# Identifying the Factors Affecting Preventive Behavior Against Covid-19 Transmission in East Java Indonesia

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# Identifying the Factors Affecting Preventive Behavior Against Covid-19 Transmission in East Java Indonesia

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## ABSTRACT

WHO recommends washing hands frequently, staying away from crowds, maintaining a safe distance, wearing masks, applying cough and sneeze ethics, as well as isolation for the sick and quarantine for those in close contact to prevent the transmission of Covid-19. The efforts to prevent the transmission of new cases in the adaptation of new habits with the implementation of strict health protocols upon people's activities need massively enforced. This was an analytic observational study with a cross-sectional approach. The study was conducted in East Java. There were 1.564 participants involved by simple random sampling technique. The dependent variable was preventive behavior against Covid-19 transmission. The independent variables include attitudes, knowledge, family support, and health worker support. The data were collected by using a questionnaire and analyzed with multiple linear regression. Attitudes (b= 0.15, CI 95% = -0.01 to 0.30, p= 0.051), knowledge (b= 0.13, CI 95% = 0.03 to 0.23, p= 0.013), family support (b= 0.36, CI 95% = 0.28 to 0.43, p <.001), and health workers support (b= 0.14, CI 95% = 0.03 to 0.25, p= 0.012) increase the preventive behavior against Covid-19 transmission. Attitudes, knowledge, family support, and health worker support affect the preventive behavior against Covid-19 transmission.

**Keywords:**

Attitudes; knowledge; family support; health worker support; covid-19 transmission

## INTRODUCTION

The threat of a new variant of the SARS-CoV-2 virus requires a rapid response to prevent from continued transmission. Strategic measures are highly demanded to accelerate the prevention and control of COVID-19.[1, 2] To prevent the transmission of COVID-19, WHO recommends washing hands frequently, staying away from crowds, maintaining a safe distance, wearing masks, applying cough and sneeze ethics, as well as isolation for the sick and quarantine for those in close contact.[3] Currently, Indonesia campaigns for a strategic movement through a key message (5M), which are *memakai masker* (wearing masks), *mencuci tangan dengan sabun* (washing hands with soap), *menjaga jarak* (maintaining a safe distance), *menghindari krumunan* (staying away from crowds), and *mengurangi mobilitas* (limiting mobility), as well as implementing clean and healthy living behaviors. Covid-19 vaccination is encouraged to complement the battle against the virus through the implementation of health protocols,[4, 5] so even though vaccines are available, health protocols with 5M strategy should also be optimally carried out. One of the efforts to prevent the COVID-19 transmission is wearing masks, which is often followed only to formally follow the regulation, whereas an optimal protection needs to consider the type and method of wearing the masks.[6, 7] The recommended masks for use are 3-layer cotton fabric masks and surgical masks.[8] The 3-layer cotton fabric masks are for daily use to limit the use of surgical masks intended for medical personnel and patients with comorbid/high risk, and also to reduce the effects of natural pollution due to the disposal of disposable mask waste. Other preventive measures, such as hand washing, can be performed with soap and running water, and using a hand sanitizer.[9, 10] Hand

washing to kill viruses and bacteria is done for at least 20 seconds and with the correct steps to ensure that the entire surface and between the fingers are clean. This transmission prevention measure should also be followed by other efforts, especially in the daily activities.[11, 12]

The coronavirus pandemic causes a lot of changes in people's everyday life.[13, 14] Good nutrition is also very significant before, during, and after infection. The infection causes the victim's body to become feverish, thus it requires additional energy and nutrients. Therefore, maintaining a healthy diet is essential during the current pandemic.[15] Although there are no foods or dietary supplements that can prevent Covid-19 infection, maintaining a healthy and nutritionally balanced diet is prominent in promoting a good immune system. Therefore, to face the current situation, society should stay healthy that they are infected from the Corona virus. Note that there discovered no vaccine to prevent Coronavirus yet. Measuring whether they are in a healthy immune system is also difficult. Now, we must be capable of avoiding exposure to the Corona Virus and maintaining the body's immune system to stay healthy and fit.[16, 17]

Transmission of the Covid-19 virus may occur through intermediaries from humans to other humans, which is through saliva droplets and contaminated inanimate objects.[18, 19] The Virus may come out of the mouth or nose of people with Covid-19 in the form of droplets when they talk, sneeze, cough, sing, or even breathe. According to WHO, current evidence suggests that the virus can spread mainly among people who make a close contact with one another within 1 meter (short distance). Somebody can be infected when aerosols or the droplets containing the virus are inhaled and enter the body directly through the nose or mouth or whenever the hands come into direct contact with the eyes. The virus can also spread within poorly ventilated and/or crowded indoor environments, in which people tend to spend more time. It occurs as aerosols float in the air or move farther than 1 meter (long distance).[20, 21]

The efforts to prevent the transmission of new cases in the adaptation of new habits with the implementation of strict health protocols upon people's activities have been massively enforced, especially by the government, yet the situation proves different from expectations as many of them seem not to care about the Covid-19 transmission. The transmission prevention behavior is closely related to public attitudes and knowledge about the dangers of Covid-19 virus. Currently, people still do not totally comply with the government's appeal to put the 5M health protocol into action. Therefore, this study aims to analyze the effect of attitudes, knowledge, family support, and health worker support on the preventive behavior against Covid-19 transmission.

