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**First insights into post-pandemic distress in a high secure hospital: Correlates among staff and patients**

Journal:	<i>Journal of Forensic Practice</i>
Manuscript ID	JFP-08-2023-0041.R1
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Keywords:	COVID-19, Occupational distress, Forensic patients, Secure hospitals, Distress, PTSD

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Manuscripts

## MANUSCRIPT DETAILS

TITLE: First insights into post-pandemic distress in a high secure hospital: Correlates among staff and patients

## ABSTRACT:

This preliminary study is designed to gauge the enduring psychological impacts of the COVID-19 pandemic on both patients and staff in a high secure settings.

The study involved 31 patients and 34 staff from a high secure setting, who completed assessments to discern the link between COVID-19-related distress and various factors. These evaluations focused on coping strategies, resilience, emotional reactivity, ward atmosphere, and work-related aspects.

Results indicated that 31.2% of staff met the clinical cut-off for potential PTSD due to COVID-19-related distress. Emotional reactivity, staff shortages, secondary traumatic stress, and coping strategies were positively correlated with distress, while resilience showed a negative association, suggesting a mitigating role. Notably, distress among patients was comparatively lower, with only 3.2% experiencing significant levels.

CUST\_RESEARCH\_LIMITATIONS/IMPLICATIONS\_\_(LIMIT\_100\_WORDS) :No data available.

The authors postulate that increased staff burdens during the pandemic may have led to long-term distress, while their efforts to maintain minimal service disruption potentially shielded patients from psychological impacts, possibly lead to staff 'problem-focused coping burnout'. This highlights the need for in-depth research on the enduring impacts of pandemics, focusing on mechanisms that intensify or alleviate distress. Future studies should focus on identifying effective coping strategies for crisis situations, such as staff shortages, and strategies for post-crisis staff support.

CUST\_SOCIAL\_IMPLICATIONS\_(LIMIT\_100\_WORDS) :No data available.

Building on evidence of negative impacts on frontline workers and forensic inpatients during the pandemic, this study delved into the longer-term psychological repercussions that persisted post-pandemic. It sheds light on lasting distress levels and their correlates. These insights are crucial for formulating effective responses and strategies for future pandemics or analogous crises, highlighting the need for sustained support for staff grappling with long-term distress arising from such events.

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3 First insights into post-pandemic distress in a high secure hospital: Correlates among staff  
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Journal of Forensic Practice

## Abstract

**Purpose:** This preliminary investigation aims to examine the psychological impact of the COVID-19 pandemic on patients and staff within a high secure service.

**Design/Methodology/Approach:** To discern the connection between COVID-19-related distress and multiple factors, the study involved 31 patients and 34 staff who completed assessments evaluating coping strategies, resilience, emotional reactivity, ward atmosphere, and work-related aspects.

**Findings:** Results demonstrated that around a third of staff (31.2%) experienced COVID-19-related distress levels that met the clinical cut-off for possible Post Traumatic Stress Disorder (PTSD). Emotional reactivity, staff shortages, secondary traumatic stress and coping strategies were all positively correlated with COVID-19 related-distress. Resilience was negatively associated with distress, thus acting as a potential mitigating factor. In comparison, the prevalence of distress among patients was low (3.2%).

**Originality/Value:** The authors postulate that the added burdens on staff during the pandemic might have contributed to their distress. Nonetheless, staff might have inadvertently safeguarded patients from the pandemic's psychological ramifications by providing a 'service of little disruption,' potentially leading to 'problem-focused coping burnout.' These findings underscore the imperative for further research capturing the enduring impacts of pandemics, particularly scrutinizing factors that illuminate the mechanisms through which distress is either intensified or alleviated across different groups. An avenue worth exploring is identifying effective coping styles for pandemics.

