



Perception and Knowledge of Covid 19 in Indonesia: An Intervention Study

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A B S T R A C T

Coronavirus 2019 (Covid 19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2). In Indonesia, coronavirus transmission still occurs in the community with a total case around 49.009 (at time of writing). This study purposed to know the effect of self-management education on changes in patient's perceptions and knowledge toward covid 19 transmission in East Java hospital. Data were obtained from 150 patients coming to clinics, from December 2019 – May 2020. Sampling was through a simple random sampling technique. Pretest data collection was to identify the perceptions and knowledge, then the intervention of self-management education was carried out and finally, the post-test conducted. Pretest and post-test data collection included a closed questionnaire, data analysis was performed with an independent T-test. (43,67%) respondents had an evaluation of the clean and healthy living behavior, (45,61%) respondents recognized the death risk due to Covid 19, (60,76%) had the perception of looking for information to get to know Covid 19 and (79,12%) of respondents had knowledge about covid 19 signs and symptoms, (79,67%) of respondents had awareness of clean and healthy living behavior. Changes of perception after intervention self-management education were become the treatment group. Self-management education could change the patient's perception and knowledge about covid 19 transmission. A Future research need to be carried out as a measure of community awareness and willingness, including more comprehensive methods of self-management education carried out in one or more interventions

INTRODUCTION

Coronavirus is known as severe acute coronavirus 2 (SARS5CoV-2) acute respiratory syndrome (Rolison and Hanoch, 2015). In Indonesia the coronavirus transmission still occurs in the community, a total of 49,009 cases, an increase of 114 cases every day (at the time of writing), has now had a large impact on several aspects, ranging from the economic, social environment to affecting natural conditions (Xu *et al.*, 2021).

To prevent further spread of the virus, several studies on the management of the covid 19 pandemic have been carried out including four social studies (Ali *et al.*, 2020), for that reason, any health care provider can help provide information and put more attention on social distance and behavior that is useful to reduce the spread of the virus (Vos *et al.*, 2017). Covid management has been carried out through massive education and outreach to all elements of the community who will access public services online about the readiness of the community to face the new normal, this requires an attitude to be more agile and adaptive, one of which is about community compliance to follow the government's recommendations, namely all the activity was carried out under the Covid 19 health protocol (Ferdous *et al.*, 2020).

Perceptions and knowledge about infections and appropriate precautions can be used to control a pandemic (ALdowyan, Abdallah and El-Gharabawy, 2017; Ferdous *et al.*, 2020; Kang *et al.*, 2020). Currently the scientific community continues to research the possibility of vaccines and drugs to overcome the virulence of viral infections, it is hoped that good knowledge will be able to motivate individuals to make decisions in preventing and controlling the spread of the virus. Knowledge such as washing hands regularly, using hand sanitizers, wearing face masks, breathing etiquette, avoiding crowds, social distance and self-isolation when sick is very important to reduce widespread infections. Referring research (Graffigna *et al.*, 2020; Ali *et al.*, 2020) revealed that the individual's level of knowledge about infectious diseases can make them behave clean and healthy in ways that can prevent infection. As a result, individuals may need to be informed of the potential risk of infection to adopt appropriate precautions (Leal, 2020).

Self-management education refers to strategies that patients use in deciding on therapy, behavior and environment based on knowledge and skills related to health from health workers to improve their ability to care for themselves (ALdowyan, Abdallah and El-Gharabawy, 2017). Health workers advocate for patients to strengthen education and management in caring for themselves (Sureka *et al.*, 2020) thus it is expected that changes can occur in discipline and compliance in carrying out clean and healthy behavior. The study of self-management education is conducted on patients who are often not capable to manage their individuals' condition in dealing with illness (Haneef and Kalyanpur, 2020). The study purpose, in general, is to analyze the self-management education toward perception and knowledge of covid 19.

