Factors Associated with Health Protocol Compliance Among Market Traders: A Cross-Sectional Study in Tabanan City, Indonesia

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Keywords: COVID-19, Health Protocol Compliance, Market Traders, Tabanan City.

Abstract: COVID-19 is a disease caused by the SARS-CoV 2 virus. Because this disease is transferred from person to person, it is easily disseminated in crowded places like marketplaces. The Indonesian Ministry of Trade has published health protocols for these market areas; therefore, implementing health protocols in the market is one way to prevent COVID-19. This study aimed to identify factors associated with market traders' compliance with health protocols. This study used a cross-sectional design with stratified sampling as the sampling technique and 232 samples in total. A questionnaire was used for data collection. Binary logistic regression was performed to test the factors associated with health protocol compliance. The findings revealed that only 23.3% of respondents complied with health protocols. Knowledge ($p = 0.001$; OR $= 0.06$) and the involvement of community leaders ($p = 0.006$; OR $= 2.67$) were statistically significant with health protocol compliance among market traders. In conclusion, the majority of market traders were not in compliance with health protocols. This result is related with knowledge, the role of community leaders, and respondents' attitude; therefore, improving their knowledge and increasing the community leaders' involvement are necessary to strengthen health protocol compliance in the market.

1 INTRODUCTION

COVID-19 is a recently-identified coronavirus that causes an infectious illness. Obtaining accurate information about the COVID-19 virus is the greatest approach to prevent and halt its spread. It is recommended to avoid touching the face by washing hands with soap or using alcohol-based products as often as feasible. When an infected individual coughs or sneeze, the COVID-19 virus spreads through saliva droplets, meaning coughing etiquette is critical (WHO, 2021). Indonesia is one of the countries with the largest populations. Although it is in a relatively warm place and the temperature is quite high, there is still a need to be vigilant (Giarno, 2021). Positive confirmed cases reached 106,834 in Bali, Indonesia, from August 31, 2021 to August 31, 2022, with 3,508 deaths (Satgas Covid Bali, 2021).

Coughing, fever, and shortness of breath are common COVID-19 symptoms. These signs and symptoms are comparable to those of the flu in general. However, in a tiny number of instances, no respiratory symptoms such as diarrhea, nausea, or vomiting are present. With symptomatic and supportive care, most patients infected with COVID-19 will recover in a few days. Serious symptoms such as bronchitis and severe pneumonia can also occur in some people (Paules et al., 2020).

Individuals infected with COVID-19 have suffered from hypoxic respiratory failure in 19% of cases, while 14% progressed to severe cases needing oxygen treatment, and 5% required mechanical ventilation and ICU hospitalization (Wu & McGoogan, 2020). According to another study, 67% of 52 COVID-19 patients with severe symptoms had acute respiratory symptoms, 63.5% needed high-flow

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oxygen tubes, 42% needed invasive mechanical ventilation, and 52% needed non-invasive mechanical ventilation (Yang et al., 2020). Some individuals who had recovered from COVID-19 had symptoms such as dyspnea, tiredness, cough, and dysosmia that lasted longer (Miyazato et al., 2020).

Social distancing is one of the preventative methods used to combat the spread of COVID-19. Social distancing is a strategy for keeping sick individuals apart from healthy people to decrease the disease transmission risk. For example, canceling a communal event or shutting down a public place, as well as avoiding crowds (Pearce, 2020). To assist COVID-19 transmission reduction, the Center for Disease Control and Prevention (CDC) in the United States suggests wearing a face mask in public if one cannot keep a six-foot distance from others (CDC, 2021). Regular hand-cleaning with soap and water or scrubbing with a hand sanitizer containing at least 60% alcohol is also necessary (Wimalawansa, 2020). Although most healthcare professionals believe that washing hands with hand sanitizer is fast, it is ineffective and promotes dryness, according to a study (Fatima et al., 2021).

