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RESEARCH ARTICLE

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Factors associated with secondary traumatic stress and burnout in neonatal care staff: A cross-sectional survey study

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ABSTRACT**Introduction:** High rates of secondary traumatic stress and burnout have been found across nursing populations. However, few studies have focused on neonatal staff.**Objective:** The objectives of this article are to explore the prevalence and severity of secondary traumatic stress (STS) and burnout in neonatal staff, and identify risk factors and protective factors for STS and burnout within this population with the aim of informing future staff support.**Methods:** A quantitative, cross-sectional study using a survey design was conducted; 246 neonatal staff reported measures of STS, burnout, self-compassion and satisfaction with ward climate.**Results:** Neonatal staff reported high rates of moderate–severe STS and burnout. STS and burnout were negatively associated with self-compassion and satisfaction with ward climate, suggesting them to be protective factors against STS and burnout. STS was found to be a risk factor for burnout and vice versa.**Conclusion:** Interventions that increase understanding of STS and burnout, nurture self-compassion, provide support and enhance stress management could help mitigate the impact of STS and burnout amongst neonatal staff.**KEYWORDS**

burnout, healthcare professionals, neonatal, secondary traumatic stress

1 | INTRODUCTION

Recent innovation and advances in technology have led to vast improvements in neonatal care giving babies born as prematurely as 23 weeks' gestation a chance of survival. As a result, longer admissions, with increased parental presence at the cot-side, have become the norm. Although increased parental presence is an improvement for families, the consequent deepening of interpersonal relationships between staff and families poses challenges for staff

in protecting their own wellbeing, in the context of working in an already emotionally challenging environment (Beck, Cusson, & Gable, 2017).

1.1 | Secondary traumatic stress

Working in high-stress environments with frequent exposure to trauma and suffering can lead to secondary traumatic stress (STS), a phenomenon described as 'the real

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suffering amongst people dedicated to preventing and relieving the suffering of others' (Dyrbye et al., 2017). STS produces symptoms similar to those of posttraumatic stress disorder (PTSD), including fear, loss of confidence, disturbed sleep and intrusive thoughts (Waterman et al., 2007). These experiences can lead to longer term psychosocial and physical effects on healthcare workers including increased anxiety, depression and insomnia and increased risk of cardiovascular disease and high cholesterol (Salvagioni et al., 2017).

Within the literature, moderate to high levels of STS have been found among nursing populations within emergency departments (Dominquez-Gomez & Rutledge, 2009; Duffy, Avalos, & Dowling, 2014), oncology (Quinal, Harford, & Rutledge, 2009), midwifery (Beck & Gable, 2012; Beck, LoGiudice, & Gable, 2015) and paediatrics (Berger, Polovka, Smoot, & Owens, 2015). Only one study has explored the prevalence and severity of STS on neonatal intensive care units (NICUs), with 49% of nurses reporting moderate to high STS (Beck et al., 2017).

1.2 | Burnout

Burnout is a psychological phenomenon resulting from exposure to chronic workplace stress. The World Health Organisation (2019) defines burnout as consisting of three components: feeling complete emotional and physical exhaustion; feeling detached or negative about one's work; and a lack of a sense of accomplishment or professional efficacy.

High rates of burnout are consistently found across healthcare professionals with meta-analyses showing strong associations between burnout and STS (Cieslak et al., 2014). Dalia, Abbas, Colville, and Brierley (2013) investigated burnout amongst medical staff working in paediatric intensive care units (PICUs) and NICUs and found that all staff reported emotional exhaustion and 40% experienced depersonalisation. Similarly, a large-scale study investigating burnout amongst NICU staff found that 25% reported symptoms of burnout with higher rates amongst nurses and respiratory therapists (Tawfik et al., 2017).

In addition to the impact of burnout on individuals, there are significant detrimental organisational and economic implications for the NHS in the form of quality of care, sickness absence and staff retention. Higher levels of burnout amongst NICU nurses were found to be associated with increased sickness absence and increased staff turnover (Braithwaite, 2008; Eriksson, Starrin, & Janson, 2008). Emergency nurses (Duffy et al., 2014) and oncology nurses (Arimon-Pagès, Torres-Puig-Gros, Fernández-Ortega, & Canela-Soler, 2019) reporting high levels of STS and burnout were found to be more likely to have considered a change in career.

1.3 | Self-compassion

Self-compassion is 'caring for oneself in the face of suffering without avoidance or judgement but with kindness, understanding and acceptance of our pain and inadequacies, as part of the larger human experience' (Neff, 2003). Self-compassion has consistently been found to be associated with reduced levels of stress, anxiety and depression (MacBeth & Gumley, 2012) and greater emotional resilience (Barnard & Curry, 2011).

Across healthcare populations, self-compassion has been found to be a protective factor against the negative consequences of providing care, including burnout (Duarte, Pinto-Gouveia, & Cruz, 2016; Richardson et al., 2016) and emotional exhaustion (Birnie, Speca, & Carlson, 2010). It is hypothesized that self-compassion acts as a buffer against burnout through the activation of self-soothing coping mechanisms to regulate the affect system in response to emotional distress (Beaumont, 2016; Beaumont & Hollins-Martin, 2016).

