



Brief report

Factors contributing to the distress, concerns, and needs of UK Neuroscience health care workers during the COVID-19 pandemic

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COVID-19 research from China suggests health care workers are at risk of distress, have specific concerns, and need support. It remains unknown whether findings are applicable to UK health care staff and whether psychological support based on generic approaches is effective. We administered an online survey at a leading neuroscience hospital in the UK to examine how individual staff characteristics contribute to distress, concerns, and interventions most valued during the COVID-19 pandemic. We found a high incidence of distress, particularly in females and staff with previous mental health history. Concerns fell into three factors: 'risk of infection', 'work challenges', and 'social change', and were affected by professional role and contact with COVID-19 patients. These three factors predicted distress. Psychological support and clear updates were deemed most useful, with specific needs affected by age, professional role, and contact with COVID-19 patients. This is the first documentation of a high incidence of psychological distress predicted by three types of concerns in health care workers of a neuroscience hospital. Distress, concerns, and interventions most valued were all affected by individual staff characteristics. These findings highlight the importance of providing stratified, one to one support interventions, tailored to professional group, and background, rather than more generic approaches.

Practitioner points

- The COVID-19 pandemic has resulted in a high incidence of psychological distress in UK health care staff.
- Distress, concerns, and interventions most valued are influenced by individual staff characteristics.
- Stratified, one-to-one support interventions, tailored to professional group, and background, rather than more generic approaches for stress reduction and resilience, are crucial.

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The COVID-19 pandemic has challenged the limits of health care services across the world. Its psychological effects on health care workforce should not be neglected (Greenberg, Docherty, Gnanapragasam, & Wessely, 2020). Research from China suggests that health care workers are at high risk of psychological distress (Liu *et al.*, 2020), particularly anxiety and depression (Chen, Zhou, Zhou, & Zhou, 2020), and have specific concerns about infection, inadequate protection, and difficulty dealing with distressed patients (Kang *et al.*, 2020). These studies also suggest that psychological support should be available to all staff (Rajkumar, 2020). This is usually based on generic approaches to stress reduction and resilience such as, for example, education about strategies to promote mental health during the pandemic, provision of online self-help services to release stress, and additional resources to ensure sufficient rest, additional training, and adequate protection. In line with this, the World Health Organization published guidelines to promote general psychological well-being of staff, stressing the importance of ‘..Managing mental health and psychosocial well-being..’ and ‘..the usage of coping strategies..’ (pg. 2; World Health Organization, 2020). However, it remains unknown whether the findings from China are applicable to the health care workforce in the UK and whether psychological support based on generic approaches is effective. Moreover, very few studies have considered how individual staff characteristics, such as professional role, contact with COVID-19 patients, and previous mental health problems, may predict distress, concerns, and the type of intervention considered useful. A recent call for action has argued that such high-quality data are needed to understand the mental health effects of the pandemic in the UK, particularly in the health care workforce (Holmes *et al.*, 2020).

In response to the pandemic, the National Hospital for Neurology and Neurosurgery, University College London Hospitals NHS Trust, a leading tertiary-referral neuroscience specialist hospital in the UK, was required to dedicate two out of its nine inpatient wards (approximately 38 beds) and one of the two ITU wards to COVID-19 patients (19 beds). Moreover, in response to the rising bed pressure at the associated general hospital, the Hyper-Acute Stroke Unit was transferred to this hospital and a new ‘Emergency Stroke Unit’ created. To prevent the spread of COVID-19, the hospital has been placed in lockdown; all visitors are prohibited, even for patients who are very sick and dying. Non-urgent outpatient clinics have been cancelled, with those remaining mostly provided by telephone. Outpatients deemed to be ‘extremely vulnerable’ by Public Health England have been advised to shield for 12 weeks and instructed not to leave their houses, even for shopping or medication. As a result of these changes, clinical staff members have to work at a quicker pace, in longer shifts, and in smaller teams because of increased staff sickness. They must provide more general medicine, and although there is no shortage of personal protective equipment (PPE) in our hospital, staff must now have to learn how to use it. Academic staff has been redeployed clinically, and some staff members have been redeployed to the new London NHS Nightingale Hospital. All staff members have to work knowing that they might contract COVID-19, potentially placing themselves and their own household at risk. At a trust-wide level, a plethora of well-being, self-care advice, and support, mostly online or over the phone, was offered to help our neuroscience staff cope with the pandemic.

