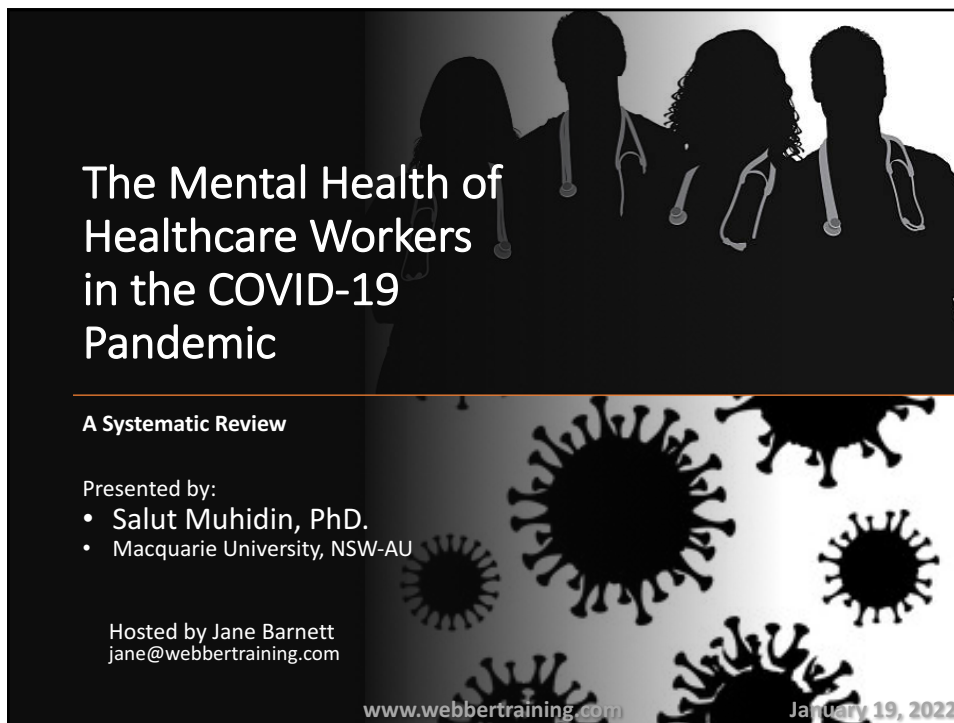


The Mental Health of Healthcare Workers in the COVID-19 Pandemic
Prof. Salut Muhidin, Macquarie University, Australia
A Webber Training Teleclass



The Mental Health of Healthcare Workers in the COVID-19 Pandemic

A Systematic Review

Presented by:

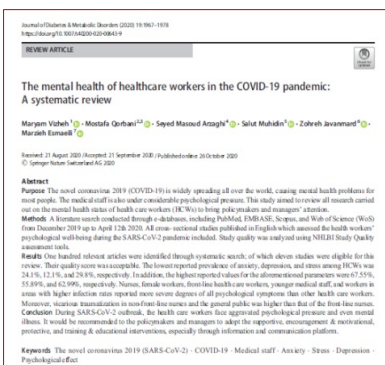
- Salut Muhidin, PhD.
- Macquarie University, NSW-AU

Hosted by Jane Barnett
jane@webbertraining.com

www.webbertraining.com January 19, 2022

Outline for Today

1. Background
2. Brief Discussion on *Systematic Review*
3. *Healthcare Workers & Pandemic*
4. Recommendations & Conclusions



Journal of Diabetes & Metabolic Disorders (2020) 19:960–967
<https://doi.org/10.1007/s40200-020-00643-9>

REVIEW ARTICLE

The mental health of healthcare workers in the COVID-19 pandemic: A systematic review

Maryam Vizheh¹ · Mostafa Qorbani^{2,3} · Seyed Masoud Arzaghi⁴ · Salut Muhidin⁵ · Zahrah Javanmard⁶ · Marash Esmaili⁷

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Abstract
Purpose The novel coronavirus 2019 (COVID-19) is widely spreading all over the world, causing mental health problems for most people. The medical staff is under considerable psychological pressure. This study aimed to review all research carried out on the mental health status of health care workers (HCWs) to bring policy makers and managers' attention.
Methods A literature search conducted through databases, including PubMed, EMBASE, Scopus, and Web of Science (WoS) from December 2019 up to April 12th 2020. All cross-sectional studies published in English which assessed the health workers' psychological well-being during the SARS-CoV-2 pandemic included. Study quality was analysed using NEDJBI Study Quality Assessment Tools.
Results One hundred relevant articles were identified through systematic search, of which eleven studies were eligible for this review. Their quality scores was acceptable. The lowest reported prevalence of anxiety, depression, and stress among HCWs was 24.1%, 12.1%, and 23.4%, respectively. In addition, the highest reported rates for the aforementioned parameters were 67.55%, 55.99%, and 62.99%, respectively. Nurses, female workers, front-line health care workers, younger medical staff, and workers in areas with higher infection rates reported more severe degrees of all psychological symptoms than other health care workers. Moreover, vicarious traumatization in non-front-line nurses and the general public was higher than that of the front-line nurses. **Conclusions** During SARS-CoV-2 outbreak, the health care workers face aggravated psychological pressure and even mental illness. It would be recommended to the policymakers and managers to adopt the supportive, encouragement & motivational, protective, and training & educational interventions, especially through information and communication platforms.

