Hospital Trainees' Worries, Perceived Sufficiency of Information and Reported Psychological Health During The COVID-19 Pandemic

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Abstract

Introduction
The COVID-19 pandemic has been unsurpassed in clinical severity or infectivity since the 1918 Spanish influenza pandemic and continues to impact the world. During the A/H1N1 pandemic, healthcare workers presented concerns regarding their own and their families' health, as well as high levels of psychological distress. We aim to assess hospital trainees' concerns, perceived sufficiency of information, behaviour and reported psychological health during the COVID-19 pandemic.

Design
Single 39-point questionnaire

Setting
A large NHS foundation trust in London

Participants
204 hospital trainee doctors

Results
204 trainees participated, of whom 91.7% looked after COVID-19 patients. 91.6% were worried about COVID-19; the most frequent concern was that of family and friends dying from COVID-19 (74.6%). 22.2% reported being infected with COVID-19. 6.8% of trainees considered avoiding going to work. Perceived sufficiency of information about COVID-19 was moderately high. 25.9% reported social distancing at work compared with 94.4% outside work. 98.2% reported using PPE and 24.7% were confident the provided PPE protected them. 41.9% reported their psychological health had been adversely affected. 95.6% supported provision of psychological support services and 62.5% stated they would consider using them.

Conclusions
A significant proportion of hospital trainees reported psychological distress during the COVID-19 pandemic. Hospital leaders and liaison psychiatry must explore the reasons for not using provided

psychological support services and highlight the provision of this outside work. Seeking solutions to support trainees in their duties and their wellbeing with their input would empower them and improve their health and morale while working during pandemics.

Introduction

In December 2019, the first reports of a cluster of cases of pneumonia of an unknown aetiology emerged from Wuhan, China.(1) As other respiratory pathogens such as SARS-CoV, MERS-CoV and influenza were excluded as causes, a novel coronavirus was subsequently identified and named SARS CoV-2, the disease caused by this being named COVID-19. The day after the genetic sequence of COVID-19 was publicly shared by China in January 2020, the first case of COVID-19 outside of China was identified in Thailand.(2) By March 2020, the WHO had declared a pandemic.(3)

As of 22nd July 2020, there have been 14,731,563 confirmed cases of COVID-19 and 611,284 deaths reported to WHO globally. In the UK to date there have been 295,376 confirmed cases of COVID-19, the ninth highest case burden in the world and the highest in Europe, with45,312 deaths.(4) Of the UK deaths, 181 were NHS workers and 131 were social care workers, including several doctors.(5,6)To date, it has been unsurpassed in terms of clinical severity and transmissibility since the 1918 Spanish influenza pandemic.(7)

A crucial element of the UK Department of Health's pandemic preparation following the H1N1 pandemic in 2009was a containment strategy.(8) While it is arguable how effective such a strategy would be at a point where the most populous country of the world had already succumbed to an epidemic and infection has spread to every continent, preventing healthcare systems from being overwhelmed amid increased demands has been a priority.(9) Protecting the NHS was central to the UK Government's message to the public at the onset of national lockdown(10). Inevitably, hospital practices changed significantly during the COVID-19 pandemic in order to effectively manage patients infected with SARS CoV-2 and to limit transmission.

The NHS is the 5th biggest employer in the world, comprising of over 1 million full-time staff of whom 122,031 are doctors(11,12). Hospital trainees, doctors in postgraduate training working in the hospital setting, have been on the frontline of the COVID-19 pandemic. During the previous pandemic of this scale, H1N1, hospital workers reported significant concerns regarding their own health and that of their families, with potential impact on their ability to perform their duties(13). The aim of our study was to assess the concerns of hospital trainees and the effects, perceived or otherwise, of working during this global health COVID-19 crisis on their training, their ways of working, and their physical and psychological wellbeing.

Methodology

This cross-sectional questionnaire study was carried out between the 1st and 31st of May 2020 at Barnet Hospital and the Royal Free hospital (part of the Royal Free London group of hospitals within the foundation trust) United Kingdom. Barnet hospital (459 beds) and The Royal Free hospital (839 beds) are a district general hospital and a teaching hospital providing secondary and tertiary care for a population of over 900,000 people. At the time of writing this paper, 5859 patients with COVID-19 have been admitted at both hospitals with 639 deaths.

A 39-item questionnaire was developed by the authors, adapted from a previous questionnaire by Goulia et al. with permission, to assess hospital doctors' in training anxieties, worries and concerns during the pandemic; their perceived sufficiency of information concerning COVID-19; their intended behaviour; use of PPE; reported psychological health; experience of medical education; and their experience of self-isolation.(13)Two items were scored on a 9-point Likert scale from strongly agree (9) to strongly disagree (1) and one was scored on a 9-point Likert scale from extremely worried (1) to extremely unworried (9) (Figures 2 and 8). The remaining items were dichotomous.

Items were grouped into 8 domains; demographics and professional information; concerns regarding COVID-19; perceived sufficiency of information about COVID-19; social distancing; use of personal protective equipment; COVID-19 acquisition and risk; mental health and medical education. Denominators vary depending on how many trainees answered each question and the lowest number of responses to any question was 159.

1. Recruitment

Hospital doctors in training in all hospital departments and clinical units were asked to participate in this study via a Survey Monkey questionnaire. This was distributed by email via the administrative staff at the Postgraduate Medical Education Centre at Barnet Hospital. The email explained the purpose of the study and its aims. The first page of the questionnaire comprised further information and informed consent. All the procedures followed were in keeping with ethical standards (world medical association Helsinki declaration). The UK Health Research Authority indicated that the project did not require ethical review by an NHS/HSC or social care research ethics committee or management committee through the NHS/HSC research and development office. The project was discussed with the hospital research and development office who stated that no further approvals were required. Reminder emails were sent twice, one week apart to all hospital doctors in training at Barnet Hospital and Royal Free Hospital by the administrative team at the Barnet Hospital Postgraduate Medical Education Centre.

2. Statistical Analysis

All statistical analyses were performed using the Stata version 14. Summary statistics for all variables were calculated using a complete case analysis. Questionnaire responses were stratified according to: (i) whether the trainee doctor reported or did not report any personal mental health concerns (ii) whether they were or were not redeployed during the pandemic and (iii) whether they had or had not been able to socially distance at both home and work. Chi-squared analysis, Fishers Exact and Mann-Whitney tests were performed to assess the strengths of associations.

Results

1. Demographics and professional information

Of 485 hospital doctors in training sent the survey by email, 204 completed the questionnaire (42.1% response rate). There were 123 women (60.3%), with the most common ethnicity being Caucasian (49.5%, n=101) followed by Asian (24.5%, n=50) (Table 1). The majority (91.2%, n=186) had looked after COVID-19 patients and 46.1% (n=94) were redeployed during the pandemic. (Appendix 1).

Table 1: Demographics and professional characteristics.

Where do you work? *	N (%)
Barnet Hospital	104 (51.0%)
Royal Free Hospital	84 (41.2%)
Chase Farm	4 (2.0%)
GP based	7 (3.4%)
Other	9 (4.4%)
What is your gender?	
Female	123 (60.3%)
Male	80 (39.2%)
Other/prefer not to say	1 (0.5%)
What is your ethnicity?	
Asian/Asian British	50 (24.5%)
Black/Black British	6 (2.9%)
Chinese/Chinese British	9 (4.4%)
Middle Eastern/Middle Eastern British	10 (4.9%)
Mixed race – other	14 (6.9%)
Other ethnic group	5 (2.5%)
White – British, Irish, Other	101 (49.5%)
Prefer not to say	9 (4.4%)
What level of practice are you currently at?	
Core medical training Y1	8 (3.9%)
Foundation Y1	32 (15.7%)
Foundation Y2	30 (14.7%)
Internal medicine Y1	9 (4.4%)
Specialist Registrar	76 (37.3%)
Other (GP trainees, Surgical trainees, Emergency Medicine Trainees, clinical fellows and Foundation Year 3 doctors)	49 (24.0%)
Have you been involved in looking after COVID-19 patients?	
Yes	186 (91.2%)
No	18 (8.8%)
Have you been re-deployed during this COVID-19 pandemic?	
Yes	94 (46.1%)
No	110 (53.9%)

*4 people listed two places of work

2. Concerns and worries regarding COVID 19

In total, 91.6% (164/179) of trainees were worried about COVID-19 (Figure 1). The three topmost worries for trainees were the risk of families and friends dying from COVID-19, the risk of family and friends being infected with COVID-19 and the risk of being infected at work and transmitting it to family and or friends. Trainees were less worried about themselves being infected with COVID-19, dying from COVID-19, or the consequences on their functional ability regarding family, work or social relationships in the event of being infected with COVID-19. Concerns about isolation from family and or the social environment and about a feeling of exposure due to lack of PPE were moderately high (Figure 1). Worries were higher among those reporting mental health concerns (97.7% vs. 83.8%, p= 0.002), but similar for those who were redeployed (95.2% vs. 89.4%, p=0.15) and those who were socially distanced (95.1% vs. 90.8%, p=0.38). Other trainee worries were expressed in free-text responses (Appendix 2).

