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A multi methods study to explore the impact of the COVID-19 pandemic on the psychological well-being of cancer nurses across Cheshire and Mersey

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Abstract

Background Cancer nurse well-being is crucial for the delivery of high-quality patient care. During the COVID-19 pandemic, fear and anxiety negatively impacted nurse well-being. Understanding the factors contributing to well-being amongst cancer nurses is a priority, as chronic stress can negatively influence job satisfaction and standards of care.

Methods A multi methods approach comprising a repeated measures survey ($n=69$), semi-structured interviews ($n=29$) and two focus groups was used. This enabled in-depth exploration of nurses' experiences over time. Following ethical approval, nurses from different cancer settings were recruited from NW England. The survey measured anxiety, depression, self-efficacy, resilience and well-being at three time-points [baseline; 3 months and 6 months]. Data was collected Feb-Oct 2022. Participants were also invited to participate in an interview and focus group. This data was subject to Thematic Analysis. Data sources were triangulated to substantiate findings. Ethical approval was obtained and participants provided informed consent.

Results Survey data revealed anxiety, well-being, self-efficacy and resilience were broadly consistent over time. The only significant difference was depression, where mean scores at times 2 and 3 were significantly lower than time 1. While most participants reported mild to moderate anxiety and depression throughout the study, at time 3 a significant minority (32%, 9/28) reported severe depression. Four themes arose from interviews: (i) the principles and practice of nursing, (ii) the impact of COVID-19 on nurses' identity, (iii) self-management strategies, (iv) organisational responses. Focus group data emphasised the need for improved communication concerning well-being services.

Conclusions Nurses used coping strategies throughout the pandemic and beyond, drawing on professional and personal experiences and adapting to clinical service changes. Well-being was sustained through peer and patient interactions, and work routines. Workplace cultures supporting and normalising nurses' well-being should be encouraged and co-creation of interventions to build resilience and improve communication. Importantly interventions should be evaluated for their effectiveness and barriers to accessing support removed. Our findings

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build on theory addressing workplace culture, high stress environments and individuals' self-awareness of well-being needs. Research is needed to understand the well-being needs of cancer nurses according to banding, work setting, and pre-existing psychological morbidity.

Clinical Trial Number Not applicable.

Keywords Cancer, COVID-19, Registered nurses, Multi methods, Well-being

Background

The COVID-19 pandemic put unprecedented strain on health and social care services, in particular the front-line nurses who provide care, treatment and support to patients and families affected by cancer. Nurses found themselves having to educate patients and the wider community about COVID-19, as they responded to enquiries from worried, confused, or sick patients. The virus raised concerns amongst nurses about compromised safety and risk, level of preparedness, misinformation and resources, including the potential threat to patients and families, which had to be balanced with a duty to provide high quality care. NHS policies and guidelines focused on protecting the most vulnerable, immunocompromised patients, with reductions in oncological medical procedures, anti-cancer treatments, surgeries and diagnostic services, to reduce the risks associated with COVID-19 infection [1]. Nurses faced unprecedented challenges due to changes in the way health services were delivered, in particular, caring for more complex and poorly patients and adapting to new ways of working. Working in the cancer setting was associated with specific challenges such as supporting the emotional needs of patients and families, dealing with death, dying and bereavement and having difficult conversations, all of which increased the stress, fatigue and burnout felt by nurses [2].

Nurses who worked during the COVID-19 pandemic experienced unmet needs in the domains of physical needs, safety needs, love and belonging, esteem, and self-actualisation [3]. Nurses experienced a range of long-term physical health issues from COVID, such as pain, skin and respiratory problems, leading to calls for targeted prevention and rehabilitation strategies [4]. There are multiple reports describing the increase in anxiety and depression amongst nurses during the COVID-19 pandemic [5–7] leading researchers and policymakers to call for drastic action to support the health and safety of the nursing workforce. Key stages in nurses' coping strategies throughout the pandemic range from the initial negative emotions associated with chaos and confusion, to adapting to its demands and new ways of working, to adjustment to the new normal and taking pride in role achievements and the profession [8].

The pandemic highlighted gaps in existing services. Nurses experienced anxiety and stress from poor access to equipment and information, while staff shortages and lack of recognition and feeling valued, negatively impacted mental health [9]. Job-related stress from high workloads, personal stress from disruption to home life or having to self-isolate, and role stress due to job uncertainty, public expectations and redeployment to other clinical areas, were common amongst the nursing workforce throughout the pandemic [10]. Anxieties were also reported amongst nurses taking sick leave and from the threat of transmitting the COVID-19 virus between the workplace and home [11]. Efforts to better understand methods of intervening are vital, as chronic stress can negatively impact the standard of care provided to patients and lead to increased absenteeism and staff leaving their job prematurely.

While evidence has shown that healthcare workers faced mental health problems during and beyond COVID-19 [12, 13], little is known specifically about how nurses managed their day-to-day mental health and well-being needs within the organisations in which they worked [14]. Nor have studies adopted a longitudinal approach to understanding changes in nurses' well-being over time. Longitudinal research is valuable in the context of nurse well-being, since it offers insights into the factors impacting stress, resilience and emotional demands in the long-term. Evidence from the impact of stress on the nursing workforce and protective factors for well-being can aid organisations in the development of interventions promoting resilience and improving overall well-being and job satisfaction. This research adds to the current evidence base on nurse well-being by exploring individuals' experiences during the COVID-19 pandemic over a 6-month period, other studies in this field have adopted different methodologies, are non-UK or have explored nurse well-being at different time-points during the COVID-19 pandemic [15–17].

Occupational health literature places greater emphasis on preventive initiatives for stress in the workplace [18]. There are a range of support services offered to nurses within their organisations, however, little is known about how these services are used, if they are helpful, and how nurses self-manage their psychological well-being. A range of organisations have published best practice guidance advocating for positive mental health amongst the NHS workforce [19, 20], however, these frequently focus on conventional mental health interventions, workforce

stresses and managing psychological distress such as grief, loss, depression and trauma.

This study explores the evolving experiences of cancer nurses working across community, primary, secondary and tertiary care sectors during the COVID-19 pandemic, its impact on their well-being and the coping strategies and support systems they used to manage their mental health. The study will capture the experiences of a range of nurses working in different settings, to provide a broad understanding of their needs and help identify where support might be required. It builds on the findings of a previous study conducted earlier in the pandemic, exploring the psychological well-being experiences of healthcare professionals, including nurses, doctors and allied health professionals, working in one regional cancer centre [21].