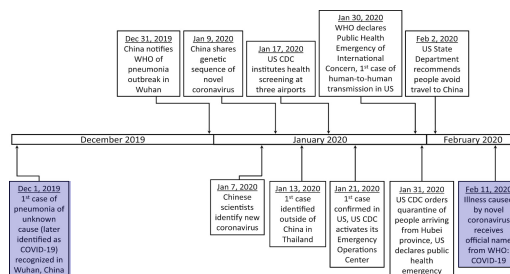
Keywords The novel coronavirus 2019 (SARS-CoV-2) · COVID-19 · Medical staff · Anxiety · Stress · Depression · Psychological distress

Vizheh, M., Qorbani, M., Arzaghi, S. M., Muhidin, S., Javanmard, Z., & Esmaili, M. (2020). The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *Journal of Diabetes and Metabolic Disorders*, 19(2), 1–12. Advance online publication. <https://doi.org/10.1007/s40200-020-00643-9> Published online 26 October 2020.

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Background and Objective

- Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) that causes COVID-19 is a *new virus*. It also means that still many unknown, including what we know today (i.e. its risks, symptoms, variants, etc.) may change later.
- Earlier known as 2019-nCov (2019-novel coronavirus) which refers to the first found cases in Wuhan, China (Dec 2019) identified in people with pneumonia. In Wuhan, 29% of patients with SARS-CoV-2 were health-care workers who had acquired the infection in hospital.



By today, the pandemic of C19 has passed its 2nd year since its first outbreak in December 2019.

In Feb 2020, WHO named this new virus as COVID-19

3

Background and Objective

- **Anyone** are exposed to risk: males/females, young/old. Most at risks to persons who have been in contact with infected persons (i.e. via respiratory droplets). High risk mostly occurred in the crowded areas or places, including in a health facility such as clinic and hospital.
- One of big impacts, COVID-19 is causing *mental problems* for most people, including the health care workers. At the same time, major epidemic outbreaks pose an increasing demand for healthcare workers.
- Health care workers are crucial to the health-care system. During the pandemic, they are not only having a high-risk occupation, but also having an exponential increase of their workloads and responsibilities during the pandemic → which can contribute to the mental burden.

Objective:

