



# **THE IMPACT OF COVID-19 ON THE PSYCHOSOCIAL AND MENTAL HEALTH NEEDS OF NHS AND SOCIAL CARE STAFF**

## **THE FINAL REPORT ON LITERATURE PUBLISHED TO MID-2021**

### **AUTHORS**

**DR EVANGELOS NTONTIS<sup>1,2</sup>**

**<sup>1</sup> THE OPEN UNIVERSITY**

**KATARZYNA LUZYNSKA<sup>2</sup>**

**<sup>2</sup> CANTERBURY CHRIST CHURCH UNIVERSITY**

**PROFESSOR RICHARD WILLIAMS<sup>3</sup>**

**<sup>3</sup> UNIVERSITY OF SOUTH WALES**

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THE INFORMATION CONTAINED IN THE REPORT REPRESENTS THE VIEWS OF THE RESEARCH TEAM AND DOES NOT REPRESENT THE VIEWS OF NHSEI OR OF THE AUTHORS' INSTITUTIONS.

## INTRODUCTION

1. In the first quarter of 2021, Professor Richard Williams was asked to establish a team to review a collection of papers identified by staff at Health Education England (HEE). The intention of this review is to direct the attention of the People Directorate in NHSEI to reliable and useful new information that has emerged in the literature during the pandemic about effective care for staff of the NHS and of the social care system.
2. The People Directorate supplied Richard Williams with a summary of a selection of the literature that had been completed by HEE. Later, he was sent a second selection of the literature. The papers in those two lists are the subject of this report together with papers that the reviewers have found from other sources.
3. The Review Team assembled consists of the three people cited as the authors of this document and the work was led by Dr Ntontis.
4. The team conducted an initial trawl of all the papers listed by HEE and began a more detailed survey of each paper after discussions with staff of NHSEI that led to an agreement to exclude the opinion pieces, editorials, and grey literature. Papers that were not related to the impact of COVID-19 on NHS and social care staff were also excluded.
5. This report presents a list of papers published in peer-reviewed journals that: are based on either qualitative or quantitative empirical evidence or which provide reviews and meta-analyses of empirical evidence; are methodologically robust; and provide insightful findings on the experiences and effects of COVID-19 on NHS and social care staff; and make useful recommendations for policy and practice.
6. Apart from the papers that the authors identified as of higher quality, the report also provides a discussion of papers that suffered from a range of limitations. The authors recommend that the findings of papers in this list should be considered with caution. Among others, these limitations include: a. small samples sizes; b. lack of longitudinal data; c. use of convenience samples; d. use of self-report measures; e. overextrapolation of diagnoses in absence of clinical interviews by clinical practitioners; f. use of non-standardised measures. Some systematic reviews also suffered from limitations such as: g. lack of information regarding assessments of the quality of the papers included.
7. The report is structured as follows: First, we provide a description of our methodological approach regarding the inclusion and exclusion criteria that we applied to the sets of papers provided to us by NHSEI. Second, we provide an overview of the empirical and review papers that we identified as of higher quality and present an overview of the implications that the authors identify in terms of policy and practice. Third, we provide an overview of the limitations that most of

the papers provided to us suffer from and explain why their findings should be treated with caution. Fourth, we present a summary of suggestions that we extracted from the systematic review and empirical papers.

## **METHOD: SELECTED AND EXCLUDED PAPERS**

8. Following searches of the literature by the HEE Knowledge Management Team, the Review Team was provided with a list of 148 published outputs (qualitative and quantitative empirical papers, literature reviews, systematic reviews, and meta-analyses). Subsequently, the Review Team decided on the criteria on which it would assess the papers and decided to examine:
  - a. the sample sizes
  - b. the quality of the sample and the transparency of the sampling process
  - c. the quality of the papers assessed (in the case of literature reviews and systematic reviews)
  - d. the measures used
  - e. the quality of the analysis of the data
  - f. the novelty of the findings and the usefulness of potential recommendations made by the authors in relation to successful management of the pandemic.
9. Following the decision on the assessment criteria, the team read through all abstracts provided to it and initially excluded papers that were either not based on empirical evidence (e.g., opinion pieces or editorials) or did not address the core question (e.g., research on the neurobiological basis of COVID-19). Also, the authors identified, and collectively decided to exclude, papers that focused on the dermatological problems that PPE might cause to healthcare professionals (Abiakam et al., 2020; Kiely et al., 2021).

