BMJ Open

Qualitative interview study of strategies to support healthcare personnel mental health through an occupational health lens

Cati Brown-Johnson ,[1,2] Cheyenne DeShields,[3] Matthew McCaa,[1] Natalie Connell,[4] Susan N Giannitrapani,[5] Wendy Thanassi,[2,6] Elizabeth M Yano,[7,8,9] Sara J Singer,[1,2] Karl A Lorenz,[1,2] Karleen Giannitrapani [1,2]

To cite: Brown-Johnson C, DeShields C, McCaa M, *et al*. Qualitative interview study of strategies to support healthcare personnel mental health through an occupational health lens. *BMJ Open* 2024;**14**:e075920. doi:10.1136/bmjopen-2023-075920

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2023-075920).

CB-J and CD are joint first authors.

Received 26 May 2023
Accepted 22 November 2023

For numbered affiliations see end of article.

Correspondence to
Dr Cati Brown-Johnson; catibj@stanford.edu and Dr Karleen Giannitrapani; karleen@stanford.edu

ABSTRACT

Background Employee Occupational Health ('occupational health') clinicians have expansive perspectives of the experience of healthcare personnel. Integrating mental health into the purview of occupational health is a newer approach that could combat historical limitations of healthcare personnel mental health programmes, which have been isolated and underused.

Objective We aimed to document innovation and opportunities for supporting healthcare personnel mental health through occupational health clinicians. This work was part of a national qualitative needs assessment of employee occupational health clinicians during COVID-19 who were very much at the centre of organisational responses.

Design This qualitative needs assessment included key informant interviews obtained using snowball sampling methods.

Participants We interviewed 43 US Veterans Health Administration occupational health clinicians from 29 facilities.

Approach This analysis focused on personnel mental health needs and opportunities, using consensus coding of interview transcripts and modified member checking.

Key results Three major opportunities to support mental health through occupational health involved: (1) expanded mental health needs of healthcare personnel, including opportunities to support work-related concerns (eg, traumatic deployments), home-based concerns and bereavement (eg, working with chaplains); (2) leveraging expanded roles and protocols to address healthcare personnel mental health concerns, including opportunities in expanding occupational health roles, cross-disciplinary partnerships (eg, with employee assistance programmes (EAP)) and process/protocol (eg, acute suicidal ideation pathways) and (3) need for supporting occupational health clinicians' own mental health, including opportunities to address overwork/burn-out with adequate staffing/resources.

Conclusions Occupational health can enact strategies to support personnel mental health: to structurally sustain attention, use social cognition tools (eg, suicidality protocols or expanded job descriptions); to leverage distributed attention, enhance interdisciplinary collaboration (eg, chaplains for bereavement support or EAP) and to equip systems with resources and allow for flexibility during crises, including increased staffing.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Participants for interviews were recruited from the Veterans Health Administration (VHA), a US Federal government national healthcare system, allowing this study to simultaneously explore individual impacts as well as learnings that could be employed across a complex, multistate system.
⇒ The first half of the reported interviews were part of a needs assessment asking about new roles and responsibilities for occupational health in the VHA.
⇒ Only the second half of interviews specifically probed about healthcare worker mental health, though all interviews discussed mental health.

INTRODUCTION

Employee Occupational Health ('occupational health') clinicians have an expansive perspective on the experience of healthcare personnel. During the first years of the COVID-19 global pandemic (March 2020–late 2022), occupational health clinicians encountered broad mental health impacts on healthcare personnel, including high levels of post-traumatic stress disorder (PTSD), alcohol use disorder, psychological trauma, insomnia, burn-out, fatigue and distress.[1 2] Indeed, front-line healthcare workers who directly diagnosed and treated COVID-19 patients reported higher rates of depression, anxiety, insomnia and distress compared with other healthcare personnel.[3] Research on healthcare personnel during this time of the pandemic also showed high levels of PTSD (22.8%) and alcohol use disorder (42.8%),[4] as well as other documented mental health impacts including

psychological trauma, insomnia, burn-out, fatigue and distress.[5]

