
THE ASSESSMENT TOOLS FOR MEASURING HEALTHCARE WORKERS' PREPAREDNESS FOR COVID-19

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Abstract. Most all the countries in the world haven't been prepared for COVID - 19 pandemic so there is a need to analyze the strategies to measure our healthcare workers' preparedness for preventing healthcare workers (HCW) from becoming the victim of COVID-19. This systematic literature review is for reviewing the various assessment tools that had been used to measure the preparedness of healthcare workers' for COVID - 19 in the time of pandemic of COVID-19 (2019 November - 2021 June). Between this range of time, we analyzed how the researchers defined and constructed the assessments tool for measuring the preparedness of healthcare workers for COVID-19. We used databases of Scopus, Proquest, Pubmed, and Willey online library with search themes healthcare workers, Preparedness, COVID-19, assessment. There were 33 studies that measured HCW's preparedness for COVID-19 from November 2019 to 10 June 2021. Most studies were done in developing Nations (N=22). Almost of studies were Cross-sectional studies with questionnaires as their main instrument. The definition of preparedness was varied among these studies but all of them agreed that the tool for measuring the preparedness of HCW for COVID-19 was constructed with more than one aspect of measurement.

Keywords: healthcare workers, Preparedness, COVID-19, assessment

Abstrak. Hampir semua negara di dunia belum siap menghadapi pandemi COVID - 19 sehingga perlu dilakukan analisis strategi untuk mengukur kesiapan petugas kesehatan kita dalam mencegah petugas kesehatan (HCW) menjadi korban COVID-19. Tinjauan literatur sistematis ini untuk meninjau berbagai alat penilaian yang telah digunakan untuk mengukur kesiapan petugas kesehatan untuk COVID - 19 di masa pandemi COVID-19 (2019 November - 2021 Juni). Di antara rentang waktu tersebut, kami menganalisis bagaimana para peneliti mendefinisikan dan menyusun alat penilaian untuk mengukur kesiapan petugas layanan kesehatan menghadapi COVID-19. Kami menggunakan database perpustakaan online Scopus, Proquest, Pubmed, dan Willey dengan tema pencarian petugas kesehatan, Kesiapsiagaan, COVID-19, penilaian. Terdapat 33 penelitian yang mengukur kesiapan petugas kesehatan menghadapi COVID-19 dari November 2019 hingga 10 Juni 2021. Sebagian besar penelitian dilakukan di negara berkembang (N=22). Sebagian besar penelitian merupakan penelitian Cross-sectional dengan kuesioner sebagai instrumen utamanya. Definisi kesiapsiagaan bervariasi di antara studi-studi ini tetapi semuanya sepakat bahwa alat untuk mengukur kesiapsiagaan petugas kesehatan untuk COVID-19 dibangun dengan lebih dari satu aspek pengukuran.

Kata kunci: tenaga Kesehatan, persiapan pandemi, COVID-19, penilaian

INTRODUCTION

The COVID-19 pandemic began in Wuhan, China in December 2019. According to the new data from WHO there have been 174,061,995 confirmed cases of COVID-19, Including 3,758,560 deaths in the world. Among those death cases, there are at least 17,000 health workers have died worldwide from COVID-19.(1, 2, 3)

The Spread of COVID-19 around the world brought a lot of disruption in social-economic,

governmental, and healthcare sectors. All countries focusing on fight with COVID - 19 pandemic because it has a big impact on the country's resilience. Among those countries that have been struggling with COVID-19, the developing countries have the most difficult times because there are lacking healthcare facilities, health workers, and poor infrastructure. While most government focusing on the economy, healthcare facilities, medical resources, and vaccination. The preparedness measurement of healthcare workers is the issue that most government neglect. It's

understandable because of the lack of access to formal information research and training for the COVID - 19 due to healthcare providers been overwhelmed by the numbers of COVID-19 patients.(4,5,6,7)

