

Attitudes and Behavior Practices Against Covid-19 During the Rapid Rise Period Among University Students In Indonesia

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Abstract: *Despite strict measures taken, the attitudes and behavior practices of university students against infectious viruses remains the most important factor in limiting the widespread of COVID-19 diseases. This study examined attitude and behaviors practice against COVID 19 among university students during the rapid rise period. A university-based cross-sectional study was conducted among university students by the authors' networks with university or students union in Indonesia. After consenting, participants completed an online survey to assess socio-demographic, health's habit, family-history of chronic diseases, attitude, and behavior practice against COVID-19. Multivariable analysis was done using linear regression after checking collinearity, and a p-value of less than 0.05 was considered significant. Totally 543 participants, most of them (78.3%) were female and bachelor students (73.3%). Majority participants showed positive attitude (97.2%) and behavior practice (82,0%) with mean score 2.05 and 2.91, respectively. Education level and smoking habits were significantly different with attitude. The behavior practices were significantly different with age, religion, and exercise. Multiple linear regression showed that younger people were more likely to believe in successful control, and confidence against COVID-19. Being younger, diploma level, and inactive were among the significantly associated factors of poor behavior practices against COVID-19. Our results found that university students had positive attitudes and better behavior practice against COVID-19. Therefore, their attitude and behavior practice must be improved to be prepared for epidemic and pandemic situations. Development comprehensive health education programs are important to increase awareness and to reach sufficient knowledge.*

Keywords: *Attitude, COVID-19, practice, university students*

1. INTRODUCTION:

Since the early outbreak of COVID-19, it has significantly increased spread worldwide, including in Indonesia. According to the Ministry of Health Republic of Indonesia update on the 21st of October 2020, the number of COVID-19 cases raised to 298,452. During COVID-19 pandemics, a gap in knowledge about the emerging disease can cause chaos and panic among the public. Distributing the accurate information about COVID-19 could guide and increase society preparedness. Furthermore, negative attitudes and practices towards new infectious diseases can worsen epidemics, which may eventually result in pandemics. Positive attitudes and behavior practices against COVID-19 could help contain the spread of the causative viruses.

Some prevention protocols prompted implementation for the community to control the spread of the virus COVID-19, involving social distancing, hand washing, and lockdown procedures, but it has also resulted in creating public anguish and massive fear [1], particularly among the unaffected population [2]. Strict measures have been imposed by the Indonesian ministry of health to control the virus COVID-19 transmission, including limiting outdoor activities, suspending schools and public facilities, minimizing social contacts and physical distancing, banning places of prayers, and isolation for infected and/or suspected people cases. However, it appeared that understanding the transmission between humans is the more urgent need at this rapid rise period. Therefore, more emphasis on public awareness needs to be implemented in order to be ready to stand against the pandemic.

Evidences have been reported on the importance of awareness, attitude and practice of society to reduce the spreading rate during epidemics and pandemics [3,4]. The lack of awareness contributes to undesirable attitudes and practice, which leads to negative impacts on infection-control [5]. Attitude and behavior practice against COVID-19 comes from different sources such as stereotypes concerning similar viral disease, governmental information, social media and Internet, previous personal experiences, and medical sources. The accuracy of attitude and behavior practice may determine different behaviors about prevention and could vary in the population. Prior study found that attitudes towards government measures to contain the COVID-19 pandemic were highly associated with the level of knowledge [6]. The higher levels of information and education were associated with more positive attitudes towards COVID-19 preventive practices [6,7]. Perception of risk is also a key factor in commitment to prevention during outbreaks of global epidemics [7,8].

Appropriate knowledge, attitude, and practices about preventive methods are required to halt the spread of the COVID-19 epidemic in countries [9-12]. Evidences have shown that the communities have poor knowledge and negative attitudes about prevention strategies of COVID-19 [13-15]. Besides, the studies conducted across the globe have investigated the knowledge, attitude, and practices toward the preventive measures of COVID-19 pandemic predominantly focused on health care workers and patients [16-19].