We used Fredrickson's 'broaden and build' theory [22] to describe how being positive and cultivating positive emotions can help to build personal resources, *"ranging from physical and intellectual resources to social and psychological resources"* (pg. 218). The study was embedded in the context of nurses' coping and well-being during the COVID-19 pandemic, which builds on the theoretical perspectives of Fredrickson for building psychological resilience through positive emotions and beliefs. The work of Fredrickson [22] aligns with other research undertaken with participants during the COVID-19 pandemic, which advocate for individual and collective action to promote positive health practices when managing the negative consequences of health emergencies, such as pandemics [23].

The study

Aim

Our primary aim was to explore the psychological impact of COVID-19 on the well-being of cancer nurses. We proposed that by examining the coping strategies, support systems and skills used by cancer nurses, alongside exploring how their well-being evolves over time, that key barriers and opportunities for support can be identified. These findings can then be used to inform the development of tailored interventions to help promote and sustain the self-management of psychological well-being amongst nurses caring for patients with cancer.

Methods

This study used a multi methods approach, incorporating a survey (at baseline, 3 and 6 months) and semi-structured interviews. Following this, two focus groups were conducted to review the findings and identify any recommendations for practice. Ethical approval and consent were obtained from the University partner organisation, University Research Ethics Committee reference: 21/PSY/027. The survey data was collected between Feb and Oct 2022, and interviews were conducted between March and May the same year. This period aligned to the lifting of lockdown restrictions that had been in place throughout the previous two years and coincided with the easing of restrictions due to vaccination campaigns and a fall in case numbers. It was during this period that the 'living with COVID-19' government plan was launched, ending legal requirements and managing COVID-19 as an endemic illness.

Design

Phase 1– Prospective survey

Nurses working across community, primary, secondary, and tertiary settings who were in regular contact with patients with a diagnosis of cancer were invited to complete an online survey using Qualtrics software [24] at three time points– baseline, 3 months, and 6 months. The study was advertised through social media channels, hospital communication teams and national nursing organisations and networks such as the UK Oncology Nursing Society (UKONS). Advertisements contained a link, taking potential participants to a webpage containing the Participant Information Sheet, with contact details for the Chief Investigator for any questions to be addressed. Those wishing to participate in the survey were asked to acknowledge the consent statement, explaining that completion of the survey indicated consent. All participants were asked to generate a unique code for themselves, prior to commencing the survey. This enabled the research team to identify their data if they subsequently wished to withdraw and allowed follow-up surveys to be linked.

Survey response rates were managed through reminders to participants following the initial survey response. We sent notifications to complete the surveys at 3 and 6 months, followed by two reminders one-week apart. At consent, participants were reminded they were free to withdraw from the study at any time without giving a reason. Participants were invited to indicate if they would take part in an interview and/ or focus group with the researcher and if so, were asked to share their contact details for the purposes of arranging these at a mutually convenient date and time. Those participants who opted to be interviewed were re-consented prior to the interview.

We had no way of identifying the reasons why nurses chose not to participate in the study, although the research team were aware of the challenges nurses were facing at this time. The self-selection of cancer nurses to the study may have resulted in bias towards individuals who were interested in research, wanted to contribute to improvements in practice and had an established well-being narrative prepared. In contrast, nurses who were

experiencing significant psychological morbidity may have avoided sharing their feelings.

To assess the psychological impact of Covid 19 on nurses and in line with Frederikson's 'Broaden and Build' Theory we adopted a contemporary strengths-based approach to our choice of measures. Thus, in addition to assessing psychological distress (anxiety and depression), we included measures of psychological wellbeing, self-efficacy and resilience as these reflect positive emotions, belief in oneself and purposefulness that may be protective, As described in the following section, the self-report measures we chose to assess the above constructs are commonly used and all have good psychometric properties evidenced across a range of geographical areas, cultures, as well as clinical, occupational and general adult populations worldwide [25–28].

- Hospital Anxiety and Depression Scale (HADS) [28]: a screening tool that assesses thoughts and feelings related to anxiety and depression via 14 items e.g. 'I feel tense or wound up'. A 4-point Likert scale ranging from none (0) to severe (3) is used to rate the frequency of thoughts and feelings in the last week. Scores are 0–21 for anxiety and for depression and total scores can be categorised as none (≤ 7), mild (8–10), moderate (11–15) and severe (≥ 16). The HADS is a commonly used measure with good reliability and validity. A recent meta-analysis showed that for major depression a HADS-D cut-off value of seven or higher maximised combined sensitivity 0.82 (95% confidence interval 0.76 to 0.87) and specificity 0.78 (0.74 to 0.81) [29]. Similarly, the cut-off has been found to be a good predictor of structured interview diagnoses for anxiety or depression with a sensitivity of 73% and specificity of 65% [30].
- Self-Efficacy Scale (SES) [31]: comprises 8 items that measures how much people believe they can achieve their goals, despite any difficulties, e.g. 'Even when things are tough, I can perform quite well'. Each item is scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores are summed and an average rating calculated. The scale has good internal consistency, Cronbach's alphas between 0.76 and 0.90.
- The Warwick-Edinburgh Mental Well-being Scale (WEMWEBS) [32]: A 14-item scale scored from 1 (none of the time) to 5 (all of the time). Total scores range from 14 to 70 and are calculated by summing the item scores which reflect positive aspects of mental health to provide a mental well-being score. The scale is extensively used and demonstrates good content reliability, test-retest reliability *(r* =.83), internal consistency Cronbach's alpha (0.89) and validity in a range of samples [33].
- Brief Resilience Scale (BRS) [34]: assesses resilience as the extent to which we are able to recover from stress or adversity; to 'bounce back'. There are six items, with a 5-point response scale from 1 (strongly disagree) to 5 (strongly agree). It is one of the most frequently used resilience scales and has good validity (internal consistency) with Cronbach's alphas between 0.17 and 0.85 across a range of studies [25, 35].

Demographic and contextual information related to professional roles, workplace setting and clinical practice were also collected in survey 1. Nurses were asked to provide information related to their physical and mental health status and well-being resources used each time they completed the survey.

Phase 2 - Semi structured interviews

All nurses who provided data at baseline were offered the opportunity to participate in a one-to-one semi-structured interview with the research team, exploring their experiences, coping and well-being, what occurred on good and challenging days during the COVID-19 pandemic, as well as the resources used to manage stressors, including existing resources and those they would have preferred to access had they been available. Participants were prompted using questions developed from the analysis of the questionnaire data and a review of the literature (Supplementary File - Interview topic guide). Participants were contacted to arrange an interview at a date, time and location convenient to them. Interviews lasted between 15 min and one hour and took place between March and May 2022. All interviews were conducted using Microsoft Teams and were transcribed verbatim and anonymised. Consent was obtained prior to participation.