Interventions using Compassionate Mind exercises have led to reductions in perceived stress (Shapiro, Astin, Bishop, & Cordova, 2005) and improvements in mindfulness, work satisfaction and interpersonal relationships within teams (Scarlet, Altmeyer, Knier, & Harpin, 2017). Compassionate Mind training has also been found to enhance positive emotions in the face of the suffering of others (Klimecki, Leiberg, Lamm, & Singer, 2013) and reduce levels of self-criticism and self-judgement (Leary, Tate, Adams, Allen, & Hancock, 2007).

1.4 | Environmental ward climate factors

Work-related factors including increased workload, understaffing and working overtime have been found to be associated with higher burnout (Aiken, Clarke, & Sloan, 2002; Dall'Ora, Griffiths, Ball, Simon, & Aiken, 2015; Helfrich et al., 2017). Organisational factors including effective leadership, good communication and collaborative working have also been found to be important for a healthy working environment (Kelly & Todd, 2017).

The current study investigates staff satisfaction with the following ward climate factors: workload, communication, support from senior staff, support from colleagues, leadership, clarity of job role, team working, access to staff rooms, opportunities for training and development, career progression and involvement in team projects. These items were specifically chosen for the purpose of the current research following discussions with senior NICU staff from the participating services alongside referencing factors within the intensive care unit (ICU) nursing questionnaire (Shortell, Rousseau, Hughes, & Gillies, 1989).

Resources such as sources of staff support are important. Trauma nurses who did not access regular support reported greater levels of STS compared to those who did (Von Rueden et al., 2010). A lack of peer support amongst oncology nurses was found to be a risk factor for STS and burnout (Perry, Toffner, Merrick, & Dalton, 2011).

Two qualitative studies explored the experience of support amongst midwives (Beck & Gable, 2012) and NICU nurses (Beck et al., 2017) following a traumatic event. Staff emphasised the importance of having supportive colleagues and opportunities for debriefing, alongside the use of prayer and access to a chaplain and quiet spaces for reflection. Conversely, poor communication, limited resources, unsupportive colleagues and a lack of leadership within the team were perceived to lead to increased distress (Beck et al., 2017). Within the NICU environment, role ambiguity, work overload, limited social support and not feeling valued were found to predict burnout (Barr, 2017).

1.5 | Study aims

Thus, there is a consensus that healthcare professionals, caring for traumatised patients, are vulnerable to STS and burnout. However, few studies have focused on neonatal units and to the authors' knowledge, none have explored this in non-nursing neonatal staff. Understanding more about factors that impact the levels of STS and burnout in the whole NICU staff population could be used to design interventions that minimise their impact.

The purpose of this study was to address the following questions:

1. What is the prevalence and severity of STS and burnout in neonatal staff?
2. Are there associations amongst STS, burnout, self-compassion and satisfaction with ward climate factors?
3. Does access to supervision and support influence levels of STS and burnout?
4. Do self-compassion and satisfaction with ward climate predict levels of STS and burnout?

2 | METHOD

2.1 | Study design and participants

The current study is a quantitative, cross-sectional study that used a survey design to collate data from a large target population. Participants were a purposive sample of staff working in neonatal units across the East of England.

Supernumerary staff and those who had worked less than 12 weeks in a given neonatal unit were excluded.

2.2 | Procedure

Ethical approval was obtained from the University of East Anglia and the research and development (R&D) departments of each participating neonatal service. Initially, the regional neonatal lead and then service leads from the 17 neonatal units across the East of England were contacted via email and invited to take part in the research. Participants were recruited from 13 units who provided consent. Service leads were sent posters to display within their unit and an email outlining the purpose of the research with an electronic link to the survey to circulate to their teams. Participants were neonatal staff who voluntarily chose to take part by clicking on the link and completing the survey anonymously. Reminder emails were sent 1 month after the initial invite and again 2 weeks prior to the survey closing. Service leads were given permission to send reminders more frequently if they wished. Data were collected over an 8-month period between February and September 2019.

2.3 | Survey

The survey was created using Bristol Online Survey and designed to take approximately 20 min to complete. The following data were collected: (1) demographic information; (2) details of neonatal work; (3) a measure of secondary traumatic stress (STSS; Bride, Robinson, Yegidis, & Figley, 2004); (4) a measure of burnout (BM; Pines & Aronson, 1988); (5) a measure of self-compassion (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011); and (6) details of current working environment and satisfaction with ward climate factors.

2.3.1 | Secondary traumatic stress scale

The secondary traumatic stress scale (STSS) is a 17-item self-report measure of STS (Bride et al., 2004) consisting of three subscales: intrusion, avoidance and arousal. Participants are asked to rate how frequently they have experienced each symptom, for example 'I felt emotionally numb', over the past 7 days, using a 5-point Likert scale from 1 = *never* to 5 = *very often*. Total scores of less than 28 indicate little or no STS, 28–37 mild, 38–43 moderate, 44–48 high and 49 and above severe (Bride, 2007). The STSS can also be used to determine whether

an individual meets DSM-IV criteria for PTSD (American Psychiatric Association, 1994). To meet criteria, individuals must score a 3 or above on at least one item on the intrusion subscale, at least two items on the arousal subscale and at least three items on the avoidance subscale (Bride, 2007).