These healthcare personnel mental health concerns are unfortunately not isolated to COVID-19, but reflect broad trends in healthcare personnel burn-out and distress,[6] as well as previous experience in crises.[7] For example, the severe acute respiratory syndrome (SARS) 2003 epidemic similarly produced fear for healthcare personnel of contagion, concern for family members, job stress and social isolation.[8] Experts also warn of compounding traumas, particularly as COVID-19 continues to evolve and previous stressors such as electronic health record volume increase instead of abating.[9 10] These compounding traumas are predicted to negatively impact patient care and may necessitate ongoing or even increased mental health support for healthcare professionals.[10]

Prior to COVID-19, there was little systematic understanding of the role of occupational health in supporting psychological well-being for front-line staff.[11] A 2021 systematic review of occupational health across 12 countries validated that although mental health has been identified as a priority in occupational health at national and international levels, major gaps focus on the need for more comprehensive preventive mental health, lack of multidisciplinary coverage and the ensuing lack of capacity to address this preventive need.[11] In addition to providing preventive and safety care, occupational health clinicians act as important agents of the health system, perhaps never more visibly so than during the first year of the COVID-19 pandemic (2020–2021).[12] This central role in hospital-based systems in particular may be increasingly important in future crisis preparedness.

Integrating mental health into the purview of occupational health is a newer approach that could combat historical limitations of healthcare personnel mental health programmes, which have been isolated and underused. Occupational health clinicians may be very well positioned to leverage new attention on healthcare personnel mental health, initially driven by COVID-19, to respond to the increasing mental health needs of healthcare personnel. Indeed, in another high-need context (eg, preventing infection and vaccine deployment), occupational health led innovation and collaboration with multiple other departments across the Veterans Health Administration (VHA) to effectively protect its more than 500 000 healthcare personnel.[13]

Objective

Cognizant of the shifting role of occupational health during the evolving crisis of COVID-19, we conducted a national qualitative needs assessment of employee occupational health clinicians who were very much at the centre of organisational responses. For the study we report here, we explored and expanded themes around mental health from the lens of occupational health clinicians. Our primary goal for the presented analysis was to document innovations by, and opportunities for, occupational health clinicians to support healthcare personnel mental health. Other analyses from the overarching needs assessment focused on shifts in occupational health roles during COVID-19, and occupational health's involvement in the VHA's COVID-19 vaccine roll-out.

METHODS

Setting: employee occupational health at the VHA

The VHA is the only US-wide healthcare system. Occupational health clinicians in the VHA have a unique perspective. They care for the VHA's over 500 000 healthcare personnel, of whom approximately 40% are themselves US Veterans, in all 50 states as well as Guam; thus, they have both a large-system-level view from national policies for healthcare personnel, as well as observations from direct interactions and indirect (national occupational health listserve discussions) with the full array of generalist and specialised front-line clinicians.

During the first years of the COVID-19 global pandemic (March 2020–March 2022), VHA occupational health clinicians shifted roles to protect healthcare personnel from physical risk of exposure and infection and from mental health risks such as burn-out (see figure 1 for timeline and detailed notes).[12] VHA occupational health in this time period oversaw the health and safety at any one point in time of over 500 000 healthcare personnel at 1255 facilities.[14] Occupational health clinicians interfaced with micro and macro impacts of COVID; they saw individual impacts on healthcare personnel mental health, and they also experienced system-level impacts in diverse local contexts. Sampling from this group of clinicians allowed this study to simultaneously explore individual impacts as well as potential learnings that could be employed across a unified system.

We created rapid qualitative reports (Stanford Lightning Report approach) that were widely distributed within the VHA.[15] We received formal feedback from programme and VHA leadership, and informal feedback from healthcare personnel and occupational health clinicians as patients/public, outside of their role as participants.