Phase 3 - Focus groups

Participants from phase 1 and 2 of the study who had agreed to participate in a focus group were contacted through email. The aim of the focus group was to share the findings of the study, discuss how well-being resources were being used and determine if they were meeting the needs of nurses. The focus groups were semi-structured and included prompts developed from the results of phase 1 and 2 of the study (Supplementary File– Focus Group topic guide). Participants were offered focus group appointments to fit with their clinical duties, including their preference for face-to-face or online discussion. Consent was obtained prior to participation. In addition to nurses who opted to participate in the focus groups, the research team contacted a range of

organisations, teams and individuals for their expertise and experience in promoting well-being resources for nurses, including Well-being leads, Directors of Nursing, Lead nurses, and local contacts from Workforce and Organisational Development departments. This provided contextual information to the study and enabled the identification of resources currently available.

Participants

Inclusion Criteria for survey and interview participants.

- Registered cancer nurses working within the Cheshire and Mersey region
- Working within the community, primary, secondary, and tertiary care sectors
- Providing support, treatment, or care to cancer patients with or without a diagnosis of COVID-19
- Capacity and English language proficiency are assumed for staff members

Data analysis

The questionnaire data was analysed using SPSS (v. 28.0) [36] using descriptive and inferential statistics [ANOVA] to determine the pattern of psychological well-being over time in the context of personal and clinical factors.

Interview and focus group data was analysed using the basic six-step systematic process of Thematic Analysis [37, 38]. NVivo software (Version 28) was used to facilitate and record the analytic process. Analysis involved the systematic comparison of transcripts and ordering of codes into categories, with recurrent or common themes identified across the data. The coding, categorising and generation of themes was managed independently by three researchers, prior to being discussed and compared as a group to establish reliability between coders. This process ensured that data analysis was rigorous, systematic and that development of thematic categories within the data was consistent. Verbatim quotes from participants were used to provide a coherent and insightful understanding of the well-being experiences of nurses working in the cancer setting during the pandemic. The data were compared across sources to establish key themes and insights, at which point data saturation was considered to have occurred.

Transcripts were read and re-read, and descriptive codes assigned to sections of the data, reflecting the meaning and significance of events and occurrences. The codes were then organised into potential themes, which were broader concepts containing codes reflecting similar events or occurrences. For example, the theme of 'the impact of COVID-19 on nurses' identity' reflected the increased demand on cancer services post-pandemic and comprised the codes 'getting busy', and 'constantly juggling the number of patients', reflecting the rise in numbers of people presenting to the health service. In addition, the theme also contained the codes associated with patient's disease status and prognosis: 'seeing people of more advanced disease', and 'less treatment options', all of which signified the changes taking place in patient care, service provision and professional roles, and which subsequently impacted nurse well-being.

Rigor and reflexivity

The coding procedures and development of themes was clearly documented by each member to ensure the process was transparent. This included a reflective account of any preconceptions that may have impacted on the interpretation of the data through the use of field notes. Data was analysed individually by members of the research team, prior to discussions taking place as a group to review and agree the emerging themes. Several group discussions were held to achieve consensus on the final interpretation of the data. Peer debriefing was undertaken at key stages of the data analysis process, which provided opportunities to identify alternative explanations and areas for further exploration. To minimise bias, thematic analysis processes were supplemented by the use of iterative coding, refining codes and themes several times to ensure they accurately represented the data, as well as triangulation of data sources to substantiate findings.

The triangulation of data sources provided insights into the psychological and experiential aspects of well-being from participant's accounts. Levels of anxiety, depression and resilience from the survey data, were compared to the accounts of nurses in the interviews, highlighting the adjustments and coping strategies used by nurses for managing high-stress situations in clinical practice. Differences in scores over the survey period were triangulated with nurses lived experiences of maintaining their personal and professional identity. Interview data informed the topic guide for the focus groups, where service improvement initiatives were identified to improve organisational well-being services offered to nurses working in cancer care.

The research team included nurses and psychologists with lived experience of working throughout Covid-19. All authors were white European and experienced researchers with a shared interest in workforce well-being during Covid-19. As such, the interpretation of the data may have been influenced by pre-conceptions and beliefs of team members, however, thoughts and observations were recorded to make these explicit.

Ethical considerations

Potential participants were provided with an information sheet specifying the details of the study. They were given time to discuss their participation with friends/

family and to ask questions. The information sheet included details of the topics to be discussed during the interview and reminded participants that their participation was voluntary, therefore nurses chose to participate if they were interested in sharing their experiences. Written consent was obtained from all participants and regular checks made to ensure participants were happy to continue. Research data was managed in accordance with GCP-ICH (the ICH Harmonised Tripartite Guideline for Good Clinical Practice (CPMP/ICH/135/95) and Research Governance Framework for Health and Social Care guidelines and the General Data Protection Regulation.

Table 1 Participant characteristics

Sample demographics		No. of participants (%)
Gender	Female	62 (95.4)
	Male	3 (4.6)
Age	21–30	9 (13.8)
	31–40	12 (18.5)
	41–50	26 (40)
	51–60	18 (27.7)
Ethnicity	White-British	59 (90.8)
	White-Irish	4 (6.2)
	White-Other	2 (3.1)
Qualifications	Degree	43
	Masters	16
	Other: Diploma	6
	Other: Completing masters	4
	Other: Registered general nurse	1
Type of service	Adult	57 (87.7)
	Child	6 (9.2)
	Both	2 (3.1)
Length of service	0–12 months	3 (4.6)
	13–24 months	7 (10.8)
	25 months– 5 years	10 (15.4)
	6–10 years	10 (15.4)
	11–15 years	9 (13.8)
	16–20 years	12 (18.5)
	21 + years	14 (21.5)
Hours worked	Full-time	51 (78.5)
	Part-time	14 (21.5)
Hours contracted (if part-time) **	20.5	1
	21	1
	22.5	2
	23	1
	24	1
	27	1
	30	7

Documentation and anonymity

All data were securely stored electronically and managed in line with ethical and governance requirements. Study data was stored separately to personal information. All interview and focus group data were anonymised by removing any direct identifiers and through the use of pseudonyms.

Mitigating participant distress

Protocols were used for managing psychological distress that could have arisen from discussing sensitive and personal topics. Participants were reminded that they had the right to withdraw from the study at any time should they wish, without giving a reason. Each participant was debriefed following the interview/focus group. Information was provided on staff support and resources, if required.

Participant characteristics

A sample of 69 nurses completed the questionnaires. Demographic data and contextual information was requested at the baseline questionnaire time-point (Table 1).

