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Healthcare worker's readiness for the COVID-19 vaccination in Indonesia: What about the knowledge terms?

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Abstract

The Indonesian government has planned to procure the COVID-19 vaccine. The COVID-19 vaccine acceptance among healthcare workers (HCWs) remains poorly understood. HCWs have several roles related to information on the COVID-19 vaccine implementation. HCWs' knowledge of the COVID-19 vaccine is limited.

Objectives: This study described the HCWs' readiness for the knowledge level regarding the COVID-19 vaccine and mapped it spatially.

Methods: A cross-sectional study was conducted using an online questionnaire for 112 HCWs' as a vaccination team in Hospital and Public Health Centre in Semarang. Mapping was conducted by using the geographic information system (GIS).

Results: The results showed that the HCWs' level of knowledge regarding the COVID-19 vaccine was considered good to be used as a basis for providing information related to the COVID-19 vaccine to the public. There was a significant relationship between the profession (p -value = 0.031; OR: 0,339; 95% CI: 0,136-0,847) towards the HCWs' knowledge regarding the COVID-19 vaccine.

Conclusions: Developing strategies to decrease HCWs' and public hesitation and increase trust is vital for implementing vaccination programs.

Keywords: Healthcare Workers; Vaccination; COVID-19; Knowledge

1 Introduction

Corona Virus COVID-19 infections in the world currently have reached 318,648,834 confirmed cases of COVID-19 globally on 14 January 2022, including 5,518,343 deaths [1]. WHO reported that the Southeast Asia Region (SEAR) is the third-highest COVID-19 cases with 40.5 million cases, after America (81.7 million cases) and the European Region (63.7 million cases). It was also reported that the Southeast Asia Region has more than 614,000 new cases with the highest number of cases reported from Indonesia (125,102 new cases; 45.7 new cases per 100,000; 34%). Indonesia was reported as the country with the highest number of new deaths at 144,174 new deaths [2].

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Health and care workers are the foundation of health systems and the driving force to achieving universal health coverage and global health security. However, too many of them have become infected, ill or died as a result of COVID-19. WHO estimates that between 80 000 and 180 000 health and care workers could have died from COVID-19 in the period between January 2020 to May 2021, converging to a medium scenario of 115 500 deaths [3].

Amid the surge of cases and increasing bed occupancy rate in many COVID-19 referral hospitals in the country, the Indonesian Medical Association (IDI) reported that there has been an increasing trend of COVID-19 related deaths among HCWs. As of December 2021, 2,066 HCWs have died due to COVID-19. The amount was equivalent to 32.4% of the total HCWs who died due to COVID-19. It is imperative to ensure optimal protection of health workers to reduce the burden to the health system [4]. Indonesia has set a national vaccination target of 208,295,720, while as 17 January 2022, 176,629,941 people have been vaccinated against COVID-19 stage 1, 119,992,852 vaccination stage 2 and 1,341,248 vaccination stage 3, included the HCWs [5].

On February 2021, the Ministry of Health of the Republic of Indonesia (2020) stated that the total target for COVID-19 vaccination was 181,554,465 with a target of 1,468,764 health workers with vaccination coverage for stage 1 of 969,546 (66.01%) and stage 2 of 279,251 (19, 01%). Based on reports from the Ministry of Health, vaccination coverage for health workers has not yet reached 100% [6]. Based on the Law of the Republic of Indonesia Number 36 of 2014 what is meant by a health worker is every person who devotes himself to the health sector and has knowledge and/or skills through education in the health sector which for certain types requires the authority to carry out health efforts [7].

The status of these two aspects must be completely clear before the vaccination program is implemented, plus one very important factor, namely the knowledge and skills of the officers and the acceptability of the community which is greatly influenced by the knowledge of these health workers. Indeed, HCWs' knowledge gaps and poor attitudes regarding vaccinations, concerns about safety, level of perceived risk, difficulties in accessing the vaccinations, and communication strategies have been documented to influence the variation in uptake among HCWs with an increased risk of infection and negative impacts on the patients and the community [8]. It is necessary to conduct a mapping related to the readiness of health workers in providing education to the public later so that the community will get directions and an overview of how ready and skilled health workers are as their role models in carrying out this COVID-19 vaccination. Alongside other community-based providers, CHWs are key interlocutors, with their knowledge of "lastmile" health service delivery, experience supporting vaccine acceptance and uptake, and shared lived experience that fosters trust and credibility within communities.