The lack of understanding about the healthcare workers' preparedness can have fatal consequences because in the fight again COVID - 19 the healthcare workers are the frontline and these consequences along with already lacking healthcare facilities and resources make the elimination of COVID - 19 seem impossible. This systematic literature review is for reviewing the various assessment tools that had been used to measure the preparedness of healthcare workers 'for COVID-19 in the time of pandemic of COVID-19 (2019 November - 2021 June). Between this range of time, we analyzed how the researchers defined and constructed the assessments tool for measuring the preparedness of healthcare workers for COVID-19.(8,9)

METHODS

Search Strategy

We using the systematic tool of PRISMA 2020 for making this Systematic Literature Review by applied it in studies we searched using databases of Scopus, Proquest, Pubmed and Willey online library with search terms are healthcare workers, Preparedness, COVID - 19, assessment. The systematic literature review was intended to study various instruments for measuring healthcare workers. Due to the limitation of selected databases, we used PICOS Strategy (table 1)

Table 1. PICOS

Population (P)	Healthcare Workers
Intervention (I)	
Comparison (C)	COVID-19 preparedness
Outcome (O)	
S (study)	

In the processes, a lot of databases result were 0, so we changed PICOS Strategy to be able to accumulate more journals (table 2)

Table 2. Modified PICOS

Population (P)	
Intervention (I)	
Comparison (C)	COVID-19 preparedness
Outcome (O)	
S (study)	

Eligibility Criteria

The studies eligible for inclusion in this Systematic Literature Review were any type of studies that encompassed measurement of healthcare workers' Preparedness for facing the COVID-19 pandemic. Thus, the studies were full paper journals published from December 2019 through June 2021, using either English or Bahasa Indonesia language. This systematic Literature review was intended to observe, study, and making comparison among various measurement tools that had been used for measuring the Preparedness of healthcare workers, so in the process, we didn't put any limitations for any region, country and we included qualitative or quantitative study. The subject of studies included were doctors, nurses, radiologists, pharmacists, and others healthcare workers who were been prepared or already in the action in providing COVID-19 services. Reference lists of the included studies which were relevant to this Systematic Literature Review and missed by the searches in the database were manually picked. The studies manually picked were categorized as additional records identified through other resources.

Studies were excluded if they were not associated with measuring healthcare workers' preparedness and we also excluded commentaries, editorials, systematic literature reviews, or conference proceeding studies were excluded.

Data analysis and synthesis

All studies were retrieved into the Mendeley database and any duplicates studies were removed for this systematic literature review. Five members of this systematic literature review (EF, H, FS, JADP, NAT) screened studies titles as well as full texts to suit the inclusion and exclusion criteria. The PRISMA Diagram for this systematic literature review was shown in Figure 1 to summarize the process.

Study Characteristics

They were 33 studies that measured HCW' Preparedness for COVID -19 in 2019 November until 2021 June 10 while this systematic literature review was made, Most of the studies that we found were conducted in developing nations (N = 22), while others were in Canada (N=1), United state (N=1), Italy (N=1), United Arabs Emirates (N=5) and China (N=2). The Developing Nations that had conducted this study the most were India (N=6), Ethiopia (N=6), and Pakistan (N=3).

The reason why most of the studies that involved with the measurement of HCW preparedness against COVID - 19 were mostly done in developing nations was that the the fact that the developing nations had

the most impact of COVID 19 and very unprepared from their infrastructures facilities, human resources, and others. (1,4,5,6,7,9,10,11,12,13,15,17-26)

Most of the studies were cross-sectional studies and it was reasonable because cross-sectional is a type of study for observational the outcome and the exposures at the same time among the study participants. The sample size that had been used in these studies was from 55 participants to 1,645 participants at large. Thus almost all of these studies were using self-administered questionnaire as the primary tool for collecting data. With the exception of Aliyu et al that used a combination of a semi-structured interviews with sample size of 55 participants.(14)