The majority of participants were female (95.4%), white-British (90.8%) with ages ranging from 21 to 60, with 40% in the category 41–50. Participants were recruited from a variety of primary, secondary, tertiary and hospice healthcare sectors and job roles, including staff nurses, matrons, distract nurses, clinical nurse specialists, community and practice nurses. A sample of 29 nurses participated in an interview and 7 nurses and 5 providers of well-being resources participated in the focus groups.

Results – Survey

Of the 123 participants who accessed the first link to the survey at time 1, three (2.4%) participants were screened out as they did not meet the inclusion criteria, a further 51 (41.4%) started but did not complete the survey. A total of 69 (56%) participants completed the survey at time 1, of these 40 (58%) completed the survey at time 2; and 29 (42%) at time 3. Matched data from all three time points was available for between 21 and 23 participants (Fig. 1). Not all participants recalled and/or provided their unique identifier. Participant responses between surveys 1–3 varied due to non-response to survey reminders and hence, loss to follow-up. Hence, matched data, i.e. data from the same participants across the three time points, was available for between 21 and 23 participants (Fig. 1).

We completed a series of repeated measures ANOVAs to determine any differences between depression, anxiety, resilience, self-efficacy and well-being at baseline, 3 and 6 months. Bonferroni corrections are reported, the

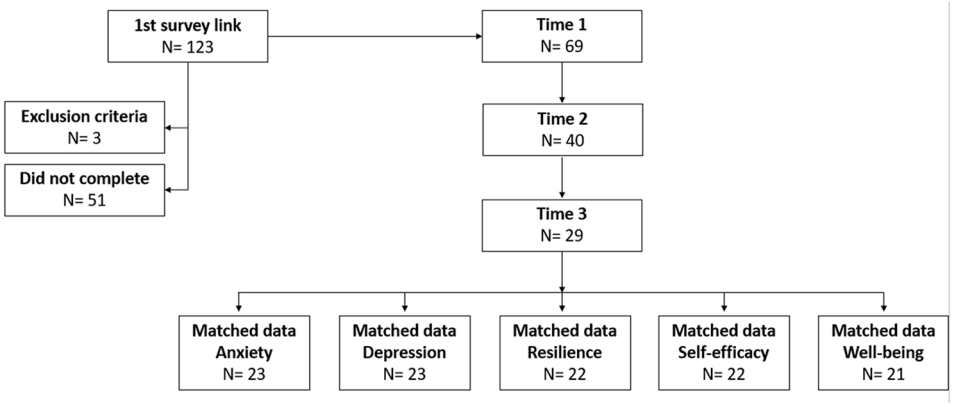

Fig. 1 Flow chart of recruitment and matched data of participants

Table 2 Means/SD on survey scales for all respondents at each time point

Scale	HADS A			HADS D			GSE			WEMWBS			BRS		
Time	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
N	66	40	28	66	40	28	62	39	27	62	37	27	61	38	28
Mean	10.5	11.6	11.6	9.1	7.3	7.1	30.2	31.1	31.6	44.5	47.4	46.8	17.7	18.2	18.1
SD	2.3	2.0	2.6	2.0	1.9	1.7	3.9	4.3	4.9	8.3	9.5	9.7	1.4	2.0	1.9

Key: HADS – Hospital Anxiety and Depression Scale; GSE – General Self-Efficacy Scale; WEMWBS – The Warwick-Edinburgh Mental Well-being Scale; BRS – Brief Resilience Scale

Table 3 Number of participants in each category range for HADS

Time	HADS A			HADS D		
	1	2	3	1	2	3
0–7 (NORMAL)	9	2	3	11	22	18
8–10 (MILD)	21	8	3	41	16	9
11–14 (MODERATE)	35	30	20	14	2	1
15–21 (SEVERE)	1	0	2	0	0	9

small number of participants (n = 21–23) providing data at all 3 time points is acknowledged in interpretation.

There were significant differences in HADS depression scores over time ($F\ (2,44) = 17.094$, $p < .001$, $n^2p = 0.437$). Multiple comparison between means (Bonferroni $p < .001$) indicated a significant reduction in depression scores between time 1 (M = 9.6, SE = 0.416) and time 2 (M = 7.2, SE = 0.359), and time 1 (M = 9.6, SE = 0.416) and time 3 (M = 7.44, SE = 0.376). There were no significant differences on HADS Anxiety, WEMWEBS well-being, self-efficacy (SES) and resilience (BRS) over the three time points (Table 2).

Anxiety and depression

For all respondents, HADS mean scores for anxiety remained fairly consistent throughout and those for depression reduced over time. For the subsample who provided data at all timepoints, this reduction was significant (see ANOVA result above). Using group means may mask changes at a categorical or individual level. Thus, using accepted cut off scores for anxiety and depression, we grouped participants into normal, mild, moderate and severe categories at the three time points (Table 3). The majority reported mild to moderate anxiety and depression throughout the study. It is notable that, although numbers are small at time 3 (n = 28), a significant proportion of participants (32%) are reporting severe depressive symptoms.

Finally, considered whether those nurses who were more anxious or depressed were more likely to report seeking advice and support for well-being, or more likely to avoid it. However, we found no differences, suggesting nurses generally managed their well-being positively and were open to talking about their feelings.

Results - Interviews

There were four interview themes: (i) the principles and practice of nursing, (ii) the impact of COVID-19 on nurses' identity, (iii) self-management strategies, (iv) organisational responses.

The principles and practice of nursing reflected the professional codes underpinning the nursing profession, for example, practising safely and effectively by sharing knowledge and skills, being accountable for decisions, and working within an ethical framework. Codes emerged from the data reflecting the expertise of high-quality nursing care and practice, with terms such as 'proficiencies', 'profession' and 'career' being used. Moreover, the ability of nurses to adapt to challenging situations was implicit to the nursing profession, including 'thinking on your feet', 'getting on with it' and 'making

systems work'. Standards of nursing care were implicit in narratives, evidenced through quotes such as 'looking after patients well' and 'good patient care'.

The impact of the pandemic required nurses to manage service constraints and to take action to deal with patient concerns and clinical risk by taking action to address causes of concern. The 'impact of COVID-19 on nurses' identity' emerged from the accounts of nurses who identified role-specific challenges and opportunities from the pandemic. Threats to nurse identity were linked to emotive codes arising from situations causing 'worry' or 'difficulty' for nurses, for example, having to 'shuffle workloads', 'juggle patients' and caring for patients who were more poorly. In contrast, codes such as 'working well', 'good standards' of care and patients being looked after 'amazingly', provided a sense of role satisfaction and suggested that professional standards were upheld in challenging situations.

