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COVID-19: Factors Related to the Implementation of Preventive Practice in the New Normal Era of Indonesia

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Abstract

BACKGROUND: Recently, cases of coronavirus disease-2019 (COVID-19) have increased significantly since the implementation of the new normal policy in Indonesia.

AIM: The purpose of this research was to analyze factors related to the preventive practices in combating COVID-19 following the new normal era in Indonesia.

METHODS: This research was an analytic observational study with a cross-sectional design developed in September 2020. The population was the entire population of Indonesia ranged between 12 years old and above. Using accidental sampling technique for samples collection, voluntary respondents were willingly asked to fill in prepared questionnaire through Google Forms that was distributed online through multiple social media platforms (WhatsApp, Facebook, and Instagram). The total collected samples were 3157 voluntary respondents. Moreover, independent variables that were analyzed including age, gender, education level, knowledge, and attitude of respondents. On the other hand, dependent variable was the preventive practices of COVID-19 in the new normal era. Data analysis consisted of univariate, bivariate (Chi-square test), and multivariate analysis (multiple logistic regression).

RESULTS: This research proved that the variables of age, gender, education level, knowledge, and attitude had significant relationship with the practices of preventing COVID-19 among Indonesian ($p < 0.05$).

CONCLUSION: Age, gender, education level, knowledge, and attitude had significant relationship with the practices of preventing COVID-19 among Indonesian.

Introduction

On December 31, 2019, Wuhan Municipal Health Commission, China, reported a group of pneumonia cases with severe symptoms in Wuhan, Hubei Province, with unknown causes [1], [2], [3]. Initially, the disease was named "2019 novel coronavirus," then, it was changed into coronavirus disease-2019 (COVID-19) after an announcement was made by the WHO on the February 11, 2020, due to severe acute respiratory syndrome coronavirus-2 infection [4].

The extent of the epidemic scale coverage and a high prevalence of infected population around the world have made the General Director of WHO to declare the situation at that time as a global or Public Health Emergency of International Concern on the January 30, 2020, in Geneva (Katharina, 2020, and Hairi, 2020) [5], [6]. Then, the WHO has announced an update in the status of COVID-19 outbreak to a global pandemic given the fact that it has spread to other 200 countries since its first appearance in China [3], [5].

Moreover, the WHO has reported that the total cases of COVID-19 globally have reached approximately 18,354,342, with 696,147 deaths recorded up until August 5, 2020. Speaking of which, the Indonesian government has also announced its first case of COVID-19 on March 2, 2020. Until now, the number of corona cases continues to grow rapidly. As such, on April 2020, coronavirus has spread and infected more than 5000 innocent people [7]. The Indonesian government has announced that the number of positive cases of COVID-19 that has been confirmed up to August 26, 2021, was roughly 4,066,404 cases with a

total of 131,372 deaths reported. Likewise, the number of patients who have recovered was approximately 3,707,850 from in 34 provinces [8].

On the entry of COVID-19 to Indonesia, the government sector has planned multiple strategies in a bid to control the spread of virus distribution among community. For instance, on March 16, 2020, the Ministry of Administrative and Bureaucratic Reform has announced new regulations for employers. All employees are encouraged to work from home unless they have to be in public places only for reasonable reasons [9]. Moreover, the Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions in the Framework for the Acceleration of Handling COVID-19 was issued (PP No. 21 of 2020). Following that, published regulations on the implementation of PSBB through the Minister of Health Regulation (Permenkes) Number 9 of 2020 concerning Guidelines for Large-Scale Social Restrictions (PSBB) were introduced and implemented on April 4, 2020 [6]. This policy has restricted several outdoor activities to be conducted including office and school operations which were halted and replaced with home learning activities, home worshipping activities, as well as work from home operations [10].

Two months after its implementation, the Indonesian Government tried to recover back the sluggish economy state as a result of PSBB by introducing “New Normal” phase in Indonesia. Even though there has been enforcement of health protocols during the new normal, majority of Indonesian still ignored it. Therefore, this has increased the number of cases of COVID-19 during the new normal. On the other hand, an increase in COVID-19 cases has also been influenced by the increasing number of Indonesian people who are medically examined.