The STSS has been found to have strong internal consistency (Cronbach's $\alpha = 0.93$) and good construct validity (goodness of fit = 0.90, comparative fit = 0.94) (Bride et al., 2004).

2.3.2 | Burnout measure

The burnout measure (BM) is a 21-item self-report measure of burnout measuring levels of physical, emotional and mental exhaustion (Pines & Aronson, 1988). Participants are asked how frequently they have experienced symptoms, for example 'feeling run down', over the last month on a 7-point Likert scale from 1 = *never* to 7 = *always*. An average score of four on any of the subscales indicates burnout.

The BM has been found to have strong internal consistency (Cronbach's $\alpha = 0.90$) and adequate test-retest reliability ($r \geq 0.66$) (Schaufeli & Enzmann, 1998).

2.3.3 | Self-compassion scale, short form

The self-compassion scale, short form (SCS-SF) (Raes et al., 2011) is a 12-item short version of Neff's (2003) self-report measure of self-compassion. Participants are given a list of statements describing possible emotional and behavioural reactions to difficult events, for example 'when something upsets me I try to keep my emotions in balance', and asked to rate how often they respond this way on a 5-point Likert scale from 1 = *almost never* to 5 = *almost always*.

The SCS-SF has been found to be valid and demonstrates adequate internal consistency (Cronbach's $\alpha \geq 0.87$) (Raes et al., 2011).

2.3.4 | Ward climate

The final section of the survey asked participants about the availability of supervision and support and asked staff to rate their satisfaction with 11 factors related to their current working environment: workload, communication, support from senior staff, support from colleagues, leadership, clarity of job role, team working, access to a space for breaks, opportunities for training and development, career

progression and involvement in team projects. These items were specifically chosen for the purpose of this research through focus groups with senior NICU staff and informed by existing ICU nursing questionnaires (Shortell et al., 1989). Responses were given on a 5-point Likert scale from 1 = *very unsatisfactory* to 5 = *very satisfactory*.

2.4 | Data analysis

Data analysis was conducted using SPSS version 25. Assumption testing relevant to each statistical analysis was conducted. Where assumptions were not met, non-parametric analyses were conducted.

Initially, descriptive statistics were used to analyse sample characteristics and the prevalence and severity of STS and burnout.

To analyse the associations amongst STS, burnout, self-compassion and satisfaction with ward climate factors, a series of Pearson (r) and Spearman (r_s) correlations were conducted.

Independent sample t -tests were used to investigate differences in levels of STS and burnout between neonatal staff who did and did not access supervision for support.

Finally, two linear multiple regression analyses were used to investigate the impact of key variables on predicting levels of STS and burnout.

3 | RESULTS

3.1 | Sample characteristics

A total of 246 neonatal staff across 13 units in the East of England completed the online survey; 42% worked on level 3 tertiary NICUs (babies <27 weeks' gestation). Socio-demographic analyses revealed a significant gender bias towards female participants (92%). The modal age range was 31–40 years, and the majority of participants were White British (74%). A total of 76% of the sample were nurses and 11% were doctors, 62% worked full-time and nearly 58% of participants had been qualified for over 10 years. Six non-clinical staff were included in the sample; all six were female, five were White British and 50% worked full-time. Full details of sample characteristics can be found in Table 1.

The mean number of contracted hours per month was 88.97 ($SD = 54.78$) with a range from 15 to 192 hr. 197 participants reported having taken sick days over the past 12 months; the mean number of total sick days was 10.84 ($SD = 25.08$) with 20% reporting at least one of those days being related to stress ($M = 2.69$, $SD = 10.35$).

TABLE 1 Demographic and employment characteristics of neonatal staff ($N = 246$)

Variables	N (%)	Mean (SD)
Gender		
Female	226 (91.9)	
Male	20 (8.1)	
Age		
18–25	17 (6.9)	
26–30	28 (11.4)	
31–35	40 (16.3)	
36–40	41 (16.7)	
41–45	29 (11.8)	
46–50	37 (15.0)	
51–55	22 (8.9)	
56–60	28 (11.4)	
61–66	4 (1.6)	
Ethnicity		
White British	183 (74.4)	
Other	63 (25.6)	
Neonatal level		
Level 1 (babies >30 weeks) and level 2 (babies > 27weeks)	142 (57.7)	
Level 3 (babies <27 weeks)	104 (42.3)	
Job role		
Consultant	20 (8.1)	
Doctor (ST 1–7)	8 (3.2)	
Advanced neonatal practitioner	10 (4.1)	
Nurse (band 7)	37 (15.0)	
Nurse (band 6)	69 (28.0)	
Nurse (band 5)	57 (23.2)	
Nursery nurse (band 4)	25 (10.2)	
Applied health professional	2 (0.8)	
Healthcare assistant	1 (0.4)	
NICU assistant	1 (0.4)	
Administration	5 (2.0)	
Other	6 (2.4)	
Not specified	5 (2.0)	
Years post qualification		
10+ years	142 (57.7)	
5–10 years	54 (22.1)	
1–4 years	36 (14.6)	
<12 months	7 (2.8)	
N/A (non-clinical staff)	7 (2.8)	
Employment Status		
Full-time	153 (62.2)	
Part-time	91 (37.0)	
Agency	2 (0.8)	
Hours contracted per month		88.97 (54.78)
Sick days in the past 12 months		10.84 (25.08)
Sick days related to mental wellbeing or stress		2.69 (10.35)

TABLE 2 Correlations amongst secondary traumatic stress (STS), burnout (BO) and self-compassion (SC)

	STS	BO	SC
STS	–	0.73**	–0.53**
BO		–	–0.59**
SC			–

* $p < 0.05$; ** $p < 0.001$.