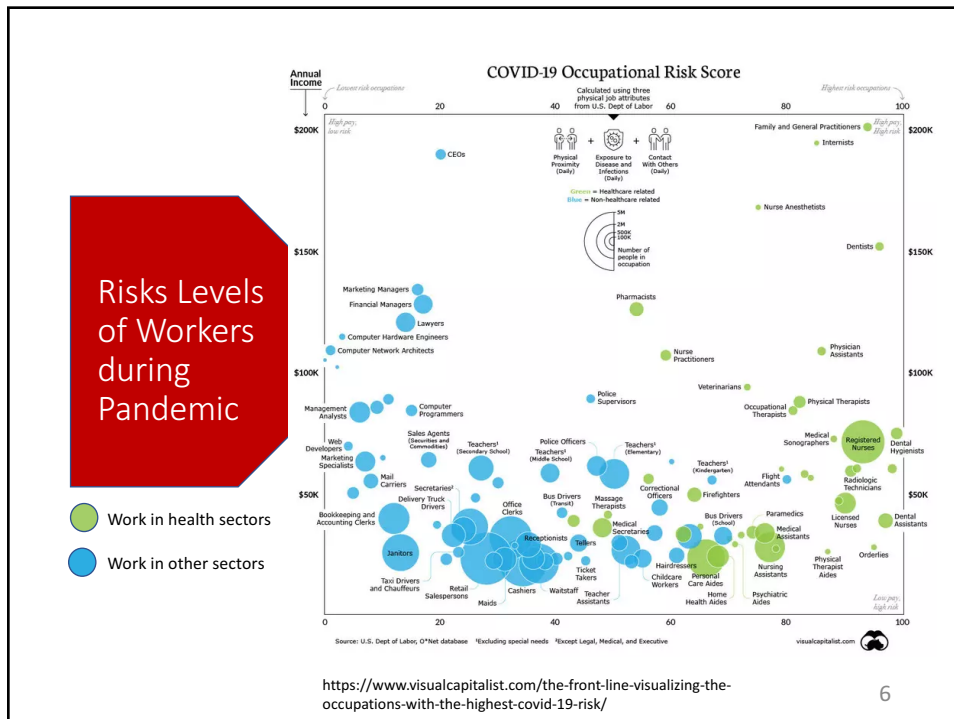
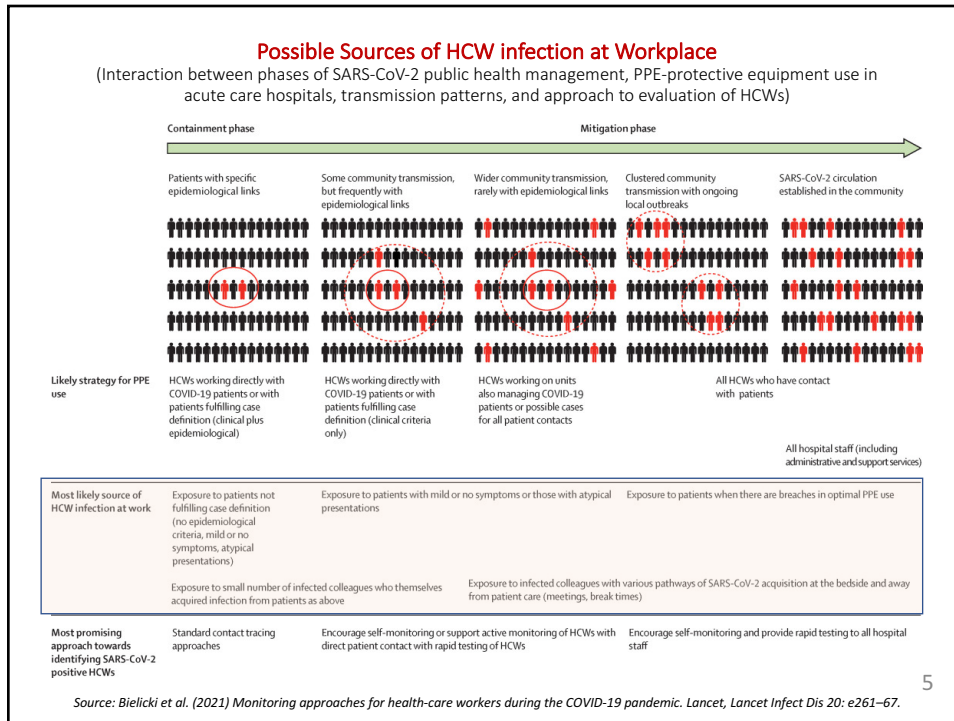
- *This study aims to review all research carried out on the mental health status of health care workers (HCWs) to bring policymakers and managers' attention.*

4

The Mental Health of Healthcare Workers in the COVID-19 Pandemic

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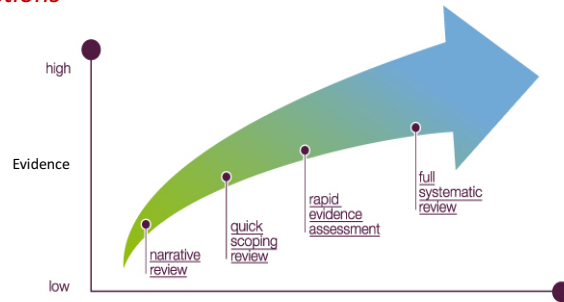
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Types of Reviews

1. **Narrative:** Overview of specific topic, identify information gaps and recommend new research
2. **Rapid:** Providing information within narrow time frame
3. **Scoping:** Preliminary assessment of potential/available research literature (topic based), mapping out evidence
4. **Systematic:** Collate empirical evidence to answer **research questions**



7

Types of Reviews

ELSEVIER
 Patient Education and Counseling 60 (2006) 102–114
 www.elsevier.com/locate/pecon

Review
Patients' preference for involvement in medical decision making: A narrative review
 Rebecca Say, Madeleine Murtagh, Richard Thomson*
 School of Population and Health Sciences, Medical School, University of Newcastle, Newcastle upon Tyne NE2 4BQ, UK
 Received 14 June 2004; revised in revised form 31 January 2005; accepted 17 February 2005

Abstract
 Objective: This review aimed to clarify present knowledge about the factors which influence patients' preference for involvement in medical decision making.
 Methods: A thorough search of the literature was carried out to identify quantitative and qualitative studies investigating the factors which influence patients' preference for involvement in medical decision making.
 Results: Patients' preferences are influenced by consistently found to prefer a more active role in decisions, the type of decision they need to make, of involvement, and the interaction and relationship time as they gain experience and may change at conclusion. While patient preferences for involvement are highly complex, this review has identified a number which are consistent across studies.
 Practice implications: By identifying the factors most sensitive to individual patients' preferences © 2006 Elsevier Ireland Ltd. All rights reserved.