There is no definitive cure for COVID-19, so the public is urged by the government to implement preventive behavior properly. The results of previous research showed the practice of preventing the transmission of COVID-19 influenced by various factors. These factors are gender [3], [11], age [3], residence [3], [11], [12], occupation [3], [11], marital status, income [12], education [12], [13], and knowledge about the transmission route of the COVID-19 disease which has a significant relationship with COVID-19 precautions. This research aims to analyze factors related to the practice of preventing the transmission of COVID-19.

Methods

This research was an analytic observational study with a cross-sectional design. The study was conducted in September 2020. The focus group was the entire population of Indonesia ranged between 12 years old and above. Using accidental sampling technique for samples collection, voluntary respondents were willingly asked to fill in prepared questionnaire. This study used primary data through the process of filling out the questionnaire as a research instrument by respondents. Prepared questionnaire through Google Forms was distributed online through multiple social media platforms (WhatsApp, Facebook, and Instagram). A total of 3157 people who were willing to be the research samples had filled in the questionnaire.

The independent variables studied included age, sex, education level, level knowledge, and attitude. Meanwhile, the dependent variable analyzed was the preventive practices of COVID-19 transmission in the new normal era. Practice to prevent COVID-19 transmission includes the practice of applying social distancing, practicing the use of facemask, and hand washing practices.

The measurement of knowledge in this study is the measurement of knowledge regarding COVID-19 which includes the etiology, symptoms, transmission, and prevention efforts. The knowledge measured through a questionnaire consisting of 22 questions with the answer choices such as “right,” “wrong,” and “do not know.” Education level is referred to the final completed studies by respondents. Attitude is measured using a questionnaire consisting of 11 statement regarding attitudes, with answers ranges from “strongly agree,” “agree,” “neutral,” “not agree,” and “strongly disagree.” Age is referred to the age of the respondent until the process of filling out questionnaire is done.

The education level of the respondents consisted of graduating from elementary school, junior high school, senior high school, and college. To facilitate the bivariate analysis process, the level of education is then divided into two groups, namely, low education if respondent’s last education was completed up to elementary high school and junior high school, while higher education if respondent’s last education is graduated from senior high school and college. Gender factor consists of two groups, namely, male and girls. Respondents’ age was classified into two categories based on the median value because data regarding age are not normally distributed so there are two categories, namely, respondents aged <21 years and respondents aged ≥21 years. Knowledge variable grouped into two categories based on the median value. Respondents are said to have a poor knowledge if the score for the knowledge variable is <77, whereas if respondents obtained a score of ≥77 for the knowledge variable, it means that the group of respondents has good knowledge toward COVID-19. Attitude variables are divided into two groups, namely, positive attitude if respondents have value or score ≥median and a negative attitude if the respondent has a score <median.

The variables of prevention practice consist of the physical distancing habits outside the home, the

practice of using masks, and washing hands. The three variables are classified into two categories, namely, never-rarely and always/often. The answers from each of the prevention practice variables were then added together so that the maximum score that the respondent got if they practices the three variables frequently is 3, but if the respondent never did or rarely the three variables, it was 0. After that, the prevention practice variable was classified into two groups, namely, poor practice if the score <2 and good practice if the score was 3.

Before conducting data analysis, data management processes were first carried out consisting of editing, coding, processing, and cleaning. Data analysis including univariate, bivariate, and multivariate analysis using Chi-square and multiple logistic regression.

Results

Out of 3517 respondents who involved in this study, the majority of respondents came from West Java Province (79.3%). Based on the results obtained from univariate analysis, of the total sample studied, majority of the respondents were women (75.2%), more than half of the total respondents were aged >21 years old, majority of respondents were graduated from senior high school (62.1%), more than half respondents have a good knowledge (57.9%), and half of the total respondents showed negative attitude (54.8%). These results are illustrated in Table 1.