## METHODS

### Research Design

This was an observational analytic study with cross sectional design. It was conducted in East Java, from May to June 2021.

### Population and Sample

It employs a simple random sampling technique because sampling is performed randomly with no consideration on the strata of the population. The inclusion criteria of this study are people who participate in the online questionnaire. The population refers to the entire community in East Java while the samples are those selected by using simple random sampling. During the study, the researchers obtain 1.564 participants as the samples.

### Research Variables

The independent variables of this study cover attitude, knowledge, family support, and health worker support. Meanwhile, the dependent variable is a preventive behavior against Covid-19 transmission.

### Research Instrument

The adopted data collection instrument is a questionnaire of several points, which are subjective norms, perceived behavioral control, attitudes, and intentions prepared based on literature reviews.

### Data Analysis

The data were analyzed by using multiple linear regression with SPSS.

### Ethical Approval

This research has received an ethical approval from the Research Ethics Commission of the Faculty of Medicine, Universitas Islam Al-Azhar Mataram, number 14/EC - 04/FK-06/UNIZAR/IV/2021.

## RESULTS

### Sample Characteristics

Most of the samples involved in the study are aged 26-35 (27%), female (52%), married (49%), with senior high school education (23%), private employment (27%), and with an income ≥ Regional minimum wage (UMR) (51%).

**Table 1.** Characteristics of Respondents (n=1.564)

| Characteristics | Number | % |
|---|---|---|
| Age | | |
| 12-16 | 12-16 | 17 |
| 17-25 | 17-25 | 20 |
| 26-35 | 26-35 | 27 |
| 36-45 | 36-45 | 13 |
| 46-55 | 46-55 | 12 |
| 56-65 | 56-65 | 11 |
| Sex | | |
| Male | 746 | 48 |
| Female | 818 | 52 |
| Status | | |
| Single | 451 | 29 |

| | | |
|---|---|---|
| Married | 759 | 49 |
| Divorced | 354 | 22 |
| Education | | |
| Junior High School | 223 | 14 |
| Senior High School | 363 | 23 |
| A 3-year Diploma (D3) | 351 | 22 |
| A 4-year Diploma (D4) | 210 | 13 |
| Bachelor Degree (S1) | 244 | 16 |
| Masters Degree (S2) | 173 | 11 |
| Occupation | | |
| Housewife | 216 | 14 |
| Farmer | 244 | 16 |
| Private Employee | 419 | 27 |
| Self-employed | 375 | 24 |
| Civil Servant | 310 | 19 |
| Income | | |
| < Regional Minimum Wage | 764 | 49 |
| ≥ Regional Minimum Wage | 800 | 51 |

**Bivariate Analysis**

Bivariate analysis employs Pearson correlation study, which is intended to acknowledge the relationship between the independent variables (attitude, knowledge, family support, and health worker support) and the dependent variable (preventive behavior against Covid-19 transmission). Table 2 shows a relationship between attitude and behavior (p<.001), knowledge and behavior (p<.001), family support and behavior (p=0.007), and health worker support and behavior (p<.001).

**Table 2.** Bivariate Analysis

| Independent variable | Behavior | | p |
|---|---|---|---|
| | n | r | |
| Attitude | 1.564 | 0.43 | <.001 |
| Knowledge | 1.564 | 0.38 | <.001 |
| Family Support | 1.564 | 0.11 | 0.007 |
| Health Worker Support | 1.564 | 0.61 | <.001 |

**Multivariate Analysis**

Table 3 indicates that attitude (B= 0.15, CI 95% = -0.01 to 0.30, p= 0.051), knowledge (B= 0.13, CI 95% = 0.03 to 0.23, p= 0.013), family support (b= 0.36, CI 95% = 0.28 to 0.43, p <.001), and health worker support (B= 0.14, C. I. 95% = 0.03 to 0.25, p= 0.012) improve the preventive behavior of Covid-19 transmission.

**Table 3.** Multivariate Analysis

| Independent variable | b | CI 95% | | p |
|---|---|---|---|---|
| | | Lower limit | Upper limit | |
| Attitude | 0.07 | 0.01 | 0.14 | 0.034 |
| Knowledge | 0.08 | 0.00 | 0.16 | 0.050 |
| Family Support | 0.12 | 0.03 | 0.21 | 0.012 |
| Health Worker Support | 0.37 | 0.31 | 0.43 | <.001 |
| Number of samples = 1.564<br>Adj R-Squared = 0.38<br>p = <0.001 | | | | |

Based on the data presented in Table 3, we acknowledge that the regression coefficient for the attitude variable is positive, which means if the attitude variable increases by one unit, the preventive behavior of Covid-19 transmission increases by 0.15 units. It suggests a significant relationship between attitudes and preventive behavior of Covid-19 transmission.