Markets have traditionally been at the center of city life. Markets continue to play an essential role in the local food supply and regional economy, despite the rise of commercial retail and internet shopping (González, 2020). Markets are still in the spotlight in many parts of the world when it comes to COVID-related precautions. The market's crowded, open, and public natures are thought to be the greatest danger of uncontrolled virus transmission (Munster et al., 2018). The COVID-19 pandemic has had a significant impact on the income of traditional market traders in Indonesia. The variable of trading hours affects the traders' income due to the social restriction policies (PPKM), which limited the operating hours for trading (Lathief Ilhamy Nasution, 2022).

The Indonesian Ministry of Trade published Circular Letter Number 12 of 2020, which governs the restoration of commercial activities disrupted by the COVID-19 pandemic. The market area, also known as traditional marketplaces, is one of the places where commercial activities are being recovered. When functioning, markets that sell items for the community's fundamental requirements must follow rigorous health protocols consisting of 11 principles to be followed by all market visitors, including traders (Kemendag RI, 2020).

Until an effective and safe vaccine is developed, community cooperation with health protocols is essential in COVID-19 prevention. Because compliance with preventative activities such as health protocols is still lacking, changes to the community's behavior are needed(Ranjan et al., 2020). In a study of public transportation facilities, it was discovered that social distancing regulations were followed, although mask usage still needed strict supervision (Komla et al., 2020).

A study has confirmed that efforts to limit the spread of human viruses to humans must be done (Mege et al., 2020). There is a high risk of spreading COVID-19 in the market area despite the health protocols that have been implemented. Hence, the objective of this study is to identify the factors associated with market traders' health protocol compliance; by knowing the related factors, the spread of COVID-19 can be prevented.

2 MATERIAL AND METHODS

A cross sectional study was conducted on market traders in four markets in Tabanan City, Bali, Indonesia. Using the stratified sampling technique, the sample size for this study was 232 respondents consisting of market traders in four marketplaces in Tabanan City. Simple random sampling was used to choose respondents from each market, resulting in a total of 58 respondents from each market based on the proportions.

Traders in four traditional marketplaces in Tabanan City who were still selling throughout the COVID-19 pandemic and were willing to become respondents by signing the informed consent form were included in the study. Traders who did not have reading skills, traders who agreed to participate but did not finish the questionnaire, and traders who were not actively trading during the COVID-19 pandemic were all excluded.

A questionnaire was utilized as the research instrument. The questionnaire was divided into three sections. Part 1 comprised questions designed to identify respondents' general characteristics, part 2 contained questions on following health protocols, while part 3 had questions about variables that affected following health protocols. An ordinal scale was utilized in this study.

Prior to data collection, permission was requested. The National Unity and Political Agency of Tabanan Regency granted authorization for this study via letter number 071/379/BKBP/2021, which was subsequently dispositioned to the Tabanan Regency Department of Industry and Trade. The Research Ethics Commission of Bali Institute of Technology and Health also gave its approval to this study, with letter number 04.0341/KEPITEKES-BALI/IV/2021.

The data collection process was then resumed with the delivery of questionnaires to respondents directly. The questionnaire data were double-checked to ensure that it was comprehensive.

The Statistical Package for Social Sciences (SPSS) version 25 was used for data entry and analysis. The frequency distribution and proportion of each independent variable were determined using univariate analysis. The chi-square test was used to evaluate the components that were associated with compliance in a bivariate study. The factors were deemed related if the p-value was less than 0.05 ($p < 0.05$). To find the factors that were strongly related to health protocol compliance, a multivariate analysis using binary logistic regression was conducted based on OR number, CI percentage, and p-value.

3 RESULTS

3.1 General Characteristics

Table 1: Respondents' General Characteristics (n = 232).

Characteristics	n (%)
1. Age (Year)	
≤ 48	123 (53.0)
> 48	109 (47.0)
2. Sex	
Male	54 (23.3)
Female	178 (76.7)
3. Education	
Higher (diploma and above)	16 (6.9)
Middle (senior high school and equivalent)	89 (38.4)
Lower (no education past junior high school)	127 (54.7)
4. Marital Status	
Married	223 (96.1)
Single	9 (3.9)

Table 1 shows that the majority of respondents were under the age of 48 (53%), were female (76.7%), had a low educational level (54.7%), and were married (96.1%).