Keywords: Shared decision making; Patient participation

International Journal of Environmental Research and Public Health
 WJPR

Review
Co-Morbidity, Mortality, Quality of Life and the Healthcare/Welfare/Social Costs of Disordered Sleep: A Rapid Review
 Sergio Garbarino^{1,2}, Paola Lanteri³, Paolo Durando⁴, Nicola Magnavita^{5,*} and Walter G. Sammita^{1,2}
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⁴ Department of Health Sciences, Postgraduate School in Occupational Medicine, University of Genoa and Occupational Medicine Unit, IRCCS AOU San Martino ISE, Genoa 16132, Italy; paolo.durando@unige.it
⁵ Department of Public Health, Università Cattolica del Sacro Cuore, Rome 00168, Italy
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Academic Editor: Paul B. Ebtounyan
 Received: 10 June 2016; Accepted: 31 August 2016; Published: 16 August 2016

Abstract: Sleep disorders are frequent (18%–23%) and constitute a major risk factor for psychiatric, biovascular, metabolic or hormonal co-morbidity and mortality. Low social status or income, employment, life events such as divorce, negative lifestyle habits, and professional requirements (i.e., shift work) are often associated with sleep problems. Sleep disorders affect the quality of and impair both professional and non-professional activities. Excessive daytime drowsiness arising from sleep disorders impairs efficiency and safety at work or on the road, and increases the risk of accidents. Poor sleep either professional or voluntary has detrimental effects comparable those of major sleep disorders, but is often neglected. The high incidence and direct/indirect human and welfare costs of sleep disorders and poor sleep currently constitute a major medical item. Investigation, monitoring and strategies are needed in order to prevent/reduce the effects these disorders.

Keywords: sleep disorders; quality of life; public health; mortality; morbidity; cardiovascular disorders; cancer; accidents

DEBATE **Open Access**

Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach
 Zachary Murray¹, Michal D. J. Peters, Cindy Steen, Catalin Tuleneanu, Amina Muthur and Esdras Armatas

Abstract
Background: Scoping reviews are a relatively new approach to evidence synthesis and currently there exists little guidance regarding the decision to choose between a systematic review or scoping review approach when synthesizing evidence. The purpose of this article is to clearly delineate the differences in iterations between scoping review and systematic review and to provide guidance for when a scoping review is (and is not) appropriate.
Results: Researchers may conduct scoping reviews instead of systematic reviews where the purpose of the review is to identify knowledge gaps, scope a body of literature, clarify concepts or to investigate research conduct. While useful in their own right, scoping reviews may also be helpful precursors to systematic review and can be used to confirm the relevance of inclusion criteria and potential questions.
Conclusions: Scoping reviews are a useful tool in the ever-increasing arsenal of evidence synthesis approaches. Although conducted for different purposes compared to systematic reviews, scoping reviews still require rigorous and transparent methods in their conduct to ensure that the results are trustworthy. Our hope is that with clear guidance available regarding whether to conduct a scoping review or a systematic review, there will be less scoping reviews being performed for inappropriate indications better served by a systematic review, and vice-versa.

Keywords: Systematic review; Scoping review; Evidence-based healthcare

To do scoping review if the purpose is to identify knowledge gaps, scope a body of literature, clarify concepts or to investigate research conduct. As precursors to systematic reviews.

8

Systematic Review

In general, there are 7 main steps:

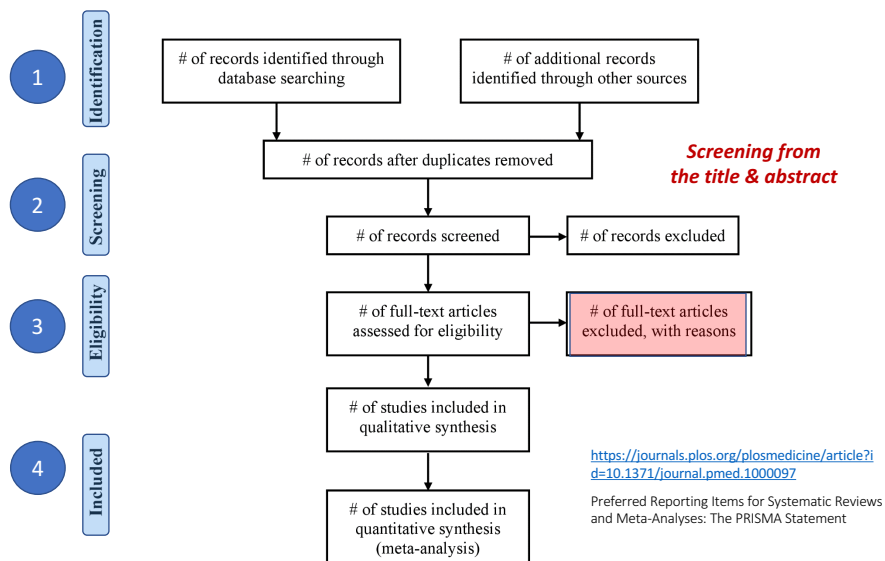
1. Question formulation,
2. **Systematic** searching and retrieving the literature,
3. Establishing relevance criteria (i.e. date/setting/design/language)
4. **Assessing** studies for relevance,
5. Assessing relevant studies for methodological quality (appraisal),
6. Data extraction and **synthesis/interpretation**,
7. Presentation (writing the report)

