

Behind the screens: Burnout and compassion fatigue in the United Kingdom sonography workforce.

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Title:

Behind the Screens: Burnout and Compassion Fatigue in the UK Sonography
Workforce

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Abstract:**Introduction:**

Sonographers work in high-pressure clinical environments that increase their risk of burnout and compassion fatigue (CF). Although UK evidence continues to grow, uncertainty remains around the organisational and workplace factors that shape the severity of these outcomes. This study investigates the prevalence of burnout and CF among UK sonographers and examines their associations with demographic characteristics, workload, organisational support, and workplace factors.

Methods:

This study employed a cross-sectional quantitative design, with data collected from 176 practising UK sonographers through an online survey. The ProQOL scale and demographic questions were utilised to collect data, which were analysed descriptively. Chi-square analyses were also performed, using collapsed categories, to examine associations between participant characteristics and burnout/CF severity.

Results:

The majority (98.9%) of sonographers experienced some level of burnout or CF, with 26.1% reporting severe symptoms. A few participants perceived available support as adequate amid burnouts. Employer support and region of practice showed the strongest associations with burnout severity ($p < 0.001$), while age, gender, weekly working hours, and overtime were not independently associated. Despite high burnout levels, respondents continued to report strong empathic engagement with patients.

Conclusion:

Burnout and CF are prevalent among the sonography workforce in the UK, largely driven by organisational pressures rather than individual factors. Coordinated policy action is required to protect sonographers' wellbeing and sustainability.

Implications for practice:

Findings highlight the need for organisation led interventions, including improved access to psychological support services, realistic workload management, protected recovery time, and the strengthening of peer support and preceptorship frameworks to promote staff wellbeing and career development.

Title: Behind the Screens: Burnout and Compassion Fatigue in the UK Sonography Workforce

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Introduction

Burnout and compassion fatigue (CF) pose significant challenges in the healthcare sector, affecting both staff wellbeing and the quality of patient care.¹ The documented effects of burnout and compassion fatigue include fatigue, irritability, sleep disturbances, emotional exhaustion, depersonalisation, decreased job satisfaction, substance abuse and suicidal thoughts.² Since the COVID-19 pandemic, the UK healthcare system has continued to face significant strain due to underfunding, staff shortages, and retention issues, placing immense pressure on healthcare professionals.³ For most healthcare organisations, these pressures typically lead to increased staff turnover, absenteeism, reduced productivity, compromised patient safety, and substantial financial costs.^{2,4}

Burnout and CF are now widely recognised across the UK healthcare. Among NHS sonographers, research indicates that 50% felt emotionally unsupported in their work and identified an unmet need for restorative professional supervision.⁵ At the same time, the diagnostic imaging workloads continue to grow. Of the 49.7 million imaging tests reported in England from June 2024 to June 2025, approximately 11.4 million were for ultrasound services, ranking it as the second most commonly requested examination.⁶ Against this backdrop of growing service demands and workforce pressures, understanding the psychological burden experienced by sonographers is both timely and necessary.

Sonographers are particularly susceptible to burnout and CF due to the combined demands of sustained technical expertise and continuous emotional engagement with patients, which can lead to physical and cognitive fatigue.^{1,7} The sonographers'

role often involves long working hours, heavy workloads, and recurrent emotionally charged clinical encounters, which increase vulnerability to psychological distress.^{8,9}

Previous research in the UK has documented high levels of burnout in UK obstetric sonographers and highlighted the emotional burden of challenging clinical tasks.^{10, 11} Other studies have identified limited professional supervision and support, particularly amongst migrant and early-career sonographers.^{5, 12} Yet, there is a paucity of data assessing burnout and compassion fatigue together across multiple sonography specialities or empirically linking symptom severity to employer support, workload, and regional variation.

This study addresses this gap by examining the prevalence and severity of burnout and compassion fatigue among UK sonographers across multiple specialities and testing their associations with sociodemographic characteristics, workload patterns, region of practice, and employer support. Using a cross-sectional design, the Professional Quality of Life Scale (ProQOL), and chi-square analysis, this study aims to move beyond description to provide organisationally relevant evidence to inform workforce planning, leadership practice, and wellbeing interventions.

Methods

Ethical Considerations

Ethical approval for the study was obtained from Sheffield Hallam University Research Ethics Committee (UREC/3044507) before data collection. Information sheets and consent forms were provided, outlining the study's purpose,

procedures, and potential risks. Participation was entirely voluntary, and individuals had the right to withdraw at any time without any consequence. To protect anonymity, no personally identifiable information was collected.

In view of the sensitive nature of the topic, contact details for mental health services and professional counselling were included in the study materials to ensure support was available to participants if required.

Pilot Study

Although the ProQOL is a validated instrument, pilot testing was undertaken to assess the clarity, comprehension, and usability of the overall survey when administered to UK sonographers, particularly given the inclusion of additional contextual questions alongside the ProQOL items. The pilot focused on the survey flow, item wording, and ease of completion rather than validating the ProQOL itself. The pilot involved a small group of practising UK sonographers (n=6) who met the main study inclusion criteria. Feedback led to minor amendments to improve clarity, refine wording, simplify selected demographic items and enhance layout. No changes were made to the content, structure, or scoring of the ProQOL scale. The revised survey demonstrated good internal consistency (Cronbach's alpha = 0.89) and was used for the main data collection.

Recruitment Strategy and Data Collection

Data were collected through JISC Online Surveys platform. Participants were recruited using convenience sampling on professional and social media platforms, including the British Medical Ultrasound Society, the Society of Radiographers, and

LinkedIn. NHS Trusts were not approached directly, and participation was voluntary at the individual level.

