

# Knowledge And Perception Of Covid-19 Among Medical Students In Indonesia: A Cross-Sectional Study)

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**ABSTRACT**

The COVID-19 pandemic is still a major health problem in Indonesia. This is inseparable from the level of knowledge and public perception regarding COVID-19. For this reason, this study aims to examine the level of knowledge and perceptions among the Indonesian people (health students). This descriptive research used a questionnaire created using Google Forms and distributed using social media platforms, such as WhatsApp and Facebook. Most respondents knew the information related to COVID-19 from social media (60.5%). As regards knowledge associated with COVID-19, most respondents were well known about the transmission (99.6%), the incubation period (93.9%), and prevention (89.5%). The perception correctly answered was wearing masks to avoid infection (91.9%), whereas the wrong one was receiving packages from abroad (72.9%). This study conclude that the level of student knowledge varied according to the type of question and the information received. Meanwhile, most of them got information from social media.

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## 1. Introduction

The COVID-19 (Coronavirus Disease 2019) pandemic is still occurring. This breeds a global concern about several countries, particularly underdeveloped ones. COVID-19 is caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) (Wu et al., 2020). This virus targets the lungs, causing mild to severe symptoms, as well as mortality (Cevik et al., 2020). COVID-19-related mortality has already reached more than 4.7 million people worldwide, with more than 55,000 additional cases reported as of September 26<sup>th</sup>, 2021 (World Health Organization, 2021). In Indonesia, the mortality rate caused by COVID-19 reached 547,743 cases per September 2021 (UNICEF, 2021). A large number of COVID-19 cases is inextricably linked to the community's level of knowledge and understanding of the epidemic.

Knowledge and perception among society are influenced by various aspects, such as how the people figure out the information of covid-19 actively to digest the important news through several sources such as newspapers, magazine, social media; facebook, whatsapp, etc) (Cinelli et al., 2020). The mass media provide a variety of information from the level of death caused by Covid-19, covery and the increasing of death per a day. However, few of news discussed the virulence and deep information about SARS-Cov-2 Virus and how the process of infection Covid-19.

Several studies have been conducted to determine the level of knowledge and perception of COVID-19 in Indonesia from various perspectives. The studies' findings indicate that the population under study has a high level of knowledge (Muslih et al., 2021; Nanda et al., 2021; Tugaswati et al., 2001), And yet, it is different from the reality that the case is increasing every day. This evokes a discrepancy between the research outcome and the fact in society. In addition, Study by Wahyuni (2021) that knowledge, perceptions, and attitudes among society indicated a major influence factors

on preventing covid-19(Wahyuni & Sari, n.d).

Most of literatures analyzed among general populatios, which is allowing for heterogeneous groups of people. Believed, those students with health science field are more knowledgeable about Covid-19, a few study by this group population. Therefore, this study aims to analyze the level of knowledge and public perception in the specified population, namely health students in Indonesia. Health students have a good representation of the population in this study because COVID-19 is closely related to health and is studied by health students.

## 2. Research Method

This research used a cross-sectional study design based on a web survey through Google Forms. Data collection was carried out in August-September 2021. The survey form was distributed to students through several platforms, such as WhatsApp, Facebook, and Gmail. The inclusion criteria in this study were respondents who had filled out information on their willingness to become respondents, students from the health sciences group, either diploma, bachelor or master/profession, and had answered all questions on the survey form. 220 of the 247 respondents met the inclusion criteria.

The research questionnaire was adapted from a previous study (Gohel et al, 2021) and had been translated into Indonesian. The questionnaire included sociodemographic questions composed of gender, age, and educational background. The knowledge variable was measured with 16 and ten questions to investigate respondents' perceptions. The recorded data were then transferred to the Microsoft Excel application. Furthermore, the proportion and frequency were tested using descriptive statistics. A Chi-squared test was used to identify the relationship between variables. If the p-value was less than 0.05, it would be considered statistically significant. The statistical test was carried out using SPSS Statistics 22.0 for Windows (NY, USA). This research had obtained ethical approval from the ethics committee institution (No. 01/UKB.FKES/TU.KEPK/2021) from the ethics committee of Universitas Kader Bangsa Palembang and had applied informed consent for approval to fill out the questionnaire. All respondent data were hidden and unpublished.