2 Methods

This study used the quantitative method. This study began with quantitative data collection using an online questionnaire with the Google Form application to hospitals and 37 health centers in Semarang City, where the hospital became a COVID-19 referral. The online questionnaire is addressed to health workers, medical personnel such as doctors and nurses at hospitals and or health centers related to perceptions of readiness as health workers regarding the procurement and administration of COVID-19 vaccines. Furthermore, data analysis was carried out using SPSS 21. The results of the quantitative analysis were described by mapping the location of the readiness of health workers related to the COVID-19 vaccine using a geographic information system using the open-source Quantum GIS application.

Before the implementation of questionnaire data collection, respondents and informants were explained in advance about the purpose of conducting the research and guidelines for filling out informed consent. If the respondent agrees to participate in the study, the respondent will be asked to sign an informed consent as proof of their willingness to be involved in the study.

3 Results

The results of respondents' knowledge about the COVID-19 vaccine on 112 respondents were analyzed based on the following question items:

Based on table 1, it can be seen that several respondents have given correct answers regarding the question of knowledge about the COVID-19 vaccine starting from the side effects of the vaccine, groups of people who are allowed to get the vaccine, the definition of the COVID-19 vaccine along with the minimum requirements for efficacy or effectiveness, understanding regarding the red vaccine. white and pneumonia vaccine. Some, however, still do not understand the Special Attention Follow-Up Event (KIPK) in the implementation of the COVID-19 vaccine. Ignorance

was also found in the respondents' answers regarding the red and white vaccine and the association of the pneumonia virus with COVID-19 even though both had a high percentage of correct answers.

Table 1 Respondent's Knowledge Regarding COVID-19 Vaccine Based on Question Items

No	Questions	True		False		Unknown	
		f	%	f	%	f	%
1	There are no biologic materials such as drugs and vaccines that do not have side effects	80	71.4	31	27.7	1	0.9
2	Special Attention Follow-Up Events (KIPK) are all medical events that occur due to vaccines, are of concern and are suspected to be caused by vaccines.	29	25.9	76	67.9	7	6.3
3	Groups of people who are allowed to get the COVID-19 vaccine	99	88.4	6	5.4	7	6.3
4	The COVID-19 vaccine is a cure	105	93.8	7	6.3	0	0
5	The minimum requirement for the efficacy or effectiveness of the COVID-19 vaccine is 50%	89	79.5	19	17.0	4	3.6
6	The Red and White Vaccine is a COVID-19 vaccine that uses virus isolates that transmit in Indonesia	71	63.4	8	7.1	33	29.5
7	Does the pneumonia vaccine protect us from the COVID-19 virus?	90	80.4	6	5.4	16	14.3

Table 2 Categorization of Respondents' Knowledge Level

No	Knowledge Level	Frequency (f)	Percentage (%)	Mean	Standard Deviation
1	Below	31	27.7	6.24	1.45
2	Standart	38	33.9		
3	Above	43	38.4		
Total		112	100		

Based on table 2, it can be illustrated that the education level of the respondents is quite evenly distributed starting from the less, quite good and good categories. However, the highest results showed that the level of knowledge related to COVID-19 vaccine respondents was in the good category.

Bivariate analysis was carried out using the chi-square test to analyze the relationship between the dependent variable, namely perception and belief with the independent variable, namely the demographic characteristics of the respondents. The results of the bivariate analysis on the perception variable can be seen in the following table 2.

Table 3 The Relationship between Independent Variables and Knowledge of Readiness of Health Workers related to the COVID-19 Vaccine

Independent Variables	Knowledge				Total		OR (95% CI)	p-value
	Below		Above					
	n	%	n	%	n	%		
Age								
< 35 years old	20	29,0	49	71,0	69	100	1,187 (0,502-2,806)	0,861
≥ 35 years old	11	25,6	32	74,4	43	100		
Gender								
Male	6	6,9	19	18,1	25	100		0,831

