

ORIGINAL ARTICLE

Applying the Social Cognitive Theory: Relationship between Knowledge, Organizational-Environmental, and Self-Efficacy to Community Pharmacists Compliance with COVID-19 Health Protocols

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ABSTRACT

Introduction: The purpose of this research was to analyze the relationships between pharmacists knowledge, work environment, and self-efficacy to their compliance level with the COVID-19 health protocols. **Methods:** This cross-sectional study was designed with descriptive correlational data collection using a questionnaire. Simple random sampling was used to choose the participants who are pharmacists from the Special Region of Yogyakarta's Province. The demographic characteristics of the respondent were presented descriptively. The demographic characteristics of the respondent were presented descriptively. A statistical test was used to assess the correlation between compliance level vs each of the three factors from the Social Cognitive Theory. **Results:** A total of 262 pharmacists were selected with data collection using a questionnaire. Most of them were in a medium level of compliance (65.6%), while only 19.1% in a high level, and the 15,3% in a low level. Correlation values of 0.463 and 0.409 between variables measuring the organization's environment and self-efficacy were found to be statistically significant at the p value <0.05. Meanwhile, there was no statistically significant relationship between knowledge and compliance (p>0.05) with correlation value was 0.054. There is good compliance to the COVID-19 health protocols among community pharmacists in the Special Region of Yogyakarta. **Conclusion:** These findings indicate that improving factors from pharmacy organization-environmental and self-efficacy of pharmacists may improve community pharmacists level of compliance to COVID-19 health protocols in pandemic era.

Malaysian Journal of Medicine and Health Sciences (2023) 19(6):270-276. doi:10.47836/mjmhs.19.6.36

Keywords: Compliance, COVID-19, Health protocols, Self-efficacy, Pharmacists

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INTRODUCTION

The novel coronavirus disease (COVID-19) pandemic has been declared an international public health emergency, causing enormous death and panic around the world (1). There have been over 500 million verified illnesses and over 6 million fatalities recorded worldwide as of April 17, 2022 (2). There has been a rise in the number of confirmed cases of COVID-19 in Indonesia, and the epidemic curve has not yet flattened. Nevertheless, the percentage of recovered patients is on the rise (3). As of mid-May 2022, a total of 6,049,141 cases and 156,416 deaths from COVID-19 have been reported (4).

By maintaining good hygiene and breaking the chain of transmission, we can stop the spread of COVID-19. This includes wearing masks when go outside or into crowded areas, keeping hands away from face (eyes, mouth, and nose), washing hands frequently with soap with running water, and keeping distance from other people (5). Because the virus is transmitted mostly by droplets and direct touch, the regular use of PPE (Personal Protective Equipment) is crucial to lowering the risk of viral transmission (6).

As health workers, community pharmacists play an important role in reducing nosocomial infections, illness and death (7) while also worrying about spreading the infection to those closest to them (8). As the number of patients infected with COVID-19 rises, so does the danger of infection to healthcare professionals. Infection prevention and control (IPC) procedures are still crucial to tackle the virus to ensure the safety of healthcare personnel (9).

Moreover, the knowledge, attitudes and practices of pharmacists are essential to disease control and prevention (10). People often turn to pharmacies as a first stage to seek advice on health problem. Healthcare workers, including pharmacists, are at increased risk of testing positive for COVID-19 (11). This provides context for several studies that are discussing their respective requirements to provide healthcare personnel with appropriate protective equipment to fight emerging illnesses (12).

Masks and hand sanitizer are provided to pharmacists during the COVID-19 outbreak. Glass shields were placed at many pharmacies to restrict the spread of saliva and nasal secretions during face-to-face interactions with consumers. Hand sanitizers were also placed at the entrances of pharmacies, with the recommendation that consumers use them before entering the stores to prevent the spread of germs. Both pharmacists and clients benefited from these helpful actions. Seventy-two percent of pharmacists in Turkey reported not using any kind of mask while on the job (13). One study showed 30% of pharmacists in Lebanon rarely wear masks (14). Another case from Vietnam where the community pharmacists rarely wore face masks, because 86.3% of pharmacies had solid glass shields installed that help reduce the risk of viral contamination (15).

The premise of the social cognitive theory is that an individual's social environment shapes their expectations, ideas, and beliefs, and hence their behavior. Beliefs in one's own ability to effect change are crucial, and both knowledge of health risks and benefits and access to useful tools and environmental supports are necessary for actualizing desired behavioral changes (16). This approach has never been applied for compliance to COVID-19 health protocols. The social cognitive theory used to predict the compliance level of community pharmacists to health protocols of COVID-19. Therefore, the purpose of this study was to examine the relationships between knowledge factor, organizational-environmental, and self-efficacy based on social cognitive theory with compliance level of community pharmacists to COVID-19 health protocols.