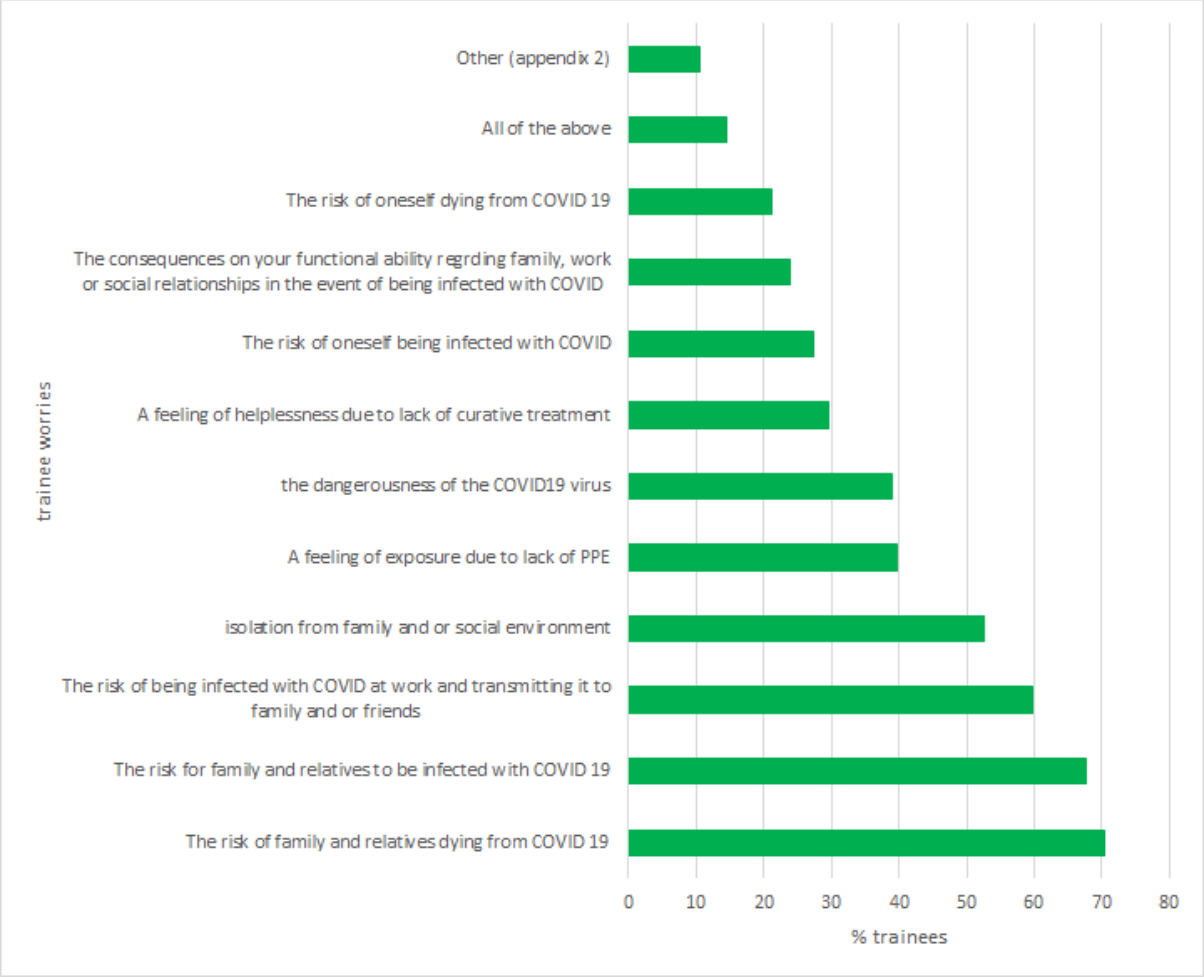


Figure 1: Trainees worries during covid 19

3. Perceived sufficiency of information about the COVID-19 pandemic

The degree of trainees' perceived sufficiency of information regarding COVID-19 symptoms, prognosis, contagion route, treatment, preventative measures, provision of information relating to the COVID-19 pandemic by the hospital, and hospital preparedness was high, with agreement ranging from 50-80% (Figure 2). 88% of trainees agreed they had received enough information about COVID-19 symptoms. 54.8 % (n=158) of trainees agreed their hospital was well prepared for the pandemic. There was significant variation between redeployed and non-redeployed trainees in agreement with regards to the statements "I have received sufficient information about COVID-19 treatment" (Median IQR 4 vs. 3, p=0.0006) and "I have received sufficient information about COVID-19 preventative measures" (Median IQR 4 vs. 3, p=0.001).

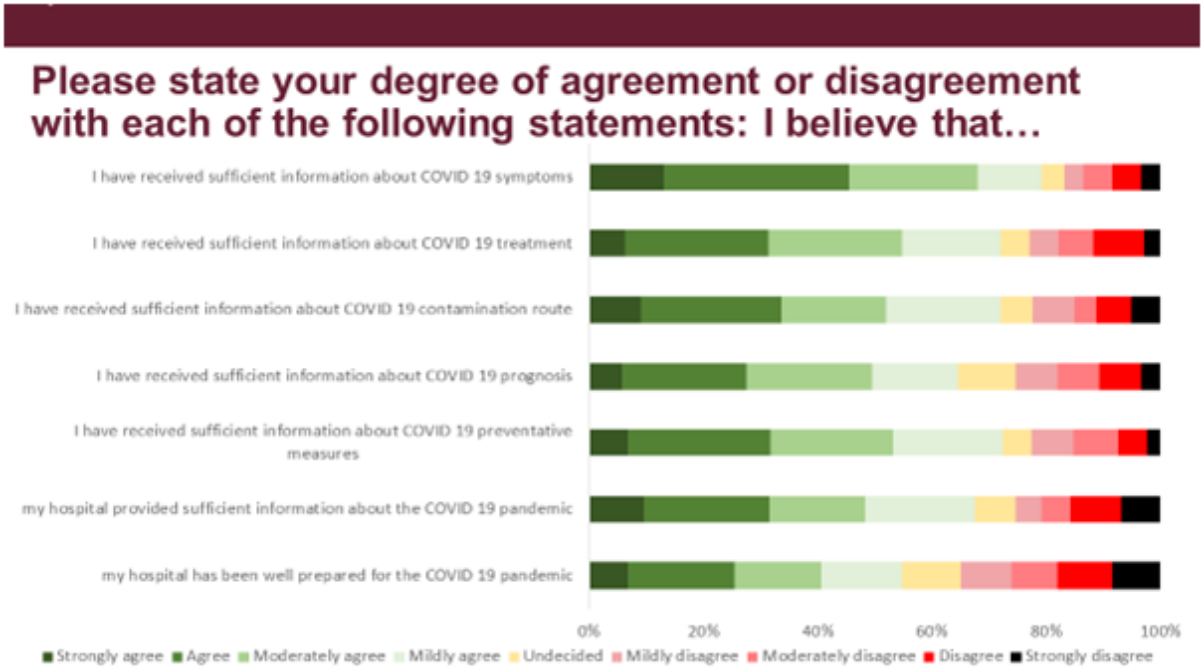


Figure 2: perceived sufficiency about COVID19 and hospital preparedness

4. Social distancing

25.9%of trainees (n=42) implemented the recommended social distancing at work whilst the majority (94.4%, n=152) implemented this outside work (Figure 3). Of those who had been redeployed, 50% did not socially distance at work compared to 33.3% who did (p=0.062). There were similar rates of worry about COVID-19 amongst trainees who did not socially distance and those who did (90.8% vs. 98.1%; p=0.38). 100% of trainees practicing social distancing used personal protective equipment (PPE) compared with 92.9% of those who did not (p=0.003).