3.2 | Main results

3.2.1 | Prevalence and severity of STS and burnout

The total mean score on the STSS was 34.97 ($SD = 13.23$), ranging from 17 to 72. Overall, 40% of neonatal staff reported moderate to severe STS (≥ 38), 25% mild and 35% little or no STS. Using Bride's (2007) guidance, 75 staff (30%) screened positive for PTSD (DSM-IV; American Psychiatric Association, 1994).

The total average score on the burnout measure was 73.72 ($SD = 22.55$; range 22–124); 135 neonatal staff (55%) scored above the cutoff for burnout.

For the six non-clinical staff, the average score on the STSS was 29.17 (mild STS) ranging from 19 to 44. One staff member met the criterion for burnout.

3.2.2 | Bivariate analyses

Associations amongst STS, burnout and self-compassion
Correlational analysis (Table 2) revealed a strong positive correlation between STS and burnout, suggesting that higher levels of STS were associated with higher levels of burnout. Higher levels of STS and burnout were also found to be associated with lower self-compassion.

Satisfaction with ward climate factors and associations with STS and burnout

Overall, satisfaction rates across ward climate factors – workload, communication, support from senior staff, support from colleagues, leadership, clarity of job role, team working, access to shared space, training and development opportunities, career progression and team project opportunities – were high. Ratings of 'very satisfactory' or 'satisfactory' ranged from 50% to 83%; when adding the neutral response of 'neither unsatisfactory nor satisfactory', this increased to 78–98%. Participants reported most satisfaction with support from colleagues, clarity of job role and shared space to take breaks. Most dissatisfaction was found with career progression and workload.

Correlational analysis (Table 3) showed that greater levels of STS were associated with lower levels of satisfaction

TABLE 3 Correlations between secondary traumatic stress and satisfaction with ward climate factors

	Test statistic	Significance (p-value)	Effect size	Effect size description
Workload	$r_s = -0.270$	<0.001*	$r = 0.27$	Weak
Communication	$r_s = -0.136$	0.017**	$r = 0.14$	Weak
Support from senior staff	$r_s = -0.130$	0.021**	$r = 0.13$	Weak
Support from colleagues	$r_s = -0.114$	0.037**	$r = 0.11$	Weak
Leadership	$r_s = -0.087$	0.087	$r = 0.09$	Weak
Clarity of job role	$r_s = -0.154$	0.008*	$r = 0.15$	Weak
Team working	$r_s = -0.159$	0.006*	$r = 0.16$	Weak
Access to shared space	$r_s = -0.024$	0.355	$r = 0.02$	Weak
Training and development opportunities	$r_s = -0.079$	0.107	$r = 0.08$	Weak
Career progression	$r_s = -0.040$	0.266	$r = 0.04$	Weak
Team project opportunities	$r_s = -0.086$	0.090	$r = 0.09$	Weak

*Correlation significant at 0.01; **correlation significant at 0.05.

TABLE 4 Correlations between burnout and satisfaction with ward climate factors

	Test statistic	Significance (p-value)	Effect size	Effect size description
Workload	$r_s = -0.415$	<0.001*	$r = 0.42$	Moderate
Communication	$r_s = -0.321$	<0.001*	$r = 0.32$	Moderate
Support from senior staff	$r_s = -0.337$	<0.001*	$r = 0.34$	Moderate
Support from colleagues	$r_s = -0.240$	<0.001*	$r = 0.23$	Weak
Leadership	$r_s = -0.280$	<0.001*	$r = 0.28$	Weak
Clarity of job role	$r_s = -0.319$	<0.001*	$r = 0.32$	Moderate
Team working	$r_s = -0.345$	<0.001*	$r = 0.35$	Moderate
Access to shared space	$r_s = -0.143$	0.012**	$r = 0.14$	Weak
Training and development opportunities	$r_s = -0.230$	<0.001*	$r = 0.23$	Weak
Career progression	$r_s = -0.228$	<0.001*	$r = 0.23$	Weak
Team project opportunities	$r_s = -0.304$	<0.001*	$r = 0.30$	Moderate

*Correlation significant at 0.01; **correlation significant at 0.05.

with workload; communication; support from senior staff and colleagues; clarity of job role; and team working.

The relationship between burnout and satisfaction with ward climate factors was also investigated (Table 4), revealing all correlations to be significant and suggesting that higher levels of burnout were associated with lower satisfaction with the working environment.

3.2.3 | Access to formal support and differences in STS and burnout dependent on the use of supervision

A variety of formal support was recorded. Debriefings were most commonly cited (81%) with approximately half of participants reporting access to peer group support (51%), psy-

chological or counselling support (50%), support from a chaplain (47%), MDT staff meetings (46%) and opportunities for reflective practice (44%). The availability of pre-briefings around complex cases (27%) and ad hoc drop-in support forums (11%) were least frequently recorded. Three per cent of participants reported that none of the listed support forums were available.