In response to the changes in our neuroscience hospital and requests from staff, the Department of Neuropsychology reconsidered its priorities and how best to support to the new needs of the staff, patients and their families. In normal times, the Department focusses on the assessment, management, and treatment of patients with complex neurological, neuropsychiatric, and neurosurgical conditions. However, COVID-19 meant that we have had to adapt our usual activities and develop brand new services, in order to continue to provide top-class neuropsychological care. Thus, in the first

2 weeks of lockdown (on week commencing 06.04.20), we launched a new support service for all the staff of the neuroscience hospital as well as support clinics for patients and their families (Foley, Chan, Van Harskamp & Cipolotti, 2020a). The staff support consisted of daily telephone and twice-weekly walk-in clinics offering one-to-one support. Staff underwent a detailed clinical psychological assessment, including questions relating to the mental health impact of COVID 19 based on the limited available literature coming from China (for a review see Rajkumar, 2020). Based upon this assessment and their presenting problems, tailored psychological support was then offered, incorporating elements of supportive psychotherapy, cognitive behavioural therapy, acceptance and commitment therapy, and mindfulness practice, as required. Two weeks after this, we realized that in order to develop a more effective, tailored approach to support staff it was essential to listen more widely to their concerns and gauge the usefulness of the interventions implemented by our newly launched support services and more generally within the Trust.

In the absence of any validated instrument to assess the psychological impact of COVID-19, we developed an online anonymous survey. The questions we included were based on research findings emerging from China and our clinical experience with our newly developed staff support services. As our survey was administered at the height of the pandemic, to avoid encumbering staff with further demands on their already stretched time, we opted for a short form, requiring approximately a maximum of 4 min for completion.

Our aims were to evaluate staff distress, listen to their concerns, and obtain information regarding the interventions they deemed most useful.

Methods

We administered our survey shortly after the launch of our new support services and during the peak of the COVID-19 in London. Given the urgency to understand the needs of our staff and respond to these rapidly, the questionnaire was administered online, using SurveyMonkey, and kept live for 5 days only (from the 24.4.20 to 29.4.20). The questionnaire was administered to doctors, nurses, allied health professionals (AHPs), and non-clinical staff working at our neuroscience hospital. Staff members were only asked to complete the questionnaire once. Staff members were asked to rate their: (1) *psychological distress* on five questions using a four-point Likert scale (0 = not an issue; 1 = somewhat an issue, but did not affect my daily activities; 2 = definitely an issue that had some effect on my daily activities; and 3 = a major issue that seriously affected my daily activities); (2) *specific concerns* about infection, protection, work challenges, social change on 13 questions, using a three-point Likert scale (0 = not an issue; 1 = somewhat an issue; and 2 = definitely an issue); and (3) *interventions deemed useful*, including psychological support and additional resources, on 11 questions, using a three-point Likert scale (0 = not useful; 1 = somewhat useful; and 2 = definitely useful).

All data met the assumptions of normality and homogeneity of variance. Scores were analysed using Pearson's correlational, principal components, and multiple regression analyses to explore the relationship between questionnaire scores and staff members' background characteristics. Differences in questionnaire scores between different staff groups were compared using analyses of variance and independent *t*-tests, as appropriate. Of the survey responses obtained, only a very minimal amount of data were missing (<1%); hence, no further measures were taken to correct for this.

The study was approved by the local clinical governance committee of the National Hospital for Neurology and Neurosurgery, University College London Hospitals NHS Trust and conducted in accordance with the Declaration of Helsinki.