The commonest reasons cited for not being able to socially distance at work were ward rounds (68.5%, n=105) and board rounds due to the size of the rooms (64.2%, n=99) and due to the number of persons present (59.9%, n= 92). Other comments highlighting the logistical difficulties of maintaining social distancing at work were raised in free-text responses (Appendix 3). The commonest suggested trainee solutions to enable social distancing at work were larger offices (82.1%, n=129), more computers (74.1%, n=116) and larger recreational spaces (60.5%, n=95).

Remote ward rounds and remote teaching were indicated as solutions by 38.2% (n=60) and 35.7% (n=56) of trainees respectively. Other options to enable social distancing at work were explored in free-text responses (Appendix 4).

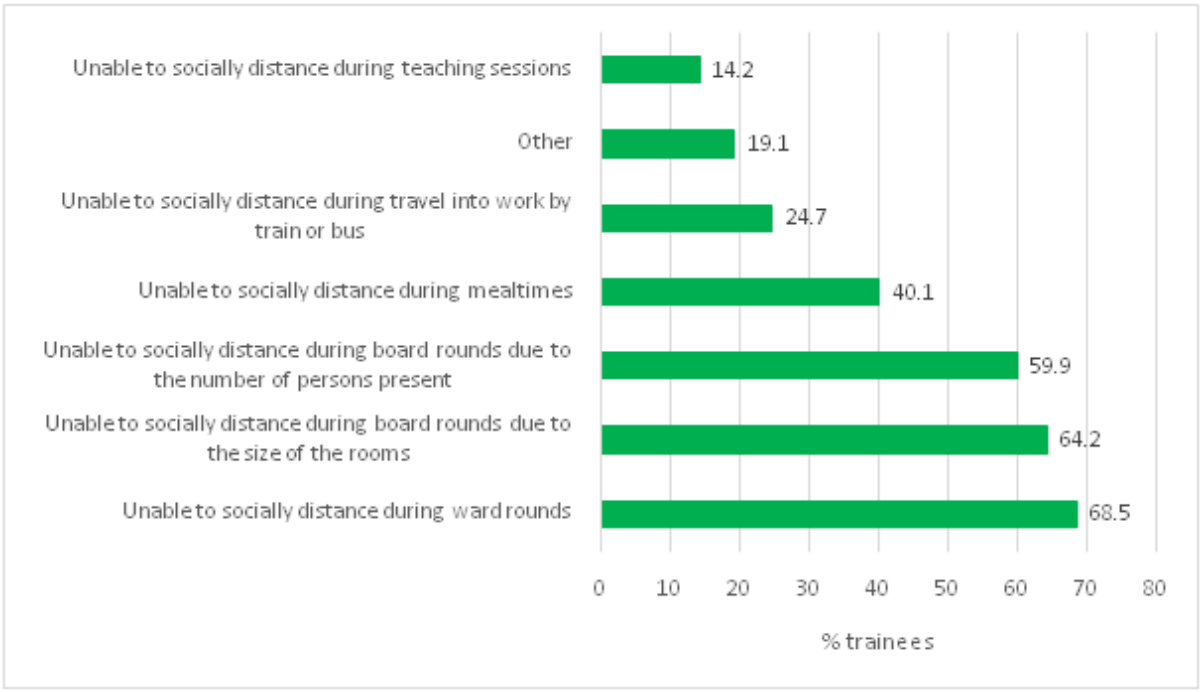


Figure 3: social distancing at work and outside work

5. Use of personal protective equipment (PPE) and training in PPE

98.2% (159/163) of trainees used PPE whilst caring for patients with COVID-19.This was comparable for those with and without mental health concerns (96.6%vs. 100% p=0.13), those not redeployed and those redeployed (97.7% vs. 98.7%, p=0.67), those who socially distanced and those who did not socially distance (100% vs. 92.9%, p=0.003). Of these, the most commonly used PPE were disposable gloves (93.8%, n=152), disposable plastic aprons (91.4%, n=148) and scrubs (87.7%, n=142). 68.9% (n=111) used FFP3 masks, 46.6% (n=75) used fluid-resistant type IIR surgical face masks, and 59% (n=95) used non-fluid resistant surgical masks.64% (n=103) reported using face shields (Figure 5).

70.8% of trainees (n=114) received training in donning and doffing. This was comparable for trainees with and without mental health concerns (68.2% vs. 76.2%, p=0.25), those redeployed and those not redeployed (75.7% vs. 66.7%, p=0.21) and those socially distancing and those not social distancing (70.7% vs. 70.8%, p=0.99). Of those who received this training, 56.6% (n=89) agreed it was sufficient. 24.7 % (n=39) were confident that the PPE they were wearing at work protected them from being infected with COVID-19. 66% (n=107) were confident that they were following the recommended COVID-19 infection control guidelines at work, and 61.7% (n=100) were confident they were donning and doffing the recommended PPE correctly at work (Figure 6).