**Keywords:** COVID-19; Distress and PTSD; Occupational distress; Forensic patients; Secure hospitals.

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6 The COVID-19 pandemic created a plethora of challenges within the workplace, with a noted  
7  
8 impact on the role of psychiatric nurses and expectations of their role in the workplace (Negri  
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10 *et al.*, 2023; Zhang *et al.*, 2020). Rapid changes to the working conditions of staff in secure  
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12 healthcare settings, such as the mandatory use of Personal Protective Equipment (PPE),  
13  
14 physical distancing, halting of visitor access, and cessation of group-based activities, were  
15  
16 implemented in response to the pandemic (Ardebili *et al.*, 2021; Negri *et al.*, 2023).  
17  
18 Additionally, healthcare workers based in psychiatric hospitals were managing a fear of  
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20 infection and transmission, limited availability of PPE, insufficient staffing levels, and  
21  
22 limited disease specific knowledge to guide transmission control (Swinkels *et al.*, 2022).  
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27 Public healthcare crises are well-accepted as conditions that induce negative impacts  
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29 on individuals who provide health related services (Tam *et al.*, 2004; Tzang 2004). These  
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31 impacts include increased psychological distress, (Stefanatou *et al.*, 2022), burnout (Deakin,  
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33 2022; Ghahramani *et al.*, 2021), development of PTSD symptoms (Xiong *et al.*, 2020) and  
34  
35 secondary traumatic stress (Aafjes-van Doorn, *et al.*, 2020). Forensic hospitals are also not  
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37 immune from these effects; Baker *et al.* (2022), for example, noted how forensic staff  
38  
39 reported increased anxiety, stress, and depression during the pandemic, thereby emphasising  
40  
41 the need for further research to explore the unique needs of staff working in secure settings.  
42  
43 Staff shortages are also recognised as a significant issue in healthcare (Totman *et al.*, 2011)  
44  
45 and secure settings, resulting in limited therapeutic engagement, affecting ward dynamic,  
46  
47 quality of patient care and overall job satisfaction (Oates *et al.*, 2021). The impact of such  
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49 shortages during a pandemic have not, however, been considered as a factor that could add to  
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51 distress. One potential mechanism influencing this dynamic is coping strategies. The reduced  
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53 staff numbers during the pandemic are likely to have increased the reliance on coping  
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55 mechanisms. Situations that overwhelm an individual's capacity to adapt and manage stress  
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3 have been linked to the development of post-traumatic stress disorder (PTSD) or related  
4 symptoms (Łaskawiec *et al.*, 2022). Indeed, there has been a noted rise in PTSD among front-  
5 line healthcare workers during the COVID-19 pandemic (Geng *et al.*, 2022).  
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9  
10 Furthermore, staff well-being during challenging times, such as a pandemic, is  
11 significantly influenced by the coping strategies they employ (López-Vazquez and Marvan,  
12 2003). These strategies are commonly categorised into three types: problem-focused, which  
13 involves efforts to alter aspects of a stressful situation; emotion-focused, centred on  
14 managing emotional responses to stress; and avoidant, which includes tactics like denial or  
15 behavioural disengagement (O'Connor and O'Connor, 2003). In relation to COVID-19,  
16 findings have demonstrated that problem-focused coping mediates the relationship between  
17 risk perception of COVID-19 infection and healthcare staff well-being (Krok *et al.*, 2020).  
18 Increased psychological distress has also been linked with avoidant coping behaviours and  
19 psychological inflexibility, with the latter inducing greater use of avoidant coping strategies  
20 and poorer health outcomes (Dawson and Golijani-Moghaddam, 2020). Increased distress is  
21 also noted to be associated with external factors in nurses, such as the presence of loss and  
22 unresolved grief experiences, which are external to the workplace (Rahmani *et al.*, 2023).  
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40 In addition to factors elevating and/or associating with distress, previous research has  
41 also explored the effects of protective factors in the context of COVID-19 pandemic, in terms  
42 of what could assist in the management and/or reduction of distress. Studies focusing on  
43 resilience and distress have showed that resilience is adaptive (Kalisch *et al.*, 2017) and was  
44 negatively associated with COVID-19 related stress (Köhne *et al.*, 2023; Yildirim and  
45 Solmaz, 2022). Others have explored compassion satisfaction, which refers to the sense of  
46 fulfilment derived from alleviating the suffering of others (Stamm, 2009). Such satisfaction  
47 has been identified as a factor mitigating the impact of occupational distress and burnout  
48 (Sukut *et al.*, 2021; Yildirim *et al.*, 2021).  
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3 Research into the psychological effects of COVID-19 on secure forensic services has  
4 been limited (Baker et al, 2022; Challinor *et al.*, 2021). This is surprising when it is accepted  
5 that such environments are largely isolated with a need for raised levels of staff to maintain  
6 safety and security. Any threat to staff levels is an area of noted concern. In addition, it is  
7 expected that the impact of COVID could present with specific challenges to staff and  
8 patients in secure settings, particularly in forensic hospital settings where patients are at an  
9 elevated risk of negative COVID-19 impacts due to mental and related physical health needs.  
10 This placed more emphasis on staff to prevent transmission since the only means of COVID-  
11 19 entering the site is via those leaving it, namely the staff and not the patient group. It also  
12 meant that staff members were in an enclosed setting during their entire working day, with  
13 the management of transmission between staff and those they return to post working day a  
14 challenge. Consequently, assessing the reported levels of distress during this period becomes  
15 crucial, along with understanding the associated risk and protective factors. A recent review  
16 suggests that the destabilizing effects of the pandemic may not become fully apparent  
17 immediately afterward but rather emerge more clearly after the pandemic has subsided. This  
18 delayed response might manifest as a condition termed post-pandemic stress disorder, a  
19 potential long-term consequence highlighted by recent studies (Łaskawiec *et al.*, 2022).