METHOD

Setting and Participant

Data collection used an online survey questionnaire to collect pre-test and post-test data. Respondents potentially entered the WhatsApp group and were asked to participate online. The snowball sampling technique was carried out to recruit more subjects registered at the polyclinic of 3 hospitals namely Bhayangkara Hospital, Sakinah Mojokerto Hospital and M Sholeh Probolinggo Hospital during the Covid 19 pandemic. The both online survey of pre-test and post-test data collection were carried out for 2 weeks; the pre-test from 3-14 January 2020, while the post-test from 17-25 June 2020, and found 150 subjects (pre-posttest). Subjects were divided into intervention groups that underwent self-management education and control groups who received usual care without self-management education. Each intervention group and control group contained 75 respondents. All subjects have the following criteria: (1) Ages over 20 years, (2) able to read and write, (3) alert and oriented and willing in the WhatsApp group. Subjects were rejected with the following criteria: (1) had a serious illness, such as cancer and heart failure, and (2) did not give consent.

Study protocol

Subjects in the control group were treated with regular care and managed by each doctor and maintained access to normal health services, which included basic medical knowledge and skills education. Subjects in the intervention group received a structured simple education that is self-management education for three months because no significant results were obtained continued for six months referring to the research (Zhong *et al.*, 2020). The self-management education program focused on the subject's ability to conduct self-management in carrying out clean and healthy living behaviors and the subject's family members were encouraged to take part. In this education program was done through videos that were played for 15 minutes repeatedly, the material in the education program includes: (1) Wash hands with 6 steps, (2) Using masks, (3) Keeping a social distance, and (4) Avoiding crowds. After this session done, subjects received leaflets to support information for independent education in the coming months. The intervention group also received a standard 15 minutes telephone call in the last week of the intervention. The contents of this telephone call were based on the information contained in the leaflet, aiming to uphold the knowledge and skills about clean and healthy living behavior in the subjects' daily lives. The researcher kept detailed records of each telephone call. Subjects in the intervention group, or their family members, received standard notes in the last week. The contents of this text message were easy to understand and were based on self-management education programs. All subjects in the intervention group kept a diary containing what was covid 19 disease, coronavirus transmission, and prevention and breaking of the covid 19 transmission chain. The diary was given to researchers when the subjects came to the clinic every month.

Control group

Subjects in the control group were treated with regular care and managed by each doctor and maintained normal access to general health according to the illness experienced by the patient, which included basic medical knowledge and education provided by a nurse. However, researchers did not provide material related to the distribution and breaking of the Covid 19 chain, education or skills in managing health. If the subject or family was a patient who always conducts examinations to the health service at the hospital where the study was carried out communication by telephone was assisted by the dispatcher from the hospital.

Intervention group

Subjects in the intervention group received planned and structured self-management education about the spread and breaking of the Covid 19 chain for two months. This activity focused on the patients and family's ability to carry out self-management related to the distribution and breaking of the Covid chain 19. Self-management education was carried out independently including teaching through video, telephone follow-up, text messages and notes in a diary. During the 25 minutes of video learning, subjects

learned how to wash hands, use masks, not shake hands, social physical and distance. In addition, subjects were also trained on how to wash hands in 6 steps. After this session, subjects received leaflets as information for independent education in the next two months. The intervention group also received telephone calls in one, or two months from the hospital or a visit to the clinic. The contents of this telephone call were based on a pre-arranged booklet; that aimed to uphold the perceptions and knowledge of the distribution and breaking of the covid 19 chain and integrate it into everyday life. Researchers recorded in detail every information obtained through the telephone. Subjects in the intervention group, including their family members, received standard text messages after several weeks of discharge from the hospital or clinic. The contents of this text message were easy to understand and were based on self-management education activities. All subjects in the intervention group kept a diary containing clean and healthy living behaviors, including the spread and transmission of Covid 19 disease, and ways to prevent and maintain social distance and not follow the crowd. This diary was given to researchers in one and 2 months.

