

## Knowledge, Perceived Self-care Ability, and Health Behavior in New Normal Era among Adults in Congested Communities of Surabaya, Indonesia: Impacts of COVID-19 Pandemic Situation

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### Abstract

Health behavior in COVID-19 pandemic situation needs to be measured in the general population in order to evaluate the implementation of health guidelines in the new normal era, especially WHO recommendations. Knowledge, attitude, and action are domains of health behavior that translated into COVID-19 knowledge, perceived self-care ability, and new normal health behavior in this study. We aimed at describing the knowledge of COVID-19 and the perceived self-care ability, and analyzing the differences of new normal health behavior before and after COVID-19 pandemic situation among adults living in congested communities of Surabaya, Indonesia. This cross-sectional study involved 384 respondents living in five congested communities of Surabaya, Indonesia, which enrolled by means of cluster random sampling. Research variables were measured by a self-developed valid and reliable questionnaires. Descriptive statistics and Wilcoxon signed rank test were used in data analysis. Ethical clearance was issued. Results showed that most respondents had very good knowledge of COVID-19 (63%) and high level of perceived self-care ability (74%). Before and after pandemic most respondents reported sufficient new normal health behavior (before: 74.7%; after: 83.9%). There was a significant difference of new normal health behavior before and after COVID-19 pandemic situation among adults living in congested communities of Surabaya, Indonesia ( $p=0.000$ ). New normal health behavior was unoptimal in implementation. Therefore, efforts to improve new normal health behavior need to be done by various parties, not only the individuals, but also health care professionals and the government as policy maker.

**Keywords:** COVID-19, health behavior, knowledge, pandemic, self-care

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### Introduction

The global pandemic of coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Amin-Chowdhury, et al., 2021; Zhou, et al., 2021). The historian virus was identified in Wuhan, China, in December 2019. The World Health Organization (WHO) declared a public health emergency of international concern on 30 January 2020 and a

pandemic on 11 March 2020. Since 2021, variants of the virus have emerged or become dominant in many countries with the Delta, Alpha, and Beta variants being the most virulent (Anaki & Sergay, 2021; Chen, et al., 2022; Lu, et al., 2022). At the present many countries have confirmed the high death rate, making COVID-19 one of the deadliest pandemics in history. WHO has come up with a plan to maintain awareness among the people about the happenings across the globe (Orea-Tejeda, et al., 2022; Roig-Marín & Roig-Rico, 2022). This strategic preparedness and response plan outlines the public health measures that the international community stands ready to provide support to all countries to prepare for and respond to COVID-19. To prevent the spread of COVID-19 need to: 1) clean hands with soap and water or alcohol-based hand rub oftenly, 2) avoid touching our eyes, nose, or mouth, 3) maintain a safe distance from others who are coughing and sneezing, 4) staying home if unwell, and 5) in case, if have a fever, cough, and difficulty in breathing, seek medical attention and call the local health authority, moreover, public health capacity can scale up surveillance and outbreak control, including effective testing and contract tracing, of clear messaging based on an understanding of human behavior, policies that address the undesirable consequences of necessary measures, such as support for those isolating or unable to earn, and the ability to implement at pace and scale a major vaccine rollout Andersen, et al., 2022; Rajan, et al., 2022).

Indonesia still has confirmed positive cases of COVID-19 across all provinces in the country (Widiawaty, et al., 2022; Azizah, et al., 2021). For identifying cases, the Real-Time Polymerase Chain Reaction Assay (RT-PCR) was used (Hatami, 2021; Hammad, et al., 2022). A sharp increase in the number of cases has been confirmed in the areas of East Java (Surabaya is the capital city), South Kalimantan, and South Sulawesi. The impact of such an increase had a visible impact on human activity. For example, the Institute for Tropical Disease, Airlangga University, Surabaya, had to reduce the COVID-19 lab testing service it provides due to some of its personnel being infected by the corona virus (Omri, 2021; Beeraka, et al., 2021). The National Task Force for the COVID-19 Response has provided support to increase the number of swab tests in the East Java Province by mobilizing five COVID-19 test cars (two PCR test cars and three microbiological safety cabinet cars) (Trisandy, et al., 2021; Megatsari, et al., 2021). A hospital epidemiologist in South Kalimantan highlighted that the province's capacity to conduct tests is only of 100 tests per day. In South

Sulawesi, the Regional Task Force for the COVID-19 Response announced that at least five hotels are being utilized as isolation locations, accommodating 1,376 people of which 765 have recovered (United Nation Office for the Coordination of Humanitarian Affairs, 2020).