Inclusion criteria were sonographers practising in the UK at the time of data collection. Individuals who were not currently practising, students, those who participated in the pilot study, or those working outside the UK were excluded. The ProQOL was used to assess burnout and CF, consistent with its established application across healthcare professions.¹³ ProQOL-derived items formed the basis of the burnout and CF outcomes reported in this study. In addition, the survey included a small number of supplementary questions developed by the research team to capture demographic characteristics, workload patterns, and perceptions of organisational and workplace support. These variables were then analysed separately to explore associations with burnout and CF severity. While the ProQOL scale has demonstrated good validity across a range of healthcare settings^{13,14}, it relies on self-reported perceptions and was not originally developed specifically for sonographers. Accordingly, scores reflect perceived levels of burnout and CT rather than clinically diagnosed conditions and should be interpreted within this context.

Data Analysis

Data collected from participants were first downloaded from the survey platform in an editable Excel format (Microsoft) for initial quantitative analysis, including descriptive statistics to summarise frequencies, percentages, means, and standard deviation of the demographic data and responses to burnout and CF items. The data were primarily categorical; therefore, comparative analyses were aided by chi-square tests using SPSS version 28 to explore associations between sociodemographic characteristics, workplace support, and the prevalence and severity of burnout and

compassion fatigue. Statistical significance was set at $p < 0.05$, as this threshold is conventionally used in health and social science research to balance the risk of Type I error while maintaining adequate sensitivity to detect meaningful associations.¹⁵

Results

Demographic characteristics of the participants

Of the 176 sonographer participants, the largest proportion were aged 31-40 years (43.2%), and most respondents were female (67.6%). Experience levels varied, although over a third of participants (34.1%) had been practising for more than 15 years. By contrast, only a small number (2.8%) had less than one year of experience. The majority held a Postgraduate Diploma in Medical Ultrasound (52.3%), followed by a Master's degree (30.7%), and a Postgraduate Certificate in Medical Ultrasound (11.9%). (Table 1).

Table 1: Demographics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age Group	20–30 years	6	3.41
	31–40 years	76	43.18
	41–50 years	51	28.98
	51–60 years	35	19.89
	Over 60 years	8	4.55
Gender	Female	119	67.61
	Male	55	31.25
	Prefer not to say	2	1.14
Years of Experience	Less than 1 year	5	2.84
	1–5 years	47	26.70
	6–10 years	37	21.02
	11–15 years	27	15.34
	Over 15 years	60	34.09
Highest Qualification			

	Bachelor's Degree in Radiologic Technology	1	0.57
	Bachelor's Degree in Sonography	2	1.14
	DMU College of Radiographers	1	0.57
	DMU	1	0.57
	Doctorate	1	0.57
	Master's in Physiotherapy	1	0.57
	Master's Degree in Sonography	54	30.68
	PgC/MSK/MSc in Healthcare Research (Ultrasound focus)	1	0.57
	PhD	1	0.57
	Postgraduate Certificate in Medical Ultrasound	21	11.93
	Postgraduate Diploma in Medical Ultrasound	92	52.27
Primary Workplace Setting			
	Academic/Research	4	2.27
	Agency/Locum	22	12.50
	Community-Based Services	11	6.25
	NHS Hospitals	160	90.91
	Private Healthcare	21	11.93
	Mobile Ultrasound Services	7	3.98
	Multiple Roles	4	2.27
Work Hours per Week			
	<20 hours	9	5.11
	21–30 hours	45	25.57
	31–40 hours	97	55.11
	41–50 hours	20	11.36
	>50 hours	5	2.84
Overtime Hours per Week			
	0 hours	68	38.64
	1–5 hours	48	27.27
	6–10 hours	37	21.02
	11–15 hours	11	6.25
	>15 hours	12	6.82
Sonography Specialty			
	Gynaecological	152	86.36
	General	144	81.82
	Obstetrics	118	67.05
	Vascular	43	24.43
	MSK	37	21.02
	Paediatric	9	5.11

	Head and Neck	7	3.98
	Paediatric Hips	6	3.41
	Neck	4	2.27
	Lumps and bumps	3	1.70
	Testis	3	1.70
	Small parts	3	1.70
	Thyroid	2	1.14
	Intervention	2	1.14
	Cranial Head US	2	1.14
	CEUS	1	0.57
	Liver and Kidney	1	0.57
	FNAC	1	0.57
	KUB	1	0.57
	Transplant Imaging	1	0.57
	Foetal Cardiology	1	0.57
	Breast	1	0.57
Region of Practice			
	England	160	90.91
	England & Scotland	1	0.57
	England, Scotland & Wales	1	0.57
	Northern Ireland	2	1.14
	Scotland	8	4.55
	Wales	4	2.27

Participants could select more than one speciality.

Most participants worked in NHS hospitals (90.9%), with smaller groups employed privately (11.9%), in locum or agency roles (12.5%), in community-based services (6.3%), in mobile ultrasound services (4.0%), or in academia (2.3%). Geographically, most respondents were based in England (90.9%), with limited representation from Scotland (4.6%), Wales (2.3%), and Northern Ireland (1.1%). Percentages exceed 100% as participants could report more than one employment setting.

Sonographers' workload

The majority of sonographers (55.1%) reported working 31-40 hours per week, while 25.6% reported working 21-30 hours per week. In contrast, smaller proportions

reported longer working patterns, with 11.4% working 41-50 hours and 2.8% exceeding 50 hours per week. Overtime was common, as 27.3% worked an additional 1-5 hours weekly, 21.0% 6-10 hours, and 13.1% more than 10 hours. Only 38.6% reported no overtime.

Sonographers' practice areas reflected a wide range of specialities. Most performed gynaecological ultrasound (86.4%), general ultrasound (81.8%), obstetrics (67.1%), vascular (24.4%), and musculoskeletal ultrasound (21.0%). While a small proportion of respondents were competent in paediatrics (5.1%), head and neck (4.0%), and paediatric hip scanning (3.4%). Other subspecialties, which made up only 2% of the sample, included thyroid, breast, transplant imaging, and fetal cardiology.

Access to employer support resources

Almost half (47.2%) of respondents perceived employer mental health support as inadequate, while a further 24.4% were unsure of its adequacy. Only 28.4% believed their employer offered sufficient resources (Figure 1). When asked about specific resources available to them, 44.3% had access to workplace counselling. These supports included access to employee assistance programmes (18.7%), relaxation or stress-relief spaces (14.6%) and peer support groups (10.5%). Only 2.3% of participants reported regular mental health training. Among respondents without organisational support, 9.6% reported paying privately for counselling services (Figure 2).