## **PAPERS IDENTIFIED AS OF HIGHER QUALITY**

10. Table 1 presents 15 papers published in peer-reviewed journals that: are based on either qualitative or quantitative empirical evidence or provided reviews and meta-analyses of empirical evidence; are methodologically robust; provide insightful findings on the experiences and effects of COVID-19 on NHS and social care staff; and make useful recommendations for policy and practice.
11. Papers 1-6, 8-11, and 13 were in the list of papers provided to the team, whereas papers 7, 12, 14, and 15 were subsequently identified by the team. However, papers 14 and 15 were published within the period captured by the literature search conducted by HEE. As a result, the team cannot be sure that all papers relevant to the area of interest in this work were included in the list provided for us. Nevertheless, the papers presented in Table 1, and which are summarised below, are both of higher quality and highlight important aspects of how the pandemic can affect NHS and social care staff.

**Table 1: List of papers of higher quality identified by the authors**

Paper	Authors	Title	Type	Notes
1	Nyashanu, Pfende & Ekpenyong	Triggers of mental health problems among frontline healthcare workers during the COVID-19 pandemic in private care homes and domiciliary care agencies: Lived experiences of care workers in the Midlands region, UK <a href="https://doi.org/10.1111/hsc.13204">https://doi.org/10.1111/hsc.13204</a>	Empirical Qualitative	
2	Nyashanu, Pfende & Ekpenyong	Exploring the challenges faced by frontline workers in health and social care amid the COVID-19 pandemic: experiences of frontline workers in the English Midlands region, UK <a href="https://doi.org/10.1080/13561820.2020.1792425">https://doi.org/10.1080/13561820.2020.1792425</a>	Empirical Qualitative	
3	Davey, Lee, Robbins et al.	Heat stress and PPE during COVID-19: impact on healthcare workers' performance, safety and wellbeing in NHS settings <a href="https://doi.org/10.1016/j.jhin.2020.11.027">https://doi.org/10.1016/j.jhin.2020.11.027</a>	Empirical Qualitative Quantitative	
4	Siddiqui, Aurelio, Gupta et al.	COVID-19: Causes of anxiety and wellbeing support needs of healthcare professionals in the UK: A cross-sectional survey <a href="https://doi.org/10.7861/clinmed.2020-0502">https://doi.org/10.7861/clinmed.2020-0502</a>	Empirical Qualitative Quantitative	Of interest is the thematic analysis presented in Table 1.
5	Bennett, Noble, Johnston et al.	COVID-19 confessions: a qualitative exploration of healthcare workers' experiences of working with COVID-19 <a href="http://dx.doi.org/10.1136/bmjopen-2020-043949">http://dx.doi.org/10.1136/bmjopen-2020-043949</a>	Empirical Qualitative	
6	Ali, Maguire, Marks et al.	Psychological impact of the COVID-19 pandemic on healthcare workers at acute hospital settings in the South-East of Ireland: an observational cohort multicentre study <a href="http://dx.doi.org/10.1136/bmjopen-2020-042930">http://dx.doi.org/10.1136/bmjopen-2020-042930</a>	Empirical Quantitative	
7	Greenberg, Weston, Hall et al.	Mental health of staff working in intensive care during COVID-19 <a href="https://doi.org/10.1093/occmed/kqaa220">https://doi.org/10.1093/occmed/kqaa220</a>	Empirical Quantitative	
8	Faderani, Monks, Peprah et al.	Improving wellbeing among UK doctors redeployed during the COVID-19 pandemic <a href="https://doi.org/10.7861/fhj.2020-0111">https://doi.org/10.7861/fhj.2020-0111</a>	Empirical Quantitative	
9	Ladds, Rushford, Wieringa et al.	Developing services for long COVID: lessons from a study of wounded healers <a href="https://doi.org/10.7861/clinmed.2020-0962">https://doi.org/10.7861/clinmed.2020-0962</a>	Empirical Qualitative	
10	Ladds, Rushford, Wieringa et al.	Persistent symptoms after COVID-19: qualitative study of 114 'long Covid' patients and draft quality principles for services <a href="https://doi.org/10.1186/s12913-020-06001-y">https://doi.org/10.1186/s12913-020-06001-y</a>	Empirical Qualitative	
11	Kingstone, Taylor, O'Donnell et al.	Finding the 'right' GP: a qualitative study of the experiences of people with long COVID <a href="https://doi.org/10.3399/bjgpopen20X101143">https://doi.org/10.3399/bjgpopen20X101143</a>	Empirical Qualitative	
12	Montgomery, Humphreys et al.	Critical care work during COVID-19: a qualitative study of staff experiences in the UK <a href="http://dx.doi.org/10.1136/bmjopen-2020-048124">http://dx.doi.org/10.1136/bmjopen-2020-048124</a>	Empirical Qualitative	
13	Luo, Guo, Yu et al.	The psychological and mental impact of coronavirus disease 2019 (COVID19) on medical staff and general public – A systematic review and meta-analysis <a href="https://doi.org/10.1016/j.psychres.2020.113190">https://doi.org/10.1016/j.psychres.2020.113190</a>	Systematic review & meta- analysis	