MATERIALS AND METHODS

Study setting and design

The research applied quantitative cross-sectional study design conducted from August to December 2021 in the special region of Yogyakarta Province, Indonesia. The use of a quantitative cross-sectional research design because the data collection time can be done at a single point in time. Moreover, cross-sectional studies are relatively cheap and less time-consuming than other types of research. These cross-sectional designs are used for population-based surveys and to analyze the relationships between pharmacists' knowledge, organizational-environment, and self-efficacy to their

compliance level with the COVID-19 health protocols.

Study population and sample size

The study population consisted of licensed community pharmacists worked at pharmacies located in the special region of Yogyakarta. Inclusion criteria for this study were: a) Pharmacist who has worked in pharmacy at least 3 months and has a practice license from the Provincial health office in the Special Region of Yogyakarta; b) Sufficient ability to understand and provide informed consent and engage with the researcher, based on the researcher's assessment of the participant. In addition, the exclusion criteria were the participants who did not meet the inclusion criteria and were unable to provide consent to participate in the study, as well as had not got a practice license yet.

Simple random sampling was carried out in all districts in the Special Region of Yogyakarta province from a total of 602 licensed community pharmacists by determining the sample size using the Slovin formula (17). Based on the calculation, a minimum of 240 pharmacists is required. Then the number of samples was increased by 10% to anticipate dropping out respondents due to incomplete data. Respondents distribution of the 240 pharmacists was carried out proportionally in 5 districts by considering the total number of community pharmacists practising in each district.

Study procedure and tools

Respondents were chosen by simple random sampling from the whole population. The data were collected using a questionnaire to decide the compliance level of community pharmacists with health protocol of COVID-19 and factors affecting their compliance. The questions were formulated using the recommendations provided by the Indonesian Ministry of Health on Personal Protective Equipment (PPE) technical advise in response to the COVID-19 epidemic. Questions were developed to identify factors affecting compliance based on social cognitive theory from a review of barriers and supporting factors for healthcare workers' compliance to infection control guidelines for respiratory infectious diseases (18).

The questionnaire consists of three sections. The first section gathered information on socio-demographic characteristics. The next section consists of ten questions investigated respondents compliance to COVID-19 health protocols, while the final section of the questionnaire consists of three factors that affect compliance based on determinants of social cognitive theory.

The validity test used is the content validity by the Expert Judgment from the Provincial Health Office in the Special Region of Yogyakarta and the Indonesian Pharmacist Association, followed by the reliability test used is Cronbach's alpha of 30 community pharmacists

working in other provinces. The questionnaire designed in this study is reliable with Cronbach's alpha was 0.868.

Data analysis

Demographic characteristics of the respondent were presented descriptively. The compliance level was determined by comparing the achieved score with the maximum achievable score of 40. The normality test was conducted using the Kolmogorov-Smirnov. If the results indicated that the data were normally distributed ($p > 0.05$), the standard deviation was used for classification. On the other hand, if the results were not normally distributed ($p < 0.05$), the median were used for categorization.

The knowledge factor was determine by comparing the achieved score with the maximum achievable score of 9. The data also analyzed using Kolmogorov-Smirnov test to determined the data categorization. Meanwhile in organizational-environmental and self efficacy factors by calculating the achieved score with the maximum achievable score of 9 and 40.

A statistical test by IBM SPSS Statistics 26 application used to assess the correlation between compliance level vs each of the three factors. Normally distributed data were compared using a parametric test (Pearson's), meanwhile non-parametric test (Spearman's) performed for not normally distributed data.

Ethical approval

Ethics approval for this study was granted by the Faculty of Medicine, Public Health, and Nursing at UGM (Ref.: KE/FK/0942/EC/2021). The respondents were given a thorough explanation of the study's goals, anticipated outcomes, and procedures before being asked to sign an informed consent form.

RESULTS

Respondents characteristics

A total of 262 questionnaires were completed with a 99.2% response rate by the 264 community pharmacists contacted approached. Most of respondents were female (89.3%), and a total of 76 pharmacists experienced COVID-19 infection. The age range of the respondents starts from 23 to 60 years. Most participants have received the second and third doses of COVID-19 vaccines (Table I).

