The impact of the covid-19 pandemic on mental health of health care workers: protocol for a rapid systematic review

Protocol prepared :	May 2020

Short title
Mental health of health care workers in the covid-19 pandemic

Short summary

By providing care to patients with covid-19, health care workers are at higher risk of infection and death. Knowledge of these risks combined with long hours, fatigue, and occupational burnout, may increase the psychological toll of this pandemic on health care workers. It is important to understand the psychological impact of the covid-19 pandemic on health care workers, both frontline and non-frontline, and to identify possible interventions to address such impacts. This protocol for a systematic review describes how we will identify studies through the Norwegian Institute of Public Health's *Living and systematic map of covid-19 evidence*. This map is the visualization of a database that contains primary and secondary studies of covid-19, categorized according to population, topic, and publication type, after systematic literature searches conducted in the CDC every day. For this systematic review, we will identify all studies in the evidence map that are categorized as *Population: Health care providers*, and *Topic: Experiences and perceptions; consequences; social, political, economic aspects*, and assess these for eligibility. We will summarize results according to outcomes relating to mental health, such as changes, prevalence and correlates of mental health problems; interventions and other strategies used; and health care workers' experiences, perceived need, and preferences regarding mental health and related interventions. We will assess risk of bias/methodological quality through appropriate checklists, and we will assess the certainty of the evidence through the GRADE approach.

Norsk:

Helsepersonell som behandler l pasienter med covid-19, har høyere risiko for smitte og død. Denne kunnskapen kombinert med overtidsarbeid, tretthet og utbrenthet, kan øke den psykologiske belastningen ved denne pandemien blant helsepersonell. Det er viktig å forstå den psykologiske effekten av covid-19-pandemien på helsepersonell, både blant dem som er i frontlinjen og blant dem som ikke er i frontlinjen, og å identifisere mulige tiltak for å håndtere slike effekter. Denne protokollen for en systematisk oversikt beskriver hvordan vi vil identifisere studier gjennom Folkehelseinstituttets *Levende og systematiske kart over covid-19-forskning*. Dette kartet er en visualisering av en database som inneholder primær- og sekundærstudier av covid-19, kategorisert etter populasjon, emne og publikasjonstype, etter systematiske litteratursøk gjennomført i CDC hver dag. For denne systematiske oversikten vil

vi identifisere alle studier på forskningskartet som er kategorisert som *Populasjon: Helsearbeidere, og Tema: Erfaringer og oppfatninger. Konsekvenser; Sosiale, politiske og økonomiske,* og vurdere disse for inklusjon. Resultatene vil oppsummeres etter utfall relatert til psykisk helse, som for eksempel endringer, forekomst av og korrelasjoner til psykiske helseproblemer; intervensjoner og andre strategier som brukes; og helsepersonells erfaringer, opplevde behov og preferanser angående mental helse og relaterte intervensjoner. Vi vil vurdere risiko for systematiske skjevheter / metodisk kvalitet ved å bruke relevante sjekklister, og vi vil vurdere vår tillit til resultatene ved GRADE-tilnærmingen.

Project category

Product:	Systematic review
Thematic area:	COVID-19 pandemic
Commissioner:	This work is a part of the NIPH response to the COVID-19 pandemic, and a piloting of the feasibility of the living and systematic map of covid-19 research in conducting systematic reviews

Project management and participants

Project leader:	Ashley Elizabeth Muller
Responsible for the project:	Kjetil Gundro Brurberg
Internal project participants:	Gunn Vist Signe Flottorp Jan Peter William Himmels Stijn Rita Patrick van de Velde Geir Smedslund Elisabet Hafstad
Plan for replacement if project participants drop out:	Additional members of the living and systematic covid-19 evidence map team will be brought in.

The aim

This systematic review will identify, assess and summarize available research about how the covid-19 pandemic affects the mental health of all health care workers, both frontline and non-frontline, and identify possible interventions to help them.