14	Bell & Wade	Mental health of clinical staff working in high-risk epidemic and pandemic health emergencies a rapid review of the evidence and living meta-analysis <a href="https://doi.org/10.1007/s00127-020-01990-x">https://doi.org/10.1007/s00127-020-01990-x</a>	Literature review & meta-analysis	
15	Kisely, Warren, McMahon et al.	Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis <a href="https://doi.org/10.1136/bmj.m1642">https://doi.org/10.1136/bmj.m1642</a>	Literature review & meta-analysis	

## KEY FINDINGS FROM THE HIGHER QUALITY PAPERS

12. This summary begins by commenting on three quantitative studies of higher quality that capture the psychosocial impacts of the COVID-19 pandemic on healthcare workers. Subsequently, we present findings from qualitative studies that provide useful insights into the experiences of healthcare workers, followed by a discussion of the findings of two literature reviews and meta-analyses.<sup>1</sup>
13. Ali et al., 2020,[6] conducted a survey with 472 healthcare workers at acute hospital settings in South-East Ireland, aiming to explore the psychological impact of the pandemic. The authors used validated measures of depression, anxiety, acute and post-traumatic stress disorder with their findings showing that 42.6% of healthcare workers experienced symptoms of depression, 45.1% experienced symptoms of anxiety and stress, and 41.3% experienced symptoms of post-traumatic stress disorder. The psychological impact was higher for healthcare workers with underlying medical ailments. However, it is unclear how these results are to be interpreted since the statistical results were not followed up through clinical interviews. Based on their collective experience, the Review Team thinks that they may well indicate that substantial numbers of staff were distressed and that a smaller number may have diagnosable mental health disorders.
14. Crucially, Ali et al.,[6] also collected suggestions made by healthcare workers on how working through the pandemic could be improved. Common responses included inclusiveness and their involvement in decision-making processes, timely and adequate communication, the need for rest areas and staggered rosters, increase of staffing levels to allow for leave entitlements, the existence of mental health support that includes social interaction and developing childcare facilities.
15. A study was conducted by Greenberg and colleagues,[7] which examined the mental health of staff working in intensive care during COVID-19. The authors sampled 709 participants that comprised doctors, nurses, and other healthcare staff. 59% of participants reported good wellbeing, whereas 45% reached the

<sup>1</sup> Numbers that appear in brackets next to the citation (e.g., Kisely et al., 2020 [13]) refer to the numbering of the papers in the tables in this report.

threshold for probable clinical significance of PTSD, anxiety, depression, or problem drinking. Importantly, 13% reported thoughts of being better off dead or of thinking about self-harm in the past two weeks. Overall, mental health was better in doctors compared to nurses. The findings of the study regarding elevated rates of symptoms of depression, anxiety and PTSD are in line with systematic reviews and meta-analyses that examine the effects of COVID-19 on the mental health of healthcare workers (for example [13-15]). However, as Greenberg and colleagues also argue, despite the large sample, the study used self-report measures of mental illness and was not followed by diagnostic clinical interviews. Moreover, there is a possibility that respondents might have been self-selected on the basis of experiencing mental health problems that they wanted to report.

16. Davey et al., 2020,[3] examined the impacts of wearing PPE and the effects that it can have on healthcare workers' performance, safety, and wellbeing. An analysis of 230 questionnaire-based survey responses from staff working in hospitals and other NHS settings showed that very high percentages of respondents reported feeling hot, uncomfortable and sweaty, experiencing headaches, dehydration, fatigue, difficulty in breathing, feeling that their performance at work is impacted, and communication with both patients and colleagues is disrupted due to poor visibility. Importantly, supportive factors include scheduling longer breaks, increasing opportunities to hydrate, and working in cooler environments.
17. Faderani et al.,2020,[8] conducted a survey with 172 redeployed doctors asking them to rate their morale, work-life balance, perceived support and safety, as well as to express any concerns. Data analysis shows that 66.3% felt confident in their roles and 65.7% felt satisfied or neutral with their roles, whereas 31.4% felt stressed. Perceptions of feeling valued by their teams (66.3%) and by the public (79.3%) were also high. Redeployed doctors also reported increased length of breaks (64.5%) and feeling rested during their breaks (89%). However, despite 57% of participants not experiencing a change in their sleeping patterns, 34.9% reported a reduction in sleep and 39% reported a reduction in the amount of exercise they were able to do each week.
18. Importantly, only 48.3% of the sample felt supported by the hospital administration and only 34.9% and 26.7% felt supported by their clinical supervisors and educational supervisors respectively. Similarly, only 82.6% felt that they had received adequate training to use PPE, 55.2% did not feel confident in the PPE-related advice issued by Public Health England and Public Health Wales, and more than half of the sample (54.7%) did not feel safe while wearing PPE. Crucially, 22.7% felt that they were working in areas and with incidents beyond their levels of training and competence. They asked for increased changing and showering facilities as well as provision of clean scrubs each day.