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42 The implemented pandemic measures taken in psychiatric hospitals had several  
43 implications for patients in high secure settings. This included a loss of external social  
44 visitation and limited accessibility to meaningful activities (Royal College of Psychiatrists,  
45 2020). It is likely that social movement and distancing rules induced feelings of isolation and  
46 loneliness (Coffey and Coleman, 2001; Hwang *et al.*, 2020). Previous research has certainly  
47 indicated that patients who perceived social distancing measures as restrictive and punishing  
48 tended to be at an increased risk for developing symptoms of post-traumatic stress and an  
49 overall decline in mental health (Hao *et al.*, 2020). Diminished contact with peers, caregivers,  
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3 family, and friends, alongside disruptions to daily routines may have certainly caused distress  
4 and exacerbated pre-existing psychiatric conditions (Cordellieri *et al.*, 2021; Wang *et al.*,  
5  
6 2018), as well as increased emotional reactivity and lack of impulse control (Janiri *et al.*,  
7  
8 2020). However, equally, some research in (non-forensic but residential) psychiatric patients  
9  
10 found such patients did not experience additional stress during the pandemic, suggesting that  
11  
12 assumptions cannot be automatically made (Burrai *et al.*, 2020).  
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17 Emotional reactivity is a variable of particular interest. This has been associated with  
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19 a raised likelihood of psychological distress following COVID-19 infection (Janiri *et al.*,  
20  
21 2020). This is supported by previous, non-pandemic, research that highlights how those with  
22  
23 heightened emotional reactivity might be at risk of adverse health outcomes during prolonged  
24  
25 periods of distress (Ripper *et al.*, 2018). This is, of course, of substantial relevance  
26  
27 considering the prolonged nature of the COVID-19 pandemic and accepted challenges in  
28  
29 emotional reactivity already noted in forensic populations. Given the uncertainties, changes  
30  
31 in care, and increased restrictions induced by the pandemic, it is likely that the well-being of  
32  
33 patients residing within forensic settings were negatively impacted, therefore highlighting the  
34  
35 current study as an important area of research (Tomlin *et al.*, 2020).  
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40 The current small-scale study aimed to explore the longer-term psychological impacts  
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42 of the COVID-19 pandemic on patients and staff in high secure forensic services. It aims to  
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44 assist with a preliminary understanding of experienced distress levels and the factors  
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46 exacerbating and/or mitigating against this. The psychological distress stemming from the  
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48 COVID-19 pandemic, particularly among frontline workers, is well documented. However,  
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50 the extent to which this distress has persisted post-pandemic remains unclear. This  
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52 preliminary study seeks to assess the long-term psychological impact of the pandemic on  
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54 staff and patients in a high secure setting. The goal is to provide insights that could guide the  
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56 management of residual distress and inform strategies for handling future pandemics or  
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3 emergency situations, such as staff shortages or natural disasters, which similarly affect  
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5 inpatient care. The current study has the following hypotheses:

- 6  
7 1. Distress will positively relate to isolation due to COVID-19 contact, testing positive  
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9 for COVID-19, in both patients and staff, noticing a change in staffing and/or losing a  
10  
11 close family member or friend due to COVID-19.  
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15 2. Emotional reactivity will positively relate to distress in staff and patients.  
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- 17  
18 3. Avoidant coping and/or emotion-focused coping will positively relate to distress in  
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20 both staff and patients, whereas problem-focused coping will negatively associate.  
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- 22  
23 4. Resilience will negatively relate to distress in staff and patients.  
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### Method

#### Participants

Participants were sampled from a high secure hospital in the UK, which houses adult men. A total of 31 out of 177 eligible secure service patients (age range: 23 to 64,  $M = 36.04$ ,  $SD = 10.03$ ) consented to participate. Additionally, 34 staff members (36.1% male, 58.3% female, 5.6% undisclosed gender; age range: 21 to 56,  $M = 40.53$ ,  $SD = 12.91$ ) from various professional backgrounds, including consultants, nurses, psychologists, and ward assistants, participated.

#### Materials

The following measures were completed, with reliabilities also indicated. Patients completed the following measures:

*Impact of Events Scale-Revised* (IES-R; Creamer et al, 2003; Weiss, 2007), adapted to COVID-19 is a 22-item measure assessing subjective distress caused by traumatic events. The IES-R was adapted with participants being asked to think about the symptoms relating to the COVID-19 pandemic ( $\alpha = .89$ ). Items are rated on a scale from 0 (not at all) to 4 (extremely) and included statements such as, “Any reminder brought back feelings about it”.

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3 Higher scores on this measure reflect greater levels of psychological distress related to the  
4  
5 COVID-19 pandemic.  
6

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8 *Brief COPE* (Carver, 1997), a 28-item instrument of coping styles measuring emotional  
9  
10 support ( $\alpha = .92$ ). Items are rated on a scale from 1 ('I haven't been doing this at all') to 4  
11  
12 ('I've been doing this a lot') and included items such as, "I've been criticising myself" and,  
13  
14 "I've been expressing my negative feelings".  
15

16  
17 *Essen Climate Evaluation Schema* (EssenCSE; Schalast *et al.*, 2008), a 17-item measure  
18  
19 of experiences of ward atmosphere ( $\alpha = .76$ ). It comprises three domains (therapeutic hold,  
20  
21 experienced safety and patient cohesion), each with five items, rated from 1 (not at all) to 5  
22  
23 (very much). Items include statements such as, "This ward has a homely atmosphere".  
24  
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26  
27 *Brief Resiliency Scale* (Smith *et al.*, 2008), a six-item measure of resilience ( $\alpha = .72$ ).  
28  
29 Items are rated from 1 (strongly disagree) to 5 (strongly agree), including statements such as,  
30  
31 "I tend to bounce back quickly after hard times" and, "It does not take me long to recover  
32  
33 from a stressful event".  
34

