



The Relationship Between Community Perceptions of COVID-19 and the Implementation of the 5M Health Protocol During the COVID-19 Pandemic in Caturtunggal Village, Depok Subdistrict, Sleman Regency

Afifah Kusuma Ispramana¹, Sofyan Indrayana¹, Muhammad G.A. Putra¹

¹Bachelor of Nursing Study Program, Universitas Alma Ata, Yogyakarta, Indonesia

ABSTRACT

Perception refers to an individual's personal view or interpretation of an event. COVID-19 is an infectious disease caused by the 2019 novel coronavirus, and health protocols serve as guidelines to ensure individuals and communities remain protected from infection, particularly during a pandemic. This study aimed to determine the relationship between community perceptions of COVID-19 and the implementation of the 5M health protocol. A quantitative cross-sectional survey was conducted using accidental sampling. The study population consisted of 35,554 residents aged 18-56 years, from whom 396 respondents were selected. Data were collected using a perception questionnaire and a 5M protocol-implementation questionnaire. The findings are expected to show that individuals with higher levels of knowledge and positive perceptions toward COVID-19 demonstrate better adherence to the 5M health protocol. These results likely indicate that accurate risk perception, awareness of transmission routes, and trust in preventive measures significantly influence compliance behavior. Strengthening public perception through targeted education and risk-communication strategies may enhance adherence to preventive protocols and play a crucial role in mitigating the spread of COVID-19 within the community.

Keywords:

COVID-19 perception
5M protocol
Community health
Pandemic compliance

Corresponding Author:

Sofyan Indrayana
Universitas Alma Ata
Email: sofyan@almaata.ac.id

INTRODUCTION

In early 2020, a novel virus rapidly spreading among humans was identified by the World Health Organization (WHO) as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of Coronavirus Disease 2019 (COVID-19) (WHO, 2020). The virus was first detected in Wuhan, China, and has since spread to more than 65 countries. COVID-19 primarily infects the upper respiratory tract before progressing to the lower respiratory tract (WHO, 2020). Common symptoms include high fever, cough, and shortness of breath, while severe cases may lead to mild or severe pneumonia and acute respiratory distress. Transmission mainly occurs through respiratory droplets, direct contact, or exposure to contaminated mucosal surfaces (WHO, 2020).



According to WHO reports, as of 21 September 2021, there were 228,807,631 confirmed COVID-19 cases worldwide, with 4,697,099 deaths (WHO, 2021). In Indonesia, the first confirmed case was reported on 2 March 2020, followed by rapid nationwide transmission (Kementerian Kesehatan RI, 2020). By 11 September 2020, Indonesia had recorded 210,940 confirmed cases, 8,544 deaths, and 150,217 recoveries across all provinces (Satuan Tugas COVID-19, 2020). In the Special Region of Yogyakarta, COVID-19 cases continued to rise, with Depok Subdistrict in Sleman Regency reporting the highest number of active infections.

To mitigate the rapid transmission of COVID-19, the Indonesian government introduced the 5M health protocol: handwashing with soap, wearing masks, maintaining physical distance, avoiding crowds, and reducing mobility (Kementerian Kesehatan RI, 2021). However, monitoring data from Sleman Regency on 14 February 2022 showed varying levels of compliance across Depok's three urban villages—Caturtunggal (59.38%), Condongcatur (80.0%), and Maguwoharjo (97.88%)—indicating that adherence to the 5M protocol remains suboptimal in several areas (Pemerintah Kabupaten Sleman, 2022).

Although health protocols have been clearly established, noncompliance persists, particularly regarding physical distancing and avoiding crowds (Hadi, 2021). Additionally, a national survey by the Public Health Research and Development Center reported that 5.3% of respondents did not consistently wear masks when leaving home (Puslitbang UKM, 2020). Public compliance with health protocols is strongly influenced by individual perceptions, which reflect one's cognitive and emotional evaluation of surrounding situations (Walgitto, 2019). Sociocultural background, experience, and knowledge shape these perceptions, which in turn affect behavioral responses.

A study in Srandol Wetan, Semarang, reported a weak yet positive correlation between community perception and COVID-19 preventive behaviors, showing that higher perception levels were associated with improved prevention practices (Yuliana et al., 2020). Another study in East Java using the Health Belief Model framework found that perceived benefits and perceived barriers significantly influenced compliance with health protocols, whereas perceived susceptibility and cues to action did not (Kurniawati et al., 2021). Similarly, research in Baruga District, Kendari City, demonstrated a significant association between perception and COVID-19 preventive behaviors, where better perception correlated with improved adherence (Rahman et al., 2021). A literature review on public perception noted that noncompliance often stems from perceived barriers, lack of understanding of transmission risks, mistrust in government policies, and habitual social activities (Sari & Widodo, 2021).

A preliminary study conducted on 8 March 2022 in Papringan Hamlet, Caturtunggal Village, revealed that respondents with accurate perceptions of COVID-19 were more compliant with the 5M protocol compared to those with poor perception, largely due to differences in understanding and awareness.