Perceptions of Employer Support

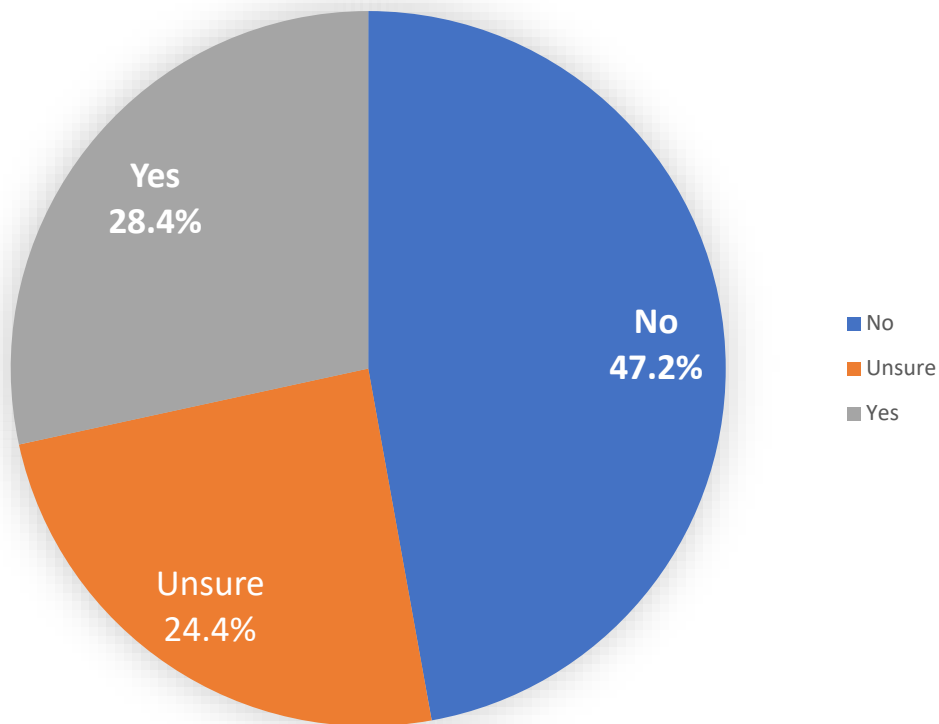


Figure 1. Sonographers' perceived adequacy of employer-provided mental health and wellbeing support. Responses indicate whether participants felt their employer provided sufficient support resources ("Yes"), insufficient support ("No"), or whether they were unsure about the availability or adequacy of such support ("Unsure").

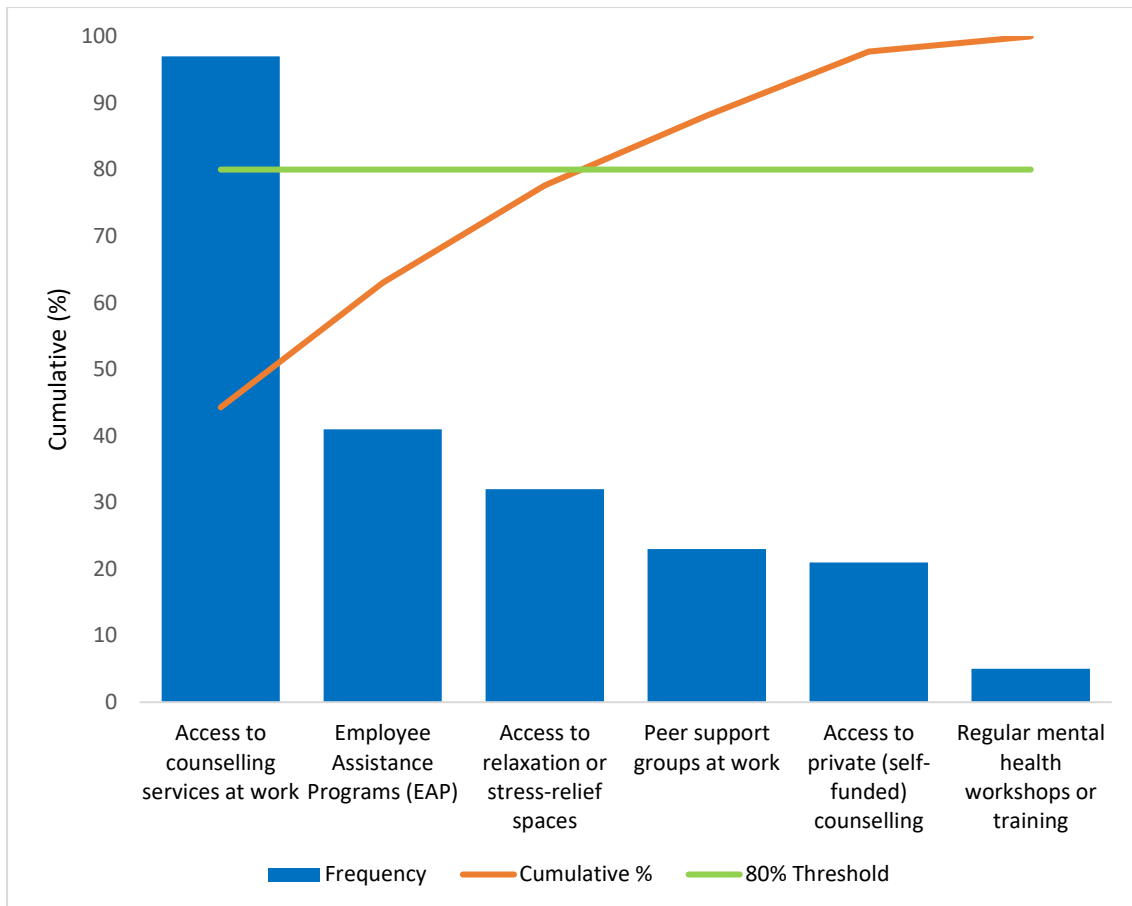


Figure 1: Pareto Chart showing resources available to Sonographers against frequency. Participants could select multiple resources.