35  
36 *Emotional Reactivity Scale* (Nock *et al.*, 2008), a 21-item measure of emotional reactivity  
37  
38 ( $\alpha = .95$ ), which is rated on a scale from 0 (not at all like me) to 4 (completely like me),  
39  
40 including items such as, "My feelings get hurt easily" and, "I experience emotions very  
41  
42 strongly".  
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45 Staff participants completed the same measures as patients, with an addition of the  
46  
47 *Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue*  
48  
49 (ProQOL v.5; Stamm, 2009). This 30-item measure of staff satisfaction and stress at work ( $\alpha$   
50  
51 = .72), asks for items to be rated on a scale of 1 (never) to 5 (very often). The instrument  
52  
53 includes statements such as, "My work makes me feel satisfied" and captures three aspects of  
54  
55 professional quality of life: compassion satisfaction, burnout and secondary traumatic stress.  
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3 In addition, *questions capturing the impact of COVID-19* were also collected, all  
4 answered as a yes/no, as follows: 1.) Have you tested positive for COVID-19? 2.) Has a  
5 family member or close friend tested positive for COVID-19? 3.) Having to isolate due to  
6 testing positive for COVID-19 or having symptoms of COVID-19? 4.) Having to isolate due  
7 to coming into contact with someone who tested positive for COVID-19? 5.) Having a family  
8 member or close friend who had to isolate? 6.) Suffering a loss of a family member or close  
9 friend who tested positive for COVID-19? 7.) Have you noticed a change in the number of  
10 staff on the ward during the COVID pandemic? (Yes/No) (followed by – if yes, more or less  
11 staff?).  
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### 23 24 **Procedure**

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26 This study was approved by the NHS Health Research Authority in March 2022.  
27 Responsible Clinicians were contacted to ensure that patients possessed the capacity to  
28 participate. Data was collected between May 2022 and December 2022. Participants were  
29 recruited on the wards of the HSS and provided with a printed questionnaire pack for  
30 completion. Staff participants were recruited both online via internal mail and in-person at the  
31 hospital, with the option to complete the questionnaires online utilising Qualtrics, or on  
32 paper. Both staff and patients were provided with an informed consent when asked to  
33 participate in the study.  
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### 47 **Data Analysis Plan**

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49 Data analysis was conducted using SPSS 28.0 software. Non-parametric tests were  
50 utilised due to uneven distribution of participants across the COVID-19 impact questions.  
51  
52

53 **Evaluating potential PTSD prevalence:** The IES-R (Impact of Event Scale-Revised) was  
54 employed with a cut-off score of 33 to assess the prevalence of potential PTSD related to the  
55 COVID-19 pandemic.  
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3 **Exploring distress and pandemic related factors:** The Mann-Whitney U test was utilized  
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5 to investigate how distress correlates with various factors, including isolation due to COVID-  
6  
7 19 contact and the loss of close family members or friends because of COVID-19.

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10 **Mitigating and risk factors for distress:** Kendall's tau-b was applied to examine  
11  
12 correlations between distress and various measured factors, such as coping styles and ward  
13  
14 atmosphere. This analysis helped identify the strength and direction of these relationships.

15  
16  
17 **Comparing coping styles:** A Friedman two-way ANOVA was conducted to determine if  
18  
19 participants favoured certain coping styles over others when relating to COVID-19 pandemic.

20  
21 For each analysis, effect sizes were calculated to assess the magnitude of observed effects.

22  
23  
24 Originally, regression analyses were planned to identify predictors of COVID-19 related  
25  
26 distress. However, this approach was revised due to the limited number of participants and  
27  
28 the broad range of predictors, which could compromise the analysis's power and reliability.

29  
30 The adapted plan focuses on non-parametric methods which are more suitable for the data  
31  
32 and capable of providing initial insights into the factors associated with COVID-19 related  
33  
34 distress.  
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## 37 38 **Results**

### 39 40 **Data screening**

41  
42 No univariate or multivariate outliers were detected in the patient sample. However,  
43  
44 in the staff sample, three univariate outliers were identified on the Impact of Events Scale.  
45  
46 These outliers were adjusted by reducing them to the second-to-last highest score plus one.  
47  
48 No multivariate outliers were observed.  
49

### 50 51 **Prevalence of patient distress, impact of COVID-19 items, coping, resilience and** 52 53 **emotional reactivity.**

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56 One patient out of 27 (3.1%) presented with a score above the cut-off of 33 on the  
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58 IES-R indicating a possible diagnosis of PTSD. The prevalence rates of COVID-19-related  
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3 issues were also examined, along with average presentation across the measures (see Tables 1  
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5 and 2).

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8 <Insert Table 1>

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10 <Insert Table 2>

11  
12 A Mann-Whitney U test was also conducted to compare the level of COVID-19-  
13 related distress between participants who reported experiencing a decrease in staff and those  
14 who did not. Results revealed no significant difference in distress between those who noticed  
15 a decrease in staff (*Mean Rank* = 14.07, *n* = 21) and those who did not (*Mean Rank* = 11.10,  
16 *n* = 5),  $U = 40.50$ ,  $p = .45$ . Similar results were obtained for the comparison between those  
17 that had to isolate, due to a positive test and distress ( $U = 2.00$ ,  $p = .16$ ), as well as those that  
18 had to isolate, due to a COVID contact and distress ( $U = 80.00$ ,  $p = 1.00$ ). Lastly, no  
19 difference was observed between distress levels in those that tested positive for COVID-19  
20 and those that did not ( $U = 18.00$ ,  $p = .18$ ), those whose family or friend(s) had COVID-19  
21 and those that did not ( $U = 50.00$ ,  $p = .22$ ), those whose family had to isolate and those whose  
22 family did not ( $U = 61.50$ ,  $p = .77$ ), or those that lost someone due to and those who did not  
23 COVID-19 ( $U = 39.00$ ,  $p = .72$ ).