Table 1: Respondent sociodemographic character

Variable	Frequency (%)
Gender	
Male	782 (24.8)
Female	2375 (75.2)
Total	3157 (100.0)
Age (years old)	
<21	1425 (45.1)
≥21	1732 (54.9)
Total	3157 (100.0)
Education	
Elementary school	20 (0.6)
Junior high school	92 (2.9)
Senior high school	1960 (62.1)
College	1085 (34.4)
Total	3157 (100.0)
Knowledge	
Poor (score<77)	1328 (42.1)
Good (score≥77)	1829 (57.9)
Total	3157 (100.0)
Attitude	
Negative	1730 (54.8)
Positive	1427 (45.2)
Total	3157 (100.0)
Marital status	
Single	2507 (79.4)
Married	626 (19.8)
Widow/widower	24 (0.8)
Total	3157 (100.0)

Table 2 shows the practice of preventing COVID-19 transmission among the population in the new normal era including the practice of maintaining physical distance, especially in public areas, the practice of using face masks and hand washing practices. The three variables have become main indicators in determining whether the practice of preventing COVID-19 transmission of respondents is in good or poor category. The results of the univariate analysis show that majority of respondents always maintaining good social and physical distance when they were outside the houses (81.9%), most respondents have often or always using face mask (93.2%), generally, respondents have implementing frequent hand washing practices (91.78%) which means that most of them already have good COVID-19 transmission prevention practices (71.1%).

Table 2: Coronavirus disease-2019 prevention practices in the new era normal

Variable	Frequency (%)
Physical distancing habits outside the home	
Never-rarely	572 (18.1)
Always/often	2585 (81.9)
Total	3157 (100.0)
Practice using face masks	
Never-rarely	214 (6.8)
Always/often	2943 (93.2)
Total	3157 (100.0)
Hand washing practices	
Never-rarely	263 (8.3)
Always/often	2894 (91.78)
Total	3157 (100.0)
Preventive practices of COVID-19 in new normal era	
Poor	805 (25.5)
Good	2352 (74.5)
Total	3157 (100.0)

COVID-19: Coronavirus disease-2019.

Table 3 : Bivariate analysis between independent variable and dependent variable

Variable	COVID-19 prevention practices		Total, n (%)	p	OR (95% CI)
	Poor, n (%)	Good, n (%)			
Age (years old)				0.0001	1.452 (01.237–1.705)
<21	419 (29.4)	1006 (70.6)	1732 (100)		
≥21	386 (22.3)	1346 (77.7)	1425 (100)		
Gender				0.0001	2.269 (1.905–2.701)
Male	298 (38.1)	484 (61.9)	782 (100)		
Female	507 (21.3)	1868 (78.7)	2375 (100)		
Level of knowledge				0.046	2.042 (1.737–2.402)
Low	38 (33.9)	74 (66.1)	112 (100)		
High	767 (25.2)	2278 (74.8)	1829 (100)		
Level of education				0.0001	1.525 (1.023–2.274)
Low	465 (35.0)	863 (65.0)	1328 (100)		
High	447 (24.4)	1382 (75.6)	1829 (100)		
Attitude				0.0001	2.803 (2.352–3.359)
Negative	585 (33.8)	1145 (66.2)	1730 (100)		
Positive	220 (15.4)	1207 (84.6)	1427 (100)		

OR: Odds ratio, CI: Confidence interval, COVID-19: Coronavirus disease-2019.

After conducting a bivariate analysis using the Chi-square test, the results obtained from all independent variables (age, gender, education, level of knowledge, and attitudes) showed a significant relationship with the practice of preventing COVID-19 transmission during the era new normal (Table 3).

Table 4: Final model of multivariate analysis by multiple logistic regression

Variable	p	Exp (B)	95% CI
Age	0.000	1.408	1.188–1.669
Gender	0.000	2.181	1.819–2.615
Level of knowledge	0.000	1.559	1.311–1.854
Attitude	0.000	2.378	1.982–2.853
Constant	0.000	0.318	

CI: Confidence interval.