The regression coefficient for the variable of knowledge shows positive, which means that the higher the knowledge, the higher the preventive behavior against Covid-19 transmission. The b value of 0.13 concludes that if the knowledge value increases by one unit, the preventive behavior against Covid-19 transmission increases by 0.13 units. Therefore, there is a positive and significant relationship between knowledge and preventive behavior against Covid-19 transmission.

The regression coefficient for the variable of family support marks positive, which represents that the better the family support, the higher the preventive behavior against Covid-19

transmission. The b value of 0.36 means that if the knowledge value increases by one unit, the preventive behavior against Covid-19 transmission increases by 0.36 units. Therefore, there is a positive relationship between family support and preventive behavior against Covid-19 transmission and it statistically significant.

The regression coefficient for the variable of health worker support shows positive, which means that the better the health worker support, the higher the preventive behavior against Covid-19 transmission. The b value of 0.14 indicates that if the value of health worker support increases by one unit, the preventive behavior against Covid-19 transmission increases by 0.14 units. Therefore, there is a positive relationship between health worker support and preventive behavior against Covid-19 transmission and it statistically significant

**DISCUSSION**

The research results show that majority of the respondents demonstrate a good attitude. Somebody determines his/her attitude by considering the surrounding environment.[22] Some of the factors affecting attitudes are education, age, experience, environment, and occupation.[23] It is possible that one shows an attitude contrary against the surrounding environment, and vice versa. Correspondingly, people are currently faced with a situation where they must take a stand in implementing the prevention of covid-19 transmission. Education can influence individuals to maintain attitudes and formulate a new attitude because education is related to their knowledge.[24, 25] A good knowledge of Covid-19, health protocols, and preventive action against Covid-19 transmission will generate a positive attitude towards the preventive behavior against Covid-19 transmission.[26] A positive attitude can lead to a good Covid-19 transmission prevention behavior as well.

Majority of the respondents in this study are knowledgeable. A lot of factors affecting the respondents' knowledge about the preventive action against Covid-19 transmission, such as education, age, occupation, and other external factors.[27] Age affects knowledge as it affects one's mindset and ability to capture information. The higher the age of an individual, the better his mindset and ability to capture information so that the knowledge also increases. However, some studies suggest that one's ability to receive or remember information decreases at certain ages or towards old ages. In 2020, the World Health Organization socialized the prevention against Covid-19 transmission through health protocol guidelines that should be adhered to by public, which comprises wearing masks, maintaining a safe distance, applying the correct cough and sneeze ethics, washing hands with soap, and limiting mobility.[28]

Families play an important role in preventing the spread of Covid-19. They can provide support to their family members and instill a culture for a clean and healthy life, getting used to washing hands and wearing masks. Family support can be informational, instrumental, rewarding, and emotional support.[29, 30] Within informational support, they can provide information about the Covid-19 virus to the family members, reminding them once they forget to wash their hands or to wear a mask. For instrumental support, they can provide masks, hand sanitizer/soap or hand washing tools, nutritious food, keep the house clean, and others. For the appreciation support, they can reward the family members who always maintain the 5 M principles to increase their motivation. For the emotional support, they can express genuine affection and attention all the time to other family members who are in self-isolation or under treatment due to Covid-19. Family provides a massive influence in forming a strong character and culture, especially from health behavior if they perform optimal health roles and functions, so the spread of diseases is well prevented, including that of Covid-19. One of the functions of the family is health care that

maintain the health status of the family members as high as possible, either simultaneous preventive or caring for the sick members through family support.[31, 32]

During the Covid-19 pandemic, social emotional support and concrete action are badly needed.[33] Such support may also come from the health workers. Health workers can seek to utilize technology including social media to stay in touch and give support to the community.[34] The support can be through information related to Covid-19, healthy behavior campaign, and encouragement to perform a preventive behavior against Covid-19. The health worker support in this study is in the form of physical and psychological comfort, attention, appreciation, and other assistance given to individuals.[35, 36]

## CONCLUSION

Attitudes, knowledge, family support, and health worker support affect the preventive behavior against Covid-19 transmission. Good knowledge and positive attitude in preventing Covid-19 are one of the efforts to break the transmission of Covid-19. The role of the family in preventing transmission is the main key to preventing the spread of Covid-19. The family is a small unit that plays an important role. When a family shows compliance in carrying out health procedures, the possibility of transmission in the family can be minimized. The role of public health workers is extremely prominent in dealing with Covid-19 at every level of intervention, especially at the community level to do risk communication and public education related to health protocols. Health workers have the ability to understand promotive and preventive patterns of Covid-19 among the community.

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