When comparing staff who accessed formal supervision with those who did not, a modest significant difference in levels of STS was found ($t(167) = 2.55$, $p = 0.012$, Cohen $d = 0.39$), suggesting that those who access supervision had higher levels of STS. No significant difference in levels of burnout was found between the two groups.

When investigating the relationship between average hours of supervision and STS and burnout, the Spearman (r_s) correlation revealed weak positive correlations,

TABLE 5 Multiple regression analyses: Contributions of individual predictors

Predictors	Secondary traumatic stress			Burnout		
	Beta	Sig	Part ²	Beta	Sig	Part ²
Secondary traumatic stress				0.561	<0.001**	0.412
Burnout	0.735	<0.001**	0.294			
Self-compassion	-0.129	0.014*	0.012	-0.239	<0.001**	0.112
Ward climate satisfaction	-0.179	<0.001**	0.026	-0.293	<0.001**	0.203

* $p < 0.05$; ** $p < 0.001$.

suggesting that as levels of STS ($r_s = 0.28$, $p = 0.005$) and burnout ($r_s = 0.23$, $p = 0.018$) increased, the number of hours of supervision increased, and vice versa.

3.2.4 | Regression analysis

Do levels of burnout, self-compassion and overall satisfaction with ward climate predict STS?

A multiple linear regression analysis was conducted; the overall model was found to be significant ($F(3,242) = 110.73$, $p < 0.001$) explaining 58% of the variance in STS ($r^2 = 0.58$). Examination of the independent variables found higher levels of burnout to be a risk factor of STS uniquely accounting for 29% of the variance. Increased satisfaction with ward climate and increased self-compassion were found to be protective factors, uniquely accounting for 3% and 1% of the variation in levels of STS, respectively (Table 5).

Do levels of STS, self-compassion and overall satisfaction with ward climate predict burnout?

A second multiple regression analysis was conducted; the regression model was found to be significant ($F(3,242) = 170.06$, $p < 0.001$) explaining 68% of the variance in burnout ($r^2 = 0.68$). Higher levels of STS were found to be a risk factor of burnout uniquely accounting for 41% of the variance. Greater satisfaction with ward climate and higher levels of self-compassion were found to be protective factors, uniquely accounting for 20% and 11% of the variation in levels of burnout, respectively (Table 5).

4 | DISCUSSION

Within the literature, there is a consensus that healthcare professionals caring for traumatised patients are vulnerable to STS and burnout. The current study aimed to extend prior research and investigate the prevalence and factors affecting levels of STS and burnout amongst neonatal staff.

Forty per cent of neonatal staff reported moderate to severe STS and 30% met the criteria for PTSD as measured using the STSS (Bride, 2007; Bride et al., 2004).

These prevalence rates are consistent with those from previous studies investigating STS amongst nursing populations (Berger et al., 2015; Dominquez-Gomez & Rutledge, 2009; Duffy et al., 2014; Quinal et al., 2009) and comparable to three studies which revealed 35% of neonatal nurses (Beck et al., 2017), 36% of nurse-midwives (Beck et al., 2015) and 26% of labour and delivery nurses (Beck & Gable, 2012) reached the threshold for PTSD (STSS; Bride, 2007; Bride et al., 2004).

Fifty-five per cent of staff reported burnout. These findings are supported by previous research that suggests high levels of burnout across healthcare professionals (Dalia et al., 2013; Richardson et al., 2016).

The results showed that higher levels of STS were strongly associated with higher burnout amongst neonatal staff. These findings are consistent with the findings of previous studies investigating STS and burnout in healthcare professionals (Cieslak et al., 2014). Self-compassion was found to be negatively associated with STS and burnout, supporting previous research revealing increased self-compassion to be associated with reduced psychopathology (MacBeth & Gumley, 2012). They also support the hypothesis that heightened self-compassion may act as a buffer against burnout and secondary trauma by fostering the development of healthy coping mechanisms to manage emotional distress (Beaumont, 2016).

This study set out to examine the influence of environmental ward climate factors on STS and burnout. Results revealed that satisfaction with ward climate factors was negatively associated with levels of STS and burnout. These findings are consistent with previous studies highlighting the importance of access to support following a traumatic work event (Beck & Gable, 2012; Beck et al., 2017) and those that revealed that unmanageable workload, understaffing, longer working hours and less perceived support were related to increased STS and burnout (Aiken et al., 2002; Barr, 2017; Dall'Ora et al., 2015; Helfrich et al., 2017).

This study also found that neonatal staff who regularly accessed supervision experienced significantly higher levels of STS compared to those who did not, and greater STS and burnout were associated with increased frequency of supervision and vice versa. These findings are contrary to previous studies which found that regular access to

support was associated with lower STS (Von Rueden et al., 2010). One explanation for these findings might be that within this study, the neonatal staff most regularly accessing supervision were band five nurses. Previous research has shown that less experienced clinicians are more likely to report burnout than their more experienced counterparts (Dev, Fernando, Kirby, & Consedine, 2019). This in part may be due to more experienced staff having developed strategies to mitigate the effects of STS and burnout over time (Singh et al., 2018). An alternative hypothesis is perhaps staff only access support once they are already burnt out and struggling. This may be particularly prevalent in services where supervision is not routinely offered and therefore only accessed in response to staff actively seeking support.