The next step is to perform a multivariate analysis by entering the independent variable which has $p \leq 0.05$ based on the results of the bivariate analysis.

Therefore, all independent variables were included in the multivariate analysis. From the multivariate analysis process with multiple logistic regression, the results of the multivariate final model were obtained as shown in Table 4.

The final result of the multivariate analysis using logistic regression showed that out of five independent variables studied, four of them showed strong relationship with the practice of preventing the transmission of COVID-19. The four variables including age, gender, level of knowledge, and attitude. All of these variables have the same p-value which was 0.000 and the attitude variable had the greatest odds ratio (OR) value (OR = 2.378; 95% CI = 1.982–2.853).

Discussion

Age

The mean age of respondents was 23.34 years, with the youngest was 13 years old and the oldest was 70 years. Respondents aged ≥21 years (54.9%) had a greater proportion than respondents who aged <21 years (45.1%). This study resulted in the finding that age has a significant relationship with the practice of preventing the transmission of COVID-19. The results of this study are supported by previous research in Malaysia, Northwest Ethiopia, and China [3], [12], [14]. In this study, it is crystal clear that the proportion of respondents who are in the age group of ≥21 years old showed good practices to prevent COVID-19, better than those in the age group of <21 years. A study conducted by Khasawneh who identified a statistically significant relationship between the use of disinfectant use and student years (level). Students in the past 3 (clinical) years were more likely to use disinfectants (72.8%) than students in the first 3 (academic) years of the study (66.1%) [15]. Students who were in the final (year) level mean that they had an older age and showed good habit of using the disinfectant as compared to students in the 1st year who are younger. This was related to the knowledge possessed by final year students who are better than the 1st year students. As reported by Clements in his research, there were differences in knowledge about COVID-19 based on age groups [16].

Research conducted by Azlan *et al*.'s in Malaysia demonstrated that the majority of respondents were in the age group of 18–29 years, this age group had better practice ($p < 0.001$). The results of the study have also reported that respondents have practiced proper hand hygiene by washing their hands frequently and using hand sanitizers (87.8%). Residents in the eastern region and retirees are among the highest percentage of the respondent group who do not practice proper hand hygiene [3].

Research by Taadi *et al*. (2019) showed that one of the factors that can affect the level of compliance of hand washing was age. The research did show different results from this study because in his research, it was found that the older a person is, the lower the practice of washing his hands [17].

Gender

The majority of respondents in this study were women (75.2%). The results of the bivariate analysis found a significant relationship between gender and the practice of preventing the transmission of COVID-19. The proportion of women who apply COVID-19 prevention practices was greater than men (74.7% and, respectively, 60.1%). The OR value showed that men have a poor tendency to implement COVID-19 prevention practices in the new normal era. This study was in line with research conducted by Arina, the proportion of female respondents (90.7%) who implemented preventive practices in the form of washing hands and using hand sanitizers in the past 1 week was greater than the proportion of male respondents (83.9%). The results showed that gender influences COVID-19 prevention measures taken by a person [3]. Likewise, research by Zhong showed that most of the Chinese population, especially women, had better knowledge of COVID-19, optimistic attitude, and appropriate practices against COVID-19. In addition, this study also found a significant relationship between male sex and the potential to go to a crowded place during the COVID-19 pandemic ($p < 0.019$) [14].

Level of education

The majority of respondents in the study had their latest education from high school (62.1%). The results of the bivariate analysis showed that there was a significant relationship between education and the practice of preventing the COVID-19 transmission. The results of the previous studies conducted in China show the same thing [14].