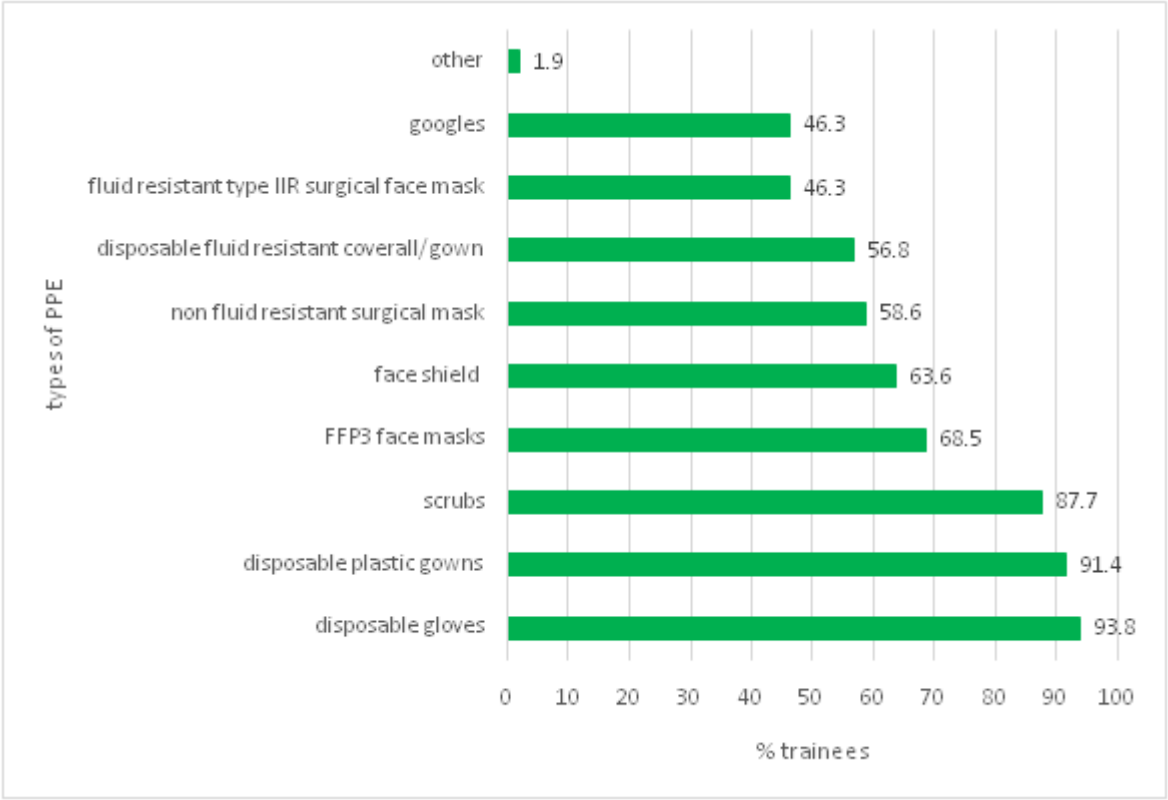


Figure 5: PPE used by trainees

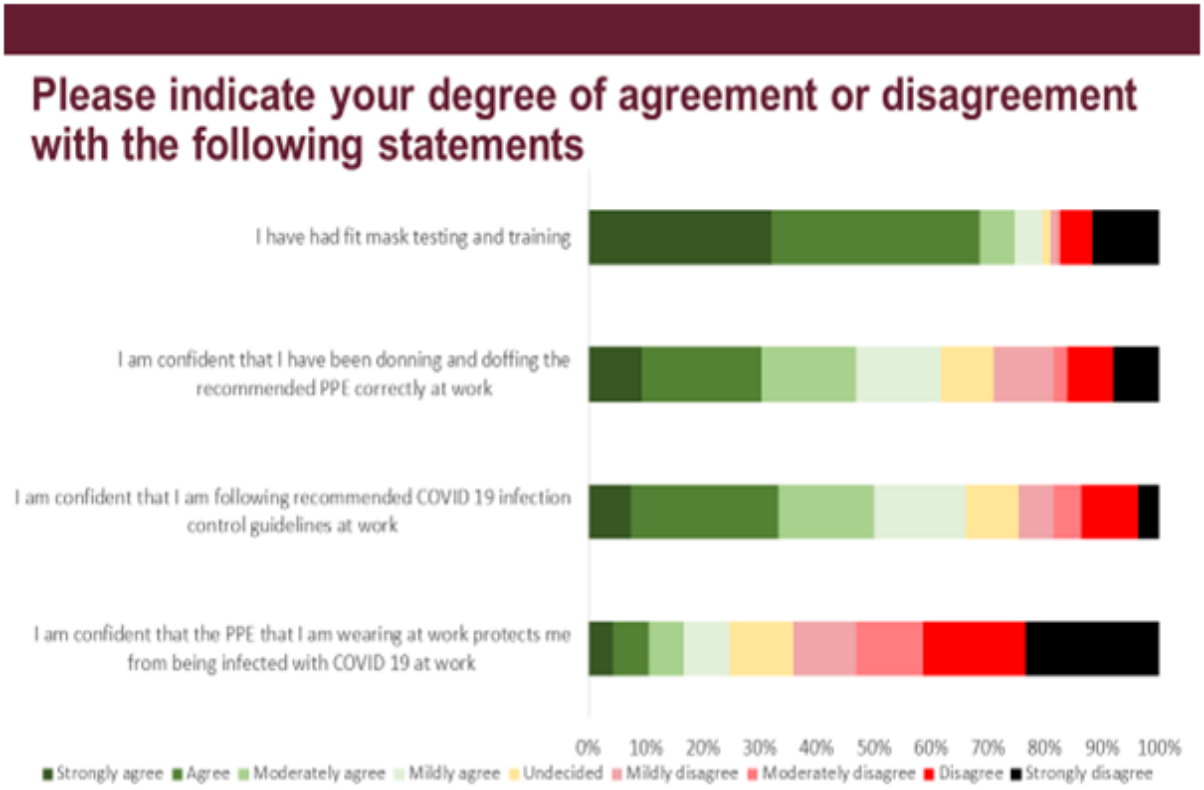


Figure 6: Trainees views of PPE

6. COVID-19 acquisition and risk

22.2 % of trainees (n=36) reporting having been infected with COVID-19. 20.5% (n=18) and 25% (n=17) of trainees with and without mental health concerns respectively had been infected with COVID-19 (p=0.063). 28.8% (n=21) of redeployed and 17.1% (n=15) of non-redeployed trainees had been infected with COVID-19 respectively (p=0.15), whereas reported infection rates were comparable for trainees who had socially distanced and those who had not, 19.1% (n=8) vs. 23.5% (n=28) respectively (p=0.64). Of those trainees who were unsure or reported they had not been infected (n=132), 84.1% perceived their risk of being infected with COVID-19 as high (n=110). This was largely attributable to concerns regarding PPE and exposure to potentially infected individuals (Appendix 5).The perceived risk of being infected with COVID-19 was high across all the groups; those with and without mental health concerns, 83.8% (n=62) and 85.2% (n=46) respectively; those redeployed and not redeployed,85.3% (n=52)and 83.1% (n=59) respectively; and those who did and did not socially distance, 88.8% (n=32) and 82.2% (n=79) respectively (Figure 7). 6.8%of trainees (n=11) were so concerned about contracting COVID-19 that they would avoid going into work. Trainees with no mental health concerns (92.5%, n=62) were more likely to avoid going into work than those with mental health concerns (71.9%, n=64).

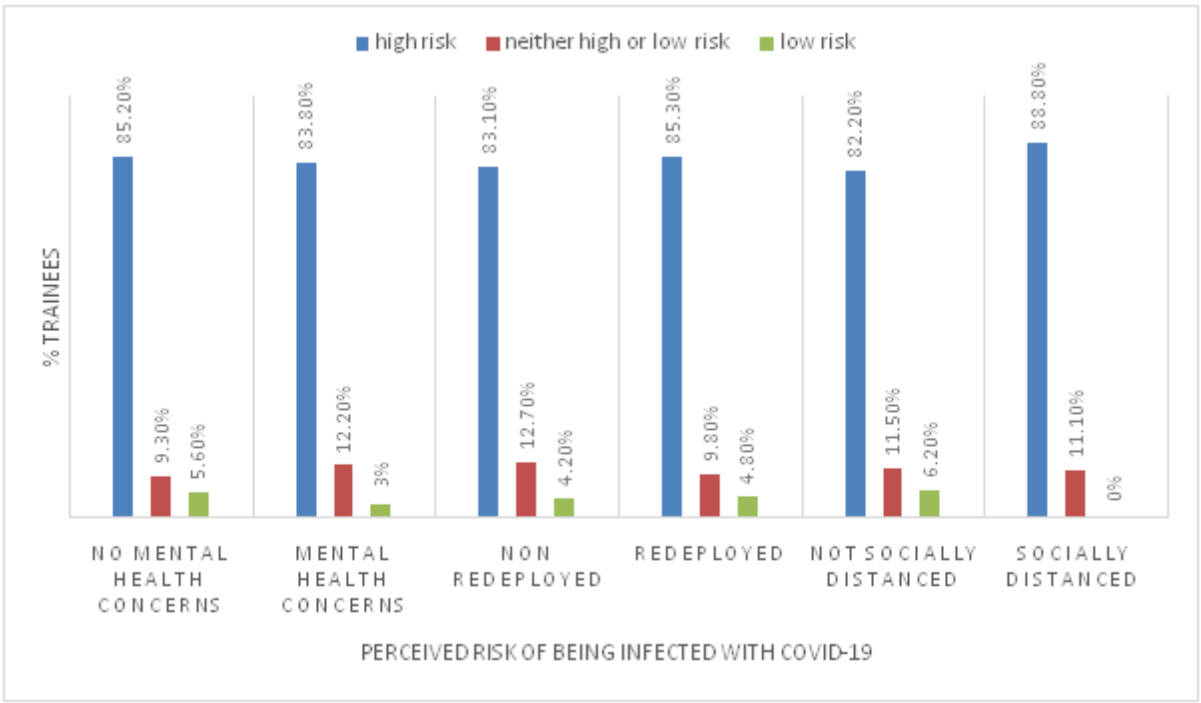


Figure 7: trainees perceived risk of being infected with COVID 19

7. Reported psychological health

41.9% of trainees (67/160) reported concerns about their psychological health. The commonest reported concerns were anxiety (37.5%, n=25), emotional distress (33.8%, n=23) and burnout (25%, n=17) (Figure 8). Potential reasons for this were also explored (Appendix 6). 56.9% trainees (n=91) felt anxious about a colleague falling ill at work. 95.6% (n=153) felt it was important to have psychological support services during the COVID-19 pandemic with 62.5% (n=100) stating they would consider using those services. 77.5%of trainees (n=124) were aware of the wellbeing support currently available at work, the most commonly stated avenues of support being educational and clinical supervisors, 83.1% (n=133) and 76.9% (n=123) respectively.