Results

We examined age, age group (split by median age of 40 years), gender, previous mental health history, professional role, years in role, and contact with COVID-19 patients. 158 replies were received, representing approximately 10% of the workforce. Of the responses received, 28.48% were from nurses (32 females and 13 males, mean age = 39.30 years, $SD = 11.02$ years, range 24 to 61 years); 21.52% were from medical doctors (15 females and 19 males, mean age = 44.88 years, $SD = 9.69$ years, range 32 to 65 years); 22.15% were from AHPs (22 females and 13 males, mean age = 38.46 years, $SD = 9.66$ years, age range 23 to 62 years); and 18.35% were from non-clinical management and administration staff (14 females and 15 males, mean age = 48.38 years, $SD = 11.35$ years, age range 24 to 67 years). A further 9.49% of the responses were received from other staff including security, portering, and academic and research staff. Relative to the total workforce, responses were received from 7.35% of nurses, 10.46% of medical doctors, 12.41% of AHPs, and 10.36% of non-clinical management and administration staff. Unfortunately, at the time of launching the questionnaire, we were not aware of the disproportionate impact of COVID 19 on Black, Asian, and minority ethnic (BAME) groups, so specific questions about ethnicity were not included. Approximately 46% of the workforce in our hospital identify as BAME, although the proportion across the various professional groups is unknown at the time of writing. We recognize that there will be staff groups who are more representative of BAME than others.

Overall, a considerable percentage of staff reported psychological distress and indicated that this affected everyday functioning (see Table 1). Notably, almost four-fifths of our workforce stated that they experienced considerable stress.

Independent *t*-tests revealed distress scores were significantly higher in females [$t(149) = 2.21, p < .05$] and those with previous mental health history [$t(115) = -2.32, p < .05$]. They were not affected by age, age group, profession, years in role, or contact with COVID-19 patients.

A principal components analysis with oblique rotation was used to identify any clustering for the questions assessing workforce concerns (Table 2).

For staff concerns, we found three significant factors: 'risk of infection' ($\eta^2 = 42.36\%$), 'work challenges' ($\eta^2 = 7.64\%$), and 'social change' ($\eta^2 = 8.76\%$). A multiple regression analysis revealed that together these three factors predicted staff psychological distress, accounting for 42.6% of the variance [$F(3, 140) = 36.34, p < .001$].

Table 1. Workforce psychological distress

Psychological distress questions	Distress (%)	Distress impacting everyday functioning (%)
1. I am experiencing a lot of stress	77.7	33.7
2. I cannot sleep because I have a lot on my mind	71.5	32.3
3. I feel low, sad or depressed	64.3	28.0
4. I am struggling to concentrate on tasks	59.9	28.1
5. My self-confidence is low	52.6	19.3

Table 2. Workforce concerns and interventions deemed useful

Workforce concerns: principal components	Factor loading
Factor 1: Risk of infection	
Colleagues becoming critically ill or dying	.82
Insufficient workforce	.74
Infecting others, including family, friends or colleagues	.71
Becoming ill or dying	.71
Access to scrubs, masks and other PPE	.62
Patients becoming critically ill or dying	.58
Factor 2: Work challenges	
Performance at work/making mistakes	.80
Changes to role, hours worked or shift pattern	.68
Discussions regarding dying with patients/families	.65
Dealing with the emotional reactions/behaviour of patients/families	.49
Factor 3: Social change	
Distancing from family and friends due to work or their fears of becoming infected	.84
Being unable to engage in usual activities (e.g., being with family)	.82
News stories and social media posts and COVID	.53
Interventions deemed useful (percentage endorsement)	Percentage
Psychological support for team	67.1
Psychological support for patients/families	65.2
Clear updates about COVID	58.2
Psychological support for me	53.1
More time to meet with supervisors and colleagues	53.1
Access to rest space for staff	49.4
More training on COVID patients' medical needs and procedures	49.4
Improved access to PPE	48.8
Allotted time during shift to contact friends or family	35.5
More education on how disease is transmitted	34.5
Greater flexibility in working arrangements	27.9

For 'risk of infection' concerns, staff was most concerned about colleagues becoming critically ill or dying and insufficient workforce. For 'work challenges', main concerns were related to performance at work/making mistakes and changes to role, hours worked, or shift pattern. For 'social change', main concerns were distancing from family and friends and being unable to engage in usual activities.