Burnout and CF among sonographers

When overall severity was examined using the Compassion Fatigue and Burnout Index, only 1% reported minimal symptoms, with a majority scoring in the mild (73%) or severe (26%) range (Figure 3). Overall, 98.9% of respondents experienced at least mild symptoms (Table 2). Fatigue and energy depletion were common; respondents (38.6%) reported feeling run down often, and 17.1% very often (mean score 3.67). Work-related pressure was particularly prominent, with a mean score of 3.90 and 65.3% of participants reporting constant pressure ("often" or "very often"). Frustration related to a lack of support, both for themselves and their colleagues, was also frequently reported (mean 3.25), as was guilt about refusing requests at

work (mean 3.56).

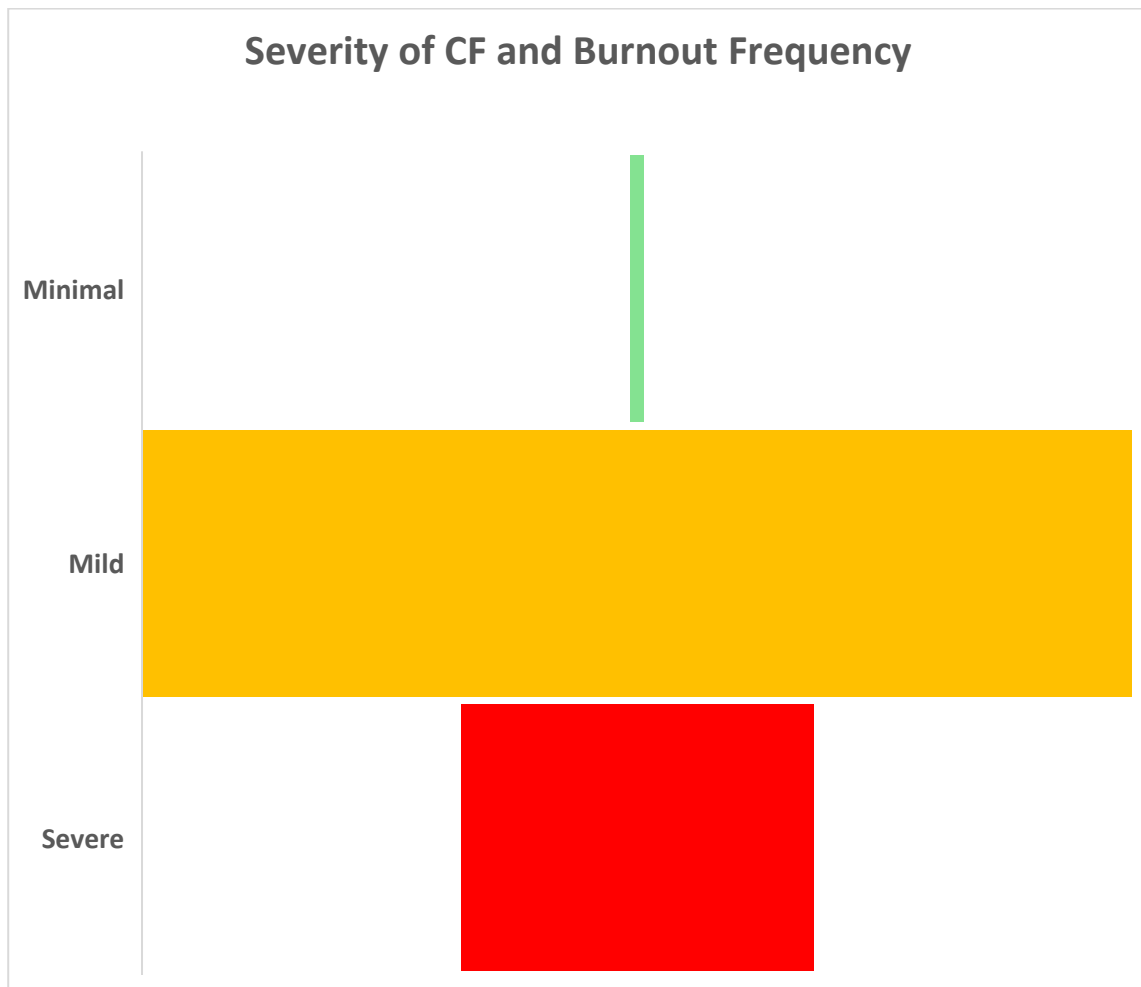


Figure 2: Severity of CF and Burnout Frequency among Sonographers

Table 2: Descriptive distribution of burnout and compassion fatigue severity by demographic and workplace variables (n = 176)

Variable	Category	Low n (%)	Mild n (%)	Severe n (%)
Age group (years)	20–30	0 (0.0)	5 (83.3)	1 (16.7)
	31–40	1 (1.3)	58 (76.3)	17 (22.4)
	41–50	1 (2.0)	34 (66.7)	16 (31.4)
	51–60	0 (0.0)	25 (71.4)	10 (28.6)
	>60	0 (0.0)	6 (75.0)	2 (25.0)
Gender				