Negative attitudes and practices toward imported groups, i.e., university students, can be predicted by various factors, including history of conflict, current competition over limited resources or lack of knowledge about a certain group [20-22]. An affective component of

attitudes, and, along with stereotypes (cognitive components) and discrimination (behavioral component), describe the barriers in inter-group relations [23]. It is not necessarily resistant to sudden events or acute environmental changes [24]. We predict that COVID-19 outbreak can be a factor significant enough to influence attitudes and behavior practice toward university students. To date, there has been limited published data on university students' population attitudes, and behavior practices against COVID-19 in Indonesia. This study examined attitude and behaviors practice against COVID 19 among university students during the rapid rise period of the COVID-19.

2. RESEARCH ELABORATIONS

A. Study Design

A prospective university cross-sectional online survey was conducted through a structured questionnaire immediately after the government announced COVID-19 as a pandemic in Indonesia.

B. Setting and Sample

Eligible participants were invited from the office affair or student unions of universities in Indonesia by authors' networks. Both male and female full-time university students of Indonesia nationality, aged 20 years or above and understood the content of this study by reading information on the first page of Google form were able to respond to the questionnaire and were eligible for the study. University students who were not willing to participate, and/or did not respond to the questions of the study, were excluded from the recent study. Also, participants were given the freedom to terminate the survey anytime.

C. Data Collection

Recent study was collected data by online strategy since it was not feasible to do a direct university-based sampling survey during the rapid rise period of the COVID-19. Relying on the authors' networks with universities and lecturers in Indonesia, a structured questionnaire was designed by Google survey device, and the generated link was shared on WhatsApp, and Line. The first page of Google survey devices contained a brief introduction of recent study including aims, procedures, voluntary participation, declarations of anonymity and confidentiality, and complete of the questionnaire, as well as the link of the online questionnaire. Eligible participants were instructed to read brief information of study and complete the questionnaire by clicking the link. The eligible participants were answered a "yes-no" question to confirm their willingness to participate voluntarily in this study. After confirmation of the question, the eligible participants were directed to complete a structured questionnaire.

D. Measurements/Instruments

A structured questionnaire has been designed by the authors to achieve the purposes of the study. The questionnaire included socio-demographic and habit variables, and questions of attitude and behaviors practice against COVID 19.

Questions related to attitude and practice against COVID 19 were adapted from questions, which were used in prior study [6]. Attitude towards COVID-19 was measured by 2

questions about the agreement on the final control of COVID-19 and the confidence in winning the battle against COVID-19. University students who scored points below or equal to the mean of the attitude related questions on COVID-19 have a positive attitude whereas those who scored above the mean were considered as having a negative attitude. The assessment of respondents' practices was composed of 2-question behaviors including traveling history and wearing a mask when going out in recent days. Participants who scored points equal to the mean of the practice-related questions on COVID-19 had a positive behavior practice and those who scored below or above the mean were considered as poor preventive behavior practice.

The questions of attitude and behaviors practice against COVID 19 complied with the forward and back-translation into Bahasa Indonesia by bilingual Indonesia researchers and sent to five bilingual academic experts knowledgeable of COVID 19 in Indonesia to examine the difference and suitability of the questions. Also, a pilot study was conducted before the beginning of the survey. The overall of Cronbach's alpha of the attitude and practice against COVID 19 Indonesian version questionnaire was 0.85 in our sample, indicating acceptable internal consistency [25].

E. *Ethical Consideration*

This study has been reviewed and approved by the university Institutional Review Board Committee (No.100/KEPK-FIK.UNAI/EC/IX/20). The informed consent form was published on the first page of the online questionnaire. The form was required from all eligible participants prior their participation in this survey.

F. *Data Analysis*

Descriptive statistics were produced for all variables. A scoring system was performed to assess the level of the university students' attitude and behavioral practice against COVID-19. The total attitude or practice score was calculated and converted to percentages. Attitudes, and practice variables of respondents were analyzed with independent sample t-tests or chi-square tests (χ^2) to investigate the difference between socio-demographic characteristics of the university students. Multivariate linear regression was analyzed to associate factors of attitude and behavior practice against COVID-19. The alpha level of significance was set at $p < 0.05$. All data were analyzed using the IBM Statistical package for the social sciences (SPSS) version 20.0.