Introduction

The WHO declared COVID-19 a pandemic on March the 11th and called for governments to take "urgent and aggressive" action to change the course of the outbreak (WHO and GLCPID-R 2020). Currently (May 2020), the COVID-19 pandemic is spreading rapidly worldwide, resulting in a vast increase in critically ill patients that threatens to heavily surpass the capacity of the health systems.

Health care workers are our main resource to ensure healthy lives and well-being for all. The COVID-19 pandemic has created a situation where death is an occupational hazard for health care workers (Godlee 2020). The WHO emphasized the extremely high burden on health care systems and workers, and called for action to address the immediate needs and measures we need to take to save lives and prevent a serious impact on health care workers' physical and mental health.

Previous viral outbreaks have shown that non-frontline workers as well as frontline workers are at increased risk of infection and other adverse physical health outcomes. While several systematic reviews have been written about the personal protective equipment required to protect health care workers (Bartoszko et al. 2020, Takhar et al. 2020, Couper et al. 2020), we know less about their mental health and how to support them.

This review will identify, assess and summarize available research about how the covid-19 pandemic affects the mental health of health care workers, and identify possible interventions to help them.

Methods

We will conduct a systematic review in accordance with the overall protocol for the *Living and systematic map of covid-19 research* (https://www.fhi.no/en/qk/systematic-reviews-hta/map/). Our main aim is to identify, assess and summarize available research about how the covid-19 pandemic affects the mental health of health care workers. The pandemic itself is the exposure of interest, and we will include health care workers caring for covid-19 patients as well as those in usual care situations We are not only interested in prevalence data of their mental health and in changes in mental health after interventions, but also in risk and resilience factors that correlate with mental health outcomes. Our second aim is to systematically identify, assess and summarize available research about interventions aimed at preventing or limiting the negative impact on mental health among health care workers of the covid-19 pandemic. Therefore all information which could inform such interventions will be extracted and summarized.

Inclusion criteria

We will include studies that report on health care workers in all settings (e.g. hospitals, emergency services, primary care), both frontline and non-frontline, and at all levels of exposure to covid-19.

Population:	Health care workers, both frontline and non-frontline
Exposure/intervention	Covid-19 pandemic, or an intervention aimed at addressing health care workers' mental health during the pandemic
Outcome:	Measures of mental health, including:

1. Changes in mental health
2. Prevalence and correlates of mental health indicators (e.g. risk and resilience factors)
3. Strategies implemented or accessed by health care workers to address their own mental health (e.g. coping strategies)
4. Perceived need and preferences related to interventions aimed at preventing or reducing negative impact on mental health
5. Experience and understandings of mental health and related interventions

Study design:	No restrictions.
Other:	No restrictions on languages.

We will exclude studies that do not provide primary or secondary data.

Search strategy and study selection

We will select studies for this systematic review by utilizing our map of 1,779 covid-19 publications (as of 16 May 2020). On this map, two researchers independently categorize studies presenting primary and secondary data, according to population of interest (41 possible populations), study design, and topic (eight main topics, each with up to five subtopics and 52 further subordinate topics). We will identify all studies that had been categorized with a population of "Health care workers", and with a topic of "Experiences and perceptions; consequences; social, political, economic aspects." We will also search all studies (title and abstracts) in our database using the following keywords: emo*, psych*, stress*, anx*, depr*, mental*, sleep, worry, somatoform, and somatic symptom disorder. Two persons will independently assess the eligibility of these studies for this systematic review.

The protocol of the *Living and systematic map of covid-19 research* thoroughly describes the methods. The search strategy, below, was developed by a search specialist (EVH) and peer reviewed by a second search specialist (MJ). The literature search dates back to 1st December 2019. EVH has run searches every other day to retrieve publications that are immediately assessed for eligibility for the systematic and living evidence map on covid-19. The last search conducted relevant to this systematic review was 11 May 2020.

