

## Determinants of Community Compliance With COVID 19 Health Protocols in Indonesia: An Integrative Literature Review

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### Abstract

**Background:** Community compliance with health protocols was essential during the early COVID 19 pandemic. Understanding its determinants may inform preparedness for future respiratory outbreaks. **Objectives:** This integrative literature review synthesized Indonesian evidence on factors associated with community compliance with COVID 19 preventive protocols. **Methods:** Google Scholar was the documented search source. Of 31 initially identified records, 16 remained after restriction, and six studies met eligibility criteria. Eligible studies examined community compliance with preventive protocols and provided accessible full text. Findings were synthesized descriptively using a Health Belief Model informed framework. **Results:** Across six studies, compliance was associated with cognitive factors, including knowledge, awareness, perceived threat, and perceived barriers; motivational and social factors, including attitudes, concern, motivation, and social environment; and structural factors, particularly facility availability. Findings varied across study settings, suggesting that compliance reflected interactions among individual perceptions, social influences, and environmental opportunities. **Conclusions:** Community compliance during the early pandemic was associated with interconnected cognitive, motivational, social, and structural factors. These findings provide contextual lessons for designing integrated health promotion strategies and strengthening preparedness for future respiratory outbreaks.

**Keywords:** Compliance; COVID 19; Health Belief Model; Health protocols; Literature review.

## Introduction

Health emergency and was characterized as a pandemic by the World Health Organization in March 2020<sup>1</sup>. During the early pandemic period, Indonesian prevention policy emphasized community behaviors such as mask use, hand hygiene, physical distancing, and avoidance of crowded settings<sup>2</sup>. Compliance with these measures varied across populations and settings, making behavioral adherence an important public health issue during that period.

Early national surveys and local studies showed that knowledge of recommended

measures did not always translate into consistent practice. Indonesian evidence described variation in mask use, handwashing, mobility, care seeking, and other protective behaviors across community settings<sup>3</sup>. Healthy Tadulako Journal studies from the pandemic period also documented behavioral diversity. Leaflet education in North Loktabat was followed by improved mask and handwashing behavior, while a study in a coastal community in Nambo described incomplete adoption of several protective health behaviors<sup>4,5</sup>. These observations suggest that compliance should be interpreted as a multidimensional behavior

rather than a simple consequence of information exposure.

Behavioral theory provides a useful structure for understanding this variation. The Health Belief Model proposes that health behavior may be related to perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self efficacy<sup>6</sup>. An HTJ study applying the Health Belief Model to COVID 19 prophylactic self medication found significant correlations between several perception domains and preventive behavior, demonstrating the relevance of perception based constructs in the Indonesian pandemic context<sup>7</sup>. Motivation and behavioral adaptation are also important, particularly when recommended practices are new, socially disruptive, or require environmental support<sup>8,9</sup>.

The original literature review identified eight recurring determinants of health protocol compliance: awareness, concern, perception, belief, knowledge, attitude, motivation, and availability of facilities. However, these constructs were previously presented as a flat list, even though several represent overlapping cognitive or motivational mechanisms. Reorganizing them within a theory informed framework can improve interpretability and help distinguish internal beliefs from social and structural opportunity.

This review remains relevant because the early pandemic provides a natural experiment in rapid population behavior change. Understanding why protective behaviors were adopted inconsistently can inform future respiratory outbreak preparedness, risk communication, and the design of feasible community interventions. The contribution of this revision is to synthesize the six retained Indonesian studies in a traceable evidence table and to map the reported determinants into cognitive, motivational and social, and environmental opportunity domains.

The review question was: among Indonesian community populations studied during the early COVID 19 pandemic, which individual, motivational or social, and environmental determinants were reported to be associated with compliance with community health protocols? The objective was to synthesize the factors identified in the six retained studies and interpret their consistency, heterogeneity, and practical relevance for future outbreak preparedness.

## **Materials and Methods**

### **Study Design**

This article was revised and reported as an integrative literature review rather than a systematic review because the source manuscript did not document all elements required to reproduce a formal systematic search, duplicate removal process, dual reviewer screening, or formal risk of bias assessment. The review focused on Indonesian evidence concerning community compliance with COVID 19 health protocols during the early pandemic period. The synthesis was descriptive and theory guided.

