

# COVID-19 preventive behavior of the community in Southeast Sulawesi Province, Indonesia

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## Abstract

**Background:** COVID-19 is the new infectious disease with mild to severe symptoms infecting thousands of people worldwide. Behavior is one factor affecting human health, whereas human behavior is strongly influenced by one's perception in conducting something and is related to knowledge, attitude, and action.

**Objective:** This study aimed to analyze the effect of knowledge, attitudes, and actions toward COVID-19 prevention measures of the Konawe Regency community in Southeast Sulawesi Province, Indonesia.

**Methods:** This is quantitative research in which the study was conducted using an analytical survey with a cross-sectional approach. The study was conducted from 29 December 2020 until 28 February 2021. Data were collected using a validated questionnaire and analyzed using binary logistic regression.

**Results:** The finding suggested that the knowledge had not significantly influenced the COVID-19 prevention behavior of the community ( $p > 0.05$ ). Meanwhile, attitude and action had a significant influence on COVID-19 prevention behavior ( $p < 0.05$ ). The attitude was the most influential variable, with an  $EXP(B)$  value of 29.181 times, more likely causing the community not to comply with the COVID-19 health protocol.

**Conclusion:** Attitudes and actions are important variables in understanding community behavior. This result can be a basis for increasing compliance towards COVID-19 prevention protocol in Indonesia and beyond.

Keywords: COVID-19; knowledge; attitude; perception; cross-sectional studies; Indonesia

## Background

At the end of 2019, the world was startled by a coronavirus outbreak that had been infecting almost all countries around the globe (Sohrabi et al., 2020). In January 2020, World Health Organization declared a global emergency on coronavirus (Tosepu, Effendy, Lestari, et al., 2020). On 31

December 2019, the first unknown pneumonia-like case was reported in Wuhan, Hubei Province, China (Gunawan, Juthamane, & Aunguroch, 2020; Tosepu et al., 2021)

On 19 March 2020, there were 214,894 people infected by the coronavirus, 8,732 were dead, and 83,313 patients have recovered. The COVID-19

infected cases were rapidly spread and were infecting not only Wuhan but also other countries. One hundred ninety-two countries/areas were reporting COVID-19 cases (Irfani, Fitri, Roflin, Siburian, & Umar, 2021). Indonesia announced its first two confirmed COVID-19 cases on 6 March 2020. Until 28 January 2021, there have been 10.242.298 confirmed cases across 461 regencies in 34 provinces in Indonesia (Tosepu, Effendy, & Ahmad, 2020). Southeast Sulawesi reported the first three confirmed COVID-19 positive cases on 19 March 2020. Until 14 July 2020, there have been 521 confirmed infected cases in Southeast Sulawesi; 340 recovered cases, 171 undergo treatment, and ten death cases (Dinas Kesehatan Provinsi Sulawesi Tenggara, 2020).

Since first reported on 19 March 2020, two first cases in Southeast Sulawesi were from Konawe Regency, making Konawe Regency the first red zone in the COVID-19 outbreak in Southeast Sulawesi. Thus, the first two cases in Konawe Regency were both from Unaaha sub-district, Tumpas Urban Village who were just returned from practicing Umroh in Saudi Arabia (Dinas Kesehatan Provinsi Sulawesi Tenggara, 2020).

Throughout the month, the confirmed COVID-19 cases significantly increased in Konawe Regency, where it was reported that, in April 2020, there were two cases. In May 2020, three cases were confirmed, followed by three cases in June 2020, 15 cases in July 2020, 30 cases in August 2020, 55 cases in September 2020, and 160 cases in October 2020. The increase of positive COVID-19 cases was solely due to Konawe Regency community behavior that was not practicing COVID-19 health protocol to prevent the spread of COVID-19 and following the government guidance in facing such issue (Dinas Kesehatan Kabupaten Konawe, 2020).

Regarding the COVID-19 outbreak, the Government of Indonesia has declared a state of disaster emergency starting from 29 February 2020 until 4 June 2020. However, there were some preventions to flattening the curve of this outbreak, one of those is Large-Scale Social Restrictions in some parts of Indonesia, socialized *Social Distancing* movement such as maintain a safe distance (min. 2 meters) from other people, avoiding direct contact, avoiding crowds and mass gathering, clean your hands often

preferably under running water for 40-60 seconds and wear a mask (Isbaniah, 2020).

COVID-19 Response Acceleration Task Force announced the stages of a plan to reopen the economic sector by taking into account the health, socio-economic, and labor impacts. Besides, the COVID-19 Response Acceleration Task Force also announced the 102 Regencies/Cities to carry out productive yet safe of COVID-19 community program and the enactment of new normal (Idris & Muttaqin, 2021). Thus, this greatly affected the increase of COVID-19 cases after the application of the new normal policy, namely 1.671 confirmed COVID-19 cases reported on 11 July 2020, and COVID-19 continues to increase significantly until the present time (Satgas Penanganan COVID-19, 2020).

