

Behavior for The Prevention of COVID-19 Transmission and Health Related Quality of Life During The Pandemic in Adults in Indonesia

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Abstract - Pandemic COVID-19 has affected many aspects of life. However, a prolonged pandemic can cause many problems that will reduce the health-related quality of life (HRQOL). This research aims to determine the association between the behavior to prevention COVID-19 transmission with HRQoL. A descriptive approach using cross-sectional design in primary data was collect in August 2020. Participants were 619 using multistage cluster sampling in two provinces in Indonesia, namely Jakarta and West Java. The most proportion of behavior for prevention in the "never" category were: washing hands when entering home (48.5%), avoid the habit of greeting with a kiss on both cheeks (41.2%), and close the nose area when sneeze or cough (38.9%). The COV19-QoL scale showed that the highest of problems in the pandemic period they felt more stressed than before (33.9% agreed), decreased quality of life (32.5% agreed) and that a pandemic makes their safety at risk (24,7% agreed). Bivariate analysis using the Mann Whitney test showed significantly there is a difference in the average score of HRQOL based on behavior categories (p-value = 0.004). This study will more reinforce the concept that an HRQOL is the result of a measurable health behavior intervention and the COV19-QoL scale is a fairly good measure of identifying HRQOL during a pandemic.

Keywords - Pandemic COVID-19, behavior, prevention of transmission, health related quality of life.

1. Introduction

Already a year has passed since the discovery of infection of SARS-COV2 virus derived from Wuhan in China and the World Health Organisation (WHO) have declared Coronavirus Disease 2019 (COVID-19) as a pandemic since March 11, 2020.[1] One of the characteristics of COVID-19 is easily transmitted. The results of the study in China on 425 patients showed that the number of patients treated increased by two times as much per week at the beginning of the pandemic and each patient infects an average of 2.2 people [2]. Other researchers also showed that the same thing since the beginning of the onset of the outbreak, numbers of transmission from one patient between 2.2 to 3.58 people [3].

One of the strategies controlling the spread of the virus by implementing a large-scale social restrictions policy that has been done in many countries, including Indonesia. Many activities do in the community were severely curtailed as implementation learning in schools or other educational institutions, work activity into working from home, restrictions on the activities of worship of religious and social activities, as well as various other activities. Keep a physical distancing in direct communication between individuals be supposed by WHO to prevent the spread of COVID-19 [4].

Large-scale social restrictions on various activities require adaptation to new habits. These situations often create confusion for the people and uncertain conditions, anxiety, worry, fear, stress, and depression. This quite extreme change certainly has the potential to affect the health related quality of life (HRQoL)for everyone. HRQoL is an individual's perception of the state of health they experience [5] [6].

The COVID-19 pandemic has yet to show signs will end. The pandemic that prolonged has led to changes fast in various aspects of social life such as health, education, economics, and so on. The speed of transmission of the virus has made the anxiety and recognized by society and government that disease is affecting not only the health of physical individuals and increase the number of deaths in the world, but also decrease the quality of life [7]

The big challenge faced in preventing the COVID-19 transmission is required an effective response and massive involvement from the community through basic protective measures. This includes washing hands, maintaining social distancing, avoiding touching the eyes, nose, and mouth, following respiratory hygiene, and seeking medical care if have symptoms [8].

A study shows that the behavior of washing hands regularly with soap and water, covering the mouth and nose when cough and sneeze, and not touching the nose, mouth, and eyes, wearing face masks, social distancing are good ways to prevent COVID-19 transmission. [9] The role of individuals in improving health is an important factor and individual health behavior is influenced by beliefs, cultural values, and habits [10]

Previous research has shown that behavior is influenced by cultural norms so that different cultures can produce various alternative actions. The discovery of a new infectious disease may increase the motivation for behavior change to adapt to the latest information about infectious disease [11]. [12]. The COVID-19 pandemic is a significant psychological and physiological stressor for individuals and social economy organizations in the world [14]. Given that COVID-19 has significantly changed the way humans lives, research related to HRQOL is important.