Nurses mobilised a repertoire of self-management techniques to uphold their professional standards and maintain the level of health needed to carry out their professional role. Self-management strategies included a range of coping mechanisms to relieve anxiety and stress, such as 'taking time out', going to the gym and keeping in touch with friends and colleagues. Participants realised the importance of self-care through statements such as 'making sure' they took responsibility for their mental health and well-being.

Finally, organisational responses to nurse well-being were central to ensuring nurses could carry out their role in a supportive environment that promoted the values of the profession. Organisational responses were routed in the actions and resources offered by employers to support nurses' well-being during the pandemic. Codes were generated from nurses' accounts of services provided and their views about them, for example, clinical supervision and debriefing, however, experiences of these varied and were underpinned with the realisation that nurses 'barely have the chance' and 'never have time' to benefit from well-being services in the workplace.

THEME 1: The principles and practice of nursing

The professional identity of nurses is embedded in the attitudes, values, knowledge, beliefs, and skills shared with members of their professional group. This shaped their actions as they provided high quality care to patients during the COVID-19 pandemic.

> *That is just nursing in a nutshell basically …you shouldn't actually be a nurse if you're going to go right it's this time now, I'm going, ta-ra and drop everything … and just walk off, sometimes you would love to have the feeling that you could do that, but you shouldn't be in this profession anyways, well that is my motto* ***P09***

Nurses adopted behaviours that enabled them to maintain professional standards in challenging situations, such as being stoic and resilient.

> *I think the time length in the NHS has enabled me to do that really. I think, not just my role as a CNS but the whole of my nursing career, you very much think on your feet* ***P13***

> *So you just get on with it really, a get on with it attitude* ***P23***

Participants described how they drew on their skills to address day-to-day challenges at work, employing problem-focused coping methods to adapt to the evolving needs of patients and the wider organisation.

> *I think nurses tend to be very good at mitigating. So, what can we put into place right here right now? I think we are very good with patients, I think we are very good at making systems work* ***P13***

Maintaining safe patient care and public protection was a priority to nurses and included the maintenance of professional boundaries and working within the limits of competence.

> *It challenged you mentally in terms of the proficiencies of a nurse, you know, are these my boundaries, you know I have things to do professionally that perhaps people involved didn't appreciate and it was having the, really making me have to speak up about certain things that I've never really had to do before* ***P18***

THEME 2: The impact of COVID-19 on nurses' identity

Pressures in cancer services during the pandemic were associated with reductions and cancellations in elective care and cancer treatment to protect immunosuppressed patients. As a result, nurses were seeing patients who were anxious, felt let down by the NHS and who had been diagnosed with more advanced disease.

> *I think it is only going to get worse. I think it has been branded around that oh we are over COVID, but actually the legacy of that in cancer, we are going to be seeing for the next 3 to 4 years to be honest and that is a real worry. That is a real worry that we are going to be seeing people with more advanced disease, less treatment options, and feeling very let*

down by the NHS. As a nurse, it is difficult, well personally I think it is difficult to not absorb that ***P13***

The well-being of nurses during the pandemic was impacted by changes to the way health services were delivered and managed. The pandemic highlighted the pre-COVID challenges faced by the nursing workforce, in particular a lack of staff and resources.

What has been emphasised heavily in the news is that we are under resourced anyway, the NHS service and I think that COVID really highlighted that ***P01***

The recruitment and retention of staff became a priority for many Trusts, with potential shortages impacting on standards of patient care. Upholding the reputation of the nursing profession was central to the quality and safety of patient care.

You are just constantly trying to shuffle the workload, hopefully because they are recruiting constantly we will get more staff. At the end of the day, as long as the patients are seen, and the care is met and given, and the standard is good that is the main thing ***P07***

As many cancer treatments and surgeries were cancelled due to the pandemic, nurses reported having more time to spend caring for patients. Nurse leadership ensured patients' well-being was protected, as staff were able to identify priorities and manage their time and resources effectively.

Patients who were actually on the ward were getting looked after amazingly because we had the time and the staff to look after them ***P09***

In the aftermath of the COVID lockdowns the numbers of patients accessing cancer services increased, putting a strain on nursing services. Participants described the negative psychological impact of this.

It's been a difficult two years I think, the actual main part of the pandemic, you know when we didn't see people in the clinics. It seems to be harder now. We still have some of the restrictions but not all the restrictions, you are constantly juggling the numbers of patients, the volume and trying to fit everything in, I have found it more difficult in the last six months than in the first six months ***P11***

Due to changes in GP services during the pandemic, increased pressure was experienced by those nurses working in the community and primary care sectors. Although the switch to telephone consulting was a necessary response to the COVID-19 pandemic, nurses were placed in situations they had no control over.

We worked well with the community matrons because a lot of the GPs didn't come out, at all. We have verified lots of deaths and we have been the main ones going in because the GP's, there is still a few now that still aren't coming out and doing home visits. They will send us in ***P07***

THEME 3: Self-management strategies

Nurses used a variety of strategies and techniques to self-manage their mental health and well-being, recognising the importance of self-care.

I think making sure that you do take time for yourself. I think that is the most important thing, if you're not mentally or physically well, how can you help somebody else who isn't ***P17***

It is just finding something that helps you balance yourself basically and take time out for yourself every day… just to take time out for yourself, to keep yourself well ***P07***

Nurses frequently mentioned exercise as a coping mechanism they used throughout the pandemic and how it had been helpful to include it into their daily routine subsequently.

I make sure that I go to the gym every night and just de-stress ***P08***

Participants found the routine of working life helpful, providing access to peer support. Routine provided a sense of normality which helped nurses to cope in challenging situations, providing reference points that were familiar and which aided well-being.

Most people are still in work, in the hospital. So, that normality was quite good in that sense, because you still had that continuity of coming to work and seeing people and mixing with people that you have always mixed with ***P21***

Nurses reflected on how they coped and adapted throughout the pandemic, learning from events and making positive changes to their role as a result. This highlighted how nurses were able to maintain their professional identity and standards by making positive changes within their roles using reflection, shared learning and evidence-based practice.

There have been some difficult situations, and I have had to deal with those, which were new. Looking back, I felt like I dealt with them, even though they were difficult at the time, I probably did learn a couple of things about how I would do things differently ***P06***

Staying in touch with colleagues and friends through social media was a boost to well-being. Teamwork and mutual co-operation was important to nurses and provided a platform from which knowledge and experience could be shared and supported.

We have like a WhatsApp group, so we keep communicating through that … just trying to keep in touch with people ***P25***

THEME 4: Organisational responses

Participants were aware of the formal well-being resources offered by their organisations. Nurses sought out colleagues for informal chats and debriefing, using the time to reflect on difficult situations and to process emotions.