An analysis of variance revealed that professional role had a significant effect on *risk of infection* and *work challenges*; with nurses significantly more concerned about *risk of infection* [$F(3, 131) = 9.99, p < .001$] and, together with doctors, about *work challenges* [$F(3, 131) = 4.94, p < .01$]. Staff working with COVID-19 patients were more concerned about both *risk of infection* and *work challenges* [$t(135) = 3.83, p < .001$; $t(135) = 3.38, p < .01$]. Age, age group, gender, previous mental health history, and years in role were not significant determinants. Age, age group, gender, previous mental health history, professional role, years in role, and contact with COVID-19 patients had no significant effect on social change.

The percentages of interventions deemed useful are reported in Table 2. Overall, the interventions deemed most useful were psychological support for team, patients, and families as well as clear updates about COVID-19. Independent *t*-tests and analyses of

variance revealed important staff differences according to age group, professional role, and contact with COVID 19 patients. Specifically, younger staff (<40 years) endorsed psychological support for patients/families [$t(118) = 2.43, p < .05$], access to rest space [$t(99) = 2.59, p < .05$], and flexibility in working arrangements [$t(99) = 2.52, p < .05$] more than older staff. Nurses endorsed training on COVID-19 patients' medical needs and procedures [$F(3,99) = 7.34, p < .001$] more than AHPs or non-clinical staff. Staff working with COVID-19 patients endorsed all three types of psychological support [team: $t(116) = 2.45, p < .05$; patients/families: $t(112) = 3.31, p < .01$; me: $t(109) = 3.70, p < .001$], training on COVID-19 patients' [$t(98) = 2.73, p < .01$], and improved access to PPE [$t(88) = 3.31, p < .01$].

Discussion

To the best of our knowledge, this study is the first documentation of a high incidence of psychological distress, predicted by three types of concerns (*risk of infection, work challenges, and social change*) in health care workers of a tertiary neuroscience hospital in the UK. We found that several staff characteristics, namely gender, age group, previous mental health history, professional role, and contact with COVID-19 patients, had a significant impact on their distress, infection, and work concerns. Distress was higher in females and staff with previous mental health history. A limitation of our study is that our measure of distress consisted of five questions only. This small number precludes further analysis of the determinants of different aspects of psychological distress, such as depression, anxiety, and stress.

Concerns about infection/inadequate protection were particularly evident in nurses, staff working with COVID-19 patients, and doctors. These are similar to some of those documented by the Chinese studies (Dai, Hu, Xiong, Qiu, & Yuan, 2020; Lai *et al.*, 2020). UK nurses, doctors, and staff working with COVID-19 patients were also concerned about work challenges, including making mistakes. This may reflect the extreme work pressure they were under. Interestingly, they were less concerned about the emotional reactions/behaviour difficulties of patients/families, perhaps reflecting their specialist skills in dealing with these challenges in neurological patients. They were also somewhat less concerned about access to PPE, likely reflecting its adequate provision in our hospital. Concerns about social changes were not affected by any of the staff characteristics investigated, possibly reflecting a universal consequence of COVID-19.

The results of our survey revealed that our staff considered psychological support for their teams, patients/families, and clear COVID-19 hospital updates as particularly useful. This is in line with findings from a preliminary analysis of our new support services for staff, patients, and their families (Foley, Chan, Van Harskamp & Cipolotti, 2020b), highlighting the need to provide psychological support to all of these groups during these extraordinary times (Foley *et al.*, 2020a; Foley, Chan, van Harskamp & Cipolotti, 2020c). These findings also support recent recommendations, based on a meta-analysis on the psychological effects on clinicians working in past outbreaks (Kisely *et al.*, 2020), for practical steps to undertake in order to minimize the burden on clinical staff.