At the present, everyone must accept the situation of the COVID-19 pandemic in every place. So life must go on with the new normal protocol from WHO. Considering that many provinces in Indonesia have shown improved health indicators, and given the need for people to restart productive activities in a safe manner, the Ministry of Health of Indonesia has issued guidelines for a new normal life (Azizah, et al., 2021; Sari, et al., 2021). These guidelines are a point of reference for regional governments that implement the large-scale social restrictions (so called PSBB in Indonesia) to be transitioned into the new normal stage, one of which is the city government of Surabaya who manages 2.97 million people living in the 2<sup>nd</sup> biggest city of Indonesia (Rosha, et al., 2021; Trisandy, et al., 2021). In this study, we aimed at describing the knowledge of COVID-19 and the perceived self-care ability or self-care self-efficacy, and analyze the differences in new normal health behavior before and after the COVID-19 pandemic situation among adults living in congested communities of Surabaya, Indonesia, because this city is one of the important financial, commercial, industrial, transportation, and entertainment hubs of the archipelago, arguably second only to Jakarta. Surabaya is also known for being one of the cleanest and greenest in Indonesia. This study results may evaluate the implementation of new normal life guidelines in congested communities of a big city in Indonesia, especially in the adult population. The precede proceed model of Green and Kreuter (1991), the social cognitive theory of Bandura (1977), and the self-care model of Orem (1971) which related to health behavior, self-efficacy, and self-care respectively were used in this study framework. The knowledge gap of this study was COVID-19 as a new infectious disease should have knowledge of social diagnosis in order to identify and evaluate the social problems which may affect the quality of life of a population in the prevention of its transmission related to identification and management of behavioral and environmental factors.

## **Method**

### *Participants*

This cross-sectional study involved 384 adults in congested communities of Surabaya, Indonesia. The population was all adults living in congested communities of Surabaya amounting to 2,119,107 people. Surabaya composes of 63 communities under the authority of the respectable Public Health Center (PHC). There were five study sites enrolled by means of cluster random sampling, namely: district of Pacar Keling, Pucang Sewu, Klampis, Mulyorejo, and Pakis (7.9% cluster area). Sample size was calculated by formula stated in Nursalam (2008) in which the number of population was known with a stand error of 0.05 ( $N = 2,119,107$ ;  $n = 384$ ). 20% of the sample size was enrolled by means of simple random sampling from each study site. Firstly, we made an announcement by using a poster and shared the information of samples' recruitment through the head of the community or cadre as facilitator. The prospective respondents were asked to register as study participants candidates to the facilitator. From the name list provided by the facilitator then the researchers made a lottery in order to choose the samples and provided 76-77 names from each community. The new name list was made based on the lottery results; this was study respondents.

### *Measurements*

Study variables were knowledge of COVID-19, the perceived self-care ability or self-care self-efficacy, and the new normal health behavior measured by valid and reliable questionnaires developed by researchers. The questionnaire of COVID-19 knowledge consisted of 10 items formed as multiple choice questions: four choices for each question. Knowledge of COVID-19 was categorized into three: fair (score 1-5), good (score 6-7), and very good (score 8-10). The questionnaire of the perception of self-care ability consisted of 15 items. Likert scale of 1 to 5 was used to differentiate individual response: 1 = strongly unconfident, 2 = less confident, 3 = neither confident nor unconfident, 4 = somewhat confident, and 5 = strongly confident. Perception of self-care ability was categorized into three: less (score 15-30), moderate (score 31-50), and high (score 51-75). Knowledge of COVID-19 and the perceived self-care ability were assessed once, only after COVID-19 pandemic situation.

Questionnaire of new normal health behavior consisted of 29 items spread in five domains: self-care (10 items), going out behavior (5 items), buying food or stuff method (4 items), food choosing method (5 items), and information seeking behavior (5 items). Likert scale of 1 to 4 was used to differentiate individual responses: 1 = never (never done it at all), 2 = sometimes (doing it 1-2 days per week), 3 = often (doing it 3-4 days per week), and 4 = always (doing it >5 days per week). The new normal health behavior was assessed before and after COVID-19 pandemic situation. New normal health behavior was categorized into three: bad (score 29-58), sufficient (score 59-87), and good (score 88-116).

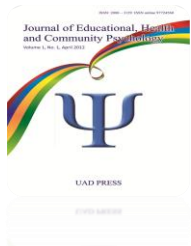
Instrument testing procedure involved content validity assessment by three experts, and reliability analysis with a trial in the congested community in Surabaya (30 adults from different site of Surabaya who was not being studied respondents), then reported with Cronbach's alpha coefficient at 0.81 for self-care ability questionnaire and new normal health behavior questionnaire, and KR-20 = 0.73 for COVID-19 knowledge questionnaire especially. Data was collected between February-April 2021. Descriptive statistics (Mean and Standard deviation or SD) and Wilcoxon Signed Rank test were used in the data analysis.