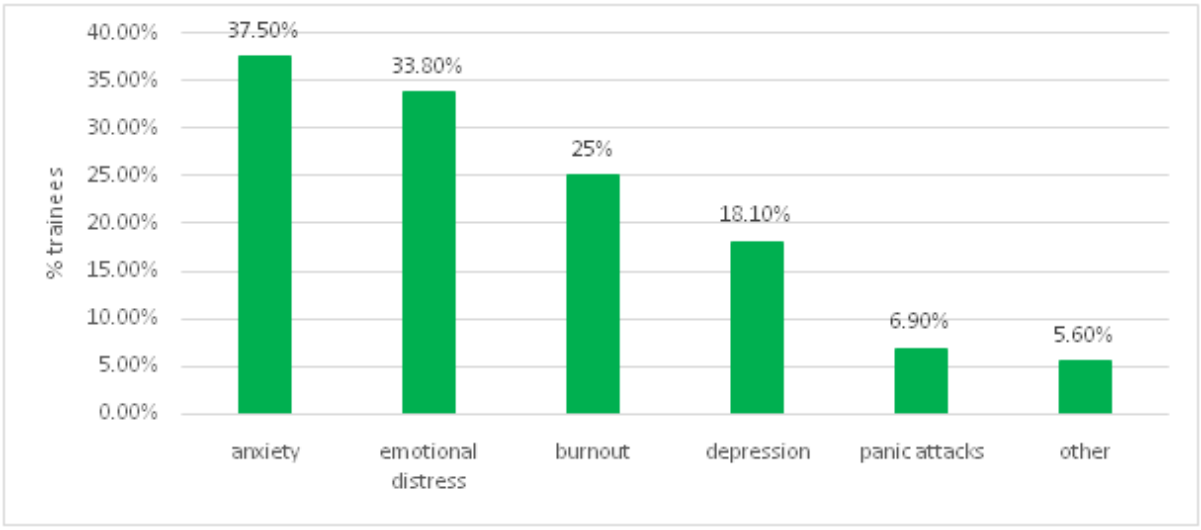


Figure 8: effect on trainee's psychological health

8. Medical Education

73% of trainees (116/159) were aware the delivery of medical education had changed during the COVID-19 pandemic. The most commonly reported alternative method of delivery of medical education was Microsoft teams (Figure9). 61%of trainees (n=96) reported their commonest source of information regarding COVID-19as their employer. 53.5%of trainees (n=85) received information regarding COVID-19 via television news programmes and 50.9% (n=81) via daily government briefings. Other sources of information were also explored (Appendix 7).

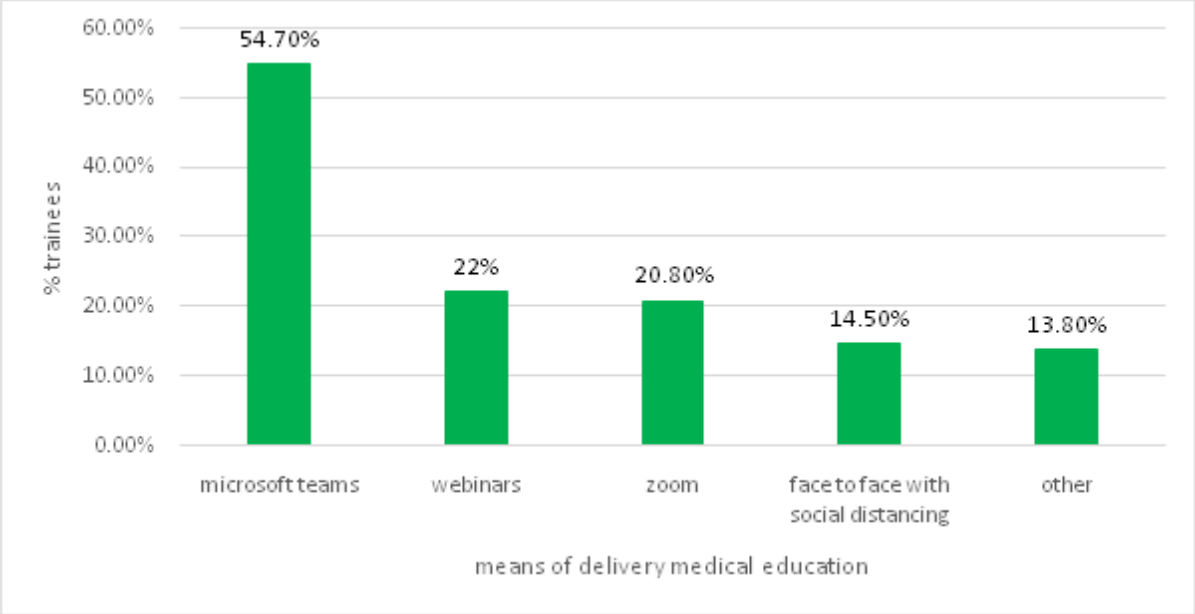


Figure 9: new ways of delivering medical education

Discussion

Our study demonstrates that in May 2020 during the COVID-19 pandemic outbreak in the UK, in our hospital most trainees were concerned about the pandemic, with most reporting being "moderately" worried. When exploring potential reasons for this, the most recurrent concerns were for the wellbeing of family and relatives, above concerns for their own wellbeing. Due to the reality of working during the pandemic, the concern for loved ones gave rise to further concerns, namely with regards to social isolation measures and the availability and quality of PPE.

Social isolation measures were more strictly adhered to outside of work rather than at work. This discrepancy appears to be driven by numerous factors, mainly the clinical environment itself serving as an obstacle to effective social distancing. Trainees also found it difficult to socially distances during non-clinical activities such as breaks, although many felt doing so was futile; some respondents stated they were unable to maintain the recommended 2m distance in high-risk COVID-19 areas, while others questioned the evidence to support socially distancing in clinical environments. This presents a significant issue. During an infectious disease outbreak, effective social distancing is an essential public health measure that has demonstrated the potential to limit the spread of infection and the resultant impact on society, without the use of vaccines or antimicrobials(14).This intervention has been projected to reduce the cost in terms of human life and also of resources; by reducing the disease burden, the risk of overwhelming hospital and intensive care unit capacity would possibly be reduced and the quality of care for other medical problems would be maintained.(15)In the presence of COVID-19, a disease with transmissibility and clinical severity comparable with the 1918 influenza epidemic(7),the inability to socially distance while dispatching clinical duties is highly concerning. Solutions to this problem were explored with participants; larger spaces at work were recommended by many, namely larger doctors' offices and recreational spaces, to overcome barriers to social distancing. Investment into IT resources was

another recommendation, whereby over three quarters agreed more computers would allow the minimum distance to be maintained as well as provisions for remote ward rounds, teaching, and computer software access.