24  
25 To assess the size and direction of the linear relationship between coping, emotional  
26 reactivity, resilience, ward atmosphere and distress, Kendall's tau-b was performed.  
27 Kendall's tau-b indicated a moderate positive correlation between emotional reactivity and  
28 distress ( $\tau = .42$ ,  $p < .001$ ). Resilience, therapeutic hold, experienced safety, patient cohesion,  
29 problem-focused coping, emotion-focused coping, and avoidant coping were not significantly  
30 related to distress.

31  
32 To assess whether patients used one type of coping more frequently than the other, a  
33 Friedman two-way ANOVA was conducted. This indicated significant variation in coping  
34 rankings across the three coping styles ( $\chi^2 F = 20.28$ ,  $df = 2$ ,  $N - \text{Ties} = 27$ ,  $p = <.001$ ).

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3 Follow-up pairwise comparisons using Wilcoxon Signed Rank test (Bonferroni adjusted  
4  $\alpha=.017$ ) indicated a significant difference between avoidance coping and problem-focused  
5 coping, ( $Z = -3.55, p = <.001, two-tailed$ ). The test statistic was 7.63, indicating that problem-  
6 focused coping scores were significantly higher than avoidance coping scores with  $r = .78$ ,  
7 indicating a large effect. A significant difference between avoidance and emotion-focused  
8 coping was also observed ( $Z = -2.93, p = .003, two-tailed$ ) with a large effect  $r = .64$ , . The  
9 negative mean rank of 10.70 for avoidance coping indicated lower ratings compared to  
10 emotion focused coping. The difference between emotion-focused and problem-focused  
11 coping was also significant ( $Z = -2.71, p = .007, two-tailed$ ), problem focused coping had a  
12 negative mean rank of 12.40 indicating that patients used it to a significantly higher level.  
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### 28 **Prevalence of staff distress, impact of COVID-19 items, coping, resilience, emotional** 29 **reactivity and professional satisfaction** 30 31 32

33 Twelve staff out of 33 (31.2%) presented with a distress score above the cut-off of 33,  
34 indicating a possible diagnosis of PTSD (Creamer *et al.*, 2003). Staff reported low (12.8%) to  
35 moderate (38.5%) levels of compassion satisfaction, moderate (43.6%) to high (41.0%) levels  
36 of burnout, and moderate (30.8%) to high (43.6%) levels of secondary trauma stress. The  
37 prevalence rates of COVID-19-related issues were also examined, along with average  
38 presentation across the measures (see Tables 3 to 5).  
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47 <Insert Table 3 here>

48 <Insert Table 4 here>

49 <Insert Table 5 here>

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54 A Mann-Whitney  $U$  test was conducted to compare the level of distress between staff  
55 who reported noticing a decrease in staff and those who did not. Staff that noticed reduced  
56 staffing levels also reported higher distress levels ( $Mean Rank = 17.61, n = 16$ ) compared to  
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3 those that did not (*Mean Rank* = 10.41,  $n = 9$ :  $U = 30.50$ ,  $z = -2.35$ ,  $p = .02$ ), with a medium  
4 effect size ( $r = .47$ ). Testing positive for COVID-19 and distress ( $U = 68.00$ ,  $p = .43$ ), family  
5 or a friend having COVID-19 ( $U = 21.00$ ,  $p = .61$ ), family having to isolate ( $U = 62.50$ ,  $p =$   
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.06), were not significantly different. Similar results were obtained for the comparison  
between those that had to isolate, due to a positive test and distress ( $U = 65.00$ ,  $p = .35$ ), as  
well as those that had to isolate, due to a contact and distress ( $U = 64.50$ ,  $p = .22$ ). Staff that  
lost someone due to COVID-19 reported higher distress levels (*Mean Rank* = 18.09,  $n = 17$ )  
than those that did not (*Mean Rank* = 10.63,  $n = 12$ :  $U = 49.50$ ,  $z = -2.33$ ,  $p = .02$ ), with a  
medium effect size  $r = .47$ .

To assess the size and direction of the linear relationship between coping, emotional  
reactivity, resilience, professional quality of life, ward atmosphere and distress, Kendall's  
tau-b was performed. A strong positive correlation between secondary trauma stress and  
distress was found ( $\tau = .54$ ,  $p < .001$ ), as well as emotional reactivity and distress ( $\tau = .60$ ,  $p <$   
.001), suggesting that higher levels of secondary traumatic stress and emotional reactivity are  
associated with increased distress. A strong negative association between resilience and  
distress was observed ( $\tau = -.59$ ,  $p < .001$ ), indicating that higher levels of resilience are  
associated with lower distress. Additionally, there were moderate positive associations  
between problem-focused coping and distress ( $\tau = .29$ ,  $p = .04$ ), emotion-focused coping and  
distress ( $\tau = .32$ ,  $p = .046$ ), and avoidant coping and distress ( $\tau = .32$ ,  $p = .02$ ). Burnout,  
compassion satisfaction and ward atmosphere variables were not significantly related to  
distress.