Now that we are allowed back in the office, we do have a little bit of debrief and we do have a little bit of a talk about it and if someone gets upset that is okay. We try and have a little bit of a wrap around that person and comfort them ***P07***

Several participants were able to access clinical supervision, which was helpful in dealing with well-being issues. It provided insights into the needs of other nurse teams and the realisation that everyone was dealing with similar issues.

I did tag into clinical supervision a bit more during the pandemic than I would have had prior to, because with a smaller group of colleagues we were able to support each other and the issues that we faced looking after cancer patients during this time ***P14***

Responses from nursing management to the well-being needs of nurses varied, with examples of contrasting styles and practices. This highlighted the differences across departments in leadership styles when communicating and responding to concerns from nurses.

I think, within the team we have all done what we can to help each other, but I think from higher level support, no I don't think we, I have been supported, or our team been supported ***P26***

We have an excellent manager, our lead cancer nurse is very holistic in her approach to nursing and looking after her staff, hence us. She was like in the staff hub, she had a little drop in hut in different parts of the hospital ***P09***

The majority of information concerning well-being resources was shared by organisations through email. This was prohibitive to many nurses due to time restraints.

We get sort of emails through saying about sort of help with like mental health and well-being,. we are so busy and you think, I'll never have the chance to go to that ***P02***

Once the team is, were fully staffed, we will have more time to then act, I think, you know I barely have the time to open an email, you know about well-being, let alone go to the event ***P06***

Results - Focus groups

Focus groups were undertaken with the providers of well-being services in the region, with the aim of identifying improvements to existing services or the need for new services using data from the study. The main theme that emerged from discussions was 'Engaging nurses', which comprised the sub-categories of 'Responsiveness', 'Tailored support' and 'Safe environments'.

THEME 1: Engaging nurses

'Engaging nurses' comprised codes reflecting the need for organisations to work in partnership with nurses in co-designing well-being services. There was a need for well-being services that were 'Responsive' to nurses, by being available and accessible when the individual needed to 'speak to somebody there and then', as opposed to waiting to share their concerns. 'Tailored support' encompassed terms such as 'engagement', a 'personal touch' and recognising the needs of individual nurses, which was necessary to meet their varying and nuanced mental health and well-being needs. Finally, the provision of 'Safe environments' assisted nurses to 'open up' about their concerns, to 'recognise' when a colleague was struggling, and to 'work together' to support one another. The focus group data emphasised the need for employers to communicate more effectively with their nursing workforce and to understand their needs in more detail. Due to high levels of email traffic, well-being resource reminders could go unnoticed and other methods of communicating resources were suggested.

I think it is just to make people more aware that it is there because not everyone, I don't think, I know sometimes people they won't always check their emails properly or they might just see them and delete them rather than look at it. So, probably signposting, and signs on posters, so people will actually stop and look at them to know that the resources are there for them ***FG6***

A calendar on things that they could provide… have it around the areas on notice boards … to see that there is a calendar for each month, or for each week and what is on offer for them ***FG6***

Sub-theme: Responsiveness

A face-to-face well-being service within nurses' working environments was deemed important, enabling staff to access resources at a time and place convenient to them. Some staff had to travel across the hospital site to join well-being events, which were some distance away, taking time out of their lunch break, making them less accessible.

Unfortunately, it all seems to be on one particular site" ***FG2***

This would include real time support when the nurse needed it, as opposed to making an appointment to discuss at a later date.

Something actually happens on the day and sometimes you just need to speak to somebody there and then about it not in three weeks ***FG4***

Sub-theme: Tailored support

Participants believed that email was prohibitive for the communication of well-being resources, lacking a personal touch and reflecting a box-ticking exercise. They suggested a more personal approach would encourage more uptake.

Rolling things out in small groups and inviting people rather than an open invitation, so actually that engagement being to the nurse and the staff individually ***FG1***

Sub-theme: Safe environments

Managerial support was instrumental in making staff feel valued and to help identify if an individual is struggling. The sharing of workloads and realistic expectations were believed to be important factors in improving support for nurses.

If someone struggling and we recognize that and we all work together ***FG3***

Participants advocated the use of confidential services with providers from outside of their working environment. This would assist nurses to feel safer to disclose their concerns.

I think would be a good thing because you're more likely to, open up to someone to you don't know as opposed to someone you see everyday, aren't you? ***FG3***

Participants believed that the evaluation of well-being resources was required to assess if these were meeting the needs of nurses and to guide their effectiveness and future improvement.

I think a survey of the well-being service as it is now to see where, what staff are attending their well-being services and what they can do ***FG1***

Integration of survey and interview data

It was not possible to link all the survey and interview data (as not all participants completed both). Not all participants completed the surveys and an interview and there were differences in sample sizes across the survey which together makes direct comparison of datasets and findings challenging. Further, we acknowledge that factors such as willingness to engage in an interview with the researcher may have resulted in bias towards those who were more willing to talk about their experiences. Nonetheless, when we consider the broad themes that emerge from the qualitative and quantitative data, we identify some consistency and logical relationships which we feel increases the validity of our findings.

Survey data demonstrated that nurses maintained consistent self-efficacy and resilience, linked to a broad repertoire of coping and adjustment techniques. Whilst challenges linked to patient care during the COVID-19 pandemic were acknowledged, nurses were able to manage low-moderate anxiety and depression through pre-existing workplace routines and effective relationships with colleagues. Similar themes emerged from nurses during the interviews, which aligned with the direction of survey scores. Nurses were stoic and proficient in their **professional practice**, mitigating system changes and managing worry and anxiety, demonstrating resilience. They displayed consistent levels of self-efficacy, leadership and positive well-being while adjusting to the ever-changing context of the pandemic and its **impact** on them and their **professional identity**. Their **self-management strategies** were appraised and adjusted according to their needs and effect on well-being, aligning with

coping, self-efficacy and resilience measures on the survey. Concerning **organisational responses**, nurses were again dealing with the situations they found themselves in, managing poor communications and access to relevant resources. For example, where formal supervision was unavailable, they formed peer support groups and fed back to leaders about their support needs.

Focus group data reinforced interview data, confirming that more attention should be paid to the accessibility and acceptability of well-being resources, tailoring interventions to the needs of the individual. The presence of consistent findings suggests that fostering supportive work environments through system changes, will help to enhance nurse well-being in the long-term.