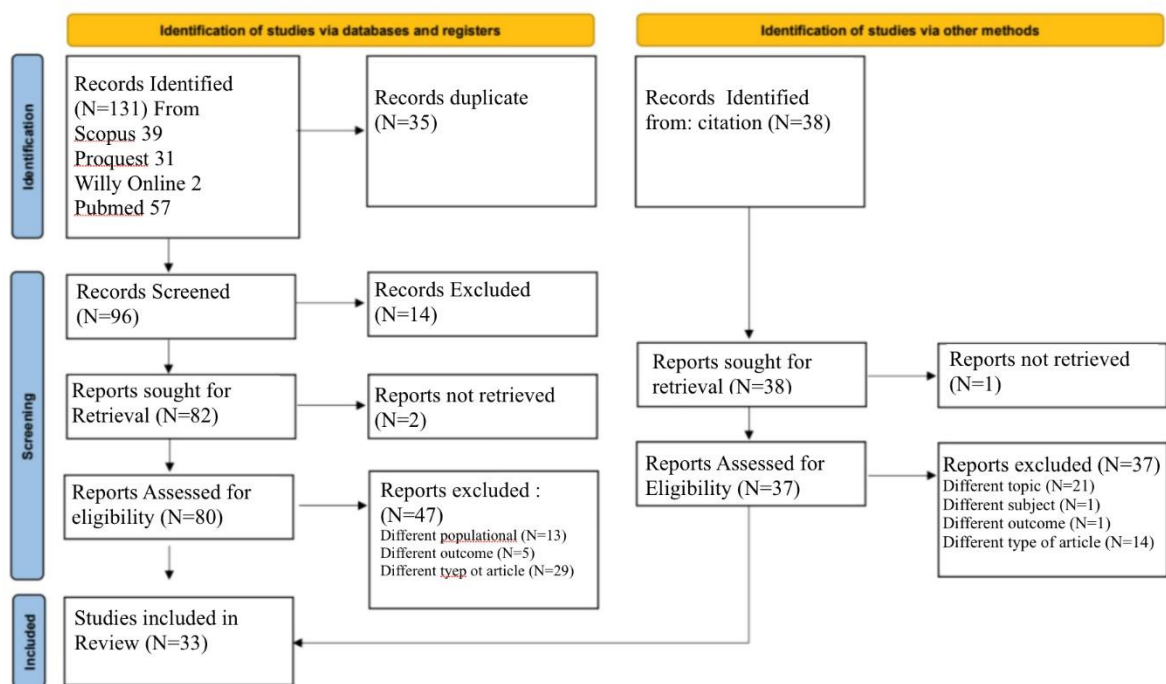


Figure 1. PRISMA Flow Diagram for Study Selection

The definition of preparedness

There were many definitions of preparedness in these studies, for convenience, we categorized these studies into two groups. The first group consists of studies that defined preparedness with undirect measurements of cumulative aspects that make up the definition of preparedness, for example in the study of fayyaz et al(15), the preparedness to

COVID-19 could be measured by knowledge, attitude, and practice cumulative score while siu et al(27) defined preparedness as a function of three-factor: 1) timeliness and appropriateness of recommendation communication, 2) resources available to manage and respond to the changing demands of the pandemic, and 3) perception of Long-term Care sector engagement. The first group consists of nine studies from 33 studies that we found.(14.15.23-29)

The second group whose had more direct measurement and clear distinctive for the definition of the preparedness were using a separated sections for measuring preparedness in their studies. For example in the study *assessment of the awareness, perception, attitudes, and preparedness of Healthcare Professionals Potentially Exposed to COVID-19 in the United Arab Emirates* by Dalky et al⁴ it was stated clearly that they were a single section of the questionnaire for measuring dan thus describing the participants' preparedness for the COVID-19 outbreak. Just like the first group, most of the second group used score range and categorized them to describing the participants' preparedness, Elhadi et al(16) used the range from 0 to 11, for participants who scored 8 or above on the preparedness scale was categorized to have adequate preparedness. And being had it own section of questionnaire in the study, most of the second group studies were able to analyze the correlation of preparedness with others variables such as experiences, education levels, etc than the first group.(1,4-13,16-22,30-35)