Finally, the study set out to investigate whether self-compassion and satisfaction with ward climate predicted levels of STS and burnout. The findings revealed STS to predict levels of burnout and vice versa, with a positive association suggesting that they are risk factors for one another. Heightened self-compassion and increased satisfaction with the ward climate were found to predict lower levels of STS and burnout. These findings support the theory that self-compassion could be a protective factor against the emotional demands of working in health care. They also highlight the importance of the working environment in mediating the impact of workplace stress, as previous studies have found, for example, that negative ward climate factors (including role ambiguity, work overload, lack of social support and less reassurance of worth) are risk factors for burnout within NICU nurses (Barr, 2017).

4.1 | Clinical implications and future research

The current study highlights the high prevalence and severity of STS and burnout amongst neonatal staff and provides preliminary evidence for factors that might influence these levels. A particular strength of this study is that it collates data from 13 neonatal units across the East of England and extends previous research by including all clinical and non-clinical neonatal staff. It is the hope of the authors that such information can be used to inform support interventions to mitigate the effects of STS and burnout amongst neonatal staff.

Previous research has found that increasing staff awareness of the symptoms of work-related distress led them to seek support sooner and reduced levels of STS and burnout (Perry et al., 2011). Given the high prevalence of STS and burnout and the way symptoms can develop over time, it would be beneficial to routinely educate neonatal staff

about the effects of STS and burnout. Doing so would increase their understanding and enable early detection of symptoms both in themselves and in their colleagues. The importance of healthcare professionals developing strategies to mitigate the impact of STS and burnout was also highlighted, acknowledging that to achieve this, seeking support from others is paramount (Wicks, 2007).

Prior research into Compassionate Mind training found that an 8-week program increased self-compassion and significantly improved job satisfaction and reduced interpersonal conflicts amongst healthcare workers (Scarlet et al., 2017). Findings from this study indicated that self-compassion was a significant predictor and potential protective factor against STS and burnout. Compassionate Mind-based interventions might, therefore, be beneficial. Programs teaching self-compassion and self-care skills were also considered an important feature in interventions aimed at reducing burnout and secondary trauma amongst nurses (Duarte et al., 2016).

The results suggest that the neonatal ward environment and interpersonal climate within the team can influence levels of STS and burnout. Of particular importance is access to appropriate support. A team culture that promotes support-seeking and provides regular opportunities to access support would be protective. In addition, factors including workload, team dynamics and opportunities for career progression were found to be important, with increased satisfaction in these areas being associated with lower STS and burnout. Assessment of ward climate factors and considerations for improvements should be considered on an individual service basis.

4.2 | Limitations

There are a number of limitations in the current study to consider. Firstly, a purposive sample completing self-report measures was used. The results from staff who chose to participate may differ from those of staff who did not. In addition, demographic analyses revealed a significant gender bias towards females. The self-report survey also contained single-item scales to measure elements of ward climate such as satisfaction with current workload. Though this enabled data to be collected regarding particular areas of interest, the reliability of single-item scales to measure psychological constructs is flawed and therefore not recommended.

Additionally, a cross-sectional, correlational design was used. Collecting data at one time point impacts its representation of the wider neonatal care environment and prevents causal conclusions being drawn about the prevalence of STS and burnout and the impact of influential factors over time. The impact of extraneous variables, not

measured during data collection, is also not accounted for within correlational designs.

Finally, despite a reasonably large sample size being recruited across 13 neonatal units, all units were NHS services located in the East of England and over 70% of the participants were White British. Therefore, the findings cannot necessarily be generalised to other regions across the United Kingdom with different demographics or to other countries. In addition, the sample largely consisted of nurses and doctors. Though this is representative of a typical neonatal staffing team, relatively few non-nursing staff and few non-clinical staff participated, which impacts the generalisability.

5 | CONCLUSION

Overall, this study highlights the high prevalence of STS and burnout amongst neonatal staff and provides preliminary evidence that factors including self-compassion and environmental ward climate might influence their levels of prevalence and severity. These findings extend previous research that focused on purely nursing populations by including both clinical and non-clinical neonatal staff. Though no firm conclusions can be drawn for non-clinical staff, due to limited participant numbers, it was found that they experienced mild STS and were at risk of burnout. It would be beneficial for future studies to include non-clinical populations to consider the needs of services and teams as a whole.