	Female	1 (0.8)	80 (67.2)	38 (31.9)
	Male	1 (1.8)	47 (85.5)	7 (12.7)
	Prefer not to say	0 (0.0)	1 (50.0)	1 (50.0)
Years of experience	<1 year	0 (0.0)	5 (100.0)	0 (0.0)
	1–5 years	0 (0.0)	40 (85.1)	7 (14.9)
	6–10 years	2 (5.4)	27 (73.0)	8 (21.6)
	11–15 years	0 (0.0)	14 (51.9)	13 (48.1)
	>15 years	0 (0.0)	42 (70.0)	18 (30.0)
Weekly working hours	<20	0 (0.0)	6 (66.7)	3 (33.3)
	21–30	1 (2.2)	30 (66.7)	14 (31.1)
	31–40	0 (0.0)	77 (79.4)	20 (20.6)
	41–50	1 (5.0)	11 (55.0)	8 (40.0)
	>50	0 (0.0)	4 (80.0)	1 (20.0)
Overtime hours per week	0	1 (1.5)	47 (69.1)	20 (29.4)
	1–5	0 (0.0)	37 (77.1)	11 (22.9)
	6–10	1 (2.7)	25 (67.6)	11 (29.7)
	11–15	0 (0.0)	9 (81.8)	2 (18.2)
	>15	0 (0.0)	10 (83.3)	2 (16.7)
Region of practice	England	1 (0.6)	121 (75.6)	38 (23.8)
	England & Scotland	0 (0.0)	1 (100.0)	0 (0.0)
	England, Scotland & Wales	0 (0.0)	1 (100.0)	0 (0.0)
	Northern Ireland	1 (50.0)	0 (0.0)	1 (50.0)
	Scotland	0 (0.0)	4 (50.0)	4 (50.0)
	Wales	0 (0.0)	1 (25.0)	3 (75.0)

Percentages represent the distribution of burnout and compassion fatigue severity within each demographic or workplace category.

Negative perceptions, such as feeling trapped in the profession (mean 2.88), unappreciated by colleagues (mean 2.74), or in the wrong profession (mean 2.53), were reported less frequently. Compassion-related items scored lower, feeling less sympathetic towards patients (mean 2.39), avoiding certain patients due to previous unpleasant experiences (mean 2.16) or feeling that adequate empathy had not been demonstrated (mean 2.24). The latter item is likely to relate to occasional emotional responses following particularly difficult individual clinical encounters, rather than avoidance of specific patient groups or sonography specialities; and the low mean score (2.16) suggests such experiences were uncommon. Anxiety about identifying abnormalities was also relatively low (mean 2.34) (Figure 4). Workplace culture emerged as a significant concern, with 71.6% of respondents reporting that their employer discouraged open discussion about burnout or mental health (mean 2.09).

Distribution of Burnout and Stress Items

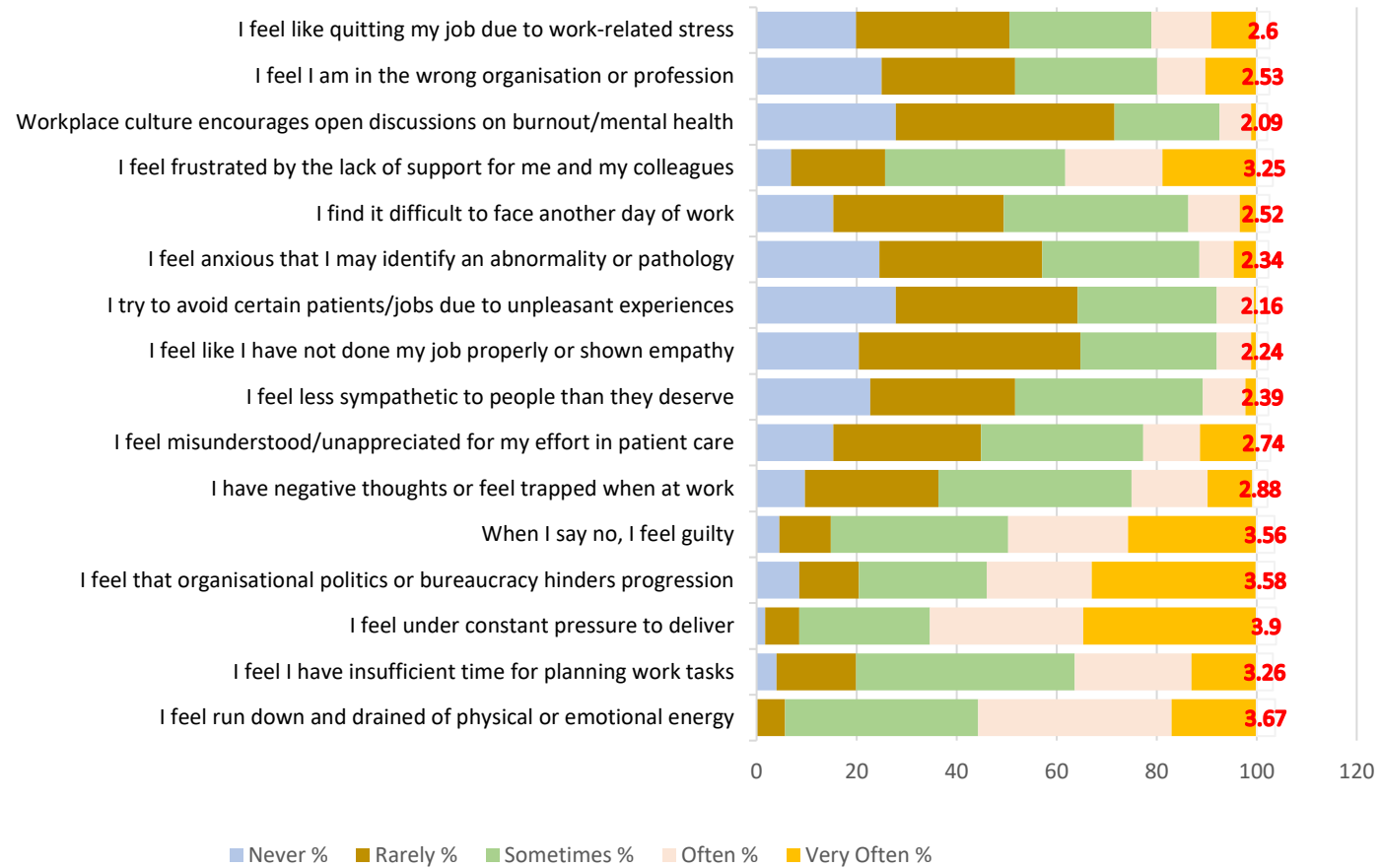


Figure 3: Distribution of Burnout and Stress among Sonographers with Likert's means (numbers in red colour). Higher scores indicate greater frequency.