Another key measure in hospitals to protect staff and limit the spread of infection is personal protective equipment (PPE). 98.2% of respondents stated they utilised PPE in their clinical practice. Of those who denied using PPE, reasons given included limited patient exposure in their clinical environment. 70.8% had received training in donning and doffing and 79.63% had undergone fit testing for masks, however there were mixed feelings about the sufficiency of their training, with 56.6% stating this was sufficient. While most respondents felt their hospital was well-prepared for the pandemic, 64.2% stated their disagreement with the notion that the PPE provided at work protected them from being infected, of whom over a third strongly disagreed. A significant area of concern voiced by participants was the issue of PPE. One participant reported having purchased their own goggles, visor, and scrubs throughout the pandemic and another suggested their infection with SARS CoV-2 was directly attributable to shortcomings in available PPE. PPE guidance as per Public Health England (PHE) has changed on a number of occasions throughout the pandemic and more recently been endorsed by the World Health Organisation (WHO).(16,17) However, subtle discrepancies exist. PHE guidance recommends the use of fluid-repellent surgical masks in clinical areas where aerosol-generating procedures are not regularly performed, while the WHO guidance recommends medical facemasks with no clarification as to the type to be used. Current evidence suggests SARS CoV-2 is spread through respiratory droplets, aerosols, direct or fomite contact, and faeco-oral transmission. While respiratory droplets tend to fall rapidly, SARS CoV-2 bio-aerosols have been shown to persist in air for at least 3 hours.(18) Coughing and sneezing can generate both droplets and aerosols, the majority of which are within the <20 μm range, while surgical facemasks may not offer protection against particles < 100 μm in size.(19) One study evaluating the protection against influenza bio-aerosols offered by a range of surgical facemasks found live virus was detectable behind all masks tested(20). In addition, in a global comparison of PPE guidance, PHE guidance was unique in its recommendation of a plastic apron as body protection and on conditional use of eye protection, whereas all other guidance used in the comparison, including that of WHO, recommended a long-sleeved gown or equivalent along with eye protection in all scenarios.(21) While all respondents with direct patient contact reporting using PPE, and that provided by the Trust was in keeping with PHE guidance, it is clear from our results that the PPE trainees used was proportionate to provisions made; 91.4% reported using plastic aprons, whereas only 56.8% reported using disposable fluid resistant gowns or coveralls, as is the WHO guidance and that of numerous countries. Interestingly, there was some heterogeneity amongst the masks used by respondents; 46.3% reported using fluid-resistant surgical masks while 58.6% reported using non-fluid resistant surgical masks. Given non-fluid resistant surgical masks were not recommended in the PPE guidance any public health body, this begs the question as to why such a discrepancy was reported and whether all surgical masks were fluid resistant. While the death of healthcare professionals during this pandemic cannot be solely attributed to potential inefficacy of PPE as per PHE guidance, this remains a controversial issue on a national level.

Healthcare workers dying from COVID-19 is an issue that has inspired significant public concern. One of the aims of this study was to explore the physical and psychological wellbeing of hospital trainees. Almost a quarter (22.22%) of participants confirmed they had been infected with COVID-19 and over

half (50.62%) were unsure, likely due to a lack of testing being both available (which was introduced for hospital staffffrom30th March 2020) and its accuracy; the sensitivity of viral RNA swabs has been shown to vary significantly depending on the site, quality and disease stage, ranging from 93% for broncho-alveolar lavage samples to 32% for throat swabs in one study(22). Of those who stated they had not been infected, 84.09% considered themselves at risk, the majority of whom deemed this as high.

41.9% of participants reported suffering from a mental health condition relating to their work during the COVID-19 pandemic. Over a third reported anxiety, a third reported emotional distress, and other disorders including post-traumatic stress disorder and insomnia were also reported. 56.9% experienced anxiety with regards to their colleagues falling ill with COVID-19 and over three quarters of participants (79.63%) denied they would avoid going to work during the pandemic. This is arguably a testament to the sense of duty engendered by the participants towards their role as doctors and towards their colleagues. Other studies of healthcare professionals during previous pandemics have found an association between the number and degree of worries with intentional absenteeism, contrary to our study's findings with this cohort(13). One reason for avoiding work could include a sense of isolation from social networks. In a previous study during the A/H1N1 influenza pandemic, some healthcare workers restricted their social contacts and felt isolated by their families and friends due to their work(13). Some may choose to isolate themselves due to fear of transmitting infection, as 94.4% of our participants admitted to socially distancing outside of work. In effect, social distancing may prevent a physical harm but inflict a psychological one. Aside from the potential risk posed to the lives of healthcare professionals, the notion of control may contribute to the psychological burden of working during a pandemic. The concept of control and the loss of this in complex situations may lead clinicians to feel a sense of powerlessness as they feel unable to help. This has been observed in other potentially complex clinical situations(23); it is possible the complexity of a novel infectious disease pandemic may give rise to a similar sense of helplessness, in turn leading to negative emotions and psychological distress.

Formulating solutions according to specific problems may be an effective approach to ensure trainee wellbeing and their ability to perform their duties optimally. Listening to the concerns of healthcare professionals and working together to reach local solutions, such as over rest facilities and equipment, may empower them and improve morale.(24)another important facility to support trainee wellbeing is a psychological support service. While 95.6% of our participants felt psychological support services at work were important during the COVID-19 pandemic, only 62.5% stated they would consider using these at work. This highlights the need to increase awareness of psychological support services outside work, such as the London Deanery Professional Support unit.

The COVID-19 pandemic has affected almost every aspect of life for hospital trainees with medical education being no exception. Almost three quarters of respondents reported a disruption to their local and regional teaching programmes, which was resumed in alternative ways. As many sought to inform themselves independently, through discussions with consultants as well as reading academic papers, the willingness many hospital trainees participating in our study showed towards this endeavour is arguably indicative of their desire to continue their professional development even during the COVID-19 pandemic.

Our study found that the hospital trainee experience during the COVID-19 pandemic was marred by worries primarily for the wellbeing of their loved ones above their own. This was compounded by difficulties socially distancing effectively in the workplace as well as low confidence levels in the efficacy of available PPE, resulting in a large proportion of respondents feeling at risk of being infected with COVID-19. This in turn impacted negatively on their physical and psychological wellbeing.

There were limitations to our study which merit discussion in the interest of future work. We focused on the experience of hospital trainees within one NHS trust, while the experience of trainees in other London NHS trusts and indeed in other heavily impacted parts of the country would enable comparisons of experiences, between hospitals and regions. Indeed, our study explored solely the hospital trainee experience, however future similar studies may include other hospital professional groups to provide a comparison of experiences. As all hospital staff, namely those with direct patient contact, are at risk of infection, ensuring safety for all is a priority in future pandemic responses. Furthermore, while the disproportionate effects of COVID-19 on those of ethnic minority background has been reported, due to the anonymity we employed in the surveys, our study did not follow through along demographic parameters to enable comparison of the white British and ethnic minority experiences and importantly on rates of infection. Additional avenues to be explored would be reasons for avoiding work as well as for not utilising psychological support services. These in turn would serve to better inform those central to pandemic preparedness planning to support hospital trainees and healthcare workers to perform their roles optimally and to safeguard their wellbeing, thereby contributing to improved clinical outcomes for our patients.

Conclusion

In conclusion, our study demonstrated that a large proportion of hospital trainees were afflicted by numerous worries while working during the COVID-19 pandemic. Coming from a range of training programmes and walks of life, the physical and psychological health of many were impacted while fulfilling their roles as doctors. Despite this, many reserved their greatest worry for their families and colleagues above themselves; a sense of duty and comradeship appeared to be important motivators.

As the first study on this scale in a major NHS Foundation Trust heavily impacted by the COVID-19 pandemic to investigate the worries and wellbeing of hospital trainees, there remain future avenues to explore. We would be keen to explore reasons for those who would avoid going to work during the COVID-19 pandemic, and the barriers to using psychological support services at work despite almost all respondents agreeing this should be available to all.

As trainees are on the frontline alongside their hospital healthcare professional colleagues, they play a significant role in the fight against the COVID-19 pandemic. The adoption of an open and effective approach towards addressing hospital trainees' concerns, providing safe working conditions, effective PPE, adequate rest facilities, and psychological support are crucial to ensure their

wellbeing, to minimise the costs of sickness and in some cases death, as well as to safeguard the robustness of the NHS response for future pandemics.