## 3. Results And Discussion

274 respondents had filled out the survey form. 220 participants, chosen according to the inclusion criteria, voluntarily filled out the complete questionnaire. The average age of the participants was  $23.95 \pm 7.4$ . Most students who filled out the questionnaire were students majoring in Medical Laboratory Technology (n = 56, 25.5 %), followed by students majoring in public health, nursing, pharmacy, midwifery, medical records, and nutrition. In detail, the demographic characteristics are described in Table 1.

TABEL 1  
DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS (N=220)

Characteritics	Participant (n)	Percentage (%)
<b>Gender</b>		
Male	42	19.1
Female	178	80.9
<b>Age</b>		
17-20	95	43.2
21-24	72	32.7
25-28	10	4.5
29-32	6	2.7
>30	35	15.9
17-20	95	43.2
<b>Major of the study</b>		
Medical Laboratory technology	56	25.5
Public health	49	22.3
Pharmacy	33	15
Nurse	35	15.9
Midwifery	23	10.5
Medical record	13	5.9

The main sources of information used by respondents in this study were social media (n = 133, 60.5%) and television (TV) (n = 57, 25.9%). The rest of the participants received information from campuses, printed media, and other sources (Figure 1). This is aligned with the previous research, that social media were the main sources of information related to COVID-19 (Gohel et al., 2021). Although allowing people to access information faster, social media also had negative effects, such as spreading false information (hoaxes) related to COVID-19 (Cinelli et al., 2020; Tsao et al., 2021; van der Linden et al., 2020). The results of the study showed that information related to COVID-19 that should have been obtained on campus was not obtained optimally.

### 3.1 Knowledge about COVID-19

The level of participants' knowledge about COVID-19 was demonstrated by their responses to each of the questions given. Most of them did not afford a correct answer to some questions, such as that regarding the new type of Coronavirus (61.5%), the spread of COVID-19 (76.1%), similarities of Coronavirus (72.9%), and the heaviest symptoms of COVID-19 suffered by patients (65.6%) (Table 2). This result contradicted the previous studies, that most health students answered correctly regarding the type of Coronavirus (Gohel et al., 2021) and also contradicted Nanda et al. (2021) research, that Indonesian people had very good knowledge regarding COVID-19 (Nanda et al., 2021). This could be made possible by several aspects, namely, the population studied, the country of origin, and the mechanism for disseminating information regarding the COVID-19 pandemic by government agencies. With the limited population in this study, the level of knowledge of respondents about COVID-19 could not be generalized.

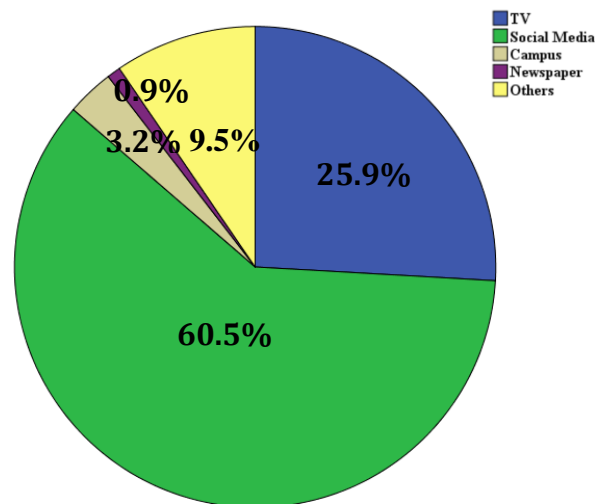


Figure 1. Source of information about COVID-19

TABLE 2  
RESPONDENT'S LEVEL OF KNOWLEDGE ABOUT COVID-19

Question	Correct (%)	Incorrect (%)	No knowledge (%)
Q1. Which is the new type of Coronavirus?	38.5	61.5	-
Q2. Does COVID-19 have a contagious nature?	99.6	0.4	-
Q3. Where did COVID-19 come from?	36.0	56.3	7.7
Q4. Can the SARS-CoV-2 virus be transmitted through food?	32.4	47.4	20.2
Q5. How long is the incubation period for COVID-19?	93.9	6.1	-
Q6. Are there any similarities between COVID-19, SARS-CoV and MERS-CoV?	6.1	72.9	21.1
Q7. Which groups are vulnerable to COVID-19?	68.8	31.2	-
Q8. Do you know the death rate of people infected with COVID-19?	12.1	55.1	32.8
Q9. Do you think people infected with COVID-19 have no symptoms?	38.5	56.7	4.9
Q10. What are the most severe symptoms of COVID-19?	31.6	65.6	2.8
Q11. How does COVID-19 spread?	23.1	76.1	0.8
Q12. What are the tools to diagnose COVID-19?	59.9	35.6	4.5
Q13. How to prevent infection with COVID-19?	89.5	10.5	-

