff. *Collegian* **20**(1), 17–25. doi:10.1016/j.colegn.2012.02.002