Notes:

- Systematic review requires fairly a broad of sample of the literature
- Novelty of a review is in having **something new to say** rather than discovering or creating something new. It should be assessed on discussions rather than results.
- **Timeliness** of the topic is a bigger deal in review articles

9

Figure 1: Flow of information through the different phases of a systematic review



10

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Systematic Review

Systematic review is an assessment of the literature and provides a summary, classification, comparison and evaluation. To be a full *systematic review (SR)*, it must include: (1) Search strategy, and (2) Proposition to synthesizing the data

Once the literatures have been selected then the quality assessments are conducted by using the appropriate tools, among others:

- **Study Quality Assessment Tools (SQAT)** from NIH
 - www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools
 - Assess the **quality and risk of** individual types of included study designs: Case-report studies (9 items) and Case-control studies (12 items).
- **Mixed Method Appraisal Tool (MMAT)**
 - mixedmethodsappraisaltoolpublic.pbworks.com
 - Asses several types of **methods**: qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies.

11

Mixed Method Appraisal Tool (MMAT)

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions?				
	S2. Do the collected data allow to address the research questions? <i>Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.</i>				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5. Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question?				
	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

12

My Study: Mental Health Status of HCWs

Review Question

- What is known about the mental health status of healthcare workers in dealing with COVID-19 patients.

Search strategy

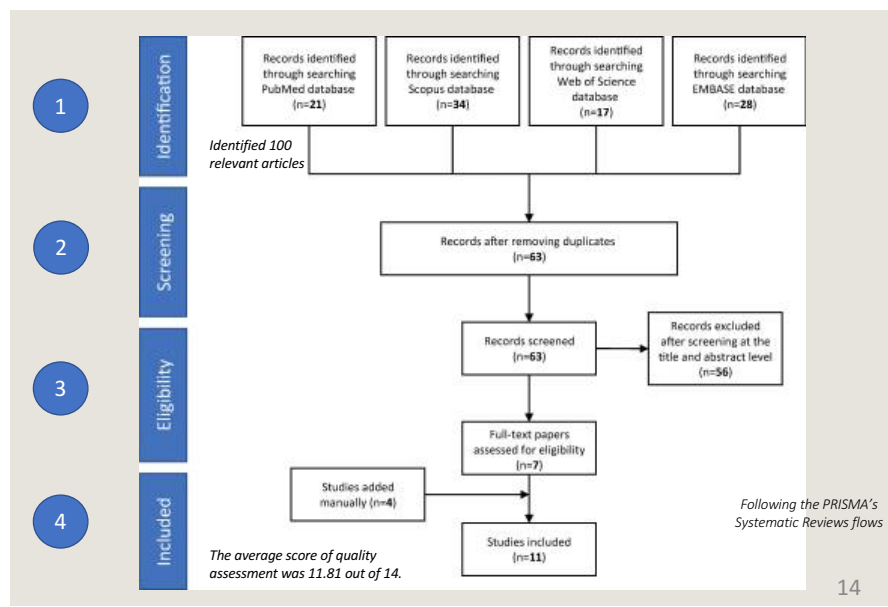
- Relevant databases: PubMed, Scopus, Web of Science (WoS) and EMBASE.
- Language: English and local language (translated) with publication period Dec 2019 to April 2020.
- Type publications: All studies with original data (case reports, case series, descriptive/observational studies, and randomized controlled trials).
- Keywords and its synonyms, including:
 - “the 2019 novel corona virus disease”
 - “Psychological impact”
 - “Healthcare workers”

Quality Assessment

- Our study used the Quality Assessment Tools for Observational Cohort and Cross-Sectional Study proposed by NHLBI.

13

Figure 2. The Systematic Review flows for Mental Health of Healthcare Workers in the COVID-19 Pandemic