Associations between burnout, compassion fatigue severity and participant factors

Associations between symptom severity (minimal, mild, and severe) and demographic variables were evaluated using chi-square tests with collapsed categories to meet statistical assumptions (Table 3). Perceived employer support showed a clear association with severity, with higher levels of burnout and compassion fatigue more common among respondents who reported low or uncertain support ($p < 0.001$). Region of practice was also associated with severity ($p = 0.007$), with higher severity observed among respondents practising outside England.

Table 3: Assumption-compliant collapsed chi-square analyses of factors associated with burnout and compassion fatigue severity (n = 176)

Variable (collapsed)	Categories	χ^2	df	p-value	Cramér's V
Employer support (3-level)	Low / Unsure / High	28.79	4	<0.001	0.286
Employer support (binary)	No or unsure vs Yes	12.11	2	0.002	0.262
Years of experience	0–5 / 6–10 / ≥ 11 years	16.20	4	0.003	0.215
Region of practice	England vs Other UK regions	9.92	2	0.007	0.237
Gender	Female vs Male	7.39	2	0.025	0.206
Weekly working hours	<31 / 31–40 / ≥ 41	7.22	4	0.125	0.143
Age group	≤ 40 / 41–50 / ≥ 51 years	2.38	4	0.665	0.082
Overtime hours per week	0 / 1–5 / ≥ 6	1.51	4	0.825	0.065

Variables were collapsed to meet chi-square test assumptions. Reported p-values are unadjusted. Effect sizes are presented as Cramér's V, interpreted as small (0.10), moderate (0.30), and large (0.50).

Years of professional experience showed a significant association with severity ($p = 0.003$), with greater severity more frequently reported among those with longer Practice duration. Gender also showed a modest association with severity ($p = 0.025$). In contrast, age group, weekly working hours, and overtime hours were not significantly associated with severity ($p > 0.05$).

Discussion

This study provides evidence that burnout and CF are highly prevalent among UK sonographers, with almost all respondents (99%) reporting at least mild symptoms and over one-quarter (26%) experiencing severe levels. The demographic profile of the sample, characterised by a predominance of female, mid-career practitioners working in NHS hospital settings, reflects the UK sonography workforce.¹⁶ Notably, age was not independently associated with burnout severity, while modest associations were observed for gender and years of professional experience. However, these associations were weaker than those observed for organisational factors, particularly perceived employer support. These findings support the argument that burnout and CF reflect organisational outcomes rather than individual coping capacity.¹⁷

Workload intensity and time pressure were also prominent among the cohort, with 65.3% of respondents feeling under constant pressure to deliver. These psychological outcomes should be understood within the wider occupational context of UK sonography practice, which is characterised by chronic understaffing, rising service demand, increasing scanning throughput, and limited opportunities to rest. Together, these pressures underpin the sustained physical demands of the role and

are closely linked to the high prevalence of work-related musculoskeletal disorders among sonographers, ^{18,19,20} which and time pressure to exacerbate burnout and CF. Our study further revealed that high-pressure environments, increased workloads, and personal guilt when expectations are unmet contribute to emotional stress and burnout. These findings are consistent with UK evidence demonstrating that escalating service demand, staffing shortages, and productivity expectations have created sustained high-pressure working environments for sonographers.^{10,21} When excessive workload coincides with limited opportunities for recovery, psychological strain becomes embedded within routine professional practice rather than representing a transient occupational stressor.

Our findings also indicate limited access to employer-sponsored wellbeing programmes for respondents; nearly half (47.2%) reported insufficient mental health support, and only 28.4% felt supported by their employer. A small proportion reported seeking private counselling, highlighting an unmet organisational need. These findings are consistent with the reports by Balthazaar et al.²², who highlighted the importance of workplace counselling, peer support, and stress-relief resources, reflecting the current state of the NHS, suggesting that staff wellbeing provision frequently lags behind service demand and clinical intensity.

Comparable levels of psychological distress and burnout have been reported in other UK sonographer studies. Johnson et al. found that 80% of obstetric sonographers reported exhaustion in a pre-pandemic UK sample.¹¹ More recently, Skelton et al. reported that over 90% of UK obstetric sonographers met burnout thresholds for exhaustion or disengagement during the COVID-19 pandemic.¹⁰ These studies

reinforce the recent growing concerns about burnout within the sonography workforce and potential implications for patient safety.

Perceived employer support showed the strongest association with burnout severity in this study. This is consistent with findings from related research which advocated for enhanced access to counselling, peer support, and emotionally safe communication channels as the most effective mitigation strategies.^{10,22} Our findings are also consistent with the Job Demands-Resources model, in which workload pressure and limited recovery time were major stressors, suggesting that clinical expectations frequently exceed psychological resources.^{22,23} Usually, when attempts are made to increase service capacity and reduce waiting lists, service provision is prioritised over staff welfare.^{8,10,18} This subsequently leads to intensified pressure on organisations and their workforces, especially since the COVID-19 pandemic, requiring constant management attention.¹⁰

Despite the high levels of burnout reported in this study, participants continued to demonstrate empathy toward patients. This pattern may reflect the maintenance of professional norms and role expectations within sonography practice rather than resilience itself, particularly given the absence of a direct measure of psychological resilience. However, continued empathetic engagement alone is unlikely to offset chronic organisational stress where workload and recovery remain structurally imbalanced. It is postulated that prolonged emotional exhaustion, if left unaddressed, may contribute to future sickness absences, presenteeism, and detachment from work.²⁴ Therefore, a longitudinal study is required to determine the long-term impacts

of CF and burnout and to inform the development of targeted measurable interventions.

Regional variation in the experience of CF and burnout was observed. Participants practising outside England reported higher severity; however, the authors acknowledge the small samples from Scotland, Wales, and Northern Ireland and caution that these limit the generalisability of the findings. As a result, the data do not permit firm conclusions about differences in funding models, workforce planning, or service demands across the UK's health systems. Nevertheless, this pattern highlights the need for further research to examine potential regional inequities in support structures, and workforce pressures, and particularly in patient care.