Female	25	24,1	62	62,9	87	100	0,783 (0,280-2,191)	
Marital Status								
Not yet/Not Married	5	20,0	20	18,1	25	100	0,587 (0,199-1,731)	0,472
Married	26	29,9	61	70,1	87	100		
Education Background								
Ungraduated	7	20,0	28	80,0	35	100	0,552 (0,212-1,440)	0,319
Graduated	24	31,2	53	68,8	77	100		
Profession								
Medical Personnel	8	16,3	41	83,7	49	100	0,339 (0,136-0,847)	0,031
Health Workers	23	17,4	40	63,5	63	100		
Expense per Month								
< Rp 2.810.025	6	22,2	21	77,8	27	100	0,686 (0,247-1,902)	0,631
≥ Rp 2.810.025	25	29,4	60	70,6	85	100		
Workplace Health Service Facilities								
Community Health Centers	25	26,0	71	74,0	96	100	0,587 (0,193-1,781)	0,518
Hospital	6	4,4	10	62,5	16	100		

p-value <0.05, significant relationship

The results of the bivariate profession variable found that 41 people (83.7%) of medical personnel had good knowledge, as well as 40 people (63.5%) not much different from medical personnel, namely other health workers had good knowledge as well. From the statistical test results, it is known that the p-value is 0.031, so it can be concluded that there is a significant relationship between the profession and the knowledge of health workers regarding the COVID-19 vaccine owned by the respondent. From the results of the analysis, the OR value = 0.339 (95% CI: 0.136-0.847), meaning that respondents with professions as medical personnel have the opportunity or possibility to have good knowledge of the COVID-19 vaccine 0.339 times compared to respondents who work as other health workers. Different with other variables that showed p-value with bivariate results that are not related to knowledge of health workers regarding the COVID-19 vaccine owned by the respondents.

Mapping of HCWs Readiness Related to COVID-19 Vaccine Perception Analysis with Geographic Information System Mapping below:

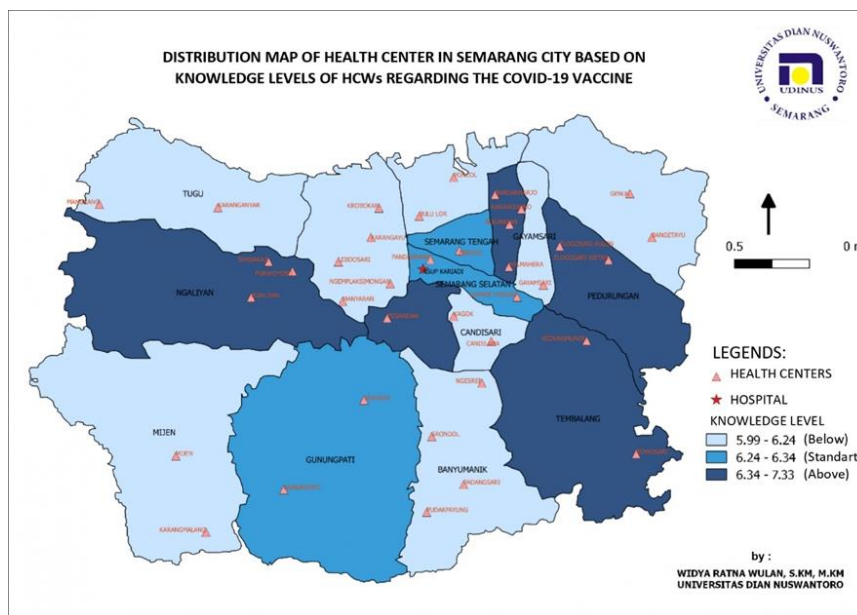


Figure 1 Distribution Map of Health Centers in Semarang City Based on Knowledge Levels of Health Workers Regarding the COVID-19 Vaccine

Figure 1 is the result of mapping from the distribution of Community Health Centers in Semarang City based on the HCWs' knowledge regarding the readiness to procure COVID-19 vaccines. From the map, it can be shown that the knowledge of health workers regarding the COVID-19 vaccine working in Mijen, Banyumanik, Candisari, Tugu, Gayamsari, West Semarang, and Genuk sub-districts is still lacking due to several things. Next is a description of the level of knowledge related to the COVID-19 vaccine which is considered quite good in Gunungpati District, South Semarang, Central Semarang. The results of data collection found that the level of knowledge that was considered good for health workers related to the COVID-19 vaccine was in the workplaces of health workers in the Districts of Ngaliyan, Tembalang, Pedurungan, East Semarang, and Gajahmungkur.