Discussion

This study adds to the evidence base on the mental health and well-being needs of nurses in the aftermath of the COVID-19 pandemic, providing an account of the resilience and adaptability of nurses working in cancer care. Nurses demonstrated positive emotions, derived from professional and personal experiences, which were central to sustaining well-being in the long-term. This contrasts with several publications identifying high levels of psychological distress, PTSD and burnout amongst nurses resulting in staff recruitment and retention challenges [39, 40]. Although overall levels of anxiety and depression in the study sample remained consistent with means in the normal-mild ranges, a significant minority reported severe depressive symptoms at time 3. This could suggest that over time, depression got worse, or that in the face of the same stressors, constructs such as resilience, self-efficacy and positive well-being became less protective despite being present at the same levels. This aligns with the assumption that, left untreated, depression will continue to develop in severity. Alternatively, there may be bias in the sample whereby those participants with severe depressive symptoms at time 3 were more invested in remaining in the study and contributing their views, with a view to effecting positive change in the support they were offered. Nonetheless, these findings highlight the importance of considering individual, as well as group responses to psychometric measures, when formulating an intervention strategy.

A number of studies have identified positive well-being amongst nurses derived from their ability to reshape their working environment through interventions promoting collaboration and solidarity with colleagues [41, 42], although the studies were non-UK and undertaken at the start of the pandemic in 2020. Psychological theory applied to nurse well-being enables targeted approaches to supporting nurses to develop resilience skills, identifying key elements necessary for the creation of positive well-being [43, 44]. These range from physiological needs, safety, belongingness, self-esteem and self-actualisation [43] to positive emotion, engagement, relationships, meaning and accomplishment, as factors for building nurse resilience and reducing burnout [44]. Understanding the factors underpinning nurses' well-being can assist in increasing role recognition and fulfilment, promoting job satisfaction and achieving high standards of patient care. Finally, Lazarus and Folkman [45], in their theory of stress and coping, describe how individuals engage interactively within their environment and the events that take place within it. They suggest that stress is a product of the response to events, as opposed to the event itself, and that the assessment of any event threat and one's ability to manage it, leads to different coping strategies. Nurses were faced with unprecedented threats during the COVID-19 pandemic, using a range of problem-focused coping strategies to reduce stress e.g. using routines to provide continuity, as well as emotion-focused strategies such as reflection and social support.

This study focused on the well-being and mental health needs of nurses during the COVID-19 pandemic, and as such, the findings are situated in the work environment of individuals. The pandemic posed specific challenges for nurses working in the cancer setting. It was necessary to protect patients from the COVID-19 infection and to manage disrupted patient pathways within acute and critical care [46]. There were high rates of sickness amongst the workforce, together with the re-deployment of staff to clinical areas of need, and cancer treatment regimens were altered to protect patients and optimise health outcomes [47]. Additionally, following the initial fall in patient numbers at the start of the pandemic due to reduced screening and GP referral, there has been a surge in numbers as the backlog of patients present to cancer services, with increases in care received remotely [48].

Nurse's interactions throughout the pandemic period included exchanges with patients, colleagues and the organisation. These exchanges were located in the context of an evolving public health emergency, however, the data from the study shows that nurses were able to locate and access the resources they needed to find solutions to the problems they encountered. Nurses drew on their professional values and beliefs and their desire to do the best for patients, in order to regain a sense of control over their roles and their day-to-day work environments. The professional and personal values that nurses hold and their alignment to their job roles is related to nurse well-being, job satisfaction and reduced levels of burnout [49]. Maintaining the standards of the nursing profession through the delivery of high-quality patient care was central to many nurses' accounts, suggesting that even when nurses face role stress, they are able to master adversity, regain control over their work and use stress and anxiety to advantage [50].

It is well documented that oncology nurses can experience increased levels of stress and anxiety as a result of their role, associated with the 'emotional labour' of dealing with challenging and complex aspects of cancer care, treatment and support [51]. However, the culture and practice of being a nurse served as a foundation from which to cultivate and mobilise pre-existing coping strategies. Nurses experience excessive demands on their time, not just from the pandemic, but also as a result of continual organisational change, workload pressures and workforce shortages, leading to stress and burnout [50]. However, positive effects of resilience can reduce psychological morbidity amongst nurses and promote job satisfaction [52]. Indeed, positive emotions such as pride, that typically accompanies personal achievements and builds personal resources [53], is often associated with high quality nursing care and composure under pressure [54]. Other cultural factors characterising the identity of nursing include compassion, autonomy, duty, pragmatic approaches to dealing with challenges, and a strong sense of teamwork and camaraderie with colleagues and peers [55].

Further research is needed to understand how nursing culture can support resilience across different groups of nurses, for example, those working in different healthcare settings and from different socio-demographic backgrounds.

Whilst the COVID-19 pandemic posed considerable challenges to nurses, individuals were able to adapt to stressful work conditions. Positive emotions can be mobilised to deal with stress and adversity, thereby increasing psychological resilience [53]. The pandemic highlighted long-standing problems in the NHS such as short staffing and high workloads [56, 57], however, little research has been undertaken to explore how cancer nurses make sense of these long-term challenges and whether individuals who are more or less resilient use, and experience, different strategies and outcomes.

The experiences of student nurses, newly qualified nurses and nurses of different grades and bandings would assist in providing a greater understanding of the barriers and facilitators to well-being and resilience. The sample in this study comprised mainly senior nurses, who may have had the resources, interest and confidence to participate. Senior nurses are more likely to use research evidence within their roles and feel empowered to use data to bring about positive change in their practice [58]. In contrast, junior nurses identified lack of time and resources as barriers to research engagement. Nurse resilience is aided by factors including social support, self-efficacy, work–life balance, self-care, optimism and being realistic [59], in addition to social support, derived through social bonds and attachments, as 'correcting' or 'undoing' the effects of negative emotions [53] A number of self-management strategies were employed by nurses in this study, specifically peer support, taking time out and adopting pragmatic approaches to 'getting on with it'. Moreover, boundary-setting and having a routine were considered helpful to well-being. Routines are commonly reported in the literature to reduce uncertainty and foster a sense of stability [60], assisting the individual to make sense of the world through regular, predictable and reliable connections. It is important for healthcare organisations to understand the dynamic impact of working practices such as role boundaries and routines on nurses' well-being, which can promote stability and innovation within organisations [60].

Cancer nurses in this study mobilised a range of personal coping strategies to manage their stress and well-being, however, it is unclear whether organisations are aware of the self-management techniques of individuals and how these can be effectively harnessed for the benefit of the workforce. Initiatives such as clinical supervision and managerial support varied in their availability and effectiveness. This aligns with a scoping review [61] of clinical supervision interventions, aided through positive supervisor-supervisee relationships based on mutual trust and shared understanding, in contrast to organisational leadership that is unsupportive and lacks the necessary skills. Moreover, nurse leadership should align to the factors that motivate nurses in their roles and relationships, promoting positive working environments that foster autonomy and individual's needs and preferences [62].