References

1. World Health Organization. Pneumonia Of Unknown Cause [Internet]. 2020 [cited 2020 Jun 28]. Available from: https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/

2. World Health Organization. Novel Coronavirus – China [Internet]. 2020 [cited 2020 Jun 28]. Available from: https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/

3. World Health Organization. WHO Timeline - COVID-19 [Internet]. 2020. Available from: https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19

4. World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. 2020 [cited 2020 Jul 22]. Available from: https://covid19.who.int/

5. GP Online. Over 300 NHS and care workers dead from COVID-19 as Johnson backs “absurd” overseas levy [Internet]. 2020 [cited 2020 Jul 22]. Available from: https://www.gponline.com/300-nhs-care-workers-dead-covid-19-johnson-backs-absurd-overseas-levy/article/1683856

6. Cook T, Kursumovic E, Lennane S. Exclusive: Deaths Of NHS Staff From Covid-19 Analysed [Internet]. Health Service Journal. 2020 [cited 2020 Jun 28]. Available from: https://www.hsj.co.uk/exclusive-deaths-of-nhs-staff-from-covid-19-analysed/7027471.article

7. Freitas ARR, Napimoga MH, Donalisio M. Assessing the severity of COVID-19. Epidemiol Serv Saude. 2020;29(2):e2020119. doi: 10.5123/S1679-49742020000200008.

8. DH Pandemic Influenza Preparedness Team. UK influenza pandemic preparedness strategy 2011. London; 2011.

9. Watkins J. Preventing a covid-19 pandemic. BMJ. 2020;368:m810.

10. GOV.UK. [Withdrawn] Coronavirus: Stay At Home, Protect The NHS, Save Lives - Web Version [Internet]. 2020 [cited 2020 Jun 28]. Available from: https://www.gov.uk/government/publications/coronavirus-covid-19-information-

leaflet/coronavirus-stay-at-home-protect-the-nhs-save-lives-web-version

11. McCarthy N. The World's Biggest Employers [Infographic] [Internet]. Forbes. 2015 [cited 2020 Jun 28]. Available from: https://www.forbes.com/sites/niallmccarthy/2015/06/23/the-worlds-biggest-employers-infographic/#5b529e87686b

12. The King's Fund. Key Facts And Figures About The NHS [Internet]. 2020 [cited 2020 Jun 28]. Available from: https://www.kingsfund.org.uk/audio-video/key-facts-figures-nhs

13. Goulia P, Mantas C, Dimitroula D, Mantis D, Hyphantis T. General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza pandemic. BMC Infectious Diseases [Internet]. BioMed Central Ltd; 2010;10(1):322. Available from: http://www.biomedcentral.com/1471-2334/10/322

14. Glass R, Glass L, Beyeler W, Min H. Targeted Social Distancing Designs for Pandemic Influenza. Emerg Infect Dis. 2006;12(11):1671–81.

15. Greenstone M, Nigam V. Does Social Distancing Matter? [Internet]. Chicago; 2020. Available from: https://ssrn.com/abstract=3561244

16. Public Health England. COVID-19 personal protective equipment (PPE) [Internet]. GOV.UK. 2020. Available from: https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe#section-8point1

17. World Health Organisation. Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations [Internet]. WHO. 2020 [cited 2020 Jun 24]. Available from: https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations

18. van Doremalen N, Bushmaker T, Morris D, Holbrook M, Gamble A, Williamson B, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. N Eng J Med. 2020;382(16):1564–7.

19. 3M. Respirators and Surgical Masks: A Comparison [Internet]. 2020 [cited 2020 Jun 24]. Available from: https://multimedia.3m.com/mws/media/957730O/respirators-and-surgical-masks-contrast-technical-bulletin.pdf

20. HSE. Evaluating the protection afforded by surgical masks against influenza bioaerosols. 2008.

21. Thomas J, Srinivasan A, Wickramarachchi CS, Dhesi PK, Hung Y, Kamath AV. Evaluating the national PPE guidance for NHS healthcare workers during the COVID-19 pandemic. Clinical Medicine. 2020;clinmed.2020-0143.

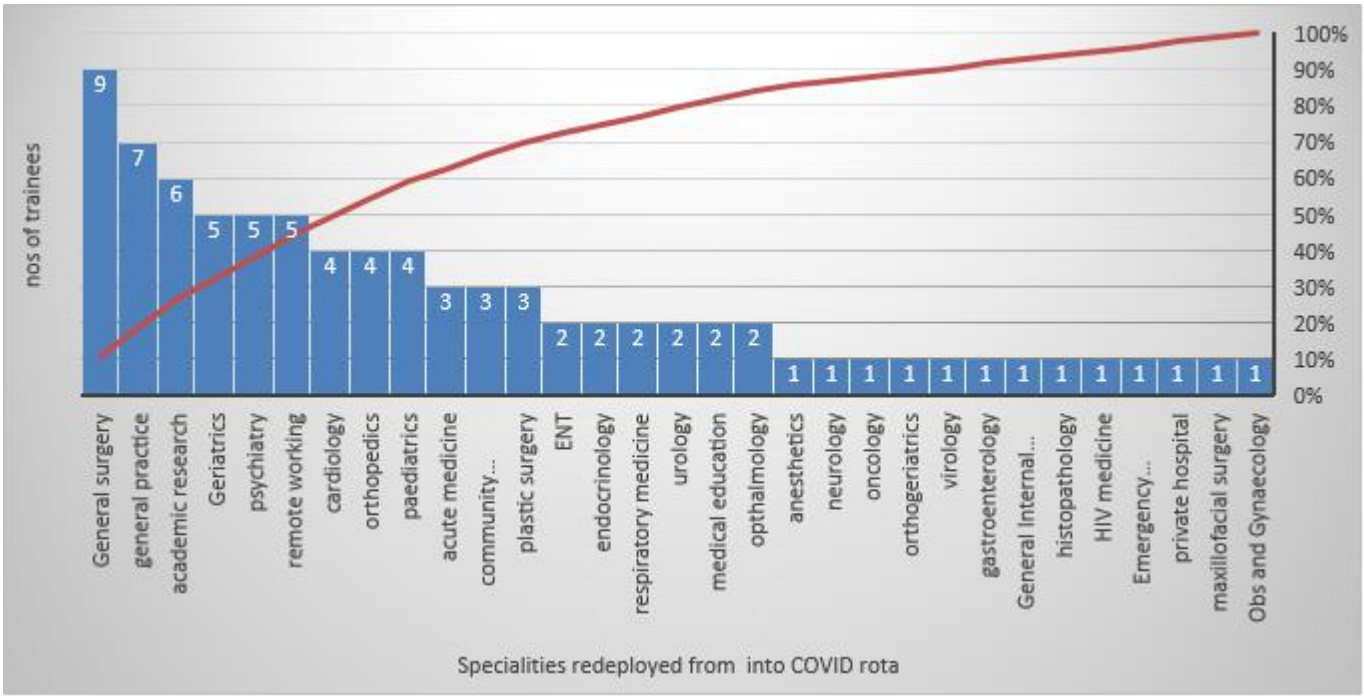
22. Wang W, Xu Y, Gao R, Lu R, Han K, Wu G, et al. Detection of SARS-CoV-2 in Different Types of Clinical Specimens. JAMA [Internet]. 2020 May 12;323(18):1843–4. Available from: https://doi.org/10.1001/jama.2020.3786

23. Helmich E, Diachun L, Joseph R, Ladonna K, Noeverman-Poel N, Lingard L, et al. "Oh My God, I

Can”t Handle This!’: Trainees’ Emotional Responses to Complex Situations. Med Educ. 2018;52(2):206–15.

24. Maunder R. The experience of the 2003 SARS outbreak as a traumatic stress among frontline healthcare workers in Toronto: lessons learned. Philos Trans R Soc Lond B Biol Sci. 2004;359(1447):1117–25.