19. The most common concerns of redeployed doctors were training opportunities (61%), PPE (57.6%) and the health of their families (55.2%). Thus, despite reported morale being generally high, redeployed doctors reported facing changes in their sleeping patterns, expressed concerns about their families' health, a lack of trust in hospital managers, supervisors and in published guidance, and requested additional structural support (e.g., showering facilities).
20. The four papers summarised above [3,6-8] assessed the psychosocial impacts of the pandemic for healthcare workers including redeployed doctors, highlighting the increased potential for distress and psychological morbidity as well as concerns related to structural issues. The following papers focus on qualitative analyses that highlight the lived experiences and mental health concerns of healthcare workers in relation to the COVID-19 pandemic.
21. Two qualitative studies by Nyashanu et al., 2020,[1,2] analysed a set of 40 interviews with workers in care homes in the UK. The analysis of the data highlights that mental health problems were triggered by workers' fears of becoming infected themselves or infecting others and especially close family members, a lack of recognition of their contribution to the healthcare system, unsafe hospital discharges of untested patients, experiencing the deaths of care home residents and of fellow professionals, staff shortages, perceived disparities between the NHS and the private healthcare sector that led to perceptions of a lack of recognition, as well as unreliable testing and delays in receiving testing results [1].
22. When examining further challenges that workers were facing, the authors highlighted healthcare workers' lack of preparedness, shortages in PPE supply, feelings of fear and anxiety among residents, service users, and professionals, challenges in maintaining protection measures (e.g., social distancing, shielding responsibilities), and evolving PPE guidance. [2]
23. Similarly, Bennett et al. (2020) [5] obtained written stories from 54 healthcare workers (e.g., doctors, nurses, physiotherapists) to examine the experiences of working with patients who had COVID-19. Analysis of the data highlighted workers' experiences of trauma, 'horror' and feeling 'broken', leading to psychological reactions such as intrusive, traumatic thoughts and memories as well as emotional numbing. Healthcare workers reported feeling shocked by the impact of the virus and the lack of preparedness of the healthcare system, highlighted the dedication and self-sacrifice of other staff members, but also considered leaving the profession due to the impact that dealing with the virus had both on themselves and their families and social relationships.
24. Participants also reported the impact that hierarchies of power and systemic inequalities had in creating negative experiences including disconnects between junior and senior staff, disproportionate risks assigned to frontline workers, a

sense of abandonment from the employing organisations and management teams, and staff from BAME backgrounds being disproportionately affected.

25. Siddiqui et al., 2021,[4] examined the causes of anxiety and the wellbeing support needs of healthcare workers in the UK. Qualitative data stemming from their questionnaire survey highlight a range of factors that caused anxiety including healthcare workers' fears of dying and leaving dependents behind, their inability to work remotely, where possible, reduced support networks and service provisions, uncertainty manifested at both general (e.g., concerns about the economy, length of the pandemic) and clinical (e.g., managing patients' anxiety) levels, concerns in relation to the social impact of COVID-19 (e.g., childcare concerns), changes in work settings (e.g., increased workloads, cancelled annual leave, feeling unsupported) and concerns about leadership (e.g., lack of trust in governmental preparedness, perceived lack of coordination).
26. Crucially, Siddiqui et al., 2021,[4] highlighted the support requested by healthcare professionals, which among other topics included workplace-based support (e.g., information, visibility, supervision), clearer signposting, peer support and safe spaces, staff helplines, wellbeing activities and relaxation sessions, bereavement support, effective leadership, and appropriate communication.
27. Another qualitative study, published in 2021, by Montgomery et al.,[12] analysed interviews with 40 NHS staff (nurses, doctors, allied health practitioners, ward clerks, operating department practitioners) across four UK hospitals. Interviews were carried out between August and October 2020. Participants experienced distress due to personal risks, due to the potential to transmit the virus to close family members, or because they had witnessed the death of colleagues. Participants also felt unprepared for the challenges that they were facing, a lack of leadership, extreme emotional and work-related demands and responsibilities, a loss of control and confidence in the system, and distress generated due to being understaffed. They also felt that caring for critically ill patients was particularly challenging due to extensive shifts while wearing PPE, or a lack of information. Participants also formed intensified emotional relationships with patients who could not be visited by their families and found it hard and distressing to communicate the latter feature of the plan. Some staff members also felt misrecognised, undervalued, and let down by senior managers.
28. Montgomery et al.,[12] also identified the positive role of horizontal communication and contact, locally run training, teamwork, and the social support provided by fellow staff members.
29. Overall, the aforementioned five qualitative studies [1,2,4,5,12] explored the experiences of healthcare workers and potential mechanisms through which adverse psychosocial experiences emerge. It is worth highlighting that most adverse experiences were associated with structural problems (e.g., perceived

lack of preparedness, ineffective leadership, poor communication, inequality) rather than with exposure to the virus itself. These are secondary stressors. This report comments next on three studies related to the experiences of patients with 'Long COVID'.