Compliance to COVID-19 health protocols

Most community pharmacists reported they always wearing a mask when at pharmacy (70.2%). However, there are three of community pharmacists (1,1%) reported of never wearing a mask according to the recommendations of the Ministry of Health. A number of 135 pharmacists (51.5%) did not check the body temperatures of visitors who are enter into pharmacies, and 107 pharmacists (40.8%) did not remind the visitors

Table I: Demographic characteristics of respondents

Variable	Frequency (n=262)	Percentage (%)
Gender		
• Male	28	10.7
• Female	234	89.3
Age category (years old)		
• ≤ 20	1	0.4
• 21 to 25	54	20.6
• 26 to 30	84	32.1
• ≥ 31	123	46.9
Working experience in community pharmacy		
• ≤ 1 year	73	27.9
• 1 to 3 years	79	30.1
• 4 to 5 years	28	10.7
• ≥ 5 years	82	31.3
COVID-19 vaccination history		
• Have not been vaccinated	10	3.8
• Received 1 dose	22	8.4
• Received 2 doses	128	48.9
• Received 3 doses	102	38.9
History of COVID-19 infection		
• Yes	76	29
• No	186	71

to wear mask properly according to the procedure (Table II).

The results of the normality test on pharmacist compliance showed that the data were normally distributed ($p > 0.005$), thus, the categories were made based on mean and standard deviation (Table III). Most of the pharmacists' compliance to health protocols is at medium level (65.6%), followed by high level (19.1%), and low level (15.3%).

Determinant of Social Cognitive Theory

Knowledge factors

The majority of respondents have a good level of knowledge regarding COVID-19. However, 24 community pharmacists (9.16%) answered that COVID-19 vaccine cannot reduce the chance of being infected with COVID-19. Most of pharmacists were in high category level of knowledge (82.1%), while only 17.9% pharmacists were ini low category level of knowledge.

Organizational-environmental factors

The dominant results of organizational-environmental factors in this study was the existence of reminding each other to comply with health protocols and availability of handwashing facilities in the pharmacies. Our finding revealed that there were 161 community pharmacists stated there were no sanctions for those who do not comply with health protocols, however this condition does not make the pharmacists to violate the COVID-19 health protocols.

Table II: Compliance with health protocols

Statements	Options (n=262)			
	Always (%)	Often (%)	Sometimes (%)	Never (%)
I wear a mask when I am at the pharmacy according to the recommendations of the Ministry of Health.	184 (70.2)	55 (21.0)	20 (7.6)	3 (1.1)
I wash my hands with soap or handsanitizer regularly.	211 (80.5)	48 (18.3)	3 (1.1)	-
I make sure the body temperature of working employees is < 37,3° C.	88 (33.6)	62 (23.7)	63 (24)	49 (18.7)
I make sure the number of visitors at pharmacy is a maximum 40% of the normal capacity.	130 (49.6)	64 (24.4)	39 (14.9)	29 (11.1)
I ensure regular disinfection at the pharmacy	82 (31.3)	75 (28.6)	82 (31.3)	23 (8.8)
I make sure visitors body temperature is checked and prohibit those who have a temperature of > 37,3° C	23 (8.8)	35 (13.4)	69 (26.3)	135 (51.5)
I forbid the visitors to entry at pharmacy who do not wear masks and remind them to wear them	110 (42)	87 (33.2)	54 (20.6)	11 (4.2)
I remind visitors to wear masks properly according to the procedure	38 (14.5)	41 (15.6)	76 (29)	107 (40.8)
I forbid visitors who do not wash their hands/use handsanitizer	46 (17.6)	63 (24)	110 (42)	43 (16.4)
I reprimand visitors who do not keep a minimum distance of 1 meter	63 (24)	92 (35.1)	89 (34.0)	18 (6.9)

Table III: Compliance level categorization

Number of respondents	n=262
Sig. Kolmogorov-Smirnov (p)	0.200
Mean	28.22
Standard deviation (SD)	5.59
Compliance level category	
• Low (X < mean -1SD)	40 (15.3%)
• Medium (mean -1SD < X < mean+1SD)	172 (65.6%)
• High (mean+1SD < X)	50 (19.1%)

Self-efficacy factors

Results in self-efficacy factors showed majority respondents had a good self-efficacy. The highest scores of pharmacists’ self-efficacy were obtained in statements “the majority of community pharmacists were confident that they were able to still comply with health protocols, although they had received the COVID-19 vaccine”. In contrast, there were 2 community pharmacists who stated that they still felt anxious even though they have complied with health protocols.