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(("covid-19"[nm] OR "severe acute respiratory syndrome coronavirus 2"[nm] OR
((Coronavirus[mh] OR "Coronavirus Infections"[mh] OR Coronaviridae[mh:noexp] OR
"Coronaviridae Infections"[mh:noexp] OR "corona virus"[tw] OR "corona viruses"[tw] OR
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coronavir*[tw] OR coronovirus*[tw] OR betacoronavirus*[tw]) AND (novel[tw] OR 2019[tw] OR Wuhan[tw] OR Huanan[tw] OR Hubei[tw])) OR "new coronavirus"[tw] OR "COVID19"[tw] OR COVID19[tw] OR "SARS coronavirus 2"[tw] OR "severe acute respiratory syndrome coronavirus 2"[tw] OR nCoV[tw] OR 2019nCoV[tw] OR nCoV2019[tw] OR "SARSCoV-2"[tw] OR "SARS-CoV2"[tw] OR SARSCoV19[tw] OR SARS-CoV19[tw] OR SARS-CoV19[tw] OR HCoV-19[tw] OR WN-CoV[tw]) AND (2019/12/01:2030/12/31[edat]))

Data extraction, synthesis, and presentation

One researcher will extract the following data from the included studies: research question, country and time period, study design, health care setting, type of health care worker, exposure to covid-19, details of psychological health interventions if relevant, and outcomes. We will also extract data on exposure (i.e. frontline vs. non frontline). A second researcher will check data extraction.

We will sort the studies according to type of question/study design. We will present results separately per outcome. For questions regarding impacts of exposures or effects of interventions, we will analyse the dichotomous outcome measures by calculating the relative risk (RR) and the 95% confidence interval (CI). We will analyse continuous outcomes using the mean difference (MD) with 95% CI, or standardized mean difference (SMD), if the outcome measures have different units or scales of measurements. We will perform meta-analyses if primary studies have the same outcomes and are sufficiently similar in terms of population, intervention, comparison, and effect measurement, using random effects models. We will use the Mantel-Haenszel method for dichotomous outcomes and the inverse-variance method for continuous outcomes. We will evaluate statistical heterogeneity with Chi-square test and I-square values. If a meta-analysis is not possible, we will narratively synthesize results according to outcome. We will likely group results according to exposure and outcome and according to type of intervention. We will also narratively synthesize the results of qualitative studies, not aiming at a formal qualitative evidence synthesis.

Assessment of risk of bias/study quality

Two researchers will independently assess the risk of bias using study design-specific tools. We will assess systematic reviews using AMSTAR; randomized trials using Cochrane Risk of Bias tool (Higgins et al. 2011); qualitative studies using the adapted Critical Appraisal Skills Program tool for qualitative studies (CASP 2018); and prevalence studies using JBI cross-sectional tools (JBI 2017).

Assessment of the certainty of evidence

For quantitative studies, we will use the GRADE approach (Grading of Recommendations Assessment, Development, and Evaluation) to assess the certainty of the evidence (Guyatt

et al. 2011). We will use study design as a starting point and then consider the following five criteria for each outcome measure: methodological study quality, degree of consistency, directness, dissemination bias, and precision of data. Upgrading is possible for outcomes from observational studies if there is a large effect estimate, a dose-response gradient, or if all plausible effect modifiers, if present, would reduce the effect.

Evidence will be presented in a GRADE Summary of Findings table, and potentially using interactive Summary of Findings (iSoF) or GRADE Evidence Profiles developed in the GRADEpro (www.gradepro.org) software (Guyatt et al. 2011, Guyatt, Thorlund et al. 2013). These tables are visual tools to quickly and clearly communicate both the effect estimates of the important outcomes and our certainty in these effect estimates. We will use a similar table to present our summaries of key qualitative findings and our confidence in each.

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Starting date (for FHI.no):
23 April 2020

End date
The planned date of publication for this systematic review is in June 2020.

Publication and dissemination
The planned product of this project is an article submitted to a peer-reviewed journal.

Indexing for the homepage
Mental health, 2019 novel coronavirus, health personnel, health workforce, allied health occupations, health occupations, allied health nursing

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