Social determinants of health protocol adherence among adults during COVID-19 pandemic in Yogyakarta, Indonesia

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ABSTRACT

Introduction: Coronavirus disease (COVID-19) must be controlled by involving all stakeholders, including the community. Community protocol compliance with COVID-19 health guidelines is essential. This study assessed the social determinants of health on community protocol compliance with COVID-19 health guidelines among adults in Yogyakarta, Indonesia.

Materials and Methods: This study was a mixed-method study of 461 adults from February through May 2021 in Yogyakarta Province. We collected data through an online survey, focus group discussions, and in-depth interviews. Logistic regression was used to analyze the results.

Results: Most respondents (86%) always wore masks, followed social distancing (51.8%), and washed their hands regularly (99%). Subjects older than 45 years, women, and community leaders demonstrated greater compliance with COVID-19 health protocols compared to other people. On the other hand, the occupation has become a healthy lifestyle practice indicator.

Conclusion: Gender, age, educational level, economics, and social status were determinants of health protocol adherence among adults in Yogyakarta. Therefore, health providers need to consider social determinants for health promotion approaches and COVID-19 prevention and control strategies.

KEYWORDS:
guidelines adherence; health promotion; protocol compliance; social determinant of health

INTRODUCTION

Following the discovery of two cases in Indonesia on March 02, 2020, coronavirus disease 2019 (COVID-19) has been spreading rapidly. The World Health Organization (WHO) data on July 7, 2021, showed a total of 2,379,397 confirmed cases in Indonesia, with 62,908 deaths.[1] The official Indonesian government website (covid19.go.id) listed the highest number of cases in Java Island, concentrating on the Special Capital Region of Jakarta/*Daerah Khusus Ibukota* (DKI) Jakarta, followed by West Java, Central Java, and East Java.[1] Since the beginning, the Indonesian government has implemented several strategies and policies to combat the pandemic. The strategy is to form a task force to promote social restrictions and handle testing, tracing, as well as treatment campaigns to prevent the spread of the disease.[2] Indonesia also started vaccinations in January 2021. As of July 7, 2021, 14 million people received complete vaccinations.[3] That number covered 7% of the national target.[1,4] This effort was still not optimal in preventing the spread of COVID-19.[5]

Preventive measures, such as the COVID-19 health protocols aimed at prevention of direct contact with infected or possibly infected persons, wearing masks, avoiding mass gatherings, regular washing hands, avoiding touching face, as well as disinfecting surfaces.[6] Denford et al.[7] claimed that community levels of adherence vary depending on their perceptions regarding their potential exposure to the virus, the benefits or requirements to adopt the measures, and their faith in the effectiveness of the measures. Studies have also found that sociodemographic factors, such as gender, educational level, occupational types, and age were associated with adults' adherence to COVID-19 health protocols.[8,9]

Studies regarding community adherence to COVID-19 prevention measures in Indonesia are scarce. A study in Central Java showed that community adherence in Indonesia varied based on protocols used. The results showed that 31% of respondents abided by stay-at-home protocols. The protocol adopted by most respondents was handwashing with soap (88.2%).[10] A study in Bali showed that community adherence to health protocols was associated with perceived social norms, perceived benefits, and gender.[11] These studies showed how social determinants become factors that contribute to health protocol adherence in Indonesia.

The WHO defines social determinants as "non-medical factors that influence health outcomes." Socioeconomic and political context may indirectly affect health outcomes through changes in individual health behaviours, material circumstances and psychosocial factors.[12] Therefore, contextual factors are important in explaining health outcomes and behaviours, including the adherence to health protocols in preventing the spread of COVID-19.

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By July 2021, the Special Region of Yogyakarta was among the top ten provinces with a high prevalence of COVID-19 sectors in Indonesia. Approximately 2.9% of COVID-19 cases in Indonesia had occurred in that province.[1] Yogyakarta Province is also one of the primary tourist destinations in Indonesia. The pandemic has severely impacted the socio-economic conditions there. Exploration of community adherence to health protocols in the province, especially regarding socially determinant factors, can help local governments improving the adherence and prevent the spread of COVID-19 in the community. The outcome may also provide insights into the essential social determinants affecting protocol adherence in vital tourism industries. Therefore, this study aimed to assessing the social determinants of adherence to health protocols among adults in the Special Region of Yogyakarta, Indonesia.