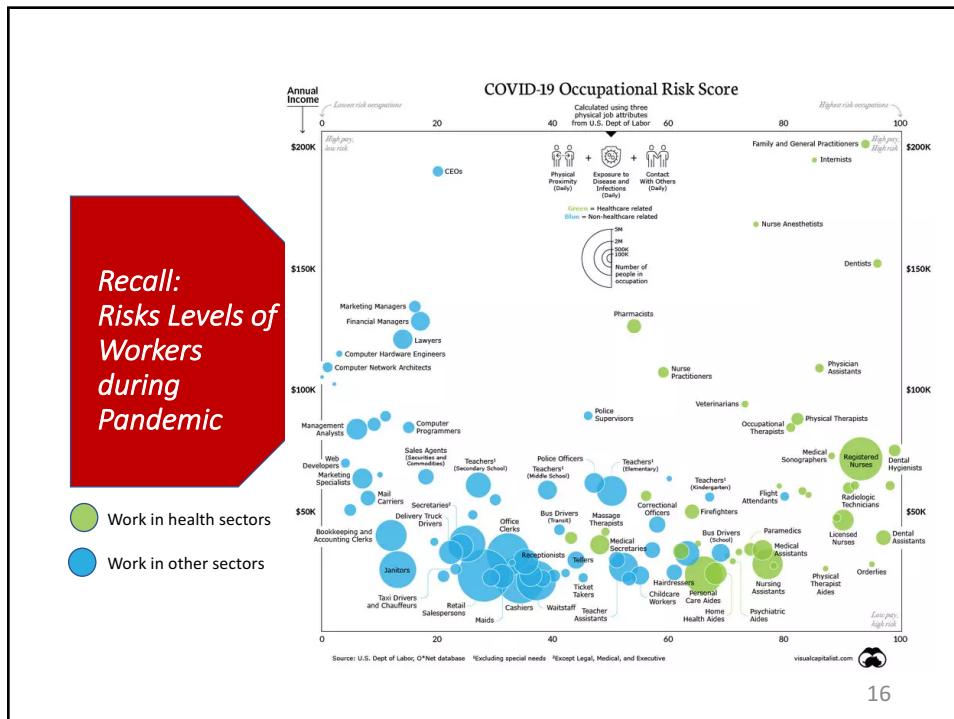


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Summary Findings (part 1)

- One hundred potentially relevant articles identified through systematic searching, of which eleven studies were eligible for this review.
- Nurses, female workers, front-line health care workers, younger medical staff, and workers in areas with higher infection rates reported more severe degrees of all psychological symptoms than other health care workers.
- Vicarious traumatization in non-front-line nurses and the general public was higher than that of the front-line nurses.
- *The lowest reported prevalence* of anxiety, depression, and stress among HCWs was 24.1%, 12.1%, and 29.8% respectively.
- *The highest reported prevalence* of anxiety, depression, and stress among HCWs was 67.55%, 55.89%, and 62.99% respectively.

15



16

Summary Findings (part 2)

General characteristics of the reviewed studies (11):

- **Geographic:** Nine studies were performed in China as the first country struggling with SARS-CoV-2. Others are in Italy and Spain.
- **Outcome measures:** anxiety (9/11), depression (6/11), stress (5/11), insomnia (2/11), and distress (4/11). Furthermore, fear, self-efficacy, sleep quality, risk perception, death anxiety, social desirability, and social support were the main outcome in one study.
- **Mental health:** The prevalence of **anxiety** reported by health care workers varied from 24.1%, 25.5%, and 44.6%. In another study, the total anxiety score was 32.19±7.56 points, which was significantly higher than the standard of national points (29.78+0.46), ($t=4.27$, $p<0.001$). It revealed that anxiety had a positive correlation with total stress load score and all its dimensions.

17

Table 2 The psychological outcomes of the included studies (based on severity, sex, and population)

#	Study characteristics		Outcome characteristics				Findings				QS (0-14)
	Study [ref] Country	Population/ sample size	Type of mental health	Measurements tool (range of score)	Definition of outcome	Measure	Total	By severity of outcome	By sex	By population	
1	Lai et al. [6] China	Medical staff T: 1257 P: 493 (39.22%) N: 764 (60.77%)	Depression Anxiety Insomnia Distress	PHQ-9 (0-27) GAD-7 (0-21) ISI-7 (0-28) IE-22 (0-88)	PHQ-9, normal (0-4), mild (5-9), mod (10-14), severe (15-21) GAD-7, normal (0-4), mild (5-9), mod (10-14), severe (15-21) ISI, normal(0-7), sub (8-14), mod (15-21), severe (22-28) IES-R, normal (0-8),mild (9-25), mod (26-43), severe (44-88)	Prevalence (%) Depression 50.4% Anxiety 44.6% Insomnia 34.0% Distress 71.5%	Depression Mid: 35.6% Mod: 8.6% Severe: 6.2% Anxiety M: 35.5% N: 47.1% F: 47.4% P: 40.6% Insomnia M: 29.1% N: 38.2% F: 35.5% P: 27.4% Distress M: 58.4% N: 74.5% F: 66.9%	Depression M: 41.7% F: 53.2% P: 45.6%	Depression M: 53.5% N: 47.1% F: 47.4% P: 40.6%	Depression M: 29.1% N: 38.2% F: 35.5% P: 27.4% Distress M: 58.4% N: 74.5% F: 66.9%	13
2	Kang et al. [14] China	Medical staff T: 994 P: 183 N: 811	Mental health disturbances	PHQ-9 (0-27) GAD-7 (0-21) ISI-7 (0-28) IE-22 (0-88)	According to these four questionnaires by Ward method and using cluster analysis	Prevalence (%) 63%	Mild 34.4% Mod 22.4% Severe 6.2%	M: 56.9% F: 64.1% P: 58.46%	N: 64.11% P: 58.46%		11
3	Lu et al. [18] China	Medical staff P: N: 2042 Administrative staff: 257	Fear Anxiety Depression	NDS (0-10) HAMA (0-70) HAM-D (0-85)	Fear scale, 0-3 (no/mild) 4-6 (moderate) 7-10 (severe/extreme) HAMA, 0-6 (no) 7-13 (mild/moderate) ≥14 (severe/extreme) HAM-D, 0-6 (no) 7-23 (mild/moderate) ≥24 (severe/extreme)	Prevalence (%) Fear 70.6% Anxiety 25.5% Depression 12.1%	Fear normal: 29.4% Mod: 43.9% severe/extreme: 26.7% Anxiety mild/mod: 22.6% severe/extreme: 2.9% Depression no: 87.9% mild/moderate: 11.8% severe/extreme: 0.3%	NR	Fear Medical staff: 70.6% Administrative staff: 58.4% Anxiety Medical staff: 25.5% Administrative staff: 20% Depression Medical staff: 12.1% Administrative staff: 8.2%		12
4		Medical staff		SDS SAS	NA	SDS	NR	NR	SDS		11