The high level of education will certainly affect one's knowledge. In this study, it can be seen that most of the respondents have graduated from senior high school (62.1%) and have good knowledge about COVID-19 (57.9%). High knowledge is certainly supported by a level of education where respondents in this study good knowledge can produce positive attitudes in a person so that they can increase efforts to prevent COVID-19. Research conducted by Clements revealed that there was a significant relationship between the level of education and knowledge about COVID-19 in American society. Increasing one's knowledge will lead that person to be able to understand knowledge

and trust knowledge. During the current COVID-19 pandemic, increased knowledge has led to the search for the public's willingness to comply with public health recommendations in preventing COVID-19 [16]. This is also supported based on Olum *et al*. continuing professional education needed to increase knowledge and change negative attitudes and improve prevention and treatment practices [18].

Level of knowledge

More than some of the respondents in this study already had good knowledge about COVID-19 (57.9%). This knowledge includes etiology, mode of transmission, symptoms, and efforts to prevent COVID-19. Research conducted by Aynalem showed similar things where 73.8% of study participants have good knowledge of COVID-19 [19]. The results of the research in Wonosobo Regency showed that most of the respondents had good knowledge (90%) [20].

The varying level of a person's knowledge can be influenced by various factors. Previous research in Malaysia and Ethiopia showed that knowledge was influenced by a person's age, area of residence [3], [12], [19], education [12], gender, occupation, and level of income ($p < 0.001$) [3], [12]. One of the factors that support some respondents for having good knowledge is the high level of education, namely, high school and university graduates. This is in line with Purnamasari's research where the high level of knowledge supported by most of the respondents is in higher education (diploma and bachelor's degree).

The serious epidemic situation and emergency public health conditions due to the spread of the COVID-19 case have caused people in the world to actively learn about COVID-19 knowledge from various media [14]. Previous research on medical students shows that they get information to increase knowledge about COVID-19 from various media, namely, from social media, Google, medical search engines, official sites, news, family and friends, health care workers, NGOs, and religious leaders. The information obtained shows that only 16.6% of participants have never used social media as a source of information [15].

Meanwhile, people in China get information about COVID-19 by accessing various channels of information such as CCTV, the official website of the Chinese National Health Commission, and the WeChat Official Account of the Wuhan Health Commission. The vulnerable population of Chinese society such as older adults and rural people at the grassroots level are more likely to have poor knowledge, negative attitudes, and inappropriate prevention practices against COVID-19 because they are unable to access the internet and online sources [14].

This study proved that the level of knowledge has a significant relationship with the practice of preventing COVID-19 transmission in the new normal era. This study showed the same results as the previous studies. Research conducted by Lau *et al*. who proved that knowledge about the transmission route of COVID-19 had a significant relationship with preventive measures ($p < 0.001$). In their research, the majority (82.2%) of respondents recognized hand hygiene as an important preventive measure against infection [13]. Other studies conducted both in Indonesia and in other countries also show the same thing [12], [11], [20]. The higher level of education of a person, the easier it is for someone to access information about a problem so that when someone has known information about something, he will be better able to show his attitude and make decisions to act [20].

Attitude

More than some respondents in this study had negative attitudes about COVID-19 (54.8%). These attitudes include 11 items including attitudes toward COVID-19 prevention measures, adherence to government policies for disease prevention, social distancing, use of masks, feelings, and adaptive measures to the COVID-19 pandemic. Research conducted by Peng *et al*. [1] and Saefi *et al*. [11], showed that there was a correlation between attitudes and practices of preventing COVID-19.

Good behavior can be an effort to prevent the transmission of COVID-19 [21]. The behavior can be influenced by a person's attitude. This is supported by evidence from the research of Rugarabamu *et al*. that most respondents have the attitude that COVID-19 will be eradicated and they have the belief that they can defeat the infection. Furthermore, respondents practiced Covid-19 prevention consistently such as not visiting crowded places and always wearing masks. In addition, almost all respondents also reported that they always comply with government policies by practicing prevention measures for COVID-19 [22]. Research developed in China demonstrated that education health programs that aim to increase knowledge about COVID-19 are very helpful for Chinese residents to had an optimistic attitude and maintain proper practices [14].

Conclusion

The variables of age, sex, education, knowledge, and attitude were proven to have a significant relationship with the practice of preventing COVID-19.

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