Spearman and Pearson Correlation Test

The Spearman correlation test was carried out in the knowledge factor because the data were not normally distributed, while the Pearson correlation test was carried out in the organizational-environmental and self-efficacy factors due the data were normally distributed. There was no statistically significant correlation between compliance scores with knowledge scores (p>0.05), conversely there were statistically significant correlation (p<0.05) between compliance scores with

Table IV: Results of the Spearman and Pearson correlation test

Dependent variable	Independent variable	Correlation (r)	p-value
Compliance scores - Mean = 28.22 (70.6%) - SD = ±5.59	Knowledge factors - Median = 9	0.054 (Spearman)	0.380
	Organizational-environmental factors - Mean = 6.82 (75.78%) - SD = ±1.64	0.463 (Pearson)	0.000
	Self-efficacy factors - Mean = 36.9 (92.17%) - SD = ±3.12	0.409 (Pearson)	0.000

organizational-environmental and self-efficacy factors (Table. IV).

DISCUSSION

Compliance with the COVID-19 health protocol by community pharmacists in the Special Province of Yogyakarta was in a good category. From the total 262 pharmacists, 70.2% reported always wearing a mask when at pharmacy, and only 1.1% reported of never wearing a mask according to the recommendations of the Ministry of Health. Other study involving community pharmacists in Lamongan Indonesia reported various compliance rate of wearing mask, washing hand, and providing physical distancing area were (78.8%), (75.0%), and (69.2%), respectively (19). Another previous studies in Madinah reported there are 24 (36%) of the total 66 community pharmacies visited

that only some of the staff at each pharmacy wore face masks (20). Taken together, these findings imply that efforts to improve community pharmacists compliance are still needed to implementing the COVID-19 health protocols.

To assess community pharmacists knowledge, they were asked related to the COVID-19 pandemic. These topics include characteristics, risk factors of COVID-19, transmission, ways of prevention, and other topics regarding COVID-19 vaccine. Most of community pharmacists were in a high category level of knowledge (82.1%), while only 17.9% pharmacists were in a low category level of knowledge. Our findings are comparable to a previous study among Pakistan community pharmacists, where more than ninety percent of the participants were in a good knowledge level regarding the symptoms, risky groups, and COVID-19 transmission (21). Another results reported majority of Vietnamese community pharmacists (93.4%) had good knowledge in COVID-19 infection (15), which was consistent with another result conducted in Lebanon (>90%) (14) and India (85.3%) (22). Sufficient knowledge and understanding will form positive perceptions that may increase awareness of health workers to be more comply to the COVID-19 health protocol. Health workers who are aware that they have a high risk of being exposed to COVID-19 will comply to health protocols in its implementation both before and after handling patients and in other activities (23).

The environmental-organizational factors in the study reveal the availability of supporting facilities plays an important role in supporting community pharmacists' compliance. In addition, a previous study in Malang Indonesia reported that lack of punishment does not affected to compliance level of pharmacists (24). This finding is in line that one of the factors that influence behaviour at work is enabling factors, one of them is facilities or infrastructure that support the occurrence of behaviour by someone (25).

This finding also highlights that self-efficacy plays a crucial role in adopting and maintaining recommended health interventions (26). As previously reported for various healthcare workers, there is an association between self-efficacy and compliance to preventive measures during the COVID-19 pandemic (27). Promoting a higher level of self-efficacy perceives the community pharmacists capable of showing a tendency to prevent behaviours of the disease. In alignment with these, our results reported that self-efficacy had a highly significant predictor of the behaviour. Thus, it is suggested to be targeted in COVID-19 health promotion programs to increase behaviour intentions by providing positive coping messages to enhance protective behaviours and increase motivation for preventing COVID-19. Albert Bandura's theory states that a person behavior is influenced by self-efficacy which will focus on the individuals belief that

he or she can perform specific behaviors effectively in a particular context (28).

The compliance to health protocols was one of the most important indicators to investigate the current COVID-19 virus outbreak (29). Hence, the community pharmacists are expected to implement health protocols consistently and also participate in persuading the community to reduce the wider spread of COVID-19.

CONCLUSION

Compliance with the COVID-19 health protocol by community pharmacists in the Special Province of Yogyakarta is in a good category. Therefore, community pharmacists are expected to implement health protocols consistently and also participate in persuading the community to reduce the wider spread of COVID-19. The implementation of the health protocol is not only in the COVID-19 pandemic era, but also needed to prevent other pandemics in the future. The environmental-organizational factors are supporting factors that come from outside individuals who are able to increase compliance with health protocols if supported by good infrastructure and organizational systems. This study had limitations because it only examined pharmacy settings in one province. The scope of further research is anticipated to be a wider area and data collection will also be carried out at drugstores, rather than just focusing on pharmacies.

ACKNOWLEDGEMENT

Authors acknowledge to community pharmacists in the Special Region of Yogyakarta who have participated as respondents in this study and the provincial health office who have helped carry out this research.

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