3. RESULTS

A. Demographic Characteristics, Health's Habit and Family History of participants

Among 543 university students, most of them (78.3%) were female and bachelor students (73.3%). The mean age was 23.75 years (standard deviation [SD] = 5.95). According to the religion, 39.0% of participants were Muslim. The percentages of participants according to health's habit were never smoking (94.8%), drink warm water (62.4%), and exercise (50.5%). The majority of university students have no family history of diabetes mellitus (99.4%) and hypertension (96.5%) (Table 1). Regarding mean attitude and behavior practice against COVID-19 was 2.05 (SD = 0.29, range: 2-4) and 2.91 (SD = 0.42, range: 2-4), respectively.

Table 1: Demographic characteristics, Health's Habit, and Family History and Gender Difference of Participants (N = 543)

Variables	Male (118)		Female (425)		Total (543)	
	n	%	n	%	n	%
Demographic						
Age (mean; SD)	24.93 (6.88)		23.42 (5.64)			
Education Level						
Diploma	44	37.3	101	23.8	145	26.7
Bachelor	74	62.7	324	76.2	398	73.3
Religion						
Islam	49	41.5	163	38.4	212	39.0
Christian	35	29.7	85	20.0	120	22.1
Catholic	21	17.8	84	19.8	105	19.3
Hindu	13	11.0	90	21.2	103	19.0
Buddha	0	0	3	0.7	3	0.6
Health's Habit						
Smoking						
Never	94	79.7	421	99.1	515	94.8
Smoking	11	9.3	3	0.7	14	2.6
Drop	13	11.0	1	0.2	14	2.6
Drink Warm Water						
Yes	78	66.1	261	61.4	339	62.4
No	40	33.9	164	38.6	204	37.6
Exercise						
Yes	62	52.5	212	49.9	274	50.5
No	56	47.5	213	50.1	269	49.5
Family History						
DM						
Yes	23	19.5	87	20.5	110	20.3
No	95	80.5	338	79.5	433	79.7
Hypertension						
Yes	5	4.2	14	3.3	19	3.5
No	113	95.8	411	96.7	524	96.5

B. Attitude Against COVID-19

For each question about attitude, the distribution of responses from participants is presented in Table 2-3. Majority of university students showed a positive attitude against COVID-19 (97.2%). The education level and smoking habits were significantly different with university students' attitude against COVID-19 ($p < 0.05$) (Table 2). The response rates of "Agree" were significantly higher in females (94.8% vs. 91.5% in males, $p = 0.015$) to the item of successfully controlling COVID-19. Otherwise, the response rates of confidence against COVID-19 were not significantly different in females (99.5% vs. 98.3% in males, $p = 0.169$)

(Table 3). All variables were entered into linear regression analysis with an enter technique. In the final step, results found that younger were less likely to believe in successfully controlling and confident against COVID-19 than older university students ($\beta = -0.004$; 95% CI= -0.01, -0.001; $p = 0.004$) (Table 4).

Table 2. Demographic Characteristics, Health’s Habit, and Family History with Attitude and Behavior Practice Against COVID-19 Difference of Participants (N = 543)

Variables	Attitude		p-Value	Behavior Practice		p-Value
	mean	SD		mean	SD	
Demographic						
Gender	1.78	0.41	0.375	1.78	0.41	0.736
Age	23.75	5.95	0.196	23.75	5.95	0.004
Education Level	1.73	0.44	0.039	1.73	0.44	0.387
Religion	2.20	1.16	0.197	2.20	1.16	0.004
Health’s Habit						
Smoking	1.08	0.35	0.042	1.08	0.35	0.551
Drink Warm Water	1.38	0.49	0.443	1.38	0.49	0.421
Exercise	1.50	0.50	0.945	1.50	0.50	0.000
Family History						
DM	1.80	0.40	0.959	1.80	0.40	0.575
Hypertension	1.97	0.18	0.757	1.97	0.18	0.608