The study of quality of life during the COVID- 19 pandemic is very interesting. Cross-sectional research in China in 361 patients of COVID-19 who have recovered from the hospital, examined HRQOL after one-month post-hospitalization. The results showed a significant difference in HRQoL when compared to the general population ($p < 0.05$). HRQOL indicates a low SF-36 score. [13] Likewise, another study conducted in China showed that only 71.1% of the population experienced a good quality of life. [14] [15]. The low quality of life of the community will certainly affect productivity [16] and have an impact on the welfare of a population. The region that has a low quality of life will cause low community productivity and a high burden of health services [17].

Quality of life values are dynamic, serve to make health comparisons between countries, assess the effectiveness of interventions, and describe the life expectancy age of individuals/groups [18]. HRQOL measurement can also be used to determine the effectiveness of an intervention because long-term health interventions can have an impact on the quality of life. However, it is rare to find in a health care facility where HRQOL is the main objective of an intervention [19]. Therefore, health behavior is very important and relevant to prevent COVID-19 transmission.

Considering the pandemic and the spread of SARS-CoV-2 is still going on, the people's behavior to follow the standards of prevention of transmission is very important to better control the disease. Therefore, the aim of this research is to determine the association behaviors prevention COVID-19 transmission with HRQOL in Indonesia in the pandemics era.

2. Methods

2.1 Study Design, Sampling, and Participants

This study using a descriptive approach with a cross-sectional design. The study population is people living in two provinces in Indonesia, namely Jakarta and West Java, where at the beginning of the pandemic, the first confirmed cases of COVID-19 were found. The participants were adults who met the inclusion criteria, namely aged ≥ 18 years, able to communicate well, and be ready to become participants. The exclusion criteria were participants with a history of chronic illness and had mental problems. The minimum sample size is 610 with consideration of the design effect. The multistage cluster sampling method was used to determine the selected sub-districts. Furthermore, the sub-district was determined purposively. In each sub-district, 20 participants were taken systematically. Participants who met the inclusion criteria were 619 namely from Jakarta 334 (54%), and West Java 285 (46%).

2.2 Data Collection

In the data collection stage, the researcher involved forty data collectors (enumerators) to interview participants. The time required is 5 days from 18-22 August 2020. The criteria for enumerators are

second-year students from the public health study program who live in the research area. They have to attend training for 2 days and have the ability to use cell phones and using Google Forms properly.

Semi-online data collection, where participants fill out a questionnaire using a google form accompanied by an enumerator to make it easier for participants to ask if there are unclear question items. Enumerator visits to participants' homes have to follow the COVID-19 preventive health protocol. Enumerators used personal protective equipment such as masks and hand sanitizers to wash their hands before and after the interview.

The HRQOL questionnaire used was “The COV-19 - Impact on Quality of Life (COV19-QoL)”, developed by Repišti et al. (2020) [20]. This questionnaire has a good value for reliability (0.892), and validity (0.800). Consists of 6 questions with a choice of answers for each question in the form of a Likert scale, namely: 1. Strongly disagree; 2. Disagree; 3. Neutral; 4. Agree; 5. Strongly agree. The questions were related to changes experienced by participants in general quality of life, mental health conditions, physical health, stress, depression, and feelings of being threatened with personal safety compared to conditions before the COVID-19 pandemic. The scoring of this questionnaire was generated by calculating the average score of all questions. A higher score indicates a decrease in individual quality of life because of the COVID-19 pandemic.

The preventive behavior questionnaire consisted of eight questions which included questions about the habit of covering the mouth when sneeze or cough, maintain physical distance, shaking hands, making physical contact, washing hands with soap, habits of touching eyes, nose, and mouth, frequently touching cellphones. This instrument was developed by Shahnazi et al. (2020) [10]. The answered on a Likert scale, ranging from never (score 5) to always (score 1). The scoring by summarizing up the scores from the whole answer, the higher score obtained showing the less of prevention behavior was done.