### **Sample**

The unit of analysis was the published study. The source manuscript documented 31 records identified through Google Scholar, 16 records retained after restriction by title and publication period, and six studies included after application of eligibility criteria. Inclusion criteria were published full text articles addressing determinants or correlates of community compliance with COVID 19 health protocols in Indonesia. Abstract only records and studies not addressing the compliance outcome were excluded. The final synthesis retained six sources that were explicitly linked to determinant findings in the original manuscript: Afianti and Rahmiati; Riyadi and

Larasaty; Kasim et al.; Ginting et al.; Sari and Utami; and Annajih et al<sup>10-15</sup>.

### **Data Collection Technique**

The documented literature source was Google Scholar. The original review used search terms related to health protocol compliance and restricted the results to the early pandemic publication period. Because the exact Boolean expression and final search date were not preserved in the source manuscript, these details were not reconstructed retrospectively. For the present author revision, data extraction was standardized across the six retained studies using the following fields: author and year, setting and population, sample size when reported, design, operational focus of compliance, determinant or correlate assessed, statistical result or effect estimate when available, and a design level limitation relevant to interpretation.

The article selection process was harmonized to a single internally consistent flow of 31 identified records, 16 records retained after restriction, and six included studies. Figure 1 presents this review flow. The figure is intended as a transparent selection summary for this integrative review and is not presented as a PRISMA compliant systematic review flow diagram.

### **Data Analysis Technique**

Evidence was synthesized descriptively because the included studies used different populations, measures, and analytic approaches. No meta analysis was performed. Determinants were grouped using a Health Belief Model informed structure: individual cognitive factors, motivational and social factors, and environmental opportunity. A determinant was considered supported when an included study reported a statistical association, a descriptive pattern explicitly linked to

compliance, or a qualitative or conceptual finding directly addressing adherence. Because not all six studies reported comparable effect estimates, the synthesis emphasizes direction, statistical significance where available, and the number of included sources supporting each determinant rather than pooled effects.

### **Ethical Consideration**

This review analyzed information from published sources and did not involve direct contact with human participants or collection of identifiable participant data. Ethical approval for the review itself was therefore not required. Ethical responsibilities remained focused on accurate citation, faithful representation of the included studies, and avoidance of causal claims beyond the designs of the source evidence.

### **Result**

Because this study is a literature review, the relevant characteristics are those of the included studies rather than individual respondents. Table 1 summarizes the six retained sources. The evidence base included national survey data, community surveys, a market trader survey, a maternal and child health service setting, and a conceptual cultural counseling study. Most empirical studies were observational and used self reported measures of compliance, which is important when interpreting the strength of evidence.

Figure 1 shows the harmonized selection process. Of 31 records identified in Google Scholar, 16 remained after restriction by the review topic and publication period, and six studies were retained for synthesis. This corrected flow resolves the previous inconsistency in which 29 and 31 records were both reported as the initial search yield.

**Table 1.** Characteristics and traceability of the six included studies

| Study and setting                                        | Design and sample                                                              | Determinants and main result                                                                                                                     | Interpretive note                                                                  |
|----------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Afrianti & Rahmiati, 2021<br>Indonesian community survey | Analytic survey, cross sectional<br>n=163                                      | Age p=0.001; education p=0.035; knowledge p=0.015; attitude p=0.006; motivation p=0.001                                                          | Online questionnaire; associations only                                            |
| Riyadi & Larasaty, 2021<br>National BPS survey           | Secondary regression analysis<br>90,967 respondents reported in source context | Concern, perceived isolation effectiveness, sex, education, marital status, health status, and age were identified as correlates                 | Large national data set; coefficients were not reproduced in the source manuscript |
| Kasim et al., 2021<br>Datuk Lima Puluh, Batu Bara        | Observational analytic, cross sectional<br>n=393                               | Knowledge and facility availability were associated with compliance; lack of facilities corresponded to 1.904 times higher odds of noncompliance | Local setting; structural opportunity was directly measured                        |
| Ginting et al., 2021<br>Morning market traders, Medan    | Analytic survey, cross sectional<br>n=133                                      | Education p=0.918; knowledge p=0.268; attitude p=0.104; social environment p=0.017                                                               | Shows that cognitive factors were not uniformly associated across settings         |
| Sari & Utami, 2021<br>Posyandu Malangjiwan               | Observational analytic, cross sectional<br>n=47                                | Anxiety or concern was associated with compliance, p=0.002                                                                                       | Small local sample; self reported behavior                                         |
| Annajih et al., 2021<br>Indonesian community context     | Conceptual literature based study                                              | Cultural perception, belief, and social norms were linked conceptually with adherence                                                            | Contextual interpretation; not an effect estimate study                            |