Table 3: Attitude and Behavior Practice Against COVID-19 with Gender Difference of Participants (N = 543)

Variable	Male (118)		Female (425)		Total (543)		χ^2	df	p-Value
	n	%	n	%	n	%			
Attitude									
Successfully controlled COVID-19									
Agree	108	91.5	403	94.8	511	94.1	8.426	2	0.015
Not Agree	8	6.8	8	1.9	16	2.9			
Do not Know	2	1.7	14	3.3	16	2.9			
Confident against COVID-19									
Yes	116	98.3	423	99.5	539	99.3	1.893	1	0.169
No	2	1.7	2	0.5	4	0.7			
Behavior Practice									
Behavior visit to public facilitations									
Yes	12	10.2	84	19.8	96	17.7	5.843	1	0.016
No	106	89.8	341	80.2	447	82.3			
Wearing a mask when outdoor activities									
Yes	97	82.2	405	95.3	502	92.4	22.673	1	0.000

No	21	17.8	20	4.7	41	7.6			
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C. Behavior Practices Against COVID-19

In general, the university students showed positive behavior practices against COVID-19 with a mean score 2.91 (82,0%). The behavior practices of university students against COVID-19 were significantly different with age, religion, and exercise ($p < 0.05$) (Table 2). Results found that female university students had a significantly higher positive behavior practice score of “no visit to public facilitation” (89.8%) than male (80.2%). Additionally, 95.3% of male university students had a significantly higher response rate of “wearing a mask when outdoor activities” compared with male (82.2%) (Table 3).

On the multivariate analysis, younger university students had poor behavior practices against COVID-19 than the older ($\beta = 1.06$; 95% CI = 1.02,1.10; $p = 0.007$). Diploma students had poor behavior practices against COVID-19 than as compared to those bachelor students ($\beta = 0.40$; 95% CI = 0.21,0.77; $p = 0.006$). Concerning exercise habit, inactive university students had poorer behavior practices against COVID-19 than those who are in a relationship ($\beta = 0.40$; 95% CI = 0.24,0.65; $p = 0.000$) (Table 4).

Table 4. Multivariate Linear Regression of Statistical Association Between Demographic Characteristics, Habit, and Family History with Attitude, and Behavior Practice Against COVID-19

Variables	Attitude			Behavior Practice Against COVID-19		
	Unstandardized Coefficient	95% CI	p-value	Unstandardized Coefficient	95% CI	p-value
Demographic						
Gender	-0.004	-0.07, 0.06	0.904	1.18	0.65, 2.12	0.588
Age	-0.004	-0.014, 0.001	0.004	1.06	1.02, 1.10	0.007
Education Level	0.003	-0.06, 0.07	0.931	0.40	0.21, 0.77	0.006
Religion	-0.021	-0.043, 0.001	0.061	0.040	0.01, 0.07	0.009
Health’s Habit						
Smoking	0.004	-0.07, 0.08	0.909	5.73	0.66, 50.13	0.115
Drink Warm Water	0.025	-0.03, 0.08	0.350	0.95	0.58, 1.55	0.831
Exercise	0.005	-0.05, 0.06	0.852	0.40	0.24, 0.65	0.000

Family History						
DM	-0.001	-0.06, 0.06	0.966	1.29	0.74, 2.25	0.377
Hypertension	0.027	-0.11, 0.17	0.703	0.61	0.16, 2.32	0.468

CI= Confidence Interval

4. DISCUSSION

The aim of this study was to examine attitudes and behaviors practiced against COVID 19 among university students during the rapid rise period of the COVID-19 in Indonesia. Various demographic characteristics, health's habit, and family history of the university students were explored to obtain information that could be used to guide the mapping and to determine whether university students' attitudes and behavior practices differed based on particular characteristics of the target population.

Recent study found that the majority of the participants had a good general level of attitude and practice against COVID 19. However, according to the participants' responses less behavior practice was detected related to wearing a mask when outdoors activities. Health habits and family histories were also detected among participants. Additionally, the findings found a significant number of socio-demographic factors that affect attitudes and behavior practices. Participants were found to have significant positive attitudes and behavior practices against COVID-19.