2.3 Statistical Analysis

The data analysis process using STATA Ver. 16 (licensed). At the univariate analysis is a description of the characteristics of the variables. Bivariate analysis to identify the association between prevention behavior of COVID-19 transmission with HRQOL. The test using the non-parametric statistical Mann Whitney to find out the difference of the QOV19-QoL average score based on the behavior category. The test was chosen because the QOV19-QoL score did not meet the assumptions of a normal distribution.

3. Results

3.1 Subject Characteristics

A total of 619 participants with complete data for analysis. The results in table 1 show the characteristics of the participants more female = 72.7% than male = 27.3%. Most of the participants were in the adult age group (26-55 years) = 56.2%. Based on the level of education, there were more high school and above = 82.6% than low education (less than high school) = 17.4%. Furthermore, the proportion of participants' who work were not really different from those who does not work = 51.1% and 48.9% respectively. Based on marital status, more participants with married = 64.3%.

Table 1. Characteristics of participants (n = 619)

Characteristics	Category	n	%
Sex	Male	169	27.3
	Female	450	72.7
Age	≤25 years (teenager)	191	30.9
	26-55 years (adults)	348	56.2

	> 55 years (elderly)	80	12.9
Education Level	Higher education (≥ high school)	511	82.6
	Low education (<high school)	108	17.4
Profession	Work	316	51.1
	Does not work	303	48.9
Marital Status	Married	398	64.3
	Divorced	32	5.2
	Not married	189	30.5

3.2 Description of the behavior to prevention COVID-19 transmission and HRQOL

The behavior to prevention COVID-19 transmission is described in a bar chart with five different colors representing the participants' answers and is a conversion from a Likert scale (from a score of 1, which is “never” to “always” with a score of 5). Scoring is the sum of each answer and a higher score shown on the bar indicates poor preventive behavior.

Figure 1 shows an illustration of the behavior to prevention COVID-19 transmission. In the eight behaviors assessed, there were 3 behaviors that had the largest proportion for the "never" category: washing hands when entering the house (48.5%), avoiding the habit of greeting with a kiss on both cheeks (41.2%), and covering the nose area when sneeze or cough (38.9%). Meanwhile, other preventive behaviors are still dominated by occasional frequency.