The increase of positive COVID-19 cases is because many Indonesians are living in different provinces, regencies/cities who are leaving the house for not-important-activities such as gathering with friends and relatives at café or restaurants, not maintaining a safe distance, not cleaning their hands, nor wearing masks and not following the government's appeal regarding the protocol for preventing the spread of COVID-19 (B. Yanti et al., 2020).

The community role is essentially needed to break the chain of the COVID-19 outbreak since it is believed that everyone's action is very much influenced by their perception towards something that is closely related to knowledge, attitudes, and actions. This is supported by Blum's theory stated that the behavioral aspect is one of the factors affecting human health status (Hanna, 2007).

In line with the study by Buana (2020) concerning the Analysis of Indonesian People Behavior in facing Corona Virus Pandemic and Tips to Maintain Mental Welfare, people who do not comply with the government's appeal are based on cognitive bias. This fact is also supported by Benjamin Bloom's theory which divides behavior into three domains, namely cognitive domain, the effective domain, and the psychomotor domain, which then developed based on Bloom's domain theory into three levels of behavioral domains, namely knowledge, attitude and actions (practices) that influence human health behavior (Hanna, 2007)

According to the health profile data of the Konawe Regency in 2020, the number of COVID-19 confirmed cases were 460 (Dinas Kesehatan Kabupaten Konawe, 2020). Therefore, the objective of this research was to analyze the influence of knowledge, attitudes, and actions on the prevention of COVID-19 in the community of Konawe Regency.

## Methods

### Study Design

The design of this study was quantitative, using an analytical survey with a cross-sectional approach. The research was conducted from 29 December 2020 until 28 February 2021.

### Sample

The study population was a community of Konawe Regency, Southeast Sulawesi Province, Indonesia, with ages above 15 years old to 39 years old with a total of 101.593 population. Three hundred ninety-eight people were chosen to be the samples using the accidental sampling technique. Thus, the numbers of the sample were determined using the Slovin Formula (Tejada & Punzalan, 2012).

### Instruments

The research used a questionnaire as its instrument. There were 40 questions in the instrument consisting of 10 questions of knowledge variable using the Guttman Scale, ten questions of attitude variables using the Likert Scale, ten questions for action variables using the Likert Scale, and ten questions for prevention variable using the Guttman Scale (Gothwal, Wright, Lamoureux, & Pesudovs, 2009). The instrument was adopted from Yanti, Nugraha, Wisnawa, Agustina, and Diantari (2020). The validity

of the questionnaire has been tested with a calculated  $r$ -value of  $0.187-1 > r$ -table  $0.1409$  and its reliability with Cronbach's Alpha  $0.770$ .

### Data Collection

The researcher collected the data by distributing a questionnaire. Data collection was carried out directly and accompanied by a research assistant. There were no obstacles during data collection.

### Data Analysis

The analysis of the data was performed univariately to describe each variable. A Chi-square test was conducted to perform bivariate analysis, further continued with multivariate analysis using binary logistic regression test with 95% confidence level.

### Ethical Consideration

This study has been approved and secured by Institute of Research and Development of Konawe Regency on 29 December 2020. Each respondent in this study has signed an appropriate informed consent, and was well informed about the procedures, objectives, and benefits of the study. Each respondent could also withdraw from the study without any penalties. Confidentiality of the respondents' information was assured.

## Results

Table 1 shows that attitudes and actions had significant associations with COVID-19 prevention behavior ( $p < 0.001$ ), while knowledge was not correlated with the preventive behavior ( $p = 0.971$ ). The significant variables were included in the further analysis.

**Table 1** Community knowledge, attitudes, and actions in Konawe regency on COVID-19 prevention behavior ( $N=325$ )

Variables	Category	COVID-19 Preventive Behavior				Total		p-value
		Not following health protocols		Following health protocols				
		N	%	N	%	N	%	
Knowledge	Satisfactory	281	13.54	63	13.70	344	86.43	0.971
	Dissatisfactory	44	86.46	10	86.30	54	13.57	
Attitudes	Satisfactory	80	98.77	1	1.23	81	20.35	< 0.001
	Dissatisfactory	245	77.29	72	22.71	317	79.65	
Actions	Satisfactory	75	97.40	2	2.60	77	19.35	< 0.001
	Dissatisfactory	250	77.88	71	22.12	321	80.65	

Table 2 shows that, based on the binary logistic regression test results, the attitudes and actions had a significant influence on COVID-19 prevention behavior, with a  $p$ -value of 0.002 and 0.001, respectively. The magnitude of the association is indicated by the  $EXP(B)$  value of the attitude variable of 24.181 ( $CI$ : 95% -3.295 - 177.454) and the action variable with the  $EXP(B)$  value of 10.997 ( $CI$ : 95% - 2.618 - 46.187). Thus, it indicates that the attitude with the  $EXP(B)$  value of 24.181 times more likely to

cause the behavior of not adhering to the COVID-19 health protocol.

In addition, the results of the analysis obtained a  $B$  value = Natural Logarithm of 24.181 = 3.186 for attitude, and a  $B$  value = Natural Logarithm of 10.997 = 2.398 for action, with a positive association. Thus, it is indicated that the attitude and action positively influence COVID -19 prevention behavior.