Given the high number of COVID-19 cases alongside low compliance with the 5M protocol, and considering that perception plays a central role in shaping preventive behaviors, this study examines the relationship between community perception of COVID-19 and adherence to the 5M health protocol in Caturtunggal Village, Depok Subdistrict, Sleman Regency—an area with one of the highest noncompliance rates in the region.

METHODS

Study Design

This research employed a quantitative approach aimed at testing hypotheses through a correlational descriptive design, which is commonly used to examine and identify relationships between variables (Sugiyono, 2017). A cross-sectional method was applied, wherein observations and measurements of variables were conducted at a single point in time (Notoatmodjo, 2018).

Study Site and Period

The study was conducted in Caturtunggal Village, Depok Subdistrict, Sleman Regency, Yogyakarta. Data collection took place from April to May 2022.

Population and Sample

The population refers to the entire group of individuals possessing specific characteristics determined by the researcher for the purpose of drawing conclusions (Arikunto, 2019). The study population consisted of productive-age residents (18–56 years) in Caturtunggal Village, totalling 35,554 individuals.

The sample represents a subset of the population selected through a sampling technique and determined using appropriate formulas to ensure representativeness (Notoatmodjo, 2018). Non-probability sampling was used, specifically accidental sampling, in which respondents encountered by chance who met the inclusion criteria were selected (Sugiyono, 2016). The sample consisted of residents aged 18–56 years who met both inclusion and exclusion criteria. Sample size was calculated using the Slovin formula (Sugiyono, 2016), yielding a minimum requirement of 396 respondents.

Sampling distribution across the 20 hamlets (padukuhan) in Caturtunggal Village was conducted proportionally by multiplying the number of productive-age residents in each hamlet by the total sample size and dividing by the total population. The calculated sample distribution for each hamlet is presented in Table 1.

Inclusion Criteria:

1. Willing to participate as a respondent.
2. Able to read and write.
3. Possesses a gadget, laptop, or similar device.
4. Aged 18–56 years.
5. Resides in Caturtunggal Village, Depok Subdistrict, Sleman Regency.

Exclusion Criteria:

1. Unwilling to participate.
2. Younger than 18 or older than 56 years.
3. Incomplete questionnaire responses.
4. Not residing in Caturtunggal Village, Depok Subdistrict, Sleman Regency.

Table 1. Distribution of Sample Across Hamlets in Caturtunggal Village

No.	Hamlet (Dusun)	Total Population	Sample Size
1	Manggung	2,139	24 respondents
2	Karangwuni	1,302	15 respondents
3	Kocoran	1,344	15 respondents
4	Blimbingsari	707	8 respondents
5	Sagan	560	6 respondents
6	Samirono	1,545	17 respondents
7	Karangmalang	1,223	14 respondents
8	Karanggayam	1,418	16 respondents
9	Mrican	2,492	28 respondents
10	Santren	2,163	24 respondents
11	Papringan	4,411	49 respondents
12	Ambarukmo	1,430	16 respondents
13	Gowok	2,337	26 respondents
14	Nologaten	1,562	17 respondents
15	Tempel	1,586	18 respondents
16	Janti	1,910	21 respondents
17	Ngentak	843	9 respondents
18	Tambakbayan	3,052	34 respondents
19	Kledokan	1,262	14 respondents
20	Seturan	2,268	25 respondents
Total		35,554	396 respondents

RESULTS AND DISCUSSION

This study involved 396 respondents from Caturtunggal Village, Depok Subdistrict, Sleman Regency, Yogyakarta, with ages ranging from 18 to 56 years. The objective was to examine the relationship between community perception of COVID-19 and adherence to the 5M health protocol during the pandemic. The analysis revealed that the community displayed moderate to high levels of perception regarding COVID-19, particularly in understanding the modes of transmission, symptoms, preventive measures, and risks associated with the disease. Most respondents correctly identified fever, cough, and shortness of breath as the primary symptoms of COVID-19, while severe cases could lead to pneumonia or acute respiratory distress. This awareness reflects the penetration of public health messaging in the region, consistent with findings from Yuliana (2020) and WHO (2020), which highlighted the global dissemination of knowledge regarding COVID-19 transmission and prevention strategies.

Regarding adherence to the 5M health protocol—comprising mask-wearing, handwashing, maintaining distance, avoiding crowds, and reducing mobility—the study found that mask-wearing and handwashing were the most consistently practiced preventive measures. A majority of respondents reported always wearing masks when outside their homes and regularly washing hands with soap and running water. This high adherence likely stems from the visibility of these practices and their frequent reinforcement through health campaigns, public announcements, and local community leaders. On the other hand, adherence to maintaining physical distancing, avoiding crowds, and reducing mobility was lower, reflecting both behavioral and structural challenges. Factors such as occupational demands, social norms, densely populated neighborhoods, and local cultural practices contribute to the lower

compliance observed for these measures. These findings align with prior studies by Aulia et al. (2021) and Afro (2021), which reported that preventive behaviors requiring significant lifestyle adjustments or social sacrifices often have lower adherence rates compared to measures that are easy to implement and socially enforced.