30. Kingstone et al., 2020,[11] explored the lived experiences of 24 patients who were suffering 'Long COVID'. Analysis of the interview data suggests that patients experience helplessness, fear, and uncertainty in relation to their recovery, find enduring and coping with symptoms of 'Long COVID' particularly difficult, and highlight the importance of GPs being empathetic, understanding, and providing social support.
31. Ladds et al., 2020,[10] explored the lived experiences of patients with Long COVID. Their analysis of 55 individual interviews and 8 focus groups highlights a sense of confusion and uncertainty due to the varying and relapsing-remitting symptoms as well as feelings of being stigmatised. Structural problems were also highlighted including difficulties in accessing and navigating services, difficulties in being taken seriously and having a diagnosis, lack of communication across services and variation in quality standards.
32. Similar findings come from the study by Ladds et al., 2020,[10] which examined the lived experience of 43 healthcare professionals with Long COVID. Analysis of interview data highlighted participants' sense of uncertainty and the inability to place their symptoms within patterns stemming from their personal knowledge, the importance of support groups and communities of practice in sharing information and building a shared social identity, the ineffectiveness of remote consultations, and dissatisfaction with the healthcare services. Crucially, patient-generated quality principles for patients with 'Long COVID' included accessible services and clear referral criteria to minimise the burden on patients, continuity of care, multidisciplinary rehabilitation services, and evidence-based standards and protocols with strong involvement of patients.
33. Regarding the long-term consequences of COVID-19 (also referred to as Long COVID), the literature provided to us (and especially the quantitative studies) is not adequate to make any conclusive statements or to assess its quality. 'Long COVID' remains a new phenomenon and much more research of high quality has to be conducted before any informed statements can be made. However, we would like to point the readers to the review report published by the NIHR [here](https://evidence.nihr.ac.uk/themedreview/living-with-covid19-second-review/)<sup>2</sup> which summarises current knowledge on Long COVID.
34. Apart from individual empirical papers, the team also briefly presents three reviews of the literature and meta-analyses of existing data.

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<sup>2</sup> <https://evidence.nihr.ac.uk/themedreview/living-with-covid19-second-review/>

35. Bell and Wade 2020,[14] examined the mental health of clinical staff working in a range of recent high-risk epidemic and pandemic health emergencies. Their rapid review of the published literature highlights a range of risk factors including being quarantined, the impact of high-risk infectious diseases, and stigma from friends, families and the public. Factors that are protective of mental health include the presence of social support and team cohesion, organisational support, and the availability of, and trust in protection measures. The meta-analysis conducted by Bell and Wade showed that the additional impact of COVID-19 on healthcare workers, is statistically detectable despite being small and is added on top of existing poor mental health experienced by medical staff.
36. Similar findings come from Kisely et al., 2020,[15] who performed a meta-analysis of 59 papers. Their results show that staff members who contacted affected patients reported higher levels of symptoms of acute or post-traumatic stress and psychosocial distress. According to the meta-analysis, risk factors also included stigma, staying in quarantine, lacking practical support, being younger and more junior, having dependents, and having affected family members. On the contrary, protective factors included clear communication, access to adequate PPE, the opportunity to rest, as well as the presence of both practical and psychosocial support.
37. Luo and colleagues provide similar findings in their systematic review and meta-analysis.[13] More specifically, the authors identified elevated pooled prevalence of self-reported symptoms of anxiety and depression in healthcare workers and in the public, and these symptoms were higher for people with pre-existing conditions or in those who had contracted COVID-19. Risk factors included being female, being employed as a nurse, having lower socio-economic status (lower levels of education, lower income), being at risk of contracting COVID-19 (working on the frontline or in heavily affected areas), or being socially isolated. On the contrary, protective factors included having sufficient medical resources and prevention and control measures, family support, or having access to precautionary measures and accurate and up-to-date information. Importantly, the authors identify the absence of subsequent clinical interviews as well as the use of different instruments to measure psychological impacts as serious limitations of their review and meta-analysis.
38. As Bell and Wade 2020,[14] highlight, what should be kept in mind is that meta-analyses as well as literature reviews rely on the quality of the papers included in them, which can be affected by publication bias, by the authors providing sufficient information, as well as by the problems posed by researchers using self-report measures with convenience samples rather than structured assessments made at interviews that are appropriate for clinical use. Self-report methods create conditions in which biases and unquantifiable 'noise' may arise. Many of the literature reviews provided for us suffered from a range of limitations, which we address in greater detail in the subsequent sections.