Coping styles among staff members were examined using a Friedman two-way  
ANOVA. Rankings of coping varied significantly across the three coping subscales ( $\chi^2 F =$   
16.36,  $df = 2$ ,  $N - \text{Ties} = 28$ ,  $p < .001$ ). Moderate effect size (0.292). Follow-up pairwise  
comparisons with the Wilcoxon Signed Rank test and a Bonferroni adjusted  $\alpha = .017$



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3 indicated a significant difference between avoidance coping and problem-focused coping, ( $Z$   
4 = -3.86,  $p = <.001$ , two-tailed), with problem-focused coping scores significantly higher than  
5 avoidance coping scores, with a large effect ( $r = .73$ ). A significant difference between  
6 avoidance and emotion-focused coping was also observed ( $Z = -3.93$ ,  $p <.001$ , two-tailed),  
7 with a large effect ( $r = .74$ ). The negative mean rank of 13.35 for avoidance coping suggested  
8 lower ratings compared to emotion focused coping. The difference between emotion-focused  
9 and problem-focused coping was non-significant ( $Z = -1.89$ ,  $p = .059$ , two tailed).

### Discussion

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23 A third of staff reported distress levels connected to COVID-19 that equated to a possible  
24 diagnosis of PTSD, whereas this was not mirrored in the patient sample, where only one  
25 patient presented with such distress. Findings also demonstrated a positive association  
26 between COVID-19-related distress and secondary trauma stress in staff, with the latter well-  
27 accepted in the literature as linked to mental health challenges in healthcare workers, before  
28 and after the onset of the pandemic (e.g. Aafjes-van Doorn, *et al.*, 2020; Ariapooran, *et al.*,  
29 2022). The only finding in relation to patient distress was an association between increased  
30 distress and increased emotional reactivity, which is expected considering the nature of the  
31 population (i.e. forensic). For staff, however, the distress levels were correlated with multiple  
32 variables, suggesting a more complex picture had emerged and suggesting that staff were  
33 experiencing COVID-related distress differently to patients, with marked levels in some,  
34 corresponding to findings of previous research (Xiong *et al.*, 2020).

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51 It could be speculated that these findings were a product of the staff environment  
52 changing due to the pandemic, but not that of patients, certainly not to an appreciable level.  
53 Forensic patients may have been more isolated from the pandemic changes, as a result of  
54 their placement in a closed environment. The absence of raised distress in patients is also  
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3 consistent with the findings of Burrai et al. (2020) in non-forensic residential psychiatric  
4 patients. In that study, factors such as provision of COVID-19 related information, consistent  
5 access to medication, treatment, and support from mental health professionals throughout the  
6 pandemic were credited for this lack of *additional* stress. The current study did not assess  
7 these variables but, nevertheless, a third of patients did not notice a change in staffing,  
8 suggesting that a proportion of patients noted no staff impacts. Equally, it is possible that the  
9 setting and timing of the current study contributed to lower patient distress levels. The high-  
10 secure nature of the setting, which already imposes marked restrictions on freedom, might  
11 have contributed to patient's ability to adapt to additional restrictive measures. Such  
12 measures may not have been perceived as starkly by them, as a result of their adjustment  
13 already to a closed restrictive setting. Diverging from prior research that focused on the  
14 psychological impact during the height of the COVID-19 pandemic, this study, conducted  
15 after the pandemic's third wave, observed a lesser impact on patients, possibly due to greater  
16 acclimatization to the new circumstances. Furthermore, the findings suggest that patients  
17 generally did not perceive significant staff changes, and most did not experience personal loss  
18 due to COVID-19, factors which might have contributed to their lower distress levels. This  
19 context allows the study to emphasize an assessment of the residual, rather than immediate,  
20 impacts in the post-pandemic period on patients.