#### *Ethical Clearance*

Ethical clearance was issued by the Ethical Committee of Saint Louis College (SLC), Bangkok, Thailand, with certificate number: E.010/2564. There was no conflict of interest between authors and study funder declared regarding this study and publication.

#### **Result**

In total, the study respondents were mostly composed of 53.4% female (n = 384). Age range was between 18 – 66 years old but most respondents aged more than 20 until 29 years old (productive age). Most respondents were graduated (75.3%) and presently working as a private employee (34.1%). In one house, most respondents live with 3-5 family members (41.7%). All respondents agreed that COVID-19 affected their life in general (100%). Table 1 presents the demography characteristics of study respondents in detail.



**Table 1**  
*Demographic Characteristic*

<b>Characteristic</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
Male	178	46.6
Female	206	53.4
<b>Age (years old)</b>		
18-20	37	9.6
>20-29	206	53.6
>29-39	63	16.4
>39-49	40	10.4
>49- 59	29	7.6
>59-69	8	2.1
>69	1	0.3
<b>Education</b>		
Being student	95	24.7
Graduated	289	75.3
<b>Occupation</b>		
General service staff	4	1
Private employee	131	34.1
Government employee	9	2.3
Semi-government employee	2	0.5
Shopkeeper	27	7.0
Private business worker	31	8.1
Housewife	51	13.3
Student	88	22.9
Retired	5	1.3
Unemployed	36	9.4
<b>Family Number</b>		
1-3	159	41.4
> 3-5	160	41.7
> 5-8	54	14
> 8-11	9	2.3
> 11 -15	4	1.1
> 15	1	0.3

Most respondents had very good knowledge of COVID-19 (63%) and high level of perceived self-care ability (74%). Before and after the pandemic most respondents had sufficient new normal health behavior, but there was an increase in the percentage (before: 74.7%; after: 83.9%). Table 2 presents the level of COVID-19 knowledge, perceived self-care ability, and new normal health behavior before and after the pandemic.

**Table 2**  
*Primary Data*

Characteristic	Frequency	Percentage
<b>1. COVID-19 knowledge</b>		
a. Fair	40	10.4
b. Good	102	26.6
c. Very good	242	63.0
Mean = 7.76 (very good); SD = 1.64		
<b>2. Perceived self-care ability</b>		
a. Less	2	0.6
b. Moderate	98	25.4
c. High	284	74.0
Mean = 56.48 (high); SD = 9.92		
<b>3. New normal health behavior before pandemic</b>		
a. Bad	73	19
b. Sufficient	287	74.7
c. Good	24	6.3
Mean = 67.93 (sufficient); SD = 12.52		
<b>4. New normal health behavior after pandemic</b>		
a. Bad	22	5.7
b. Sufficient	322	83.9
c. Good	40	10.4
Mean = 74.86 (sufficient); SD = 11.69		

Results of Wilcoxon Signed Rank test showed that there was a significant difference of new normal health behavior before and after COVID-19 pandemic situation among adults living in congested communities of Surabaya, Indonesia ( $p = 0.000$ ).

### **Discussion**

In this study, most respondents had very good knowledge of COVID-19 (63%). Most people in Indonesia have good knowledge (98%) and a positive attitude (96%) regarding the COVID-19 pandemic (Sari, et al., 2021). Nationally, this study findings were supported by a survey conducted in Bali, Indonesia, regarding the public knowledge and behavior toward COVID-19 pandemic which showed that most respondents had a good knowledge level (70%) (Yanti, et al., 2020). In the region, this study findings were supported by a survey conducted in Malaysia, regarding the public knowledge, attitudes, and practices to mitigate the outbreak of COVID-19 which showed that most respondents had very good knowledge (the overall correct rate of knowledge questionnaire was 80.5%) [Azlan, et al., 2020].

Most respondents in this study had very good knowledge about COVID-19 possibly due to the consistent messaging from the health authorities and government as well, the effective public communications implemented, and the usage of various information media especially the online health education video. Consistent messaging from health authorities and the government as well as the need for tailored health education programs are important to improve knowledge levels, attitudes, and practices toward COVID-19 (Azlan, et al., 2020). Government information sources were the most trusted among the public, especially preferred by the older populations (Fridman, et al., 2020). Other than that, the unambiguous information, effective communication, and the informative media are also important aspects to make sure that the public gets and understands the correct and important information related to COVID-19. Another study in Malaysia showed that most respondents obtained information related to COVID-19 from direct official sources (e.g. government websites) but interestingly 77.9% of respondents reported receiving a lot of questionable information. The minority got it from friends and family through social media, and they were aware of the “hoax” or fake news so they verified the information before sharing it. Few



respondents reported that they did not understand the whole information because it is too technical or complicated so that they prefer to watch health education videos than read articles or interpret infographics (Hanafiah & Wan, 2020). Public communication needs to be tailored in order to change people's knowledge and attitudes toward COVID-19 outbreak (Lin, et al., 2020).