Interviews

We explored employee occupational health roles in supporting healthcare personnel mental health—including their own—as part of an occupational health needs assessment conducted between July 2020 and April 2021. We conducted key informant qualitative interviews with VHA occupational health clinicians using snowball sampling. Potential participants were each contacted through email a maximum of three times and invited to participate in a research interview. Interviews on topics such as population management, staffing, information sharing and role changes were conducted by phone by trained qualitative researchers (CB-J and MM) and recorded through Microsoft Teams. Notably, questions about mental health were formally added to our interview guide once multiple participants discussed this topic in

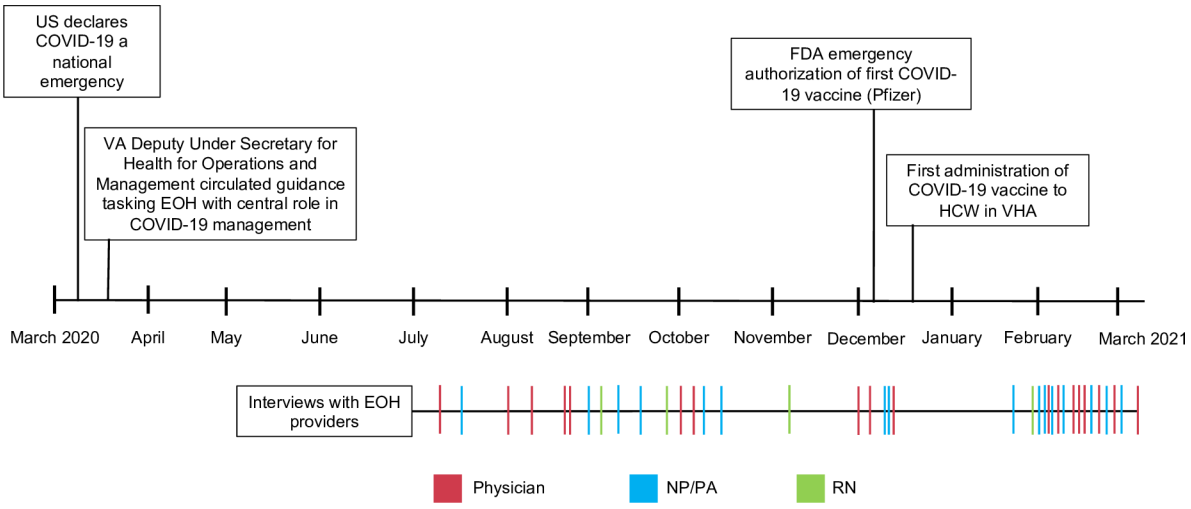

Figure 1 Relational timeline of COVID-19 in the USA and distribution of Employee and Occupational Health (EOH) interviews. HCW, healthcare worker; VHA, Veterans Health Administration; FDA, US Food and Drug Administration; NP, Nurse practitioner; RN, Registered nurse; PA, Physician assistant.

our interviews (see box 1 for interview questions focused on mental health and Online supplemental appendix A for the full interview guide for the overarching needs assessment). Participants provided verbal consent for audio recording. Structured research notes were taken during interviews, and audio recordings were transcribed verbatim.

Analysis

We conducted a thematic analysis using deductive and inductive approaches.[16] Interviews were transcribed, deidentified and iteratively coded using qualitative analytic software ATLAS.ti. Specifically, themes were generated from interview transcripts by a mental health trainee (CD), informing a codebook that was discussed and iteratively updated during weekly coding review and discussion with the team's qualitative expert (CB-J). In alignment with consensus coding practices emphasising coding validity established through iterative discussion and exploration of multiple viewpoints,[17] initial coding results were presented to the qualitative research team (CD, CB-J and NC) on multiple occasions for theme refinement, and incorporation of pre-existing a priori (deductive) themes (eg, the role of employee assistance programmes (EAPs)). Once codes were stable, CD finalised transcripts coding in Atlas.TI and presented results the broader research team (KG, SG and MM) for feedback. Subject-matter experts (SG and WT) reviewed early results of mental health themes and subthemes, providing a modified member check.[18] Data may be available on reasonable request. No additional data are available.