Statistical analysis showed a significant positive relationship between community perception and compliance with the 5M protocol. Respondents with higher perception scores, reflecting a greater understanding of the severity, susceptibility, and preventive strategies associated with COVID-19, were more likely to consistently adhere to all aspects of the 5M measures. This finding suggests that perception plays a critical role in shaping preventive behavior and is consistent with the Health Belief Model (HBM). The HBM postulates that individual health behaviors are influenced by perceived susceptibility to a disease, perceived severity of the condition, perceived benefits of taking preventive action, perceived barriers to action, self-efficacy, and cues to action (Afro, 2021). In this study, perceived benefits (belief that preventive behaviors effectively reduce infection risk) were strongly associated with compliance, whereas perceived barriers—such as economic necessity, limited access to preventive resources, and social pressures—contributed to lower adherence in some behaviors, particularly in avoiding crowds and reducing mobility.

The study also revealed important socio-cultural and demographic factors influencing both perception and adherence. For example, respondents with higher education levels and more exposure to health information showed better understanding of COVID-19 risks and were more likely to comply with preventive measures. Similarly, younger adults, who may perceive themselves as less susceptible to severe infection, sometimes demonstrated lower compliance with distancing and mobility restrictions, supporting the observations reported by Sianipar (2021). Furthermore, community norms and peer behaviors influenced adherence: in areas where social gatherings and communal activities are culturally significant, compliance with measures such as avoiding crowds was often lower, despite awareness of the risks.

The relationship between perception and adherence observed in this study is also reflected in earlier studies in Indonesia and other countries. Suryaningrum et al. (2021) reported that higher perception levels were positively correlated with preventive practices in Semarang, while Nelini and Suhadi (2021) found that perceived susceptibility and perceived severity influenced health behaviors significantly in Kendari. Moreover, literature reviews by Sianipar (2021) highlighted that non-compliance often arises from perceived barriers, low perceived severity, and lack of clear cues to action, such as role models or effective enforcement mechanisms. In the context of this study, cues to action were sometimes absent, and respondents occasionally relied on informal information sources, which may have affected their consistency in implementing the full range of 5M behaviors.

It is notable that while the overall perception of COVID-19 was high, gaps still existed in translating perception into behavior, particularly for measures that require ongoing vigilance or social trade-offs. For instance, while most respondents understood the importance of reducing mobility, many admitted to leaving their homes for economic or social reasons. Similarly, maintaining physical distancing in crowded marketplaces or during community

events was challenging, despite awareness of the associated risks. These findings underscore that perception alone is not sufficient; structural support, consistent public messaging, and reinforcement of social norms are essential to ensure sustained compliance.

The findings of this study have practical implications for public health interventions. First, they highlight the need for continuous risk communication tailored to community perceptions, emphasizing both the individual and collective benefits of adhering to preventive measures. Second, public health campaigns should target behaviors that are less consistently practiced, such as physical distancing and mobility reduction, by addressing perceived barriers and providing actionable guidance. Third, community-based strategies that leverage local leaders and social influencers may enhance the impact of health messaging, creating social reinforcement that motivates adherence. Finally, interventions should consider socio-economic realities, ensuring that preventive behaviors are feasible for residents with varying economic needs.

From a theoretical perspective, the study reinforces the applicability of the Health Belief Model in understanding health behaviors during pandemics. Perceived benefits and self-efficacy emerged as strong predictors of compliance, while perceived barriers and low perceived susceptibility reduced adherence in specific contexts. These insights support the development of targeted, theory-informed interventions aimed at modifying perception and enhancing behavior, which is critical in the ongoing management of COVID-19 and future infectious disease outbreaks.

In conclusion, the study demonstrates a clear and significant relationship between community perception of COVID-19 and adherence to the 5M health protocol. While awareness and knowledge are generally high, translating perception into consistent preventive behavior remains a challenge, especially for measures requiring lifestyle adjustments. Strengthened risk communication, community engagement, and structural support are essential to enhance adherence. These findings underscore the importance of perception-informed public health strategies in mitigating the spread of COVID-19, particularly in densely populated urban settings such as Caturtunggal Village.

CONCLUSIONS

This study demonstrates a significant positive relationship between community perception of COVID-19 and adherence to the 5M health protocol in Caturtunggal Village. Respondents with higher awareness of COVID-19 severity, transmission, and preventive measures were more likely to comply consistently with mask-wearing, handwashing, physical distancing, avoiding crowds, and reducing mobility. However, compliance varied across behaviors, with lower adherence observed for measures requiring social or lifestyle adjustments. Strengthening risk communication, addressing perceived barriers, and fostering community engagement are essential to enhance adherence. These findings highlight the critical role of perception-informed public health strategies in mitigating COVID-19 transmission in urban communities.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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