4 Discussion

Knowledge is the main factor related to ability identified in this study. The lack of knowledge of HCWs about the COVID-19 vaccine has always been a barrier in three studies [9][10]. The first study examined the relationship between knowledge of health workers and vaccination acceptance. Health workers with 'high' knowledge of the COVID-19 vaccine were 1.86 times more likely to receive the COVID-19 vaccine compared to those with 'low' knowledge [11]. Capability-related factors continue to center on knowledge of the COVID-19 vaccine. A study showed that lack of knowledge was associated with lower acceptance [12][13][14][15].

Several studies have shown that knowledge greatly influences vaccination acceptance among health workers. Lack of knowledge of HCWs is often seen as a major barrier to behavior change as reflected in many health strategies and programs that focus solely on education and information provision. [16]. Knowledge of HCWs greatly influences the communities in which they provide services, and is able to support policy makers in making regional and local decisions. HCWs are well placed to conduct surveys, focus groups, and community meetings to gather prior preferences on vaccine strategies and locations to maximize uptake, and promptly address misinformation to reduce public doubts regarding COVID-19 vaccines [17].

Research efforts have resulted in strategies that are potentially effective in increasing the acceptance and uncertainty of using the COVID-19 vaccine in the community. These efforts are carried out through conventional education campaigns that aim to change the behavior of the general public by increasing knowledge. Providing information regarding the COVID-19 vaccine has shown limited impact on facilitating vaccination acceptance, but adding other strategies such as reducing barriers, using reminders and planning instructions, and training and building trust in health workers has proven effective [18][19]. Vaccines tend to be prioritized for health care workers who are at high risk of contracting or transmitting infection and in the elderly based on the framework developed by the WHO Strategic Advisory Group on Immunization [20].

People may also have low confidence in the community's COVID-19 vaccine delivery system, including competency of health workers and other factors Trust in HCWs can be decreased by skepticism about the profit motives of pharmaceutical companies or the politicization of vaccination [21].). In a rapidly evolving situation of uncertainty about a COVID-19 vaccine, there is also the danger of misinformation filling knowledge gaps among HCWs [22].

HCWs as the main priority group for COVID-19 vaccine recipients and other vulnerable groups, are often the most trusted source of answers from the public regarding the COVID-19 vaccine [23]. One study showed that health workers were more likely to recommend vaccination if they had been vaccinated themselves. Efforts to meet COVID-19 vaccine acceptance targets for HCWs to facilitate vaccination of health workers can in turn lead to greater acceptance and trust by the public. One of the efforts to make the COVID-19 vaccine acceptable to the public is to increase knowledge of HCWs about vaccines and increase the support of their colleagues for vaccines [24].

All HCWs involved in the implementation of the COVID-19 vaccination need to have adequate knowledge and skills to ensure safe and efficient delivery of the COVID-19 vaccine to the community.

Based on a notification letter from the Ministry of Health of the Republic of Indonesia, the Directorate General of Disease Prevention and Control (2020) regarding the plan to implement the COVID-19 immunization to break the chain of transmission of COVID-19, in addition to implementing strict health protocols, it is also necessary to make efforts to increase the immunity of the community through giving activities. immunization.

The study has some limitations. First, the cross-sectional survey method may not able to draw a conclusion and strong association; thus, there is further longitudinal studies are needed. Second, online survey distribution may have missed people from older age. Now that COVID-19 vaccines have reached billions of people worldwide, the evidence is

overwhelming that no matter which one you take, the vaccines offer life-saving protection against a disease that has killed millions. The pandemic is far from over, and they are our best bet of staying safe.

5 Conclusion

There was a significant relationship between the profession and the knowledge of health workers regarding the COVID-19 vaccine that is between medical personnel and Health workers. Professional health workers who are supported by educational backgrounds have little effect on knowledge related to vaccination in health workers and have an important role later in providing education to the public. It is necessary to upgrade the knowledge of health workers about COVID-19 vaccination. One of the important keys to overcoming COVID-19 is vaccination which can provide immunity to the community. HCWs' knowledge/competencies should be evaluated to ensure they meet a minimum standard prior to assuming any COVID-19 vaccination role, with provisions made for re-evaluation if necessary.

Compliance with ethical standards

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Disclosure of conflict of interest

The writers whose names appear in this publication declare that they have no conflicts of interest in this research work, and that any conflicts that do exist will be easily resolved. The Dian Nuswantoro University Research and Community Service Institute, according to the author, supported this study.

Statement of informed consent

This study was carried out in accordance with international research guidelines, and all of the authors provided informed consent.