Box 1 Interview questions related to mental health

What is the role of occupational health in addressing mental health needs, if at all?
What is the volume of this need?
What is happening around (mental health) at your site?
How would you ideally want or need to support mental health needs for healthcare workers?
How would you ideally want or need to support mental health needs for you and your occupational health team?
What ideas do you have for preventing burn-out in the workforce?
What other ideas do you have to help healthcare personnel?

Notes: Our initial interview guide covered topics of population management, staffing, information sharing and role changes. In a November 2020 revision to our interview guide, questions about mental health were added in response to multiple discussions with participants around the need for occupational health to support healthcare personnel mental health. Both the initial guide and additive mental health questions were developed by team members with qualitative research expertise (CB-J, MM and KG), with input from two occupational health subject-matter experts (WT a physician and SG a nurse practitioner). Interview guides were additionally reviewed by research advisors with expertise in health services research (SJS, KL and EMY). Our analysis examined the mental health needs of VHA employees as identified by occupational health clinicians, and the approaches and interventions identified by occupational health clinicians that can support the mental health of employees.
VHA, Veterans Health Administration.

Patient and public involvement

We identified Occupational Health clinicians and other healthcare personnel as our patients and public partnership audience for this work. To inform the work with partner priorities, experiences and preferences, we included two practising occupational health clinicians and additional other healthcare personnel in our workgroup and consulted them extensively during study development and interview guide creation. We used partner networks for initial recruitment. We created rapid qualitative reports informed by the Stanford Lightning Report approach that were widely distributed within the VA and VA Occupational Health leadership. We received formal

Table 1 Sample demographics

Providers (n=43)		Facility (n=29)					
Type		Location		Size		Rural/urban	
NP/PA	17	Northeast	9	Small	7	Rural	13
RN	4	Mid-Atlantic	6	Mid	11	Urban	13
MD/DO	22	Midwest	4	Large	11	Suburban	3
		Southwest	2				
Gender		West	2				
Women	25	South	4				
Men	18	Pacific Northwest	2				

DO, Doctor of osteopathy; MD, Doctor of medicine; NP, Nurse practitioner; PA, Physician assistant; RN, Registered nurse.

feedback from programme and VA leadership, and informal feedback from healthcare personnel and occupational health clinicians in their role as patients and/or public, outside of their role as participants.

RESULTS

Participants

Participants were 43 VHA occupational health clinicians—including physicians, physician assistants, nurse practitioners and registered nurses—from 29 VHA healthcare facilities representing a variety of geographical areas, sizes and settings (eg, rural, urban) (see table 1). This sample met our goals for representing diverse roles, areas of the country and local clinical settings.

Needs assessment

We organised our results under three major opportunities to support mental health through occupational health: (1) expanded mental health needs of healthcare personnel, including opportunities to support work-related concerns (eg, traumatic deployments), home-based concerns and bereavement (eg, working with chaplains); (2) leveraging expanded roles and protocols to address healthcare personnel mental health concerns, including opportunities in expanded occupational health roles, cross-disciplinary partnerships (eg, with EAPs) and process/protocol (eg, acute suicidal ideation pathways) and (3) needs for supporting occupational health clinicians' own mental health, including opportunities to address overwork/burn-out with adequate staffing/resources.

Expanded mental health needs of healthcare personnel

Occupational health clinicians noted several mental health opportunities to support healthcare personnel related to COVID-19. These included: (1) work-related mental health concerns in employees; (2) home-based concerns and (3) the impact of bereavement.