Despite these regional variations in burnout intensity, empathy toward patients appeared consistent across respondents practising across the four UK nations (England, Scotland, Wales, and Northern Ireland), emphasising the humane core of sonography practice. The authors believe these regional variations may be inflated by a convenience sample, thereby introducing participation bias. It is possible that participants who experienced high levels of burnout and CF may be more inclined to respond to the survey. Nevertheless, maintaining staff resilience may be supported through the adoption of the Society of Radiographers and the British Medical Ultrasound Society's framework for reflective practice, emotional resilience training, and peer-support arrangements.²⁵ In addition, preceptorship models and professional capability frameworks could also be key in supporting early-career sonographers' transition into practice, strengthening professional confidence, and promoting longer-term career development and retention.^{26,30} However, effective

implementation will require local adaptation and ongoing evaluation, particularly amid ongoing funding and workforce constraints.²⁷

Implication for practice

Findings from the study provide a clearer understanding of the prevalence of burnout and CF among UK Sonographers across specialities, reinforcing concerns raised by recent NHS staff surveys and by the Society of Radiographers that burnout and work-related stress pose a significant risk to workforce sustainability.^{28,29} The results also highlight the need for a proactive, well-resourced, and evidence-informed strategies that prioritise psychological safety and staff wellbeing, with the potential to indirectly support the quality and safety of patient care.

At the national level, workforce planning must also acknowledge that ultrasound demand continues to rise amid persistent sonography workforce shortages.^{6, 18} Existing pressures are likely to intensify without sustained investment in staffing capacity, extended training routes, protected recovery time for sonographers, and easily accessible mental health support. The findings highlight a clear opportunity for lead sonographers, service managers, and policymakers to strengthen working environments that support both patient care and the wellbeing of sonographers who deliver it. Meaningful action at organisational and national levels is now essential to sustain the ultrasound workforce and safeguard the long term quality of ultrasound services.

Limitations

The convenience sampling and cross-sectional quantitative design effectively

estimated the prevalence and severity of CF and burnout; however, it may have introduced selection bias and possibly limited the generalisability of the results. It also does not enable longitudinal evaluation. The small number of participants from Scotland, Wales, and Northern Ireland restricts the ability to draw firm conclusions regarding regional differences across the UK; therefore, future research should adopt a stratified sampling to develop a more representative prevalence rate. A longitudinal design would also help examine how CF and burnout develop over time and allow researchers to test whether the suggested mitigation strategies from our study and the present policy statements make a measurable difference.

Conclusion

Burnout and CF are prevalent among UK sonographers, with findings indicating a strong association between organisational pressures and burnout and CF rather than individual characteristics, highlighting the need for structural rather than individual resilience focused approaches. Amidst these challenges, participants generally demonstrated empathy towards patients, indicating the continued enactment of professional empathetic practice despite reported psychological strain.

Our results indicate that improving access to counselling, strengthening professional supervision, managing workload more effectively, and fostering psychologically safe workplace cultures may offer avenues for mitigating burnout and CF. Although higher burnout severity was observed among sonographers outside England, the uneven geographical distribution of the sample limits the ability to draw firm conclusions at a national level. This study affirms that burnout and CF in sonography should be viewed as a workforce sustainability and patient safety issue, requiring coordinated

organisational and policy-level action to achieve a sustainable, longterm solution.

Availability of data

Data required for this study may be made available by the author(s) upon reasonable request.

Author contributions

AI: Conceptualisation, Methodology, Software

AI, EU, BE: Data curation, Writing- Original Draft preparation

EU, BE, CH: Visualisation, Investigation

CH: Supervision

EU, AI: Software, Validation

BE, CH, AI, EU: Writing- Reviewing and Editing

Declaration of Generative AI and AI-assisted technologies in the writing process

None to declare.

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Conflict of interest statement

None.

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supporting recruitment through promoting the research through their respective platforms.

References

1. Vorster M, Casmod Y, Hajat A. Sonographers' experiences in coping with stress in the workplace in Gauteng, South Africa. *Radiography*. 2025;31(3). doi:10.1016/j.radi.2025.102960
2. Todaro-Franceschi V. Compassion Fatigue and Burnout in Nursing: Enhancing Professional Quality of Life, Second Edition. *Compassion Fatigue and Burnout in Nursing, Second Edition: Enhancing Professional Quality of Life, Second Edition*. Published online January 1, 2019:1-306. doi:10.1891/9780826155214
3. Khan Z. The Emerging Challenges and Strengths of the National Health Services: A Physician Perspective. *Cureus*. 2023;15(5):e38617. doi:10.7759/CUREUS.38617Wolotira EA. Trauma, Compassion Fatigue, and Burnout in Nurses: The Nurse Leader's Response. *Nurse Lead*. 2023;21(2):202-206. doi:10.1016/J.MNL.2022.04.009
4. Stoewen DL. Moving from compassion fatigue to compassion resilience Part 4: Signs and consequences of compassion fatigue. *The Canadian Veterinary Journal*. 2020;61(11):1207. Accessed November 26, 2025. <https://pmc.ncbi.nlm.nih.gov/articles/PMC7560777/>
5. Carr R, White H. Exploring sonographer emotional wellbeing: NHS sonographers' experience of the restorative function of professional supervision. *Ultrasound*. 2023;31(2):147-154. doi:10.1177/1742271X221131482
6. NHS England. Classification: Official Diagnostic Imaging Dataset Statistical Release. Published online 2025.
7. van der Westhuizen L, Naidoo K, Casmod Y, Mdlethse S. Sonographers' experiences of being a caring professional within private practice in the province of Gauteng. *Health SA*. 2020;25:1-7. doi:10.4102/HSAG.V25I0.1409
8. Hardicre NK, Arezina J, McGuinness A, Johnson J. Managing the unmanageable: A qualitative study exploring sonographer experiences of and training in unexpected and difficult news delivery. *Radiography*. 2021;27(2):369-376. doi:10.1016/j.radi.2020.09.015
9. Cohen C, Childs J, Maranna S. Behind closed doors: Are sonographers coping? A nation-wide survey investigating the emotional wellbeing of sonographers working for private organisations within Australia. *Sonography*. 2021;8(4):144-154. doi:10.1002/SONO.12282
10. Skelton E, Harrison G, Rutherford M, Ayers S, Malamateniou C. UK obstetric sonographers' experiences of the COVID-19 pandemic: Burnout, role satisfaction and impact on clinical practice. *Ultrasound*. 2023;31(1):12-22. doi:10.1177/1742271X221091716
11. Johnson J, Arezina J, McGuinness A, Culpan AM, Hall L. Breaking bad and difficult news in obstetric ultrasound and sonographer burnout: Is training helpful? *Ultrasound*. 2019;27(1):55-63. doi:10.1177/1742271X18816535