Concerning attitudes, university students showed a positive and optimistic attitude against COVID-19. Approximately, nine out of ten university students were confident and believed that Indonesia would be able to successfully control the COVID-19. Previous studies found similar results that the general population has high levels of positive attitudes [6,26-28]. Those studies approved the positive attitudes to the drastic measures taken by the government in controlling the spread of the COVID-19.

Positive attitudes and high confidence in the managed spread of COVID-19 can be explained by the government's unprecedented programs and prompt response in taking stringent control and precautionary strategies against COVID-19, to safeguard society and ensure their well-being. These strategies include local lockdown, limit of all domestic and international flights, and suspension of all public activities including prayer facilities, schools, and universities, and the national restriction imposed on citizens. Our results are similar with prior study that majority of participants were convinced that the disease is curable and the country will be struggling from COVID-19 [29].

Our findings support conclusions from previous studies associating higher levels of knowledge with higher confidence and positive attitudes in health crises [30]. In Indonesia, the government enforcing these positive attitudes took the swift action. Positive attitudes were higher among those university students. This population showed the highest confidence that Indonesia would succeed in controlling and fighting against COVID-19. The Indonesia government managed the health crisis well.

Current study found that most of university students reported taking precautions such as avoiding crowded places and wearing mask during rapid rise period of COVID-19. This

indicates a general willingness for participants to make behavioral changes in the face of the COVID-19 outbreak. Interestingly, university students were garnered a diverse response about wearing of face masks at home. One out of ten university students indicated that they did not wear a facemask when outdoor activities. Although, the number of participants is only a few who do not use a mask when outdoor activities but it is a crucial issue related to university students' behavior habit. The possible explanations, Indonesian society has no habit of wearing masks at home or outdoors. It is uncommon for the typical Indonesian to wear a facemask when sick. The emergence of COVID-19 caused an increase in demand for medical facemasks and hand sanitizer in the country and supplies were short [31]. The scarcity of face masks meant that many regular members of the public were unable to obtain them. The shortage of personal protective equipment was limited to Indonesia. It had become a global problem due to increased demand in response to COVID-19 [32]. The other explanation due to the Ministry of Health Indonesia has been established that medical face masks should only be worn by those who are showing symptoms of COVID-19 and health care providers. This was to ensure sufficient supplies of personal protective equipment for health care providers on the frontline. The lack of supply personal protective equipment especially face masks may cause by the mixed messages led to the divided response on the wearing of face masks when out in public.

Recent study was conducted using a cross-sectional study design. Consequently, causal inferences may not be founded. Our study used an online-based survey approach to avoid possible transmission of COVID-19, such that the cohort reflects sampling biases by being conducted online, thereby restricted to only those with Internet access, and consequently unlikely to represent an accurate reflection of the whole Indonesia university students' population. Sampling for the study was conducted via a convenience sample through the networks of the researchers and disseminated through different social media platforms (WhatsApp, and Line). As a result, there is a possibility of bias as underprivileged populations may not have been able to participate in the study.

5. CONCLUSIONS

The causative of this disease is highly contagious; therefore, raising attitude and behavior practice is the main aspect to control transmission of the COVID-19. Our findings identified areas of misconceptions and specific groups to be targeted for overcoming the pandemic, thereby leading to more favorable attitudes and implementation and maintenance of safe practices. It is therefore suggested that a well-planned and structured educational program should be undertaken to improve the level of attitude and contribute to better practice. This study could provide baseline data to the government for preventive measures in case of future outbreaks. Further, it is important to share this information and evidence with decision-makers and health care workers to address and strengthen health education, information dissemination on the issues such as attitude, and practice of university students on a special focus program and strategies. Continuous encouragement of university students about the preventive and control measures, especially in the diploma level, younger, and inactive is recommended.

ACKNOWLEDGMENT

The authors appreciate all those who participated in this study voluntarily.

DECLARATION OF INTEREST STATEMENT

The Authors declare that there is no conflict of interest.

FUNDING SOURCES

No external funding was received for this research

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