Interestingly, we also found that overall greater flexibility in working arrangements and education regarding how COVID 19 is transmitted was rated as less useful. This latter finding may be related to the intimate intertwining of academic and clinical practice in our neuroscience hospital. However, significant differences were present according to age and profession. Thus, for example, younger staff endorsed flexibility in working

arrangements and access to rest space. Training on COVID-19 patients' medical needs and procedures was endorsed more by nurses and improved access to PPE more by staff working with COVID-19 patients.

As our study was conducted at the peak of the pandemic and given the urgency to use our findings to refine our newly developed support services, we administered our survey only once. Hence, we have no information on how workforce distress, concerns, and perceptions of interventions may change over time during this prolonged period of uncertainty and difficulty in providing health care. Further research is needed to address these questions.

Overall, our findings highlight the importance of providing stratified, one-to-one support interventions, tailored according to professional group, and background, rather than applying generic approaches for stress reduction and resilience. (Shanafelt, Ripp, & Trockel, 2020) They also illustrate the need for more in-depth UK-specific research to further our understanding of the concerns of the health care workforce and to develop support approaches that are empirically based and focused around their distress and concerns.

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Conflicts of interest

All authors declare no conflict of interest.

Author contributions

Lisa Cipolotti (Conceptualization; Investigation; Methodology; Writing – original draft; Writing – review & editing) Edgar Chan (Conceptualization; Data curation; Investigation; Methodology; Writing – review & editing) Patrick Murphy (Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing – review & editing) Natasja van Harskamp (Conceptualization; Supervision; Writing – review & editing) Jennifer A. Foley (Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Supervision; Writing – review & editing).

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

- Chen, Y., Zhou, H., Zhou, Y., & Zhou, F. (2020). Prevalence of self-reported depression and anxiety among pediatric medical staff members during the COVID-19 outbreak in Guiyang, China. *Psychiatry Research*, 288, 113005. <https://doi.org/10.1016/j.psychres.2020.113005>
- Dai, Y., Hu, G., Xiong, H., Qiu, H., & Yuan, X. (2020). Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare workers in China. *MedRxiv*. <https://doi.org/10.1101/2020.03.03.20030874>

- Foley, J.A., Chan, E., van Harskamp, N., & Cipolotti, L. (2020a). Covid-19 emergency: Redesigning the Department of Neuropsychology services at the National Hospital for Neurology and Neurosurgery. *Clinical Psychology Forum*, 329, 8–11.
- Foley, J.A., Chan, E., van Harskamp, N., & Cipolotti, L. (2020b). Development and evaluation of new neuropsychological services in response to the COVID-19 emergency. *Manuscript submitted for publication*.
- Foley, J.A., Chan, E., van Harskamp, N., & Cipolotti, L. (2020c, April 17). The department of neuropsychology of the national hospital for neurology and neurosurgery: Response to the COVID-19 emergency [Blog post]. Retrieved from <https://blogs.ucl.ac.uk/mental-health/>
- Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ*, 368m1211. <https://doi.org/10.1136/bmj.m1211>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., . . . Ford, T. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet Psychiatry*, 7, 547–560. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B. X., . . . Chen, J. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *The Lancet Psychiatry*, 7, e14. [https://doi.org/10.1016/s2215-0366\(20\)30047-x](https://doi.org/10.1016/s2215-0366(20)30047-x).
- Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *BMJ*, 369m1642. <https://doi.org/10.1136/bmj.m1642>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., . . . Tan, H. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3, e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
- Liu, S., Yang, L., Zhang, C., Xiang, Y. T., Liu, Z., Hu, S., & Zhang, B. (2020). Online mental health services in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 7, e17–e18. [https://doi.org/10.1016/S2215-0366\(20\)30077-8](https://doi.org/10.1016/S2215-0366(20)30077-8)
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. <https://doi.org/10.1016/j.ajp.2020.102066>
- Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *JAMA*, 323, 2133. <https://doi.org/10.1001/jama.2020.5893>
- World Health Organization. (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak*. Retrieved from: https://www.who.int/docs/default-source/coronavirus/mental-healthconsiderations.pdf?sfvrsn=6d3578af_2

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