12. Ollawa CU, Lawal O, Akpan E, Upeh ER, Kwame Anudjo MN. Occupational stress and wellbeing: A qualitative exploration of the perspectives and experiences of migrant sonographers practising in the United Kingdom. *Radiography*. 2025;31(2):102882. doi:10.1016/J.RADI.2025.01.017
13. Bahari G, Asiri K, Nouh N, Alqahtani N. Professional Quality of Life Among Nurses: Compassion Satisfaction, Burnout, and Secondary Traumatic Stress: A Multisite Study. *SAGE Open Nurs*. 2022;8. doi:10.1177/23779608221112329
14. Lazăr F, Gaba D, Munch S, Luca A, Mihai A, Rentea GC, et al. The ProQol-20, a restructured version of the professional quality of life scale (ProQOL). *Current Psychology*. 2023;42(17):14724-14735. doi:10.1007/S12144-022-02755-2
15. Yaddanapudi L. The American Statistical Association statement on P-values explained. *J Anaesthesiol Clin Pharmacol*. 2016;32(4):421. doi:10.4103/0970-9185.194772
16. British Medical Ultrasound Society. *Survey by the British Medical Ultrasound Society NHS Sonographers Scope of Practice NHS Sonographers Scope of Practice Executive Summary.*; 2021. Accessed July 13, 2025. https://www.bmus.org/static/uploads/resources/BMUS_Sonographers_Scope_of_Practice_Report_FINAL.pdf
17. Koporcic N, Francu RE, Gugenishvili I, Nietola M. Exiting the space between the rock and the hard place: An integrative managerial approach to tackling burnout in a business context. *Industrial Marketing Management*. 2025;126:44-55. doi:10.1016/J.INDMARMAN.2025.02.006
18. Waring L, Miller PK, Sloane C, Bolton G. Charting the practical dimensions of understaffing from a managerial perspective: The everyday shape of the UK's sonographer shortage. *Ultrasound*. 2018;26(4):206-213. doi:10.1177/1742271X18772606
19. V Gibbs, P Young. A study of the experiences of participants following attendance at a workshop on methods to prevent or reduce work-related musculoskeletal disorders amongst sonographers. *Radiography*, 17 (3) (2011), pp. 223-229, [10.1016/J.RADI.2011.02.003](https://doi.org/10.1016/J.RADI.2011.02.003)
20. The Society and College of Radiographers

Work related musculoskeletal disorder (Sonographers)

(July 2019)

<https://www.sor.org/getmedia/6698659d-2910-4bca-a826->

[ea942acaf80a/work_related_musculoskeletal_disorders_sonographers.pdf_2](https://www.sor.org/getmedia/6698659d-2910-4bca-a826-6a942acaf80a/work_related_musculoskeletal_disorders_sonographers.pdf_2), Accessed 29th Jan 2026

21. Won D, Walker J, Horowitz R, Bharadwaj S, Carlton E, Gabriel H. Sound the Alarm: The Sonographer Shortage Is Echoing Across Healthcare. *J Ultrasound Med*. 2024;43(7):1289-1301. doi:10.1002/JUM.16453
22. Balthazaar S, Srdanovic M, Marken K. Prevalence of Burnout and Psychological Stress among Sonographers in Canada Following the COVID-19 Pandemic. *Canadian Journal of Medical Sonography*. Published online 2024. doi:10.22374/CJMS-2023-0067

23. Bakker AB, Demerouti E. Job demands-resources theory: Taking stock and looking forward. *J Occup Health Psychol.* 2017;22(3):273-285. doi:10.1037/OCP0000056
24. Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry.* 2016;15(2):103. doi:10.1002/WPS.20311
25. Society of Radiographers, British Medical Ultrasound Society. Guidelines for Professional Ultrasound Practice. 9th ed.. 2025 (December). Published online. <https://www.sor.org/getmedia/73ed50ce-af74-4988-a73d-5f44a9127b79/2025-SoR-and-BMUS-guidelines-9th-Ed-FINAL-v2>
26. Coleman L. Education and Career Framework for the Radiography Workforce. Published online January 3, 2013. Accessed December 8, 2025. <http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted>
27. British Medical Ultrasound Society. Preceptorship and capability framework for sonographers. 2022 (July). Published online https://www.bmus.org/media/resources/files/Preceptorship_and_Capability_Development_Framework_for_Sonographers.v5_A_vmKHHdn.pdf. [Accessed 7 May 2026].
28. Robertson R, Wenzel L, Thompson J, Charles A. Understanding NHS financial pressures. *The King's Fund.* 2017;(March):1-126. Accessed November 29, 2025. [https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Understanding NHS financial pressures - full report.pdf](https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Understanding_NHS_financial_pressures_-_full_report.pdf)[https://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/Understanding NHS financial pressures - full r](https://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/Understanding_NHS_financial_pressures_-_full_r)
29. NHS Staff Survey 2024: health and wellbeing overview | NHS Employers. 2025. Accessed November 26, 2025. <https://www.nhsemployers.org/articles/nhs-staff-survey-2024-health-and-wellbeing-overview>
30. Society of Radiographers. Radiographers share experiences of burnout: 'We need to make the system better' | SoR. 2024. Accessed November 26, 2025. <https://www.sor.org/news/government-nhs/radiographers-share-experiences-of-burnout-%E2%80%98we-nee>