**Source:** Included studies cited in the original review and verified bibliographic information where available.

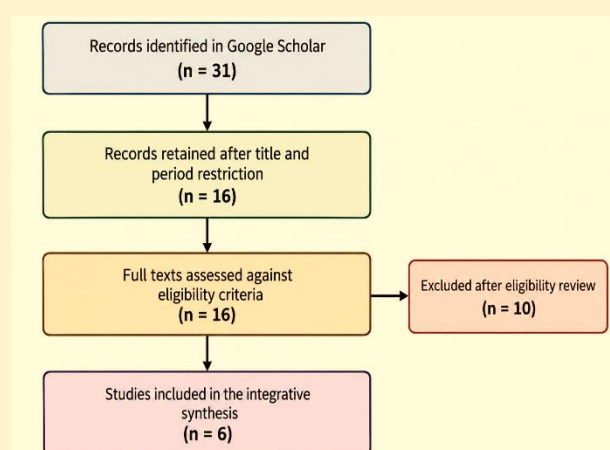


**Figure 1.** Article selection process for the integrative literature review

The evidence did not support one universal determinant of compliance. Instead, the six studies showed a pattern of context dependent associations. Table 2 reorganizes the original eight determinants into three domains. Knowledge, awareness, concern, perceived threat, perceived barriers, attitude, motivation, social environment, cultural meaning, and facility availability were all represented, but the

direction and statistical strength were not uniform across studies. For example, Afrianti and Rahmiati reported significant associations for knowledge, attitude, and motivation, whereas Ginting et al. found no statistically significant association for knowledge or attitude among market traders but did identify a significant social environment association<sup>10,13</sup>.

Figure 1 provides a transparent visual summary of the review selection process from identification through inclusion. The theory guided organization of determinants is presented in Table 2 so that cognitive, motivational and social, and environmental opportunity domains can be interpreted directly alongside the evidence pattern.

The six study synthesis indicates three main findings. First, cognitive factors such as knowledge and perceived threat were frequently reported, but their associations were not consistent across settings. Second, motivation, attitude, social environment, and cultural interpretation help explain why people

with similar information may behave differently. Third, structural opportunity matters: limited access to facilities can constrain compliance even when awareness is

adequate. These findings support a multilevel interpretation of pandemic health behavior rather than a single factor explanation.

**Table 2.** Theory guided synthesis of determinants of health protocol compliance

| Framework domain          | Determinants                                      | Evidence pattern and sources                                                                                                                              | Interpretation                                                                                  |
|---------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Individual cognitive      | Knowledge; awareness                              | Associated in Afrianti & Rahmiati and Kasim et al.; not associated among market traders in Ginting et al. Awareness also appeared in the review evidence. | Knowledge can support action but may be insufficient when social or structural barriers remain. |
| Individual cognitive      | Concern; perceived threat; perceived barriers     | Concern or anxiety was linked with adherence in Riyadi & Larasaty and Sari & Utami. Barriers included economic and social disruption in Annajih et al.    | Perceived threat may motivate action, while barriers can reduce feasibility.                    |
| Motivational and social   | Attitude; motivation                              | Associated in Afrianti & Rahmiati, while attitude was not significant among market traders in Ginting et al.                                              | Motivational effects appear context dependent.                                                  |
| Motivational and social   | Social environment; cultural or religious meaning | Social environment was associated among market traders; cultural meaning was discussed by Annajih et al.                                                  | Social norms and meaning may reinforce or compete with formal health guidance.                  |
| Environmental opportunity | Availability of facilities                        | Kasim et al. linked facility availability with compliance.                                                                                                | Enabling resources are required for recommended behavior to be feasible.                        |

**Source:** Synthesis of the six included studies.

## Discussion

This integrative review found that community compliance with COVID 19 health protocols in Indonesia during the early pandemic period was associated with a combination of cognitive, motivational, social, and environmental conditions. The strongest interpretive message is heterogeneity. The included studies did not identify a single determinant that was consistently associated with compliance across all settings. This is expected because the populations ranged from a national survey to market traders and mothers attending community health services, and because definitions of compliance differed across studies.

Knowledge was prominent but not uniformly predictive. Afrianti and Rahmiati reported a significant association between knowledge and compliance, and Kasim et al. also identified knowledge in relation to community adherence<sup>10,12</sup>. In contrast, Ginting et al. found no significant association between knowledge and compliance among market traders<sup>13</sup>. This inconsistency suggests that information alone may not overcome environmental constraints, social norms, economic pressures, or differences in perceived risk. The finding is compatible with the Health Belief Model, in which knowledge can inform perceptions but behavior also depends on

perceived susceptibility, severity, benefits, barriers, cues, and confidence<sup>6</sup>.