## USEFUL PAPERS THAT SUFFER FROM CERTAIN LIMITATIONS

39. In Table 2, we present a set of two papers that we identified as very insightful in certain dimensions. However, we decided to keep them separate from the papers identified in Table 1 as they suffer from limitations, which we discuss in greater detail below.

**Table 2. Insightful papers albeit limited in certain aspects**

Paper	Authors	Title	Type
16	Choi, Jegatheeswaran, Minocha et al.	The impact of the COVID-19 pandemic on final year medical students in the United Kingdom: a national survey <a href="https://doi.org/10.1186/s12909-020-02117-1">https://doi.org/10.1186/s12909-020-02117-1</a>	Empirical Quantitative
17	Gilleen, Santaolalla, Valdearenas et al.	Impact of the COVID-19 pandemic on the mental health and well-being of UK healthcare workers <a href="https://doi.org/10.1192/bjo.2021.42">https://doi.org/10.1192/bjo.2021.42</a>	Empirical Quantitative

40. The education of final year medical students was disrupted due to the COVID-19 pandemic as campus-based teaching, placements and examinations were halted. Choi and colleagues,[16] conducted a survey with 442 students from 32 UK medical schools to examine the impact that COVID-19 had on their placements and education and how it might have affected their confidence and preparedness when progressing into their foundation training. The researchers' results showed that 38.4% had their final exams cancelled, 43% had their assistantship placements postponed, and 77.3% had their electives cancelled, which, overall, had an impact on students' perceived preparedness. Disruptions of assistantships also had a negative impact on students perceived confidence regarding their transitions from being students to becoming doctors.
41. Despite not focusing on mental health, the results by Choi and colleagues,[16] are very useful as this is one of the very few studies to examine how COVID-19 has affected future medical professionals. Nevertheless, and as the authors also argue, their study has a range of limitations. It is a cross-sectional study [the researchers only collected data at one time-point] with retrospective data and no future follow-ups, the sample only consisted of 5.9% of the total student population, and the sample sizes varied across different medical schools.
42. Gilleen and colleagues,[17] also ran a quantitative survey study on a large sample of 2773 healthcare workers, in which they assessed anxiety, depression, PTSD and stress. Importantly, the authors explored a range of variables that could predict poor mental health outcomes such as risk perception and factors related to one's workplace. The results showed that almost one third of healthcare workers reported moderate to severe levels of anxiety and depression symptoms. Poor mental health outcomes were associated with a lack of PPE,

being female, working in the front line, having previous psychiatric diagnoses, having experienced traumatic events, or being a manager or an allied healthcare worker. The opportunity to share stress and having support operated as protective factors. The predictors of poor mental health outcomes as well as the protective mechanisms identified in this study echo the findings of the systematic review carried out by Luo et al.,[13].

43. This study also suffers from a range of limitations and thus should be treated cautiously. For example, this was also a cross-sectional survey that offers a snapshot of the experiences of healthcare workers during the pandemic rather than an analysis of data collected at different time points. Also, participants were self-selected, the survey was self-report and not diagnostic (the survey was not followed up with clinical interviews).

### **SYSTEMATIC REVIEW AND EMPIRICAL PAPERS WITH SUBSTANTIAL LIMITATIONS**

44. Unfortunately, many of the papers provided for us did not meet our criteria for being of higher quality. Given the large number of papers, we do not discuss in this report the limitations of every one of them. However, we present here an overview of their limitations and will provide examples. We refer to Table 3.

**Table 3: List of systematic reviews and empirical papers with substantial limitations identified in the provided literature**

<b>Paper</b>	<b>Authors</b>	<b>Title</b>	<b>Type</b>
<b>Systematic Reviews</b>			
18	Muller, Hafstad, Himmels et al.	The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review.	Rapid systematic review
19	Sheraton, Deo, Dutt et al.	Psychological effects of the COVID 19 pandemic on healthcare workers globally: A systematic review.	Systematic review
20	Pappa, Ntella, Giannakas et al.	Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis.	Systematic review & meta-analysis
21	Carmassi, Foghi, Dell'Oste et al.	PTSD symptoms in healthcare workers facing the three coronavirus outbreaks: What can we expect after the COVID-19 pandemic.	Systematic review
22	de Pablo, Vaquerizo-Serrano, Catalan et al.	Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis.	Systematic review & meta-analysis
23	Shaukat, Ali & Razzak	Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review.	Scoping review