MATERIALS AND METHODS

A mixed-method study with an explanatory sequential design[13] was conducted in Yogyakarta Special Province, Indonesia, in the first half of 2021. The population enrolled were adults aged 18 to 59 years old, from Sleman, Kulon Progo, Gunung Kidul, Bantul, and Yogyakarta City. This paper is the second publication of research entitled Policy Analysis of the Social Action of the Healthy Lifestyle, or *Gerakan Masyarakat Hidup Sehat* (GERMAS).

A cohort of 461 people volunteered for the study. We collected data via an online survey using Google Form, focus group discussions, and in-depth interviews. The online survey was conducted during February–May 2021, with 499 people completed the survey. Unfortunately, 50 people did not match the inclusive criteria. They may not have lived in from Yogyakarta Special Province, or they were less than 18 or over 60 years old. Thus, 50 respondents were excluded, and we included 449 respondents for further analysis. The minimum sample needed was 385 respondents.

We developed the questionnaire with content validation. We delivered the online questionnaire through Instagram and WhatsApp messaging applications. The questionnaire covered the five points of health protocols to prevent COVID-19, including physical distancing, hand washing, mask-wearing, mobility restriction, and crowd avoidance; and the sociodemographic variables include gender, age, education level, economic status, occupational, and social status. The questions were favourable and unfavourable.

We categorised the educational level into low (elementary and junior high school), middle (senior high school), and high (diploma and higher education). Low economic status defined as monthly income below three million rupiahs (approximately $208 USD); middle economic status when their income ranging between three to six million rupiahs, and high economic status for those with monthly income above six million rupiahs (approximately $416 USD) monthly income. While for occupational type, we categorize them into four groups, namely: students (including diploma/higher education students), formal workers (employers, teachers, lecturers, police, and military officers), non-formal workers (traders, entrepreneurs, labourers, farmers, and fishers), as well as not working (stay-at-home parent, retired, and not working). This study conducted logistic regression for the quantitative data ($p<0.05$).

In addition, the focus group discussion and in-depth interview guidelines were developed according to the survey results. We conducted focus group discussions to elaborate and confirm the quantitative data. The qualitative informants were among stakeholders from various sectors, including provincial and districts officers, such as health officers, the provincial planning board of Yogyakarta, community leaders, as well as the Indonesian Society for Health Promotion and Education of Yogyakarta. The ethical committee of the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, approved this research protocol (KE/FK/0310/EC/2021). Informed consent were obtained from all the participants.

RESULTS

Most respondents were women (79.7%) and over 45 years old (39.9%). Only 29.4% of respondents were community leaders, as noted in Table I. Table I shows that most respondents had high levels of education (63.7%), low economic status (58.8%).

Most respondents complied with health protocols. Mask use (86.6%) and hand washing (94.6%) were the health protocols with the highest level of compliance in Yogyakarta. One-third of the respondents removed their masks while talking and some did not wear their masks properly (Table II).

Table II shows maintaining physical distancing, staying at home, and avoiding crowds had the lowest scores for health protocol adherence among adults in Yogyakarta.

The qualitative data showed that many community stakeholders promoted the health protocols. In this pandemic, all the stakeholders (government and private sectors) were actively involved in health protocol promotional activities.

> "…Most stakeholders were involved in the health protocol campaign…They were not limited to the health officer only…" (In-depth interview, health promotion officer)

There were many sectors participate in the health matters during COVID-19 pandemic. The health promotion division of the provincial health office had empowered the existing network for health protocols and the healthy lifestyle campaign. There were massive social media campaign through the WhatsApp group of the local leader, Instagram, and YouTube. In addition, the provincial and district level Yogyakarta government issued many regulations related to the health protocols for COVID-19 prevention and control.