Work-related mental health concerns in employees

Occupational health clinicians identified work-related mental health concerns in employees, including burnout, lack of work-life balance and traumatic work deployments. Occupational health clinicians reported that work stress and long healthcare personnel hours including weekends resulted in burn-out: 'Stress level is palpable… burnout and fatigue [with supervisors] saying, *My staff [healthcare personnel], they're just overburdened.*' (MD2) In addition, occupational health clinicians reported that voluntary employee deployments (eg, for the Disaster Emergency Medical Personnel System programme) were difficult and sometimes traumatic for employees, in extreme cases resulting in PTSD: 'Several teams deployed early on… came back pretty torn up.' (MD4) As a result, some clinicians began proactively vetting healthcare personnel volunteering for multiple deployments, and monitoring 'mental health issues upon returning… I spoke with everyone who went—debriefing.' (MD4)

Home-based concerns

Another category of mental health needs for healthcare personnel as identified by occupational health clinicians was home-based anxiety, fear and concern for families. For instance, occupational health clinicians talked about supporting employees who expressed personal concerns about COVID: 'Folks [healthcare personnel] were really panicking, especially early on because all you heard about was people dying.' (PA1)

The impact of bereavement

Finally, occupational health clinicians elaborated on bereavement as a factor negatively affecting mental health of healthcare personnel. Many employees, especially those caring for veterans in community living centres and hospice care, experienced grief over the loss of their patients. Some healthcare personnel were actively dealing with grief both from losing patients and from dealing with long-term physical effects of their own COVID-19 infections. Occupational health clinicians engaged additional services for bereavement support through partnerships, for instance, with chaplaincy: 'The chaplains have done a lot of grief counseling [with health care personnel] and have had virtual services for remembrance and grieving.' (MD12)

Leveraging expanded roles and protocols to address healthcare personnel mental health concerns

Important approaches used by occupational health in coordinating care to support healthcare personnel mental health included interdisciplinary collaboration on: (1) reactive employee assistance programs - EAPs and (2) proactive wellness programmes. Occupational health clinicians also took on roles that did not exist before the COVID-19 pandemic, (3) using standard tools (ie, protocols) to build crisis management support for healthcare personnel mental health.

Collaborating with EAP

The need for and role of EAPs: EAPs played a large role in occupational health clinicians' approach to addressing healthcare personnel mental health needs. Occupational health clinicians distributed EAP brochures, handouts, information sheets and other deliverables to ensure that employees were aware of EAP and other resources offered. Occupational health clinicians also talked about a need to expand EAP programmes at their facilities with full-time EAP staff and EAP taking a more active role in everyday employee interactions. At least one occupational health clinician was optimistic that EAP roles could expand under collaborative occupational health supervision, with observations that 'the hospital now realises the importance of having someone that understands employee health and occupational health for many aspects.' (NP2) Another perspective, however, emphasised the importance of contracting out EAP to increase healthcare personnel perceptions of confidentiality and comfort with the service: '[moving EAP] out of the mental health department [to an external contractor]… is a good thing because many employees felt uncomfortable [taking their mental health concerns to their colleague VHA mental health clinicians], particularly if they were in the mental health department.' (MD18)

Leveraging cross-disciplinary partnerships for proactive wellness programmes to support healthcare personnel mental health

Partnership across disciplines was one approach to support additional needs for wellness and healthcare personnel mental health. Occupational health clinicians primarily mentioned social work and mental health departments, but also more diverse fields such as education and safety. A proposed multidimensional programme incorporating 'wellness sessions' was housed under Whole Health: 'Employee Whole Health [included the] wellness part - just a place for people to decompress and to collect their thoughts and to calm down a bit before they have to go back to their unit.' (MD15) Other participants mentioned mindbody offerings from other disciplines: 'My team has expanded…leadership noticed that the team needed expanding. It was just one [person] before. [Now it includes] meditation, yoga, …[and] a call-in and just mental health relax session. We were noticing that we needed more mental health.' (MD17)