Developing support interventions that increase awareness of the effects of STS and burnout and teach skills to enhance self-compassion and promote the use of self-care might help to mitigate the impact of STS and burnout amongst neonatal staff. The importance of offering such interventions within a compassionate working environment that promotes support-seeking was also noted. Further research evaluating the efficacy of such interventions is needed.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

- Aiken, L. H., Clarke, S. P., & Sloane, D. M. (2002). Hospital staffing, organization, and quality of care: Cross-national findings. *Nursing Outlook*, 50(5), 187–194. <https://doi.org/10.1067/mno.2002.126696>
- American Psychiatry Association. (1994). *Diagnostic and statistical manual of mental disorders—Text revision* (4th ed.). Washington, DC: Author.
- Arimon-Pagès, E., Torres-Puig-Gros, J., Fernández-Ortega, P., & Canela-Soler, J. (2019). Emotional impact and compassion fatigue in oncology nurses: Results of a multicentre study. *International Journal of Oncology Nursing*, 43, 1–6. <https://doi.org/10.1016/j.ijon.2019.09.007>
- Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualisations, correlates and interventions. *Review of General Psychology*, 15, 289–303. <https://doi.org/10.1037/a0025754>
- Barr, P. (2017). Compassion fatigue and compassion satisfaction in neonatal intensive care nurses: Relationships with work stress and perceived social support. *Traumatology*, 23(2), 214–222. <https://doi.org/10.1037/trm0000115>
- Beaumont, E. A. (2016). Building resilience by cultivating compassion. *Healthcare Counselling and Psychotherapy Journal*, 16(3), 22–27.
- Beaumont, E. A., & Hollins Martin, C. J. (2016). Heightening levels of compassion towards self and others through use of compassionate mind training. *British Journal of Midwifery*, 24(11), 777–786. <https://doi.org/10.12968/bjom.2016.24.11.777>
- Beck, C. T., Cusson, R. M., & Gable, R. K. (2017). Secondary traumatic stress in NICU nurses. *Advances in Neonatal Care*, 17(6), 478–488. <https://doi.org/10.1097/ANC.0000000000000428>
- Beck, C. T., & Gable, R. K. (2012). A mixed methods study of secondary traumatic stress in labour and delivery nurses. *Journal of Obstetric, Gynecologic and Neonatal Nursing*, 41(6), 747–760. <https://doi.org/10.1111/j.1552-6909.2012.01386>
- Beck, C. T., LoGiudice, J., & Gable, R. K. (2015). A mixed methods model of secondary traumatic stress in certified nurse-midwives: Shaken beliefs in the birth process. *Journal of Midwifery and Women's Health*, 60(1), 16–23. <https://doi.org/10.1111/jmwh.12221>
- Berger, J., Polovka, B., Smoot, E. A., & Owens, H. (2015). Compassion fatigue in paediatric nurses. *Journal of Paediatric Nurses*, 30(6), 11–17. <https://doi.org/10.1016/j.pedn.2015.02.005>
- Birnie, K., Speca, M., & Carlson, L. E. (2010). Exploring self-compassion and empathy in the context of mindfulness-based stress reduction (MBSR). *Stress and Health*, 26, 359–371. <https://doi.org/10.1002/smi.1305>
- Braithwaite, M. (2008). Nurse burnout and stress in NICU. *Advances in Neonatal Care*, 8, 343–347. <https://doi.org/10.1097/01.ANC.0000342767.17606.d1>
- Bride, B. E. (2007). Prevalence of secondary traumatic stress among social workers. *Social Work*, 52, 63–70. <https://doi.org/10.1093/sw/52.1.63>
- Bride, B. E., Robinson, M. M., Yegidis, B., & Figley, C. R. (2004). Development and validation of the Secondary Traumatic Stress Scale. *Research on Social Work Practice*, 14, 27–35. <https://doi.org/10.1177/1049731503254106>