18

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Table 2 (continued)

#	Study characteristics		Outcome characteristics			Findings				QS (0-14)		
	Study [ref] Country	Population/ sample size	Type of mental health	Measurements tool (range of score)	Definition of outcome	Measure	Total	By severity of outcome	By sex		By population	
	Liang et al. [23] China	T: 59 COVID-19 department's staff: 38 Other department's staff: 21	Anxiety Depression	SAS		Mean score ± SD	30.23 ± 7.98 SAS 28.34 ± 5.16				COVID-19 department's staff: 29.61 ± 8.02 Other department's staff: 31.36 ± 7.92 SAS COVID-19 department's staff: 27.88 ± 5.32 Other department's staff: 29.20 ± 4.52	
5	Xiao et al. [6] China	Medical staff T: 180	Anxiety Self-efficacy Stress Sleep quality Social support	SSRS (7-56) SAS (0-80) GSES (10-40) SASR (0-150) PSQI (0-21)	NA	Mean score ± SD	SSRS 34.172 ± 10.263 GSES 2.267 ± 0.767 SAS 55.256 ± 14.183 SASR 77.589 ± 29.525 PSQI 8.583 ± 4.567	NR	NR	NR	12	
6	Li et al. [12] China	Medical staff T: 740 GP: 214 FLN: 234 nFLN: 292	Vicious Trauma		NA	Median (25th-75th)		NR	NR	GP 75.5 (62-88.3) FLNs 64 (52-75) nFLNs 75.5 (63-92) NR	10	
7	Mo et al. [19] China	Nurse N: 180	Anxiety Stress	SOS (22-110) SAS (20-80)	NA	Mean score ± SD	SOS 39.91 ± 12.92 SAS 32.19 ± 7.56	NR	NR		13	
8	Dai et al. [20] China	Medical staff T: 4357 N: 2343 (53.77%) P: 1419 (32.56%) Technician: 437 (10%)	Psychological distress	GHQ-12 (0-12)	GHQ ≥ 3	Prevalence (%)	39.1%	NR	M: 32.2% F: 41.2%	P: 39% N: 41.3% Technician: 30.7% Support staff: 30.4%	12	

19

Table 2 (continued)

#	Study characteristics		Outcome characteristics			Findings				QS (0-14)	
	Study [ref] Country	Population/ sample size	Type of mental health	Measurements tool (range of score)	Definition of outcome	Measure	Total	By severity of outcome	By sex		By population
		Support staff: 158 (3.6%)									
9	Zhu et al. [7] China	Medical staff T: 5062 P: 1004 N: 3417 Technician: 641	Stress Depression Anxiety	PHQ-9 (4-20) GAD-7 IES-R	PHQ-9 ≥ 10 GAD-7 ≥ 8 IES-R > 33	Prevalence (%)	Stress 29.9% Depression 13.5% Anxiety 24.1%	NR	Depression M: 71 (9.36%) F: 610 (14.17%) Anxiety P: 23.1% M: 137 (18.07%) F: 1081 (25.11%) Psychological stress M: 153 (20.18%) F: 1356 (31.5%)	Depression P: 11.35% N: 14.31% Technician: 12.16% Anxiety P: 23.1% N: 25.25% Technician: 19.18% Psychological stress P: 24.2% N: 33.06% Technician: 21.21%	13
10	Simone and Gugnonelli [22] Italy	T: 353 GP: 186 Medical staff: 167	Stress Anxiety Existential concerns Socially desirable manner COVID-19-related experience and personal opinion	PSS (4-20) STAI (6-24) ECQ (5-20) M&C (9-54)	NA	Mean score	ECQ 8.92 PSS 6.58 STAI 14.06	NR	NR	ECQ Med: 9.05 GP: 8.81 PSS Med: 6.62 GP: 6.55 STAI Med: 14.08 GP: 14.06	11
11	Odióloza- González et al. [21] Spain	T: 3550 GP: 3204 (90.3) Med: 346 (9.7%)	-the 21-item version of the Depression Anxiety Stress Scale -the Impact of Event Scale (IES)	DASS-21 (0-63) IES (0-75)	NA	Mean score ± SD Prevalence (%)	Depression 5.06 ± 4.76 Anxiety 3.15 ± 3.76 Stress 6.50 ± 4.69 Depression 55.89% Anxiety 67.55% Stress	NR	NR	NR	12