Crisis management roles for healthcare personnel mental health facilitated with process and protocol: acute suicidal ideation, management of healthcare personnel medication

Participants highlighted the expanded role of occupational health in crisis management. Occupational health clinicians reported taking on roles in supporting employees experiencing acute mental health crises, as well as stepping in as temporary primary care providers for employees who lacked access to mental health medication. Seeing more acute suicidal ideation in healthcare personnel, one occupational health group negotiated a novel process with the emergency department where healthcare personnel could receive onsite care usually reserved for veterans. Specifically, one occupational health group noted: 'If they aren't veterans, they [healthcare personnel] normally wouldn't get acute care at the VA hospital. They would need to be referred out. But we decided that for acute mental health care, we worked out a protocol [with the privacy officer] that [healthcare personnel] could get emergency mental health consultation [at the VHA hospital].' (MD14) Another occupational health clinician commented that occupational health temporarily filled the role of primary care provider for mental health medication management with previously very healthy staff. With lack of access to primary care or mental health services outside of occupational health, 'We [occupational health] actually in some way, shape or form became their primary care provider for refills of medications or instituting new medications … taking over that until they were able to secure the [mental health related] medical care on the outside through the benefit plan.' (MD11)

Needs for supporting occupational health clinicians' own mental health

Occupational health clinicians expressed their own mental health concerns related to: (1) overwork, (2) resulting burn-out and (3) work stress related to on-the-job lack of resources.

The impact of overworking on occupational health burn-out

Like many healthcare personnel, occupational health clinicians reported that they felt overworked with longer shifts and increased role scope, with more tasks and increased pressure to perform. Occupational health clinicians consistently reported working on weekends and experiencing 16-hour days for many months after COVID-19 began. Increased tasks impacted occupational health clinician stress and increased cognitive burden, for instance, the need to toggle between micro and macro concerns: '[balancing] the minutia … little issues … a lot of irons in the fire… [against] constant guidance changes.' (MD7) New roles and tasks compounded with increased pressure to fulfil demands. One occupational health clinician reported, '[The] phone was ringing off the hook. I didn't have time for a tracker because people are calling. Constant, constant, constant calls. People were calling and just demanding… demanding that we do things. And it was a lot.' (NP2)

Occupational health clinician burn-out and loss of job satisfaction

Other mental health concerns raised by occupational health clinicians were burnout and loss of satisfaction in their work: 'I'm burned out, my team is burned out. And this isn't any fun. I remember I used to joke with the other [doctor] who was doing comp and pen [compensation and pension] before this happened. When it was just the two of us. We used to joke, we'd say, *I used to like my job.*' (MD4)

Impact of lack of staffing and resources on occupational health clinician work stress and mental health

Finally, occupational health clinicians identified an additional area of anxiety related to resource limitations, primarily occupational health staffing shortages. While some facility leadership proactively provided adequate staffing for occupational health, many occupational health clinicians reported that staffing was 'a constant worry'. To balance the volume of work, occupational health clinicians reported needing 'as many people as we could get.' (MD5) In particular, lack of clerical support within occupational health department meant that occupational health clinicians could not practice at the top of licence, negatively impacting satisfaction.

DISCUSSION

Occupational health departments can play an important role in supporting healthcare personnel mental health in large-scale crisis situations. This national qualitative needs assessment identified major opportunities for directing health system attention to supporting healthcare personnel mental health via occupational health programmes. Specifically, our study documented the expanded scope of healthcare personnel mental health needs beyond work during the COVID-19 pandemic to include crisis-related home/family concerns and bereavement needs. Occupational health clinicians also highlighted the potential to use standard techniques—interdisciplinary collaboration and processes/protocols—to enhance crisis preparedness with respect to healthcare personnel mental health. Finally, our results also warn of the need to care for the carers; occupational health clinicians themselves expressed their own mental health issues, many of which could be addressed through adequate staffing and resources. In worst cases, work stress of occupational health clinicians related to overwork, lack of resources and cognitive burden resulted in entire occupational health departments nearly or actually experiencing burn-out.