In addition, there were several questions most respondents answered correctly. They were questions about the infectious nature of COVID-19 (99.6%), COVID-19 incubation period (93.9%), COVID-19 prevention (89.5%), and groups vulnerable to COVID-19 (68.8%) (Table 2). The questions with the most correct answer were attributed to the most frequently discussed information on social media. (Cinelli et al., 2020). This was also possible because the news conveyed by the government through mass and social media was more about the aspect of preventing transmission through health protocol rules.

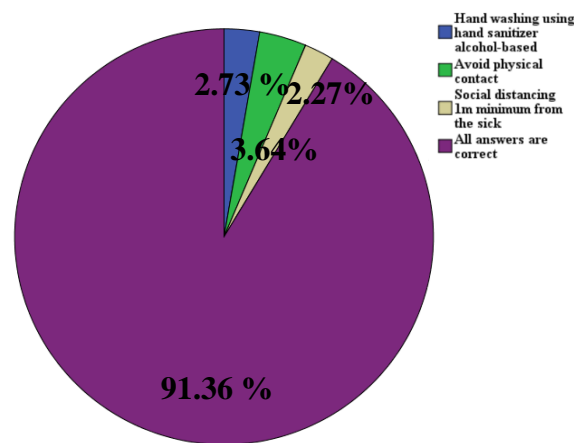


Figure 2. Participant respon to the prevention of COVID-19

The health protocol rules informed by the government were also supported by the results of this study, in which most of the participants had the same perception regarding COVID-19 prevention (91.4%)

### 3.2 Perceptions Related to COVID-19

Most respondents agreed that using a medical mask could prevent COVID-19 (91.9%) (Table 3). The results of this study are in contrast with that of the research conducted in America and the UK, where the percentages for the same issue were only 37.7% dan 29.7%, respectively (Geldsetzer, 2020). The application of masks had been proven effective for reducing the incidence of COVID-19 and preventing secondary infections in several countries (Brooks & Butler, 2021; Wang et al., 2020). In addition, most respondents agreed that vaccines could effectively prevent COVID-19 (62.3%), and

also did not believe that hand dryers were effective for killing the virus that caused COVID-19 (60.3%) (Table 3). The results of this research were in line with that of the previous research with health worker respondents, most of whom agreed with vaccination (43.3%) (Papagiannis et al, 2020). Vaccination could also reduce the severity of COVID-19 in patients who had previously been vaccinated, and almost all symptoms appeared less frequently in vaccinated patients than that in people who were not vaccinated (Antonelli et al, 2021).

**TABLE 3**  
RECONDENTS PERCEPTION OF COVID-19

Question	Yes (%)	No (%)	No knowledge (%)
Q1. Can wearing a medical mask prevent COVID-19?	91.9	6.9	1.2
Q2. Is it safe to receive packages from countries that have COVID-19 cases?	17.4	72.9	9.7
Q3. For now, are antibiotics effective for preventing COVID-19?	46.6	33.6	19.8
Q4. For now, are vaccines effective in preventing COVID-19?	62.3	24.7	13.0
Q5. Are traditional herbal medicines effective in treating COVID-19?	32.4	33.6	34.0
Q6. Are hand dryers effective at killing the new Coronavirus?	11.3	60.3	28.3
Q7. Can Ultraviolet (UV) disinfectant rays kill the new Coronavirus?	41.3	23.5	35.2
Q8. Do thermal scanners help to detect fever in people infected with the new Coronavirus?	52.6	17.0	30.4
Q9. Can spraying alcohol or chlorine all over the body kill the new Coronavirus?	38.9	37.2	23.9
Q10. In your opinion, can consuming onions help prevent the new Coronavirus?	19.8	42.1	38.1