20

Summary Findings (part 3)

- *Stress* was also a prevalent mental problem in HCWs. A high of 29.8% of HWs reported stress in a study.
- In a study aimed to assess anxiety, stress, depression, and insomnia, overall, 63 % of health care workers reported *mental disturbance*. Another study reported 39.1% of respondents were with GHQ-12 score ≥ 3 , suggesting the significantly higher incidence of psychological problems in HCWs than that in normal times.
- *The lowest reported prevalence of anxiety, depression, and stress* among HCEs was 24.1%, 12.1%, and 29.8% respectively. *The highest reported prevalence* was 67.55%, 55.89%, and 62.99% respectively found in Spain.

21

Summary Findings (part 4)

- *Sleep disturbance*: A study reported 34.0% of respondents complained of insomnia. Anxiety, stress, and self-efficacy as mediating variables were associated with sleep quality and social support.
- *Fear* was also indicated as a psychological problem. A study indicated that significant proportions of medical staff experienced moderate and severe fear that was significantly higher than the administrative staff group, 70.6% and 58.4%, respectively.
- The severity of *vicarious traumatization* caused by the SARS-CoV-2 pandemic in non-front-line nurses and the general public was higher than that of the front-line nurses who were responsible for close care of patients with SARS-CoV-2.
- *Workplace environment*: Working in areas with a high incidence of infection was significantly associated with higher stress and psychological disturbance.

22

Recommendations & Implications

Implication of COVID-19 for health workers. It would be recommended to the policymakers and managers to adopt some interventions: *(1) supportive, (2) encouragement & motivational, (3) protective, and (4) training & educational interventions*, especially through information and communication platform.

- *Supporting* HCWs can be offered by family members, community, organizations, colleagues and supervisors;
- *Encouragement* can be done by giving recognitions and appreciations to the HCWs efforts; or engaging them in relaxation techniques; visit therapists to care their psychological suffers and frustrations.

23

Recommendations & Implications

- *Protective* can be done by providing adequate and effective protective equipment; addressing HCWs physical needs, considering regular rest breaks; or considering shorter working hours and rotating shifts especially for those working in high-risk areas.
- *Training and education* provision that focuses on psychological and mental health education.

The use of technologies that can minimize the work pressure of health staff. For example: mHealth (mobile health) for notifications and reminder of the time of care; online mental health education, online psychological counseling services and also online psychological self-help intervention systems.

24

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www.webbertraining.com/schedulep1.php	
January 27, 2022	CLINICAL SYNDROMES AND CONDITIONS WARRANTING EMPIRIC TRANSMISSION BASED PRECAUTIONS Speaker: Dr. Jennifer Cole , Avanti Hospitals, California
February 3, 2022	VACCINE HESITANCY ... WHAT'S HAPPENING? Speaker: Prof. Rodney Rohde , Texas State University
February 8, 2022	<i>(FREE European Teleclass)</i> THREE EARLY PIONEERS – WHO CAN STILL TEACH US A THING OR TWO Speaker: Dr. Evonne Curran , Glasgow Caledonian University, Scotland
February 10, 2022	RETHINKING SOLUTIONS FOR PUBLIC HEALTH PROBLEMS: A HOLISTIC ONE HEALTH SOCIAL SCIENCE (OHSS) SYSTEMS APPROACH Speaker: Dr. Laura C. Streichert , One Health Commission
February 17, 2022	ASSESSING THE CLINICAL ACCURACY OF A HAND HYGIENE SYSTEM Speaker: Dr. Marco Bo Hansen , Copenhagen University Hospital, Denmark
February 24, 2022	HEALTHCARE INFORMATICS LESSONS FROM THE PANDEMIC Speaker: Prof. Keith Woeltje , Medical College of Wisconsin
March 3, 2022	<i>(FREE Teleclass ... Denver Russell Memorial Teleclass Lecture)</i> BENEFITS AND POTENTIAL UNINTENDED CONSEQUENCES OF ROUTINE CHLORHEXIDINE BATHING IN HEALTHCARE FACILITIES Speaker: Prof. Mary Hayden , Rush University Medical Center, Chicago

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