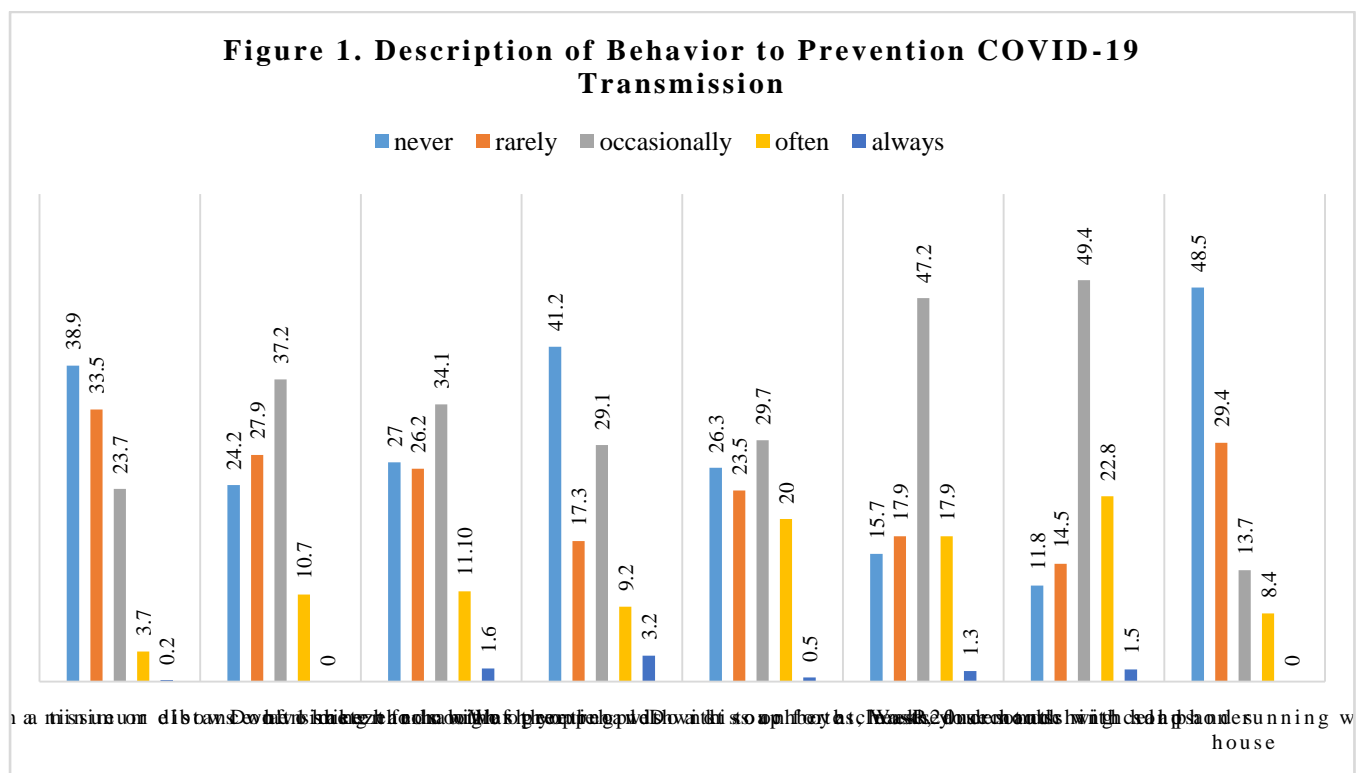
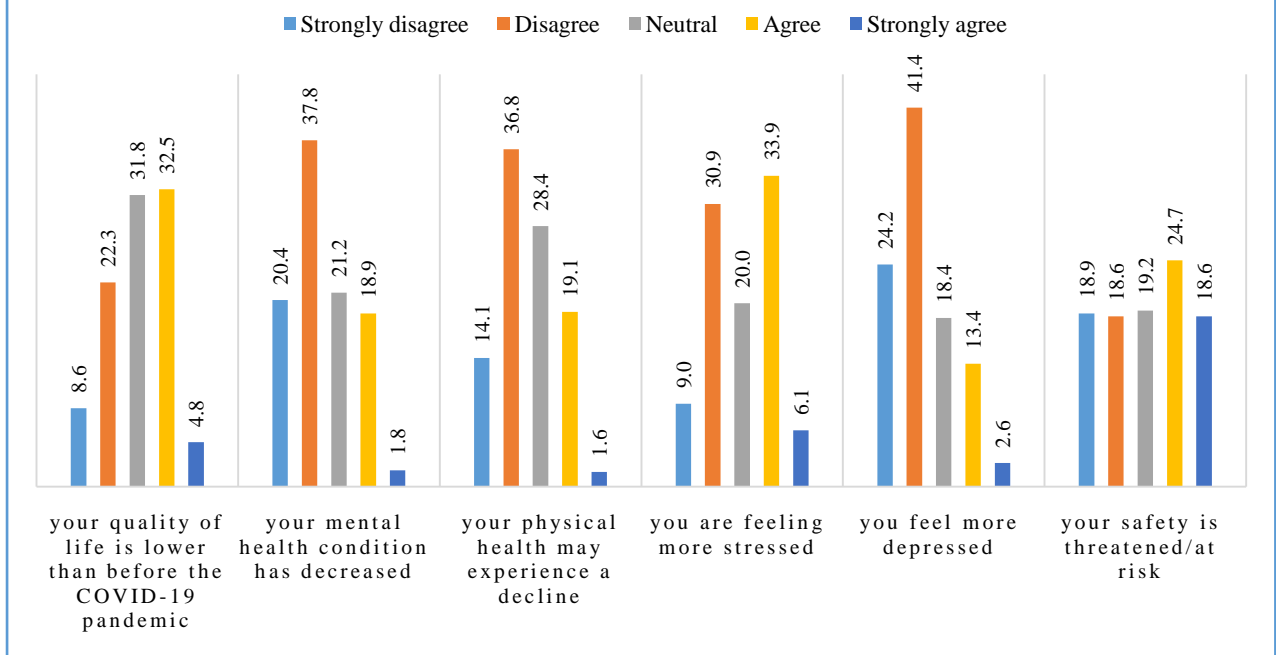