To sustain attention to mental health and prepare for future crises, occupational health can: codify innovation, emphasise interdisciplinary efforts and emphasise adequate staffing.

New roles and responsibilities for employee occupational health in supporting healthcare personnel mental health

This needs assessment revealed that the COVID-19 pandemic shifted the attention of occupational health clinicians to a new area of need: healthcare personnel mental health. Indeed, there is a need to formally integrate mental health into the core of occupational health responsibilities, especially in light of negative pandemic impacts on work burden, work-life balance and bereavement for healthcare personnel.[19] Healthcare personnel post-COVID-19 report experiencing high levels of distress (eg, depression, anxiety, insomnia), much of which stemmed from inadequate resourcing and excess stress of work.[3 19–21] Even outside of major crises, many typical job-related events for healthcare personnel (eg, death of patients) are known to be traumatic and consequential. Healthcare personnel report experiencing feelings of inadequacy, unpreparedness, vulnerability and guilt surrounding patient deaths with serious work consequences including burn-out, vicarious trauma, survivor's guilt, moral injury and other mental health symptoms that affect healthcare personnel well-being, and work performance including quality of patient care.[3 4] Despite this, mental health support is formally outside the norm for occupational health—never mentioned in the three key objectives of occupational health published by WHO.[22]

To ensure continued professional attention on this issue in the future, occupational health role definition at the highest levels can include support of personnel mental health. Occupational health programmes and practitioners can codify and distribute innovations using social cognition tools such as job descriptions (eg, to expand occupational health to explicitly include support of healthcare personnel mental health) and protocols (eg, for accessing local emergency services in the case of healthcare personnel suicidality).

The importance of interdisciplinary collaboration in supporting healthcare personnel mental health

This needs assessment showed that enhanced interdisciplinary collaboration among occupational health and other departments (eg, chaplains for bereavement support) can address needs to attend to acute and downstream mental health needs for healthcare personnel. The distribution of attention afforded by some strategic partnerships continued from the pandemic (eg, with employee assistance programs - EAPs) may also help occupational health continue to support healthcare personnel mental health into the future. EAPs in particular are important partners for supporting the mental health of employees.[23 24] Our participants suggested locating EAP and other mental health supports outside of the healthcare organisation to provide a sense of privacy for addressing mental health concerns, to ensure confidentiality and to support healthcare personnel in disclosing challenges. This confidential, external approach could address stigma against seeking support

and mitigate the 'professional discourse of invincibility' that can interfere with mental healthcare for healthcare personnel.[25]

Interdisciplinary efforts between occupational health and other departments can be enhanced to provide better access to mental health supports for front-line workers. Assessments of mental health needs across roles during the COVID-19 pandemic demonstrated the need for multilevel interventions, which may be implemented directly through occupational health or may be large enough in scope that interdisciplinary efforts are needed (eg, including operations to support better provision of resources).[26] Some studies of multimodal and interdisciplinary crisis support for healthcare personnel have shown reduction in post-traumatic psychiatric disorders,[27] but more work needs to be done to establish this as best practice. Theoretically, with more than one department attending to healthcare personnel mental health as a joint focus of attention, shared accountability may make this topic less likely to be abandoned or ignored over time.

Attending to mental health needs for occupational health clinicians themselves

Finally, the experiences of occupational health clinicians during the COVID-19 pandemic have been unique due to sudden and drastic expansions of responsibilities.[12] Before COVID-19, many occupational health clinicians did not work with patients who were facing the threat of serious illness or death; COVID-19 forced occupational health clinicians to come to terms with this new reality.[28] Furthermore, as one study of mental health personnel supporting front-line staff during COVID-19 documented, even when trained in mental health themselves, those supporting front-line staff during COVID-19 experienced vicarious trauma and were professionally isolated and largely unsupported.[29] Like other healthcare personnel, occupational health clinicians deserve the necessary access to support that can prevent burn-out and ensure joy of practice in their work.