Appendix 1: Trainee redeployment



Appendix 2: Trainee worries: other comments

Uncertainty about what situations a negative swab is required to come back to work
Uncertainty regarding PPE guidance
Unable to travel and see family if something goes wrong
Inability to take on clinical work as in a high-risk group
Feeling more exposed clinically as unable to perform clinical examination
Lack of unknown over rota changes and annual leave
Job security
Missing out on important rotations in my training
Cancellation of professional exams
Families not being able to grieve properly
Worried about hospital running out of oxygen
House prices
General collapse of society
Lack of training
Lack of control over rapidly changing work conditions

Appendix 3: reasons for not socially distancing at work (free text comments)

- Can’t socially distance when on computers, as computers aren’t 2m apart
- Clinics staff I work with all have huge risk anyway
- Computers not distanced from each other
- Doctor's office too small, doctor's room too small, unable to treat patients in obstetrics 2m away
- Doctors’ offices too small
- Examining patients requires breech of social distancing.
- I do use these measures
- I need to communicate with colleagues properly. In a&e its unmanageable
- I work in a laboratory and a tight office space where social distancing is not possible.
- It’s pointless when we're all so exposed anyway. There’s covid everywhere, we're cramped 5 between 3 working computers next to each other, but yes, let’s queue separately at lunch, that will make a difference! It’s all for show.
- Mostly able to, occasionally not
- Office 3x3M with 6 doctors in it - not all of which needed to be at work.
- Practical jobs necessitate people in proximity
- Rest areas are too small for the number of staff
- resting areas/office do not have space to distance
- rooms are all too small (doctors’ offices, canteens, A&E, neonatal unit),
- Rules are arbitrary- I work with covid patients every day, what is the point of isolating myself from colleagues!
- Small corridors, few lifts, many floors, futile trying to socially distant
- small offices
- Small space of doctors’ offices. Needing to be close enough to hear colleagues During handovers and thereby not maintaining social distancing.
- The department is too small to socially distance. Difficult to keep away from others when we are each other's support system during this time and are only seeing each other
- The offices and environments we work simply do not have the space to social distancing - very frustrating to be 'told off' for not social distancing in other areas of the hospital when have spent the past 12 hrs with the same people cramped in the office - especially from people who are not involved in the daily clinical care of patients on the 'front line
- This is impossible to do in lifts or the stairwells. There have been boxes for people to stand in marked in the lifts that are about 1m apart because of the size of the lifts. It’s impossible to get anywhere in the hospital if you don’t use the lifts like we normally would and ignore these boxes. All the boxes have done is make people from outside the hospital think that they can tell staff they can't get in the lift because more than 2 people are in it and causing arguments. It's pointless and just means that unless you're on the LG or top floor you will never actually be able to get in a lift if you went along with the boxes. The stairs are also too narrow to be able to stay 2m apart, and again if you tried this between people going in the same direction you would be waiting for an hour or more to get a space on the stairwell. The hospital just needs to accept that it can't be done and stop putting in place things that just cause people to have to ignore the markings, and accept the risk - or close the hospital above about floor 2
Unable to socially distance in the emergency department

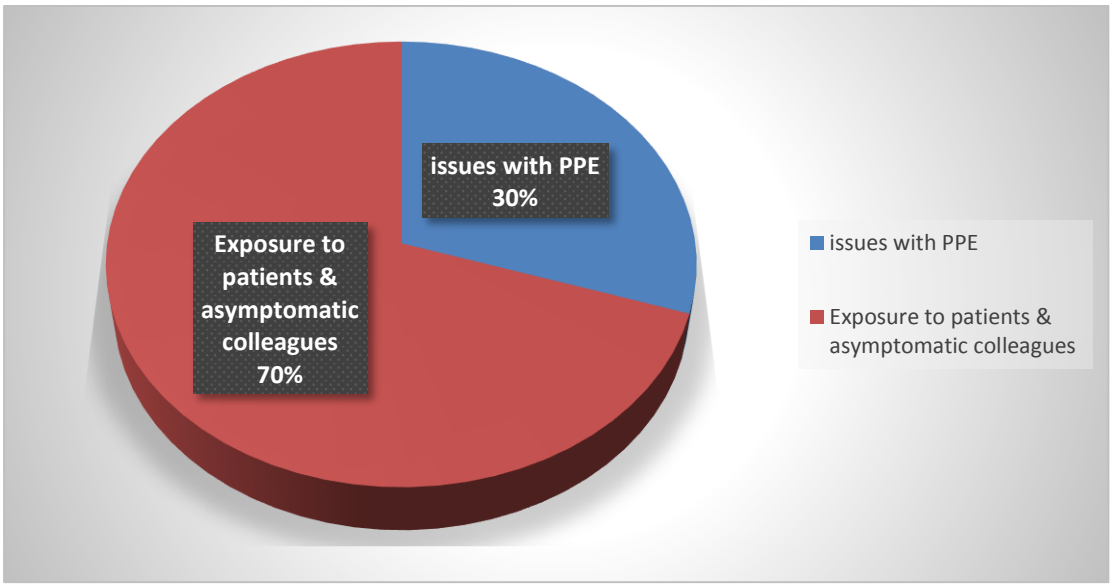
- Unable to observe it on reporting rooms and Interventional suit

• Unable to socially distance at any time whilst in the office due to overstaffing and small room size • Unable to socially distance due to small doctors' offices and the need to use the offices to ensure confidentiality particularly when speaking to relatives etc. • Unable to socially distance in coffee rooms • Unable to socially distance in ED staff room during handover, or ED majors/minors departments due to lack of computers and workspace given number of staff. ED staff also examine all patients whether Covid or not, so obviously also unable to socially distance from patients

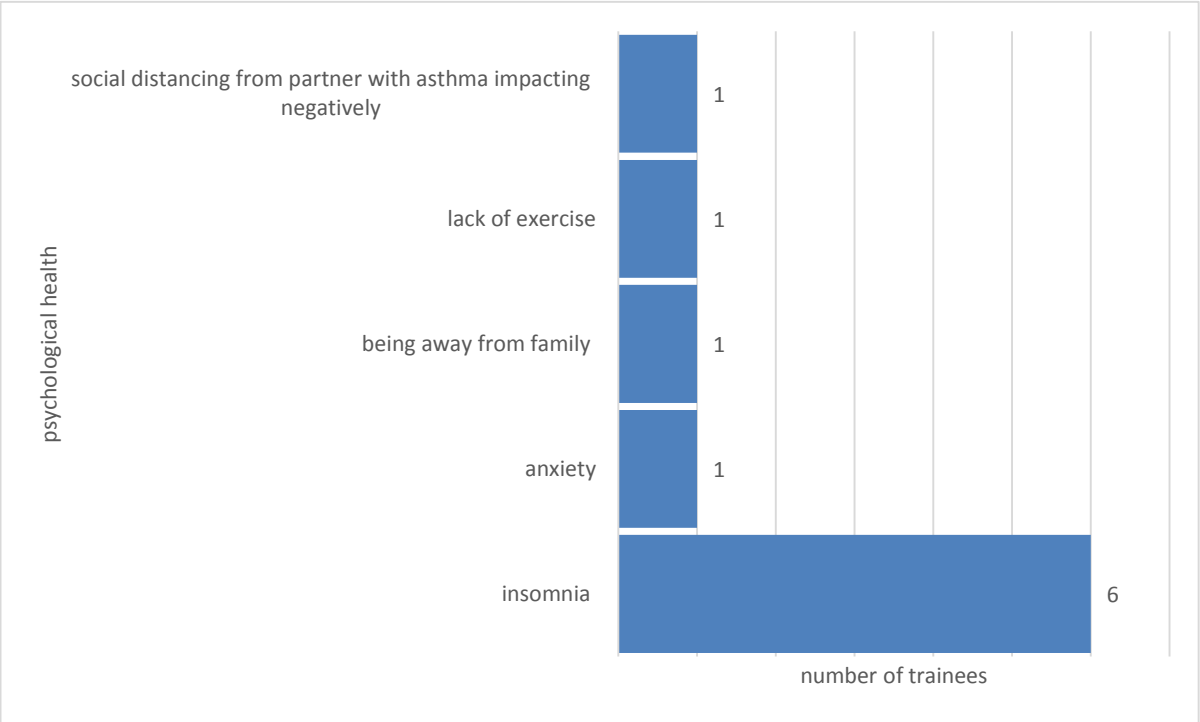
Appendix 4: Options to enable social distancing at work

Digital solutions for handover and board rounds
Staggered staff shifts
Larger Emergency department areas
Planned staff days off to reduce exposure to the virus
Reduced numbers of doctors on the wards

Appendix 5: Reasons for trainees perceiving themselves as high risk for contracting COVID 19



Appendix 6: In what ways have trainees' psychological health been affected



Appendix 7: Where do you get your information about COVID-19, updates and guidance from?