Figure 2 shows the HRQOL description using the COV19-QoL scale. Each bar in the diagram represents a question showing quality of life problem during a pandemic compared to a previous situation. Looks that the highest proportion of problems felt by participants is that with the COVID-19 pandemic they feel more stressed than before (33.9% agree), decreased quality of life (32.5% agree) and then 24.7% agree and 18.6% strongly agree that the presence of a pandemic makes their safety at risk.

Figure 2. Description of The HRQOL with COV19-QoL Scale During The COVID-19 Pandemic



3.3 The association between behavior to prevent COVID - 19 transmission with HRQOL

Based on figure 1, then we calculate the behavior score to get the median value (19.0) as the cut-off point for dividing behavior scores into two categories, consist of good and poor behavior (Table 2).

Table 2. Distribution of main variables

Variables	Category	n	%
Behavior to prevention COVID -19 transmission	Good, score \geq median (19,0)	289	46.7
	Poor, score $<$ median (19.0)	330	53.3
HRQOL using COV19-QoL scale	Mean: 16,36 (SD \pm 4,69) Median: 16.00 Mode: 18.00 Minimum: 6 Maximum 29		

Table 2 shows that the proportion of participants who have poor behavior in preventing COVID-19 transmission was higher (53.3%) compared to those who have good (46.7%). In the HRQOL variable, it can be seen from the average score (16.36 \pm 4.69) with a median value that almost the same (16.00) but different from the mode value (18.00). The COV19-QoL score did not meet the data normality assumptions.

Furthermore, to see the association between the prevention behavior of COVID-19 transmission, a bivariate analysis with the Mann Whitney test to identify the difference in the COV19-QoL average score based on the category of preventive behavior.

Table 3 The results of the Mann Whitney test on the association between prevention behavior of COVID-19 transmission and HRQOL

Independent variable	Dependent variable: Health-related
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		quality of life (COV19-QoL scale)		
		n	Mean Rank	P value
Prevention behavior of COVID-19 transmission	Good, score \geq median (19,0)	289	287.92	0.004
	Poor, score < median (19.0)	330	329.33	
	Total	619		

Participants with good preventive behavior had a lower mean rank of QOV19-QoL score than poor behavior (287.9 < 329.3) with p-value 0,004 (<0.05) meaning that there was a significant difference in the quality of life average score by category of the behavior to prevent COVID-19 transmission.

4. Discussion

The prolonged COVID-19 pandemic demands adaptability for individuals, communities, and organizations not only to survive but to achieve a better life. Mainly adaptation is health behavior, especially prevention behavior, which has to become a good habit to control the addition of new cases.

In this study, we assessed the association of preventive behavior with HRQOL. Eight COVID-19 transmission prevention behaviors were identified from the participants. What we highlighted is the problem of preventive behavior that is "never done" according to health protocols. Responses from 619 participants were identified, there were 3 behavioral problems with the largest proportion in the "never" category, namely: washing hands when entering the house (48.5%), avoiding the habit of greeting by a kiss on both cheeks (41.2%), and covering nose area when sneezing or coughing (38.9%). The other five preventive behaviors are still practiced but with "occasional" frequency.