**Table 2** Analysis on the influence of attitudes and actions on COVID-19 prevention behavior

		Variables in the Equation					95% CI for EXP(B)		
		<i>B</i>	<i>S.E</i>	<i>Wald</i>	<i>df</i>	<i>sig</i>	<i>Exp(B)</i>	<i>Lower</i>	<i>Upper</i>
Step 1 <sup>a</sup>	Attitudes	3.186	1.017	9.813	1	0.002	24.181	3.295	177.454
	Actions	2.398	0.732	10.722	1	0.001	10.997	2.618	46.187
	Constant	-6.565	1.235	28.253	1	0.000	.001		

## Discussion

The study suggested that the knowledge did not influence COVID-19 prevention behavior, although the community in the Konawe Regency has a better understanding of the health protocol. However, the community might be actively learning or having a misunderstanding about this infectious disease from various sources such as TV, as well as the Ministry of Health/Province official Response Acceleration Task Force's website and Instagram. This result is consistent with the study conducted by [Purnamasari and Raharyani \(2020\)](#) on respondents' knowledge and attitude level about COVID-19 at Wonosobo Regency, which obtained a percentage value of 90% and was categorized as satisfactory value. Furthermore, in the same study, it was reported that the Wonosobo Regency community performed satisfactory behavior towards COVID-19 prevention behavior, including cleaning hands properly using hand soap/hand sanitizer, maintaining a safe distance, appealing to stay at home, and avoiding crowds of people.

There seem to be many factors affecting public knowledge on COVID-19 prevention measures, such as education, age, job, and other external factors. Age is believed to affect a person's knowledge, mindset, and perceptive powers. Along with the increase of age and knowledge development, the development of one's perceptive power and mindset will also develop

([Mujiburrahman, Riyadi, & Ningsih, 2020](#)). Also, this study suggested that most of the respondents hold High School Diploma background. Apart from formal education, they also obtained information from their peers and mass media, e.g., TV, newspaper, radio, Handphone, Facebook, Instagram, YouTube, etc. The higher a person's education, the easier it is to receive and filter information which means the higher the knowledge.

Based on this research, it shows that the attitude variable has an effect on COVID-19 prevention measures. This finding is consistent with the study of [Utami, Mose, and Martini \(2020\)](#) about community knowledge, attitude, and skills in preventing COVID-19 in the Capital City, Jakarta, which showed a satisfied attitude in preventing such disease. A well-attitude community will be consistently performed if there is strict regulation from policymakers and good role models from public figures. Therefore, it seems important to foster the public attitude through supportive government policies, health promotion efforts, and strict yet passive field monitoring in the community until the pandemic status end. According to our study, the community had a poor attitude which leads to poor preventive behavior.

The finding of this study shows that the action variable has an effect on COVID-19 prevention measures. It suggests that the Konawe Regency community performed high dissatisfaction compliance on health protocol, resulting in dissatisfaction with COVID-19 prevention measures.

Furthermore, it shows that the Konawe Regency community was not performing maintaining-safe-distance-practice according to health protocol on COVID-19 prevention measures. Thus, it is influenced by dissatisfaction attitude in encouraging not-so-good preventive measures. Sometimes, people are aware and capable of performing the COVID-19 prevention protocol but acting oppositely because someone with a good attitude will not necessarily take preventive measures.

This finding is similar to research conducted by Utami et al. (2020); action/practice was the most influential variable that influenced health workers in implementing hand hygiene. Therefore, health workers need to pay attention to hand hygiene in order the medical activities can run well without causing issues

According to the result of multivariate analysis of the binary logistic regression test, it shows that among three independent variables (knowledge, attitudes, actions), only two independent variables have a significant influence on COVID-19 prevention measures with the confidence level of 95%, namely attitudes and actions. This is because community attitude and actions have a strong influence on preventive measures. A good attitude will support good preventive action. A good level of attitude on respondents can influence the community action on the preventive action vice versa. It can also affect them always to take good preventive actions and always motivate themselves to carry out a healthy behavior. Based on the result of the simultaneous binary logistic regression test, it suggested that there was a significant influence between community attitude and action toward COVID-19 preventive measures at Konawe Regency. It means that both community attitude and action are influencing COVID-19 preventive measures.

## Conclusion

There was no significant influence between community knowledge on COVID-19 preventive behavior, while a significant effect was identified between community attitude and action toward COVID-19 preventive measures. Therefore, the public is expected to always comply with health protocol on COVID-19 preventive measures and implement COVID-19 prevention behavior in the community of Konawe Regency. Further research

on COVID-19 preventive measures in the community in order to obtain more extensive and in-depth information related to COVID-19 prevention measures is necessary.

## Declaration of Conflicting Interest

There is no conflict of interest in this study.

## Author Contributions

Concept generation, data collection, writing (IR), writing and editing of the manuscript (RT), critically reviewed, and revision (AS). All authors approved the final version of the article.

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