3.2 Compliance with Health Protocols

Compliance with health protocols was divided into two categories, namely compliance and non-compliance.
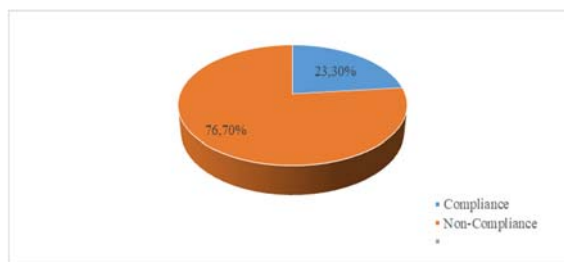

Figure 1: Compliance with Health Protocols (n = 232)

Figure 1 shows that 23.3% of respondents complied with health protocols.

3.3 Factors Associated with Health Protocols Compliance

Table 2: Factors Related to Compliance with Health Protocols (n = 232).

Factors	Compliance with Health Protocols		Total n (%)	p-Value *
	Compliance n (%)	Non-Compliance n (%)		
Knowledge				< 0.001**
Adequate	40 (18.7)	174 (81.3)	214 (92.2)	
Inadequate	14 (77.8)	4 (22.2)	18 (7.8)	
Perception				0.282
Positive	37 (21.5)	135 (78.5)	172 (74.1)	
Negative	17 (28.3)	43 (71.7)	60 (25.9)	
Role of Community Leaders				0.005**
Positive	36 (31.0)	80 (69.0)	116 (50.0)	
Negative	18 (15.5)	98 (84.5)	116 (50.0)	
Attitude				0.003**
Positive	19 (39.6)	29 (60.4)	48 (20.7)	
Negative	35 (19.0)	149 (81.0)	184 (79.3)	
Media Access				0.260
Enough	19 (19.6)	78 (80.4)	97 (41.8)	
Less	35 (25.9)	100 (74.1)	135 (58.2)	

Table 2 shows that three components were found to be associated in the bivariate analysis using the chi-square test, namely knowledge, the role of community leaders, and attitude.

Table 3: Multivariate Analysis of Factors Related to Respondents' Compliance with Health Protocols (n = 232).

Variables	Compliance		OR	95% CI	p-Value
	Compliance n (%)	Non-Compliance n (%)			
Knowledge					
Adequate	40 (18.7)	174 (81.3)	0.06	0.02 – 0.20	< 0.001
Inadequate *	14 (77.8)	4 (22.2)			
Role of Community Leaders					
Positive	36 (31.0)	80 (69.0)	2.67	1328 – 5356	0.006
Negative*	18 (15.5)	98 (84.5)			

Table 3 shows that there were two characteristics associated with health protocol compliance: knowledge and the involvement of community leaders.

4 DISCUSSION

The results of the study found that 23.3% of market traders in the traditional Tabanan City market were compliant. A study by Komla (2020) found an identical result with public transportation. The policy on social distancing was abided by public transportation users, however, the policy on mask use still required careful supervision (Munster et al., 2018). A study by González (2020) found that preventive practices such as health protocols were related to the progression of COVID-19, and compliance with these practices was still unsatisfactory (González, 2020). Compliance with health protocols, especially in the market sector, was poor, as evidenced by study results showing most market traders did not follow health protocol implementation effectively. Knowledge regarding COVID-19 and the involvement of community leaders in health protocol implementation were shown to be variables associated with compliance in this study.

Knowledge about COVID-19 and health protocols, perception of COVID-19, the role of community leaders, attitude toward health protocol policies, and media access regarding COVID-19 were the factors investigated regarding health protocol compliance. Table 2 shows that three components were found to be associated in the bivariate analysis using the chi-square test, namely knowledge, the role of community leaders, and attitude. COVID-19 was well-known among the majority of respondents (92.2%). COVID-19 was viewed positively by the majority of respondents (74.1%). The proportion of positive and negative views on the role of community leaders was equal (50%). The majority of those polled had a negative view of health protocol policies (79.3%). The majority of traders had limited access to information on COVID-19 (58.2%).