References

- [1] World Health Organization (WHO), "WHO COVID-19 Dashboard," Geneva. 2022.
- [2] World Health Organization, "COVID-19 Weekly Situation Report," World Heal. Organ. October 2020; 43: 1–8.
- [3] WHO. The impact of COVID-19 on health and care workers: a closer look at deaths, Heal. Work. Dep. September 2021.
- [4] World Health Organization Indonesia, Coronavirus Disease 2019 (COVID-19) Situation Report -43. 2019.
- [5] Kementerian Kesehatan RI. Data Vaksinasi COVID-19 (Update per 17 Januari 2022). 2022.
- [6] Komite Penanganan Covid-19 dan Pemulihan Ekonomi Nasional, "Data Vaksinasi COVID-19 (Update per 17 Januari 2022). 2022.
- [7] Kemenkumham RI, UU No. 36 Tahun. 36: 2014.
- [8] CP Pelullo, G Della Polla, F Napolitano, G Di Giuseppe, IF Angelillo. Healthcare workers' knowledge, attitudes, and practices about vaccinations: A cross-sectional study in Italy," *Vaccines*. 2020; 8(2).
- [9] V Grech, J Bonnici, D Zammit. Vaccine hesitancy in Maltese family physicians and their trainees vis-à-vis influenza and novel COVID-19 vaccination, *Early Hum. Dev.* January 2020.
- [10] V Grech, C Gauci, S Agius. Vaccine hesitancy among Maltese healthcare workers toward influenza and novel COVID-19 vaccination, *Early Hum. Dev.* 2020; 19.
- [11] E Patelarou, et al. Factors influencing nursing students' intention to accept COVID-19 vaccination: A pooled analysis of seven European countries, *Nurse Educ. Today*. January 2020.
- [12] J Harrison, S Berry, V Mor, D Gifford. Somebody Like Me': Understanding COVID-19 Vaccine Hesitancy among Staff in Skilled Nursing Facilities, *JAMDA*. January 2020.

- [13] BJ Kuter, et al. Perspectives on the receipt of a COVID-19 vaccine: A survey of employees in two large hospitals in Philadelphia, *Vaccine*. January 2020.
- [14] C Ledda, C Costantino, M Cuccia, HC Maltezou, V Rapisarda. Attitudes of healthcare personnel towards vaccinations before and during the covid-19 pandemic, *Int. J. Environ. Res. Public Health*. 2021; 18(5): 1–11.
- [15] D Youssef, LA Abbas, J Youssef. Determinants of Acceptance of Coronavirus Disease-2019 (COVID-19) Vaccine Among Lebanese Health Care Workers Using Health Belief Model. 2019.
- [16] J Presseau, et al. Behavioural Science Principles for Supporting COVID-19 Vaccine Confidence and Uptake Among Ontario Health Care Workers, *Sci. Briefs Ontario COVID-19 Sci. Advis*. 2021; 12(2): 6.
- [17] World Health Organization. The role of community health workers in COVID-19 vaccination. Implementation Support Guide. 2021.
- [18] NT Brewer, ME Hall, TL Malo, MB Gilkey, B Quinn, C Lathren. Announcements versus conversations to improve HPV vaccination coverage: A randomized trial, *Pediatrics*. 2017; 139(1): 1–9.
- [19] World Health Organization (WHO). Behavioural considerations for acceptance and uptake of COVID-19 vaccines, *World Heal. Organ*. 2020; 18.
- [20] World Health Organization. Who Sage Roadmap for Prioritizing Uses of Covid 19 Vaccines in the Context of Limited Supply. 2020.
- [21] SB Omer. Hearing title: “A Shot at Normalcy: Building COVID-19 Vaccine Confidence.” The Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce United States House of Representatives Saad B. 2021.
- [22] MC Mills, C Rahal, D Brazel, J Yan, S Gieysztor. COVID-19 vaccine deployment: behaviour, ethics, misinformation and policy strategies, *Br. Acad.*, no. 2020; 1–35.
- [23] E Dubé, C Laberge, M Guay, P Bramadat, R Roy, J Bettinger, H Dube. Vaccine hesitancy overview,” *Hum. Vaccin. Immunother*. 2013; 9(8): 1763–1773.
- [24] P Paterson, F Meurice, LR Stanberry, S Glismann, SL Rosenthal, HJ Larson. Vaccine hesitancy and healthcare providers, *Vaccine*. 2016; 34(52): 6700–6706.