These results are different from the research by Shahnazi et al (2020) [10] which involved 750 participants who identified COVID-19 prevention behavior. The results show that good behavior has the largest proportion in the "always" category, namely 82% do not shake hands and kiss; 73.7% wash their hands when entering the house; 64.3% did not need to leave the house; 61.2% covered their nose with a tissue or elbow when cough and sneeze; 45.7% wash their hands with soap and water and 39.7% maintain a distance of one meter from other people. Meanwhile, some behaviors had the lowest level of compliance in the always category, namely 33.5% for not touching their faces with hands and 22.8% for not touching or using cell phones outside the home.

This difference in our opinion is a natural thing considering the different characteristics of society and the cultures that become habits between countries are also different. This can be a good example of lessons learned that it is possible for individuals to carry out good behavior in preventing COVID-19 transmission. That there are differences in culture, values, and beliefs is a challenge in every country to change behavior during this pandemic.

The results of HRQOL measurements using the COV19-QoL scale describe the current problem perceived by the individual as compared to the condition before the pandemic. Participants' responses with "agree" category that the COVID-19 pandemic make them felt more stressed than before (33.9%), decreased quality of life (32.5%), and the presence of a pandemic caused their safety to be threatened (24.7% agreed and 18.6% strongly agree).

These results are in line with the findings of Repišti et al (2020) [20] which have proven that participants felt quality of life was the aspect most affected by the pandemic, while mental health, personal safety, and depression were the least affected aspects. These findings reveal that the COV19-QoL instrument is a one-dimensional instrument for measuring perceptions of decreased HRQOL during the COVID-19 pandemic and the measurement results have good construct validity.

The association between prevention behavior COVID-19 transmission and HRQOL is shown from the significantly Mann Whitney test (p-value = 0.004) proving that there is a difference in the average score of quality of life based on behavior categories. This result is consistent with the univariate

analysis previously that the proportion of behavior transmission prevention in the "always" category is relatively low (less than 5%) as shown in Figure 1.

Finding that social distancing and hand-washing behavior when entering the house for the "always" category was 0%. This phenomenon can be influenced by a lack of knowledge and public awareness of social distancing. This needs serious attention from all parties because social distancing is essential to control a pandemic and can reduce the spread of the virus [21].

In addition, in Figure 1 there are unique cultural-related behaviors that have become customary in Indonesia, such as shaking hands and kissing the cheeks of other closest people such as family, including the habit of kissing the hands of older people such as parents. This good behavior is related to ethical values that are widely applied in Indonesian people. However, during a pandemic, this behavior has caught the attention of many social groups and organizations who agree that behavior has to be changed because it is one way of spreading the virus. As an alternative, people began to salute others by bowing to each other with a smile or bringing their palms together in front of their chests while bowed their heads.

The COVID-19 pandemic has changed the way humans live to adapt to new habits. The behavior to prevent transmission that can be adopted properly by the community is certainly the hope of the Indonesian government and the world. The results of this study prove that there are differences in the value of quality of life based on these behavioral categories. Therefore, HRQOL measurement is needed as a preventive activity, especially in primary health care. Health promotion activities to improve behavior to prevent transmission must be carried out massively by individuals, families, communities, and organizations so that the transmission of COVID-19 can be controlled and in the end, the pandemic period can be shortened.

5. Conclusion

The behavior of preventing COVID-19 transmission and HRQOL are two important aspects and have proven to be a significant association. This research further strengthens that a good quality of life is the result of measurable and sustainable health behavior intervention. The COV19-QoL instrument is a fairly good measure of identifying the HRQOL measures during a pandemic.

6. Competing Interests

The authors declare no conflict of interest.

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