- Cieslak, R., Shoji, K., Douglous, A., Melville, E., Luszczynska, A., & Benight, C. C. (2014). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. *Psychological Services, 11*(1), 75–86. <https://doi.org/10.1037/a0033798>
- Dalia, C., Abbas, K., Colville, G., & Brierley, J. (2013). Resilience, post-traumatic stress, burnout and coping in medical staff on the Paediatric and Neonatal Intensive Care Unit (P/NICU) – A survey. *Archives of Disease in Childhood, 98*(Suppl 1), A1–A117. <https://doi.org/10.1136/archdischild-2013-304107.061>
- Dall'Ora, C., Griffiths, P., Ball, J., Simon, M., & Aiken, L. H. (2015). Association of 12 h shifts and nurses' job satisfaction, burnout and intention to leave: Findings from a cross-sectional study of 12 European countries. *BMJ Open, 5*(9), e008331. <https://doi.org/10.1136/bmjopen-2015-008331>
- Dev, V., Fernando, A. T., Kirby, J. N., & Considine, N. S. (2019). Variation in the barriers to compassion across healthcare training and disciplines: A cross-sectional study of doctors, nurses and medical students. *International Journal of Nursing Studies, 90*, 1–10. <https://doi.org/10.1016/j.ijnurstu.2018.09.015>
- Dominquez-Gomez, E., & Rutledge, D. N. (2009). Prevalence of secondary traumatic stress among emergency nurses. *Journal of Emergency Nursing, 35*, 199–204. <https://doi.org/10.1080/00048670902721079>
- Duarte, J., Pinto-Gouveia, J., & Cruz, B. (2016). Relationships between nurses' empathy, self-compassion and dimensions of professional quality of life: A cross-sectional study. *International Journal of Nursing Studies, 60*, 1–11. <https://doi.org/10.1016/j.ijnurstu.2016.02.015>
- Duffy, E., Avalos, G., & Dowling, M. (2014). Secondary traumatic stress among emergency nurses: A cross-sectional study. *International Emergency Nursing, 23*, 53–58. <https://doi.org/10.1016/j.ienj.2014.05.001>
- Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Cipriano, P. F., Bhatt, J., Ommaya, A., ... Meyers, D. (2017). *Burnout among health care professionals: A call to explore and address this underrecognized threat to safe, high-quality care*. NAM Perspectives. Washington, DC: National Academy of Medicine. <https://doi.org/10.31478/201707b>
- Eriksson, U. B., Starrin, B., & Janson, S. (2008). Long-term sickness absence due to burnout: Absentees' experiences. *Qualitative Health Research, 18*, 620–632. <https://doi.org/10.1177/1049732308316024>
- Helfrich, C. D., Simonetti, J. A., Clinton, W. L., Wood, G. B., Taylor, L., Schectman, G., ... Nelson, K. M. (2017). The association of team-specific workload and staffing with odds of burnout among VA primary care team members. *Journal of General Internal Medicine, 32*(7), 760–766. <https://doi.org/10.1007/s11606-017-4011-4>
- Kelly, L., & Todd, M. (2017). Compassion fatigue and the healthy work environment. *AACN Advanced Critical Care, 28*(4), 351–358. <https://doi.org/10.4037/aacnacc2017283>
- Klimecki, O. M., Leiberg, S., Lamm, C., & Singer, T. (2013). Functional neural plasticity and associated changes in positive affect after compassion training. *Cerebral Cortex, 23*(7), 1552–1561.
- Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92*, 887–904.
- MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*(6), 545–552. <https://doi.org/10.1016/j.cpr.2012.06.003>
- Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity, 2*, 223–250. <https://doi.org/10.1080/15298860309027>
- Perry, B., Toffner, G., Merrick, T., & Dalton, J. (2011). An exploration of the experience of compassion fatigue in clinical oncology nurses. *Canadian Oncology Nursing Journal, 2*, 91–97.
- Pines, A. M., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York, NY: Free Press.
- Quinal, L., Harford, S., & Rutledge, D. N. (2009). Secondary traumatic stress in oncology staff. *Cancer Nursing, 32*, 1–7. <https://doi.org/10.1097/NCC.0b013e31819ca65a>
- Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy, 18*, 250–255. <https://doi.org/10.1002/cpp.702>
- Richardson, D. A., Jaber, S., Chan, S., Jesse, M. T., Kaur, H., & Sangha, R. (2016). Self-compassion and empathy: Impact on burnout and secondary traumatic stress in medical training. *Journal of Epidemiology, 6*, 161–166. <https://doi.org/10.4236/ojepi.2016.63017>
- Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., Gonzalez, A. D., Gabani, F. L., & Andrade, S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS One, 12*(10), e0185781. <https://doi.org/10.1371/journal.pone.0185781>
- Scarlet, J., Altmeyer, N., Knier, S., & Harpin, R. E. (2017). The effects of compassion cultivation training (CCT) on healthcare workers. *Clinical Psychologist, 21*, 116–124. <https://doi.org/10.1111/cp.12130>
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London, UK: Taylor & Francis.
- Shapiro, S., Astin, J., Bishop, S., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management, 12*(2), 164–176. <https://doi.org/10.1037/1072-5245.12.2.164>
- Shortell, S. M., Rousseau, D. M., Hughes, E. F. X., & Gillies, R. R. (1989). Organizational assessment in intensive care units (ICUs): Construct development, reliability, and validity of the ICU nurse-physician questionnaire. *Medical Care, 29*, 709–727.
- Singh, P., Raffin-Bouchal, S., McClement, S., Hack, T. F., Stajduhar, K., Hagen, N. A., & Sinclair, S. (2018). Healthcare providers' perspectives on perceived barriers and facilitators of compassion: Results from a grounded theory study. *Journal of Clinical Nursing, 27*(9-10), 2083–2097. <https://doi.org/10.1111/jocn.14357>
- Tawfik, D. S., Sexton, J. B., Kan, P., Sharek, P. J., Nisbet, C. C., Rigdon, J., ... Profit, J. (2017). Burnout in the neonatal intensive care unit and its relation to healthcare-associated infections. *Journal of Perinatology, 37*, 315–320. <https://doi.org/10.1038/jp.2016.211>
- Von Rueden, K. T., Hinderer, K. A., McQuillan, K. A., Murray, M., Logan, T., Kramer, B., ... Gilmore, R. (2010). Secondary traumatic stress in trauma nurses: Prevalence and exposure, coping, and personal/environmental characteristics. *Journal of Trauma Nursing, 17*, 191–200. <https://doi.org/10.1097/JTN.0b013e318181ff2607>
- Waterman, A. D., Garbutt, J., Hazel, E., Dunagan, W. C., Levinson, W., Fraser, V. J., & Gallagher, T. H. (2007). The emotional impact of medical errors on practicing physicians in the united states

and Canada. *The Joint Commission Journal on Quality and Patient Safety*, 33, 467–476. [https://doi.org/10.1016/S1553-7250\(07\)33050-X](https://doi.org/10.1016/S1553-7250(07)33050-X)

Wicks, R. J. (2007). *The resilient clinician*. New York, NY: Oxford University Press.

World Health Organisation. (2019). *Burn-out an “occupational phenomenon”*: *International Classification of Diseases (ICD-II)*. Retrieved from <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>

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