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45 In addition, it is worth noting that staff members who had experienced loss of a close  
46 friend or family member reported higher levels of distress. This supports prior research linking  
47 unresolved grief to adverse health outcomes and increased distress among hospital nurses  
48 (Rahmani *et al.*, 2023). It notes the impact of experiences external to the workplace. The current  
49 study extends the findings of Rahmani (2023) by demonstrating how forensic psychiatric  
50 nurses are similarly vulnerable to the adverse impact of complicated grief, with this associated  
51 in this instance with COVID-19. It also points to a higher burden on staff to hide their emotional  
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3 reactions from patients, which could be expected to further promote distress through the  
4 process of emotional labour (Hochschild, 1983), namely where the inner distress is managed  
5 so not to reveal it to others, in the workplace.  
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10 There were several other factors contributing to distress levels among staff members.  
11 Staff shortages have widely been acknowledged as a prevalent challenge in high secure services  
12 (Oates, *et al.*, 2021), which were further exacerbated during COVID-19, resulting in additional  
13 stressors, which echoes the findings of burnout (Deakin, *et al.*, 2022). Consistent with these  
14 observations, higher distress was found among staff members who reported staff shortages.  
15 Clearly this could represent both a perception and/or a reality, but both are essential to account  
16 for and likely not captured sufficiently in the current study. For example, staff members may  
17 perceive an impact, but it may be the absence of *specific* staff grades (e.g. qualified,  
18 unqualified) that causes the challenges and ensures task burden falls on staff who are already  
19 over-burdened. Interestingly, burnout per se was not associated with COVID-19-related  
20 distress in this sample, suggesting other factors were important. Totman *et al.*'s (2011)  
21 observations in general healthcare settings appear worthy to note here, namely that staff  
22 shortages are a key factor influencing *staff morale*, leading to feelings of frustration, and  
23 impacting their well-being. Thus, it could be features of morale that were important mitigating  
24 and/or facilitating factors; if staff felt they were 'in this together' and morale was raised, this  
25 may have had a protective effect. This is speculative but points again to the importance of  
26 capturing the specifics of the sample and the uniqueness of having a shared prolonged  
27 experience (i.e. a pandemic).  
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51 Connected to this, almost all staff in the current study reported noticing a *change* in  
52 staff, suggesting staffing as a potential mechanism through which distress was increasing.  
53 However, as noted, the specific change is not fully captured (e.g. less qualified staff? More  
54 unqualified staff?). This would represent a useful avenue for future research, particularly in  
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3 relation to determining the additional mechanism through which distress was increasing. For  
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5 example, there is a possibility that despite reduced staff level, staff may have compensated by  
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7 exerting additional effort, which could have led to patients' needs being met despite staff  
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9 shortage, thus, not resulting in additional distress for patients. However, the burden would raise  
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11 for staff and could, arguable, lead to elevated distress being noted.  
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15 Similarly, ward atmosphere did not impact on distress levels, either for staff or patients.  
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17 This may suggest that, at the later stage of the pandemic when the study was conducted, the  
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19 subcategories of ward atmosphere (i.e., patient cohesion, experienced safety, and therapeutic  
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21 hold) were not significantly affected by the pandemic. Indeed, the scores obtained for patient  
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23 cohesion, experienced safety, and therapeutic hold (in the patient sample) were similar to those  
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25 reported in previous research conducted in secure settings, prior to the pandemic (Tomlin and  
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27 Tonkin, 2023). This finding suggests that the ward atmosphere in high secure services was not  
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29 adversely affected in the long term, despite assessments being conducted after the third wave  
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31 of the pandemic, rather than at its height. This could explain why the observed atmosphere was  
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33 comparably stable and consistent with pre-pandemic studies. Although local guidelines at the  
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35 high secure hospital continued to impact ward operations, they apparently did not significantly  
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37 diminish the overall ward atmosphere. This could represent another factor that could be  
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39 speculated as contributing to the absence of COVID related distress in patents – in essence, the  
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41 business of the ward and the factors relating to atmosphere had potentially remained unaltered.  
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47 Another interpretation may be that the high secure services implemented pandemic  
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49 restrictions in a manner that did not have a detrimental impact on the ward atmosphere. This  
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51 would concur with Tomlin et al. (2019) who noted how patients viewed restrictions more  
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53 favourably when they perceived them as reasonable and justified. Thus, it may be that the  
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55 service effectively conveyed the reasoning behind restrictions and established their legitimacy  
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57 to both patients and staff. As a result, this could have resulted to a relatively unchanged  
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3 perception of safety, patient cohesion, and therapeutic relationships. Thus, while the burden  
4 had increased on staff, it could be speculated they were effective in presenting a ‘service of  
5 little disruption’ to patients, thereby protecting their well-being. Importantly, it may be the  
6 perception of little disruption that is important to convey and perhaps shifting the concept of  
7 emotional labour (Hochschild, 1983) to emotional *organisational* labour, where a workplace  
8 hides from their clients the challenges staff are facing and coping with for their benefit.  
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12 This study also offered some insights into coping styles utilised by staff and patients.  
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14 The most utilised styles for both were problem-focused coping, followed by emotion-focused  
15 and avoidance coping. Problem-focused coping strategies are linked to adaptive health  
16 behaviours and greater psychological well-being in healthcare professionals (Krok *et al.*,  
17 2020). However, contrary to our expectations, staff who reported higher levels of COVID-19  
18 related distress also tended to report utilising problem-focused coping more frequently. One  
19 explanation behind this unexpected finding could be that patients and staff who felt heightened  
20 level of distress simply employed more problem-focused strategies as a means to cope. During  
21 a pandemic, the effectiveness of such coping may have actually had more limitations. We  
22 propose this could have led to ‘problem-coping burnout’ where during a pandemic the utility  
23 is reduced as autonomy to use several coping strategies and approaches is restricted. Put  
24 simply, no amount of problem-focused coping can solve all challenges faced. This could have  
25 increased burden on staff to ‘solve problems’ and ultimately engage in a futile and fatiguing  
26 approach to cope. Indeed, research has yet to explore the impact of prolonged problem focusing  
27 coping, with the current study highlighting this as a further factor to consider. As expected,  
28 avoidant and emotion-focused coping were also associated with higher distress levels amongst  
29 staff (but not among patients), therefore making the findings in relation to problem-focused  
30 coping more intriguing and yet, equally, providing a drive to locate an effective ‘pandemic  
31 coping style’, which is of yet not captured by research.  
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3 In addition, previous research has highlighted resilience as a protective factor against  
4 distress (e.g. Kalisch *et al.*, 2017), which supports the findings from the current study where a  
5 negative relationship between resilience and COVID-19-related distress among staff members  
6 was indicated. This aligns further with longitudinal research that has demonstrated the  
7 predictive value of resilience in mitigating pandemic-induced distress (Köhne *et al.*, 2023), and  
8 further emphasising the importance of resilience as a protective factor, at least for staff. How  
9 resilience can be fostered would be a useful avenue to consider since this is not always an  
10 internally driven factor (i.e. attribute/character trait) but can be a taught skill (i.e. ability).  
11 Exploring this in more detail, considering *how* it related to both distress and problem-solving  
12 coping would be useful to consider; the latter can form part of resilience capability and could  
13 assist the research journey towards identifying a pandemic coping style.  
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28 The study is not without limitations. Causality cannot be inferred regarding the cause  
29 of distress in staff, and thus suggested mechanisms are speculative. In addition, the  
30 generalisability of our findings is limited by the relatively small participation rate, especially  
31 among staff members. It is further possible that those particularly affected by the pandemic  
32 found it too distressing to participate in this study although, equally staff with elevated levels  
33 of distress may have been motivated to engage to outline their experiences. Finally, data was  
34 collected during the later stages of the COVID-19 pandemic, and thus limiting insights into the  
35 impact in earlier periods. Nevertheless, our preliminary findings highlight that COVID-19-  
36 related distress was in particular affecting staff, who had a raised burden of keeping services  
37 working. This burden may have led to patients being safeguarded from the effects of the  
38 pandemic as they were shielded from marked change and experienced a ‘service of little  
39 disruption.’ This was also a likely impact of the nature of the closed setting, which is inherently  
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### 58 **Implications for practice**