Besides, some respondents also felt insecure about receiving packages from countries with COVID-19 cases (72.9%). This result is in line with previous research that some health students did not feel safe receiving packages from countries affected by COVID-19 (65.45 %) (Gohel et al., 2021). In fact, the SARS-CoV-2 virus (the virus that caused COVID-19) could survive more stably on plastic and stainless steel than on copper and cardboard, and the virus still lived after 72 hours. SARS-CoV-2 could survive in a favorable environment but be susceptible to standard disinfection methods (Chin et al., 2020; Doremalen et al., 2020). In fact, the SARS-CoV-2 virus (the virus that caused COVID-19) could survive more stably on plastic and stainless steel than on copper and cardboard, and the virus still lived after 72 hours. SARS-CoV-2 could survive in a favorable environment but be susceptible to standard disinfection methods (Alagoz et al., 2021). In contrast, the use of antibiotics was not appropriate for viruses because antibiotics were only effective for types of infections caused by bacteria, which were mostly bacteria that thrive outside cells, not inside cells, like viruses. The use of antibiotics was more intended for secondary infections from COVID-19 patients. Even the overuse of antibiotics could lead to high antibiotic resistance (Rodríguez-Baño et al, 2021). Table 3.

**TABLE 4**  
RELATIONSHIP LEVEL OF KNOWLEDGE WITH MAJORS ON COVID-19

		1	2	3	4	5	6	7	P Value
Q1	Correct	24	16	8	13	9	5	6	0.538
	Incorect	32	33	25	22	14	8	5	
Q2	Correct	56	49	33	35	22	13	11	0.197
	Incorect	0	0	0	0	1	0	0	
Q3	Correct	16	18	13	12	8	6	3	0.768
	Incorect	34	30	16	21	14	6	6	
	No Knowledge	6	1	4	2	1	1	2	
Q4	Correct	20	15	10	15	8	4	2	0.183
	Incorect	26	30	11	13	11	7	5	
	No Knowledge	10	4	12	7	4	2	4	
Q5	Correct	54	44	32	33	21	12	11	0.710
	Incorect	2	5	1	2	2	1	0	
Q6	Correct	5	1	2	2	2	1	0	0.590

	Incorect	43	42	22	27	15	9	7	
	No Knowledge	8	6	9	6	6	3	4	
Q7	Correct	35	32	27	27	17	9	9	0.425
	Incorect	21	17	6	8	6	4	2	
Q8	Correct	10	9	3	4	2	0	0	0.229
	Incorect	23	25	23	20	15	9	5	
	No Knowledge	23	15	7	11	6	4	6	
Q9	Correct	26	20	10	16	8	2	3	0.363
	Incorect	29	27	19	18	14	11	7	
	No Knowledge	1	2	4	1	1	0	1	
Q10	Correct	20	18	10	11	6	4	3	0.268
	Incorect	36	29	23	23	16	9	6	
	No Knowledge	0	2	0	1	1	0	2	
Q11	Correct	8	11	7	8	4	5	2	0.210
	Incorect	48	38	26	26	19	8	8	
	No Knowledge	0	0	0	1	0	0	1	
Q12	Correct	27	37	27	17	12	6	8	0.002
	Incorect	27	12	6	16	10	7	1	
	No Knowledge	2	0	0	2	1	0	2	
Q13	Correct	48	45	32	32	20	13	11	0.377
	Incorect	8	4	1	3	3	0	0	

Note: Educational background (1-Medical laboratory technologist, 2-Public Health, 3-Pharmacy, 4-Nurse, 5-Midwifery, 6-Medical record, 7-Nutrition)

The level of knowledge of each student studied in this study did not have a significant level of difference in each question. Only the variable Q12 related to the diagnostic tool used to detect SARS-CoV-2. This indicated that the level of student understanding regarding COVID-19 was evenly divided between those who answered correctly, incorrectly, or did not know.

#### 4. Conclusion

To conclude, the level of knowledge of COVID-19 among health students was unidentified, depending on the type of questions and the source of information about COVID-19. The findings revealed that the information obtained was more earned from social media than from campus. There is a need for updating knowledge about current developments, especially regarding COVID-19 in campus learning so that health students, who in the future, become the spearheads in the community in the health sector, will understand more about current issues, especially regarding COVID-19.

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