Cancer nurses derived well-being through their interactions and 'activity engagement' exchanges in the workplace, which are adaptive and reinforcing to positive emotions and personal resources [53]. However, for nurses to thrive, healthcare organisations should enable working environments and conditions that motivate and engage nurses, encouraging them to build on and strengthen their resilience repertoire [53]. A helpful intervention in this regard, would be to normalise mental health and well-being, removing the traditional stigma and fear of disclosing feelings. Negative perceptions of mental health support can discourage nurses from accessing well-being resources [63].

This study has highlighted other areas for future research, in particular, the communication of well-being services to nursing staff. Email was commonly used to disseminate information on well-being support during the pandemic, however, our study showed that access to email varied, associated with time constraints due to busy clinical workloads. Well-being interventions were also offered at times and venues inaccessible to cancer nurses, precluding their attendance. Having a physical presence 'on the ground' with the workforce and communicating through word-of-mouth, is known to facilitate

effective engagement with well-being services [64]. These findings concur with those from this study, that communication through email was problematic, however, others advocate increased intensity of email communication [65]. The environments within which cancer nurses work should be adjusted to increase engagement with well-being services. Nurse well-being can be facilitated through realistic workloads, adequate staffing and easy to access support [66]. Wider policy implications affecting nurse well-being include broader societal issues such as employee working conditions. Organisations can foster a positive well-being culture through initiatives such as flexible working, childcare support, provision of occupational health, safety and anti-bullying standards, as well as equal pay legislation.

Finally, it is imperative that well-being resources and services are evaluated for their effectiveness and acceptability to nurses. It is important to understand the services that are accessed by cancer nurses, in addition to those which are not, and why. Robust evaluation can assist in identifying improvements to well-being services [67], together with questionnaires to map levels of unmet need associated with nurses' mental health. This would support targeted and individualised interventions for nurses who may be experiencing different levels of anxiety or depression and be more or less likely to access services as a result.

Strengths and limitations

The sample size was lower than expected, despite interventions to expand access to nursing workforces across the region. The majority of the sample comprised senior nurses who may have more autonomy in their role to participate in research, in contrast to ward nurses. We considered whether those nurses who were more anxious or depressed were more likely to seek advice and support for well-being, or more likely to avoid it. There were no differences when comparing cancer nurses' anxiety scores, suggesting that nurses generally managed their well-being positively and were open to talking about their feelings. We had no way of identifying the reasons why nurses chose not to participate in the study, although the research team were aware of the challenges nurses were facing at this time. The self-selection of cancer nurses to the study may have resulted in bias towards individuals who were interested in research, wanted to contribute to improvements in practice and had an established well-being narrative prepared. In contrast, nurses who were experiencing significant psychological morbidity may have avoided sharing their feelings. We propose further research is carried out in this area.

Recommendations for further research

Further research is needed to understand the unique challenges experienced by nurses working in the cancer setting and how these can be mitigated, for example, sustaining well-being in the long-term when caring for patients with more advanced disease, burdensome symptomatology and altered expectations of the health service. It is important to understand the psychological needs and outcomes of different groups of cancer nurses, by banding, place of work and other demographic characteristics, in order to target well-being resources and services. This would help to minimise any potential inequalities of access and engagement. Further research on nurse well-being would benefit from integration with established methodologies and frameworks such as Rodger's evolutionary method of concept analysis, used in a study to define and develop the concept of nurse well-being [68]. Models of nurse well-being include the structural and individual factors that may promote or diminish levels of well-being, including organisational culture, structure, environment and policies [69], whilst the Five Ways to Wellbeing model suggests self-care interventions such as diet, exercise and social support to sustain positive nurse well-being and quality of life [70].

Finally, we suggest research is undertaken on the management of cancer nurses' clinical workloads, potentially removing unnecessary role responsibilities rather than adding to job demands, thereby increasing the opportunities for nurses to engage in well-being activities.

Implications for policy and practice

The findings from this study have highlighted the resilience and adaptability of nurses who worked in the cancer setting, during and in the aftermath of the pandemic. Whilst the pandemic period was undoubtedly stressful both physically and psychologically, cancer nurses mobilised a range of coping resources, support systems and personal and professional knowledge to promote and sustain their well-being. Barriers to well-being support were identified by nurses and were acknowledged by providers of well-being services to staff. This suggests that providers of well-being resources need to be aware of the self-help measures that nurses are using to promote and sustain their well-being, such as peer support and reliance on colleagues to debrief on difficult situations. Moreover, they need to adapt the well-being offer to make it more accessible and acceptable to individuals' needs, targeting those with increased anxiety and /or depression.

This study has demonstrated that some nurses have higher unmet need for psychological support than others, which may extend over time. Organisations would benefit from training and support to set up well-being services within clinical areas where nurses work, offering

different levels of well-being support. This could include nurse well-being champions, nurse well-being forums, through to clinical supervision and Improved Access to Psychological Therapies (IAPT) service professionals such as counsellors, psychologists, in addition to Schwartz rounds. Finally, the study makes an important contribution to policy and practice guidelines, promoting positive mental health for cancer nurses through effective employer-employee partnership-working and co-design of services.

Conclusions

This study has demonstrated the positive and negative impact of the COVID-19 pandemic on the health and well-being of nurses working in the cancer setting. Nurses displayed considerable adaptability and flexibility when dealing with the challenges posed to their personal and professional roles. They were able to draw on their experience and knowledge to manage their physical and mental health needs, in addition to balancing their workloads and engaging in teamwork and collaborative practice with colleagues. Engagement with well-being services by nurses was contingent on the time they had available and the pressures they were experiencing in their day-to-day work. Organisations need to adapt their well-being offer to meet the needs, expectations and preferences of cancer nurses working across different health service sectors. Well-being interventions should be embedded in the core beliefs, values and principles that guide the nursing profession and the preferred coping styles of individuals.

Supplementary Information

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Supplementary Material 1

Supplementary Material 2

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Author contributions

L.A., C.A., H.P. and S.W made substantial contributions to the design of the work, acquisition, analysis and interpretation of the data. All authors were involved in drafting, revising and approving the submitted manuscript and have agreed to be personally accountable for their own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval and consent to participate

This was obtained from Liverpool John Moores University Ethics Committee, reference: 21/PSY/027. Informed consent to participate was obtained from all of the participants in the study. Data collection was undertaken in accordance with relevant guidelines and regulations. The study adhered to the ethical principles outlined in the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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