According to the results of the multivariate analysis, there were two characteristics associated with compliance with health protocols: knowledge and the involvement of community leaders. Table 3 shows that knowledge regarding COVID-19 and health protocols had an OR value of 0.06; thus, a 1-OR formula was required to draw conclusions, and 1 - 0.06 = 0.94 was achieved. This led to the conclusion that traders with strong knowledge of 0.94 times or 94% had a decreased chance of following health protocols (OR = 0.06; 95% CI = 0.02 – 0.20; p = 0.001). Because the role of community leaders had an OR of 2.67, traders who had a positive view of their function were 2.67 times more likely to follow health protocols than traders who had a negative view (OR = 2.67; 95% CI = 1,328 – 5,356; p = 0.006).

On the knowledge aspect, this study discovered that most market traders (92.2%) had a solid understanding of COVID-19, and that this knowledge was highly connected to market traders' compliance with health protocols. Market traders, on the other hand, were linked to a lack of attention to health protocols. Hossain (2020) investigated the relationship between knowledge and attitudes with health protocols in adult respondents in Bangladesh, claiming that adequate knowledge about COVID-19 and health protocols was needed to create behaviors to prevent COVID-19 transmission (Hossain et al., 2020). According to a study conducted on a group of primary children in Wuhan, China, awareness of hand cleanliness and the use of masks was extremely helpful in reducing infectious illnesses (Chen et al., 2020). However, in this study, having a strong understanding of COVID-19 was not enough to get market traders to follow health protocols. One of the causes of ignorance to the introduction of new rules might be markets that are identical to free or informal settings. More qualitative in-depth studies on the connection between COVID-19 knowledge and compliance with health protocols is needed.

The importance of community leaders in ensuring that health protocols were followed was also a key issue. The function of community leaders was evaluated from market traders' perspective. The majority of market traders who had a negative view of community leaders' roles did not follow health protocols, according to this study. Rosidin (2020) has mentioned that the forms of support provided by community leaders were divided into emotional support, appreciation support, instrumental support, and informative support. Empathy, care, and concern are examples of emotional support. Expressions of respect and encouragement to continue forward are examples of appreciation support. Instrumental support includes direct help tailored to the community's needs. Advice, hints, suggestions, and feedback are all examples of informative help. During the COVID-19 pandemic, this type of assistance is required (Rosidin et al., 2020).

Wright (2020) states that local governments also have an important role in overcoming the impact of COVID-19 (Wright, 2020). Market administrators, which include coordinators, deputy coordinators, and market collectors, are the closest community leaders in the market. They are responsible for overseeing and coordinating with their particular target market regions. In addition, security officers known as *pecalang* are stationed throughout Bali. Puspawati (2020) argues that during the COVID-19 pandemic, pecalang were assigned as COVID-19 mutual cooperation task forces, with one of their assignments being supervising health protocols (Puspawati et al., 2020). Meanwhile, Auliya & Arif (2021) state that the role of the Department of Industry and Trade under the Indonesian Ministry of Trade also needs to be increased during the COVID-19 pandemic (Auliya & Arif, 2021). One of these roles is that of a facilitator, who provides help, facilities, and educational support, which in this case includes health protocols. As a result, increased supervision from local community leaders is required for health protocol implementation.

5 CONCLUSION

The results of this study showed that traditional market traders' compliance with health protocols in Tabanan City during the COVID-19 pandemic was poor. This was found to be related to the market traders' knowledge of COVID-19. Although these market traders had good knowledge about COVID-19, it was not enough to make them comply with health protocols; therefore, further research is needed on other factors that affect COVID-19 knowledge and health protocol adherence. The involvement of community leaders in the market's health protocol application also needs attention. Increased supervision of health protocol application is suggested to market community leaders.

ACKNOWLEDGEMENTS

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