In this study, most respondents also had high level of perceived self-care ability (74%). This possibly happened because most of them complied with WHO self-care recommendations during the pandemic situation. A study of 1,508 participants in general population showed that 66-80% of respondents complied with self-care recommendations, therefore the implementation of pandemic care program is recommended (Galindo-Vazquez, et al., 2020). In the contrary, another age and gender-specific study of 1,082 respondents in four countries in Europe showed that young female showed less adherence to health guidelines because they experienced a greater level of stress and perceived the pandemic situation as more severe, but the older female groups were generally more involved in self-care activities and adopted more healthy daily routines; therefore genders and age ranges should be considered in determining COVID-19 prevention strategies in order to improve self-care and adherence to health guidelines (Bermejo-Martins, et al., 2021). The higher perception of stress, the fewer self-care activities are adopted, and in turn the lower the beneficial effects on wellbeing because self-care partially mediates the relationship between stress and wellbeing during COVID-19 confinement in the general population, and age affects this relationship also (Luis, et al., 2021). In this study, most respondents were mostly young females too but they reported a high level of perceived self-care ability. Stress level and perception of the COVID-19 pandemic were not identified in this study, but it is potential if the high level of perceived self-care ability found in most respondents due to the low stress level and their positive perception towards the pandemic situation.

Before and after pandemic most respondents had sufficient new normal health behavior, but there was an increase in the percentage (before: 74.7%; after: 83.9%). Results of Wilcoxon Signed Rank test showed that there was a significant difference of new normal health behavior before and after COVID-19 pandemic situation among adults living in congested communities of Surabaya, Indonesia ( $p = 0.000$ ). Nationally, this study findings were supported by a survey conducted in Bali, Indonesia,

regarding the public knowledge and behavior toward COVID-19 pandemic which showed that most respondents have complied with the health protocols during the pandemic (Yanti, et al., 2020). In the region, this study findings were supported by a survey conducted in Malaysia, regarding the public knowledge, attitudes, and practices to mitigate the outbreak of COVID-19 which showed that most respondents implemented new normal health behavior, such as avoiding crowds (83.4%), washing hands (87.8%), and wearing face mask (51.2%) [Azlan, et al., 2020].

This study findings proved that the implementation of new normal life guidelines in congested communities of big city in Indonesia, especially in the adults population, cannot reach the maximum effectiveness. We may say this because this study findings proved that even the public have very good knowledge about COVID-19 and a high perceived self-care ability but their implementation of new normal health behavior was still in sufficient level, similarly to the their condition before the pandemic. This possibly happened due to the influence of another factor, for instance the negative attitude towards the COVID-19 pandemic situation. A study in North Sumatra, Indonesia, one month after the first cases were reported in Indonesia showed that the minority of respondents had negative attitude towards the outbreak in relation to two aspects, such as: 1) having to always maintain a distance of 1.5 metres when in crowds (78.6%), and 2) unable to regularly exercise or eat nutritious food (79.1%) [Sari, et al., 2021]. Sufficient knowledge and positive attitudes are crucial to the prevention of COVID-19 (Lin, et al., 2020). The success of behavioral interventions and policies designed to reduce the impact of the COVID-19 pandemic depends on how well individuals are informed about both the consequences of infection and the steps that should be taken to reduce the impact of the disease (Fridman, et al., 2020). Moreover, understanding the complexity of health behavior will maximize their beneficial role, eliminate maladaptive prevention patterns, and facilitate the eradication of COVID-19 (Anaki & Sergay, 2021).

There are few study limitations we found. This study had formulated objectives in a very broad manner, so in the initial phase of the development of COVID-19 knowledge questionnaire we had various questions at that period. The items in COVID-19 knowledge questionnaire had mutation and were developed to be resistant making the result may out of date, but it was the basic knowledge of COVID-19. Similarly with the new normal phenomena. It has been changing along

with the period of time, so we need to study about it continuously to be more fitted with the current pandemic situation.

### **Conclusion**

Knowledge of COVID-19 is in a very good level in the general population, especially among adults living in congested communities of Surabaya, Indonesia. They perceived a high level self-care ability. There was a significant difference of new normal health behavior before and after COVID-19 pandemic situation, but this behavior was still in unoptimal level. Therefore, efforts to improve the implementation of WHO recommendations in new normal era need to be done by various parties, not only the government as policy maker or health care professionals as caregivers, but also the individuals themselves as the actor of the new normal health behavior who will be in advantages.

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