

An Evaluation of the Relationship between Knowledge and the Use of Personal Protective Equipment (PPE) as Emergency Public Health and Safety during COVID-19 Incidence

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Conflicts of interest/funding: The authors declare no conflict of interest in this paper. The authors declared no funding was received for this paper.

Keywords: COVID-19; personal protective equipment; prevention; transmission

Abbreviations:

COVID-19: coronavirus disease 2019
PPE: personal protective equipment
WHO: World Health Organization

Received: February 19, 2023

Accepted: March 10, 2023

doi:[10.1017/S1049023X23000419](https://doi.org/10.1017/S1049023X23000419)

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Arisara G, Situmorang DDB. An evaluation of the relationship between knowledge and the use of personal protective equipment (PPE) as emergency public health and safety during COVID-19 incidence. *Prehosp Disaster Med.* 2023;38(3):421–422.

According to the World Health Organization (WHO; Geneva, Switzerland) in Global Health (2020), coronavirus disease 2019 (COVID-19) is a large family of viruses that cause disease with mild to severe symptoms. It is a new type of disease that has not been identified in humans. Subsequently, COVID-19 was identified as a disease capable of causing epidemics, necessitating the implementation of control measures. The main transmission factor is circulating access (history of migration), which was first discovered in Wuhan City, China and has spread throughout the country. The WHO reported that the total number of world cases from March through August 2020 was 24,887,973 people, with a mortality of 840,410 (CFR 55%), reported in 192 countries/territories (WHO in Global Health, 2020).¹

The Indonesian Ministry of Health (Jakarta, Indonesia; 2020) reported a total of 144,945 positive cases with a mortality of 5,763 people from March through August 2020.² Based on data from the West Java Provincial Health Office (Bandung, Indonesia), in the same period, 10,918 positive cases were confirmed and 281 people died. There was a significant and rapid increase in the spread of the virus, accompanied by local transmission from Bandung City to the Sumedang Regency. The data from Sumedang Regional Health Office (Java, Indonesia) from March through August 2020, through rapid tests and swabs showed 89 positive cases, 77 recovered, 11 isolated, and one died. Meanwhile, 1,108 were suspected, 27,625 were travelers or people under monitoring, and 27,455 finished monitoring. From a total of 965 people that had close contact with positive COVID-19 patients, 875 finished monitoring, and the remaining 90 were still being monitored. Regarding the data above, the majority of rapid tests and positive swabs were completed by individuals of productive age, accounting for 65%, with varied education, and most of them did not use personal protective equipment (PPE). They had varied socio-economic conditions and showed bad attitudes toward responding to COVID-19 transmission. Furthermore, they had limited knowledge, a history of various diseases, and migration or traveled outside the area with the farthest distance from America.^{2–4}

The Sumedang Regional Health Office reported that the COVID-19 officer unit implemented various activities in socializing the prevention of virus transmission. However, the community's knowledge was still lacking, especially in remote areas, which are not easily accessible from the city. Besides, they were reluctant to wash their hands with soap, and there were still only a few wearing masks. Many denied this virus and considered it the usual disease that had appeared since ancient times. Therefore, the task force felt confused and somewhat overwhelmed in implementing the community outreach and door-to-door preventive efforts. This was supported by the relatively low education level (Head of the Disease Control and Eradication Division of the Sumedang Regional Health Office 2020).^{3,4}

Based on the study conducted by the Indonesian Lung Doctors Association (PDPI; Jakarta, Indonesia) regarding the guidelines for COVID-19 (2020), the majority of the infected individuals with symptoms or a history of fever without pneumonia had been involved in migration and had close contact with COVID-19-confirmed cases. According to Dazendrato,² the patient incidence is influenced by migration history. In line with the Karimi and Efendi study,¹ the virus is easily transmitted through entry and exit

between countries and regions. Based on preliminary results from forum group discussions with local stakeholders, many factors have contributed to the increase in COVID-19 incidence, including lack of knowledge and not using masks or other PPE. Therefore, this study aims to determine the relationship between knowledge and the use of PPE with the COVID-19 incidence in the Sumedang Regency of 2020.^{1,5,6}

The analysis results confirm and support the proposed hypothesis, and the direction of the coefficients is consistent, which is a negative relationship. This study is supported by the explanation from the WHO in the PPE standard book by the Indonesian Ministry of Health 2020 that the PPE used for handling COVID-19 include: medical/surgical masks, N95 respirators, eye protection (goggles), face shields, examination gloves, surgical gloves, disposable gowns, medical coveralls, heavy duty apron, waterproof boots, and shoe covers. This study investigates the response of patients to awareness of the agreement to use PPE. The results show that most of the patients' awareness of using PPE is inadequate, and many are not even wearing masks. This is consistent with Wati's assertion that optimizing the use of PPE is crucial and closely related to virus transmission in the community.⁷ The more people who use PPE, the lower the virus transmission rate.^{5,8-10}

Based on the results and discussion, this study made the following conclusion:

1. This study obtains an overview regarding the knowledge and use of PPE with the incidence of COVID-19 in the Sumedang Regency.
2. The results showed a relationship between knowledge and the incidence of COVID-19.
3. There is a relationship between the use of PPE and the incidence of COVID-19.

The following were suggested based on the results and discussions.

For Patients At-Risk of COVID-19 in Sumedang Regency

Patients and the people of Sumedang are expected to implement transmission risk prevention and control, use standard PPE, and increase knowledge about COVID-19 by making changes in behavior that are responsive to health, implementing 5M: (1) "Memakai masker" (wear masks); (2) "Menjaga jarak" (keep your distance); (3) "Mencuci tangan" (washing hands); (4) "Menjauhi kerumunan" (stay away from crowds); and (5) "Mengurangi mobilitasi" (reduced mobilization) and applying physical distancing.^{11,12}

For the Sumedang Regency Health Office

The Health Office is expected to increase the community motivation for socializing and public awareness to prevent an increase in COVID-19 cases in Sumedang Regency. Community leaders should play an active role in educating and conducting socialization in the community to reduce the number of new cases.¹³

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