24	Santabarbara, Bueno-Notivol, Lipnicki et al.	Prevalence of anxiety in health care professionals during the COVID-19 pandemic: A rapid systematic review (on published articles in Medline) with meta-analysis.	Rapid systematic review & meta-analysis
25	De Kock, Latham, Leslie et al.	A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being.	Rapid review
26	Salari, Khazaie, Hosseini-Far et al.	The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: a systematic review and meta-regression.	Systematic review & meta-analysis
27	Barello, Falco-Pegueroles, Rosa et al.	The psychosocial impact of flu influenza pandemics on healthcare workers and lessons learnt for the COVID-19 emergency: a rapid review.	Rapid review
<b>Empirical Papers</b>			
28	Ma, Rosenheck & He	Psychological stress among health care professionals during the 2019 novel coronavirus disease Outbreak: Cases from online consulting customers.	Empirical Quantitative
29	Corbett, Milne, Mohan et al.	Anxiety and depression scores in maternity healthcare workers during the Covid-19 pandemic.	Empirical Quantitative
30	Shah, Raheem, Sideris et al.	Mental health amongst obstetrics and gynaecology doctors during the COVID-19 pandemic: Results of a UK-wide study.	Empirical Quantitative
31	French-O'Carroll, Feeley, Tan et al.	Psychological impact of COVID-19 on staff working in paediatric and adult critical care.	Empirical Quantitative
32	Bates, Ottaway, Moyses et al.	Psychological impact of caring for critically ill patients during the Covid-19 pandemic and recommendations for staff support.	Empirical Quantitative
33	Dykes, Johnson & Bamford	Assessing the psychological impact of COVID-19 on intensive care workers: A single-centre cross-sectional UK-based study	Empirical Quantitative
34	McFadden, Ross, Moriarty et al.	The role of coping in the wellbeing and work-related quality of life of UK health and social care workers during COVID-19	Empirical Quantitative
35	Cag, Erdem, Gormez et al.	Anxiety among front-line health-care workers supporting patients with COVID-19: A global survey	Empirical Quantitative
36	Hummel, Oetjen, Du et al.	Mental health among medical professionals during the COVID-19 pandemic in eight European countries: cross-sectional survey study	Empirical Quantitative
37	Rainford, Zanardo, Buissink et al.	The impact of COVID-19 upon student radiographers and clinical training	Empirical Quantitative

45. We do not consider the systematic reviews and empirical papers presented in Table 3 to be of high enough quality for their findings to be adequately considered.

46. Regarding the systematic reviews,[18-27] in some cases there was no information on quality assessment processes of the papers the authors included.[21-23,27] In other cases,[18,24,25] the papers included were not of sufficient quality. Sometimes quality assessment was adequate,[20] but the review was conducted early in the pandemic, and it was not possible to include many studies to allow conclusions to be drawn. In other cases, there were issues with how data were reported, which does not instil confidence in the conclusions drawn.[24,26]
47. Regarding the empirical papers provided for us, many also suffer from a range of limitations. All of the empirical studies,[28-37] were cross-sectional (conducted at single time points), which does not allow us to draw any conclusions regarding causality or how psychosocial processes relating to mental health and wellbeing change over time. Additionally, many studies used very small samples [e.g., 21,22] or convenience samples [e.g., 24,26]. In some cases, there are instances of missing data,[19,20] or lack of information on response rates or the survey distribution process.[22] Some other papers used non-standardised measures and all studies used self-report measures.[25] Importantly, many studies used the data to assign diagnoses in absence of follow-up clinical interviews. Due to these limitations, we suggest that the results of these papers are treated with great caution.

## **ADVICE FROM THE EMPIRICAL PAPERS AND SYSTEMATIC REVIEWS**

48. In this section, we present an overview of important advice that the authors offer in both the systematic reviews and empirical papers. The advice is related to the implications of the researchers' findings in respect of policy and practice. Table 4 presents recommendations extracted from the systematic reviews.
49. Despite our assessment that some reviews were not of very high quality (based on our assessment criteria), we did inspect the recommendations that the authors made. There were recommendations in those reviews that are in line with those made by the authors of papers identified as of higher quality and which also agree with the wider literature on the impact of COVID-19 on the mental health of healthcare staff. Apart from the systematic reviews, useful recommendations are also suggested in the empirical papers that we assessed. Similarly, we also reviewed and present the recommendations put forward by papers of both higher and lower quality as, despite any limitations in their methodologies, analysis or reporting, the recommendations are in line with the wider literature. The recommendations made in published papers are presented in Table 5 below.