This research team's previous work highlighted the need for more occupational health staff for a variety of external-facing functions including exposure-tracing and vaccine delivery.[12] Participants in the current study underscored another reason to increase occupational health resources with respect to their own mental health: they reported that their increased hours and stress created mental health challenges for themselves. Adequate staffing was suggested as an appropriate remedy, and indeed could mitigate the documented overburdening of occupational health personnel during a future rapidly-evolving crisis.[12] A VHA workgroup is developing staffing models for employee occupational health that capture the workload of expanded roles. Additionally, crisis staffing models will need to accommodate mental health-related workload to prepare the workforce for future crises.

Limitations

We conducted the first half of the reported interviews as part of a needs assessment asking about new roles and responsibilities for occupational health in the VHA, and these interviews did not explicitly ask about mental health. This is both a strength and a weakness of this study. It is telling that mental health needs were so central that occupational health clinicians spontaneously reported their impact. While only the second half of interviews specifically probed about healthcare worker mental health, it was discussed in all interviews, as a reflection of occupational health role demands.

CONCLUSION

VHA occupational health clinician participants identified the potential of occupational health to support healthcare personnel mental health in this needs assessment conducted during the first two years of the COVID-19 pandemic. Occupational health clinicians used standard approaches (eg, protocols, interdisciplinary collaboration) to facilitate innovative support for healthcare personnel mental health. Notable among the innovative strategies employed by occupational health clinicians were protocols for emergency department treatment of healthcare personnel in crisis, involvement of chaplains for bereavement support, and serving as ad hoc primary care providers for mental health medication initiation and management. These innovations are sustainable, but they require additional educational time and staffing or they risk overburdening occupational health providers. To be prepared for future crisis management, staffing models must function to decrease professional burn-out and cognitive burden, thereby facilitating the retention of the occupational health clinicians who are at the centre of care for healthcare personnel physical and mental health.

Author affiliations
[1]Center for Innovation to Implementation, VA Palo Alto Health Care System, Menlo Park, California, USA
[2]Stanford University School of Medicine, Stanford, California, USA
[3]Case Western Reserve University, Cleveland, Ohio, USA
[4]Emory University School of Medicine, Atlanta, Georgia, USA
[5]Employee Occupational Health, Wilmington VA Medical Center, Wilmington, Delaware, USA
[6]Occupational Health Service, VA Palo Alto Health Care System, Palo Alto, California, USA
[7]Center for the Study of Healthcare Innovation, Implementation & Policy, VA Greater Los Angeles Healthcare System, Los Angeles, California, USA
[8]Department of Health Policy and Management, Fielding School of Public Health, University of California Los Angeles, Los Angeles, California, USA
[9]Department of Medicine, Geffen School of Medicine, UCLA, Los Angeles, California, USA

Contributors All authors were involved with the conception and design of the work. CB-J and MM acquired data; CB-J, CD, NC and KG conducted analysis. CB-J and CD drafted the work; all authors critically reviewed and approved the final version and are accountable for all aspects of the work. CB-J and KG fill the role of guarantor, accepting full responsibility for the work and conduct of the study, with access to the data, and controlling the decision to publish.

Funding This study was funded by VA Health Services Research and Development Service (HSR&D), grant number C19 20-207. Dr. K. Giannitrapani's time is contributed from VA Career Development Award CDA 19-075.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by Stanford IRB, #56617. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Data may be available on reasonable request. No additional data are available.

ORCID iDs
Cati Brown-Johnson http://orcid.org/0000-0002-5415-3665
Karleen Giannitrapani http://orcid.org/0000-0003-0987-6204

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