The development of a preparedness questionnaire

We can trace the origin or inspirations for developing of preparedness questionnaire in the second group easily, by studying the aspects of the questionnaire itself and by citations that researchers mentioned in their studies. By looking at the aspects of the questionnaire we found that none of the studies used only one aspect in their study for defining preparedness. The aspect that used in the studies were 1) basic diagnostic COVID-19 questions, 2) Participants' history of taking any training/Courses, etc for COVID-19, 3) self-assessment on participants' work places' or institutions' preparedness for COVID-19, 4) COVID-19 protocols, 5) self-assessment of preparedness. All of the second group studies defined preparedness by combining two or more of those aspects.(1,4-13,16-22,30-35)

The aspect of basic diagnostic of COVID-19 was a simple question for diagnosing COVID-19 like "What are the symptoms of COVID-19 infection?", "How to diagnose COVID-19?" Etc. The question for participants' history of training or courses for COVID-19 were questions like "Have you participated in a training course for outbreak management?". Self-assessment on participants' workplaces or institution' preparedness, was the subjective way to measure how well prepared the facilities where the participant work in supporting the aspect of one's preparedness thus it were the questions of "Availability of isolation room?", "Do you consider your hospital to be prepared for the COVID-19 outbreak?" Etc. While the COVID-19 protocol aspect mostly consist of question about

"Do you know the isolation procedure?", "Do you know how to report a potential COVID-19 case?" And more.(1,5,6,9,10,21-22,32-34)

The aspect of self-assessment of preparedness is the clearest and direct question given to participants in these studies, it was questions like "Do you consider yourself prepared for the COVID-19 outbreak?", "I am personally prepared for a COVID-19 outbreak" etc. This aspect along with self-assessment of workplace' or institution' preparedness was among the most used aspects for measuring healthcare workers' preparedness for COVID-19 in the first group of study.(1,5-11,13,16,18,19,30,31,34)

Some of the first group of study' questionnaires were inspired by previous outbreak studies (n= 7) with Wong TY et al (2008)(21,22,25) *Concern, perceived impact and preparedness in avian influenza pandemic - a comparative study between healthcare workers in primary and tertiary care* being the most cited (N=3) for the making of the self-administered questionnaire in measuring healthcare workers preparedness for COVID-19. (1,6,10,14,18,21,22,31,34)

The previous studies (N=9) were also cited in the making of a self-administered questionnaire for measuring HCW's preparedness for COVID-19, Among the most cited was Zhong et al (2020).(7,10,13) *Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey.* (5,6,7,10,11,13,16,20,32)

Some studies (N=4)(12,20,30,3) Were solely inspired by health organizations for their questionnaire on HCW' Preparedness for COVID-19. The guidelines from health organizations were the most used (N=8) in the first group study.(6,10,12,13,18,20,30,33)

DISCUSSION

There weren't any same operational definitions of preparedness in the studies, thus there wasn't a universal instruments for researchers to measure the preparedness of HCW' for COVID-19. While most of the studies done in developing countries but the impact of COVID-19 can be disruptive anywhere in the globe, just as data from Amnesty International showed the death of HCW's workers due to COVID-19 in a developed nations like The USA are among the highest,³ so the pressure to able measure not only infrastructure and resources but also HCW' preparedness is considered an urgency for the fact that HCWs are frontline in the fight against COVID-19.

CONCLUSION

There was no universal operational definition for preparedness thus there was no universal instrument for measuring of HCWs' preparedness for COVID-19. Although the definition of preparedness was varied among these studies, all of them agreed that in the process of constructing the tool for measuring HCW's preparedness there were more than two aspects included and the smaller the sample size the more elaborate and face to face the instruments were.

LIMITATION

There are limitations in this study, we only searched studies in English and we didn't conduct any deep research for analyzing which instrument was the best instrument for measuring the preparedness of COVID-19 due to this Systematic Literature Review purpose.

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