**Table 5. Advice from systematic reviews and empirical papers**

1. Interventions are required that target women, nurses, people with complications or older age, those with unstable incomes, and higher psychological burdens
2. There should be sufficient PPE and other medical resources
3. All staff should be kept up-to-date with accurate health information
4. Precautionary measures are important
5. Effective public health systems are required at governmental levels
6. Work rotas should facilitate adequate rest
7. Proactive mental health approaches should be available within organisations
8. Improved access to psychosocial support services is required
9. There should be strict implementation of staff safety guidelines
10. Workloads should be balanced, and shifts should be shorter
11. Support should be available for people who are isolating at home because of their potentially being ill
12. Preventative plans should be based on knowledge of the risk and resilience factors
13. It is important to develop gender/age/profession sensitive guidelines for recognising physical and mental health burden
14. There should be education programmes for HCWs on the mental and physical risks related to providing care for infected patients
15. Training about provision and training to use PPE should be adequate
16. Organisations should aim to improve the workplace environments and managerial practices
17. The causes and prevalence of workplace stress should be identified
18. There should be policies for providing mental health support at care homes and care agencies
19. Appreciation and recognition are important to sustaining staff
20. Working relations between the public and private care systems should be strengthened
21. Effective & clear guidance from central government for all care organisations should be based on consultations
22. The government should establish an independent agency to provide guidelines on pandemics for private care and NHS services
23. Policies for discharging patients from hospitals should be clear
24. Robust testing policies should prioritise frontline workers
25. Staff shortages should be addressed through effective national recruitment strategies and funding
26. Accommodation should be provided for staff who have to protect their families
27. Changing/showering facilities and daily clean scrubs should be provided
28. Managers should be supportive and visible, and staff support should be evidence-based
29. Visible and accessible leadership is vital
30. Training should be offered to staff on mental health and support pathways to de-stigmatise mental health problems
31. There should be improved support for inexperienced and nursing staff
32. Mental health services should offer targeted and personalised care
33. Health services should recognise that staff are concerned about transmitting COVID-19 to their families and provide protective measures for families
34. Employers should effectively manage the childcare concerns of their staff
35. Fast-tracked student graduation should not compromise supervision, pastoral support, and induction
36. Alternative models of clinical education for final year medical students should be developed
37. There should be robust guidelines on protecting students' health, safety, and continuity of education
38. It is important to optimise online platforms for robust medical student education and assessment, which should be available despite disruptions.

## SUMMARY

50. Our aim in writing this report was to present an overview of findings from higher quality studies in relation to the impact of COVID-19 on the psychosocial and mental health needs of NHS and social care staff. After screening the papers provided by the HEE Knowledge Management Team, the Review Team selected papers of higher quality that are listed in Table 1. They tend to be the more robust empirical studies and literature reviews and meta-analyses. This report contains a description of the studies and highlights their importance.
51. As becomes evident from the Review Team selecting these few higher-quality papers from a much larger batch and its synthesis of findings, we conclude that healthcare workers are experiencing the COVID-19 pandemic as particularly challenging. This observation is evident and consistent both in statistical terms through analysis of quantitative data as well as experientially as captured by qualitative studies that have explored the lived experiences of healthcare staff.
52. The Review Team observes that there is currently insufficient robust literature to document the impacts on staff over time. The literature provided to us was published in the early stages of the pandemic and it is very likely that more papers of, potentially, higher quality and more robust methodologies have been published since then, or will be published in the near future. Longitudinal methods are also required as they are likely to provide evidence on the trajectories of mental health outcomes over time and at different stages of the pandemic and should also shed light on potential causal relationships between various predictors and mental health outcomes. Nonetheless, the team concludes that staff have and are experiencing high levels of distress that is consistently associated with both exposure to infectious disease as well as due to systemic problems that arise from secondary stressors including factors such as organisational inequality, staff shortages, social stigma, lack of communication, lack of practical and emotional social support, feeling ignored, lack of PPE, and inability to carry out one's tasks properly.
53. Recommendations made by researchers are in line with advice put forward by the NHS itself regarding workforce health and wellbeing:  
[https://www.nhsemployers.org/-/media/Employers/Publications/Health-and-wellbeing/NHS-Workforce-HWB-Framework\\_updated-July-18.pdf](https://www.nhsemployers.org/-/media/Employers/Publications/Health-and-wellbeing/NHS-Workforce-HWB-Framework_updated-July-18.pdf)
54. Support mechanisms and potential points of intervention include, among others, ensuring: there is clear communication; the presence of social support and bereavement support; provision of adequate and effective protective equipment; enabling staff to feel understood and valued; there is appropriate leadership; steps are taken to tackle chronic understaffing issues; and provision of opportunities for staff to relax.

55. Regarding the overall sample of empirical and review papers, we were able to identify additional important and higher-quality papers that were published during the same time period as the papers originally provided for us. As a result, we cannot be certain that the list of papers provided is comprehensive and papers of high quality might have not been identified.

Dr Evangelos Ntontis  
Katarzyna Luzynska  
Prof Richard Williams

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