Concern and perceived threat were also relevant. The national analysis by Riyadi and Larasaty identified concern related variables among the correlates of compliance, while Sari and Utami reported a significant relationship between anxiety and adherence in a Posyandu setting<sup>11,14</sup>. These patterns should not be interpreted to mean that anxiety should be increased. Rather, they indicate that perceived risk can shape preventive behavior when people judge a threat as personally relevant. Public communication should therefore be accurate and actionable, avoiding both minimization and unnecessary fear.

Attitude and motivation showed a similarly context dependent pattern. Afrianti and Rahmiati found statistically significant associations for both constructs, but Ginting et al. did not find attitude associated with adherence among market traders<sup>10,13</sup>. The difference may reflect setting, livelihood demands, access to protective facilities, or the fact that a favorable attitude does not guarantee the opportunity to act. HTJ evidence on health promotion also supports the importance of knowledge and motivation as linked behavioral constructs in service settings<sup>17</sup>.

Social and cultural context deserves separate attention. Ginting et al. reported a significant association between social environment and compliance among market traders<sup>13</sup>. Annajih et al. emphasized that local cultural and religious interpretations can shape how communities understand health recommendations<sup>15</sup>. These constructs should not be conflated with institutional trust. Cultural meaning refers to the interpretive framework through which people understand disease and recommended actions, whereas trust concerns confidence in institutions, authorities, or information sources. The source evidence supports cultural interpretation more

clearly than a distinct quantitative measure of institutional trust.

Environmental opportunity was most clearly represented by the availability of facilities. Kasim et al. reported that respondents without adequate facilities had 1.904 times higher odds of noncompliance<sup>12</sup>. This finding is important because it shifts part of the explanation from individual responsibility to feasibility. Handwashing recommendations require accessible water and facilities; mask recommendations require access and affordability; distancing recommendations may be difficult in crowded markets or workplaces. Prevention programs therefore need to combine communication with enabling infrastructure.

The HTJ literature reinforces the value of interpreting behavior within context. Torzellia et al. documented improved mask and handwashing behavior after leaflet education, showing that communication can support preventive practice<sup>4</sup>. Zainuddin et al. described heterogeneous health behaviors in a coastal community during the early pandemic, underscoring that preventive choices vary across daily contexts<sup>5</sup>. Paudi et al. demonstrated relationships between Health Belief Model perception domains and COVID 19 related preventive behavior<sup>7</sup>. Additional HTJ evidence on motivation and health promotion, protective equipment use, and adaptation during the pandemic provides complementary examples of how knowledge, motivation, and practical context interact in health behavior<sup>17,18,19</sup>.

Other early pandemic sources likewise described variation in clinical knowledge, public compliance, information seeking, and preventive behavior across Indonesia and internationally<sup>20,21,22,23,24,25,26,27,28</sup>. Together, these reports support the broader interpretation that protective behavior emerged from multiple interacting influences rather than from a single informational determinant.

The findings should be interpreted according to the strength of the evidence. Most included empirical studies were observational and cross sectional, so the reported relationships are associations rather than proof of causation. Compliance was commonly assessed through questionnaires or self report, which can be affected by recall and social desirability. The six study evidence base is small, the search relied on Google Scholar, publication and selection bias are possible, and operational definitions of health protocol compliance differed across studies. These limitations restrict generalizability and preclude a pooled quantitative estimate.

Despite these limitations, the synthesis provides practical lessons for future respiratory outbreak preparedness. Communication strategies should address perceived risk and barriers rather than relying only on factual knowledge. Programs should reinforce motivation and supportive social norms while avoiding stigmatizing messages. Environmental supports, including accessible hand hygiene facilities and feasible protective measures in public settings, should accompany behavioral recommendations. Future reviews should use multiple bibliographic databases, prespecified search strings, independent screening, formal quality appraisal, and transparent reporting standards, while future primary studies should use standardized compliance measures and longitudinal designs.

## **Conclusion**

Indonesian evidence from six studies conducted during the early COVID 19 pandemic indicates that community compliance with health protocols was associated with interacting cognitive, motivational, social, and environmental conditions. Knowledge and awareness were relevant but not consistently associated across settings. Concern and perceived threat, attitude

and motivation, social environment and cultural interpretation, and the availability of supporting facilities also contributed to observed variation in adherence. The evidence is primarily observational and should be interpreted as association rather than causation. For future respiratory outbreak preparedness, behavioral recommendations are most likely to be feasible when accurate risk communication is combined with motivational support, socially appropriate implementation, and accessible environmental resources.

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#### Conflict of Interest Statement

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