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- Address and alleviate the heightened distress among frontline workers, emphasising the urgency of interventions due to the significant and ongoing burdens exacerbated by the pandemic (Ouyang *et al.*, 2022; Boitet *et al.*, 2023).
- Prioritise the development and implementation of interventions to mitigate the lasting psychological effects of COVID-19, especially targeting the well-being of frontline workers.
- Develop advanced data collection methods for future pandemics, or staff shortage crises, integrating strategies to explore effective coping mechanisms during such crises.
- Undertake and replicate comprehensive research in various secure facilities to understand the long-term consequences of the pandemic, focusing on its psychological and social impacts.

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**Table 1***COVID impact items: Patients*

	Yes	No	n/a
Isolate due to a positive COVID test	26 (81.3%)	1 (3.1%)	5 (15.7%)
Isolate due to contact	10 (31.3%)	17 (53.1%)	5 (15.7%)
Lost someone due to COVID	4 (12.5%)	23 (71.9%)	5 (15.7%)
Noticed fewer staff on the ward	22 (68.8%)	5 (15.6%)	5 (15.7%)

**Table 2**

*Distress, ward atmosphere, coping, resilience and emotional reactivity levels reported by patients*

	<i>n</i>	Mean (SD)	Min/Max attainable score
Distress	27	11.78 (12.09)	0-88
Ward atmosphere total	21	36.70 (8.39)	0-60
Therapeutic hold	27	12.89 (3.56)	0-20
Patient cohesion	27	10.56 (4.09)	0-20
Experienced safety	27	13.26 (4.63)	0-20
Coping			
Avoidance	30	10.90 (5.16)	8-32
Emotion focused	30	22.07 (10.83)	12-48
Problem focused	30	16.83 (9.24)	8-32
Resilience	27	20.77 (4.64)	6-36
Emotional reactivity	27	23.41 (18.17)	0-84

*Note:* Higher scores equate to higher levels on each construct.

**Table 3***COVID impact items: Staff*

	Yes	No	Missing
Tested positive	23 (59 %)	8 (20.5%)	8 (20.5%)
Isolate due to a positive COVID test	23 (59%)	8 (20.5%)	8 (20.5%)
Isolate due to contact	20 (51.3%)	10 (25.6%)	9 (23.1%)
Lost someone due to COVID	19 (48.7%)	12 (30.8%)	8 (20.5%)
Noticed fewer staff on the ward	30 (76.9%)	1 (2.6%)	8 (20.5%)

**Table 4**

*Distress, ward atmosphere, coping, resilience, emotional reactivity and work satisfaction levels reported by staff*

Variable	<i>n</i>	Mean (SD)	Min/Max attainable score
Distress	33	29.18 (25.96)	0-88
Ward atmosphere total	21	32.90 (6.34)	0-60
Therapeutic hold	21	14.48 (4.09)	0-20
Patient cohesion	21	8.86 (3.64)	0-20
Experienced safety	21	9.57 (2.29)	0-20
Coping			
Avoidance	28	11.18 (2.92)	8-32
Emotion focused	28	22.11 (7.32)	12-48
Problem focused	28	16.71 (2.33)	8-32
Job satisfaction			
Compassion satisfaction	23	27.52 (9.31)	10-50
Secondary traumatic stress	23	22.26 (9.30)	10-50
Burnout	23	26.26 (6.17)	10-50
Resilience	27	11.81 (6.99)	6-36
Emotional reactivity	30	30.70 (23.13)	0-84

**Table 5**

*Prevalence and severity of compassion satisfaction, burnout and secondary traumatic stress in staff*

Dimension	<i>n</i>	Prevalence (%)
Compassion satisfaction (<37)	18	46.2%
Low	5	12.8%
Moderate	15	38.5%
High	7	5.1%
Burnout (>27)	21	53.8%
Low	6	15.4%
Moderate	17	43.6%
High	16	41.0%
Secondary traumatic stress (>17)	11	28.2%
Low	10	25.6%
Moderate	12	30.8%
High	17	43.6%