This study illustrates a significant correlation between sociodemographic variables, e.g., sex, age, education level, occupation, and social status, with health protocols that covered physical distancing, mask wearing, restricted mobility, as well as avoiding crowds ($p<0.05$). In contrast, there was no significant correlation between socio-demographics and handwashing behaviour. In this study,

Table I: Demographic Characteristics of the respondents

Respondent characteristics (n = 449)	f	%
Gender		
Men	91	20.27
Women	358	79.73
Age		
18–35 years old	138	30.7
36–45 years old	132	29.4
>45 years old	179	39.9
Education level		
Low	21	4.7
Middle	142	31.6
High	286	63.7
Economic status		
Low	264	58.8
Middle	157	35.0
High	28	6.2
Occupation		
Unemployed	151	33.6
Formal worker	239	53.2
Informal worker	37	8.2
Student	22	4.9
Social status		
Citizen	317	70.6
Community leader	132	29.4

Table II: Health protocol adherence

Variable	Respondent	%
Wearing a mask		
Wears mask	389	86.64
Wears two-layer fabric mask or medical mask	435	94.65
Wears their mask while talking	300	66.82
The mask covers mouth and nose	367	81.74
Handwashing	448	99.78
Physical distancing	248	55.23
Stays at home	284	63.25
Avoids social gathering	287	63.92

almost all respondents (99.78%) had good hand washing practices.

Table III shows that sex, age, education level, occupation, as well as social status were the social determinants of health protocol compliance among adults in Yogyakarta. Education levels and age were the most substantial social determinants of health protocol compliance in Yogyakarta. Respondents who were over 45 years old had the highest compliance level toward health protocols.

Social status, represent by the community leader, contributed to the health protocol compliance. Respondents who were community leaders have high levels of compliance toward health protocol. Community leaders are public figures. Hence, the pleasant habit and practices of the community leaders will lead to good habits among people. We excluded the handwashing variable from Table III because of the correlation analysis result. There was no significant correlation between sociodemographic and handwashing behaviours.

DISCUSSION

This study showed that the Yogyakarta community had high compliance with health protocol. Also, there were social determinant of the health protocol compliance, such as education level, age, social status, sex, as well as social status. The socio ecological model suggests assessing social determinants to investigate the health status and health behaviour.[14] Moreover, many factors, including social determinants of health, contribute to the health status and health behaviours.[15] In line with the previous study, this result proved that age and gender were the social determinants of the community adherence toward health protocol among adult in Yogyakarta.[8,9] Moreover, the level of community compliance toward health protocol was varied.[7] Even though most people had high levels of compliance, one-third of respondents did not obey the social restrictions. Many stakeholders supported the health protocols campaign in Yogyakarta, both from government and private sectors. Indeed, they were provided infrastructure to support the health protocol practices. The participation of various stakeholders in the public health intervention will lead to the program's sustainability.[16]

Table III: Logistic regression of the association between sociodemographic factors, including mask use, physical distancing, restricted mobility, and avoiding crowds

	Physical distancing			Avoiding crowds			Restricted Mobility			Use a mask properly		
	OR	*p*-Value	95% CI	OR	*p*-Value	95% CI	OR	*p*-Value	95% CI	OR	*p*-Value	95%CI
Sex (vs male)												
Female	1.67	0.03	1.05 - 2.66	1.61	0.05	1.00 - 2.56	1.64	0.04	1.03 - 2.61			
Age (vs 18-35 years old)												
36-45 years old	1.42	0.15	0.88 - 2.30	1.38	0.20	0.85 – 2.24	1.11	0.67	0.68 – 1.80			
>45 years old	3.03	0.00	1.91 - 4.81	2.23	0.00	1.39 – 3.56	2.10	0.01	1.31 – 3.36			
Education (vs low)												
Middle										3.39	0.04	1.06 – 10.86
High										2.3	0.12	0.80 – 6.73
Occupation (vs unemployed)												
Formal worker	0.41	0.00	0.27 – 0.63	0.49	0.00	0.32 – 0.77	0.66	0.06	0.43 – 1.02			
Non-formal worker	0.86	0.70	0.40 – 1.83	0.73	0.42	0.33 – 1.58	0.91	0.82	0.42 – 1.97			
Students	0.32	0.02	0.13 – 0.81	0.29	0.01	0.12 – 0.72	0.37	0.03	0.15 – 0.91			
Social status (vs Citizen)												
Community leader	1.71	0.01	1.12 – 2.60									

COVID-19 has influenced all aspects of life, just as many factors have determined community compliance with health protocols. Therefore, public health intervention is considered a social determinant of health.[17,18] Public health intervention and need assessment are essential.[19]

CONCLUSION

This study concludes that education level, age, and social status were the social determinant of health protocol compliance. Government should adjust strategies to improve health protocol compliance according to target characteristics, such as education level, age, and social status.

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CONFLICT OF INTEREST

We declare that there is no conflict of interest in this study.

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