Questionnaire

Socio-demographic data were obtained from respondents about variables such as gender, age, marital status, ethnicity, educational qualifications, and religion. Knowledge of COVID-19 was assessed using five items adapted from the Ebola knowledge scale developed (Abolfotouh *et al.*, 2017). The knowledge component of COVID-19 includes COVID-19 sources, modes of transmission, symptoms, methods of prevention and control of infection, perception of death of COVID-19 and sources of information about COVID-19. Respondent's knowledge of COVID-19 was obtained by adding up the correct responses in item 1, source COVID-19, (true = [d]), number 2, transmission of COVID-19, (true = [a], and [b], [c] or [d]), item 3, prevention of COVID-19, (true = [b] and [d], [f] or [h]), item 4, symptoms of COVID19, (true = [a], [b] and [g]), and item 5, awareness of death COVID-19, (true = [a]), produces a maximum score of five. A score of 3 indicated a moderate level of knowledge about COVID-19, a score above 3 indicated a high level of knowledge (satisfying) about COVID-19 while a score of less than 3 indicated a low level of knowledge (unsatisfactory) about COVID-19. Average scores and standard deviations for the sample population were calculated to indicate the sample's level of knowledge. Likewise, scores above normally indicated high knowledge (satisfactory) and scores below normally indicated low knowledge (unsatisfactory) of COVID-19.

Ethical considerations

Ethics approval was obtained from the Health Research Ethics Commission of the Nahdlatul Ulama University in Surabaya, Nm 120/EC/KEPK/UNUSA/2019. Participants were fully involved in the research process, anonymous, voluntary and informed consent was obtained from all respondents.

Statistical analysis

World Health Organization (WHO), instructing the prevention of the coronavirus' spread through hand washing, using masks, social distancing and physical distancing were arranged instruments for perception and knowledge of the prevention and spread of corona. The questionnaire was given during the pre-test and post-test. Data collected through the Google online format were then tabulated and analyzed statistically. The research process lasted for 3 months from January to April 2020, because the insignificant results of the intervention were continued 3 months until June, 2020 at Bhayangkara Hospital in Surabaya, Sakinah Mojokerto Hospital and M Sholeh Probolinggo Hospital in East Java. The collected data were then analyzed using the significance of a difference found between the intervention and control group was assessed by test or independent t-test. A p-value of <0.05 was considered significant (Yu, Guo and Zhang, 2014).

RESULT

Survey Respondent

We received responses from 150 respondents, on 4 June 2020 the date of the last data collection in this study. We included 150 respondents from three hospitals in East Java who had completed the online questionnaire (completion rate 100%). Respondents aged between 25-60 years $p = 0,028$. There were 106 female respondents (70.7%) and respondents who had completed high school education (15.3%) and 34% worked in the private sector. Table 1 shows the distribution of respondent characteristics.

Table 1 Table Distribution Characteristic

Characteristic	Total	Control group	Treatment group	<i>p</i>
Sex:				
Male	44 (29,3)	22 (29,3)	22 (29,3)	0.028
Female	106 (70,7)	53 (70,7)	53(70,7)	
Age:				
>25 - ≤ 35	32 (21,3)	15 (20)	17 (22,6)	0.361
>35 - ≤ 45	56 (37,3)	24 (32)	32 (42,7)	
>45 - ≤ 60	62 (41,3)	36 (48)	26 (34,7)	
Profession:				
Housewife	26 (17,3)	11 (14,7)	15 (20)	0.574
Private sector / Employee	51 (34)	28 (38,3)	23 (30,7)	
Entrepreneur	29 (19,3)	12 (16)	17 (22,7)	
Driver	27 (18)	27(36)	10 (13,3)	
Unemployed	13 (8,4)	3 (5)	10 (13,3)	
Education level:				
Uneducated	23 (15,3)	11(14,7)	12(16)	0.108
Elementary school	32 (21,3)	15(20)	17 (22,7)	
Junior high school	50 (33,3)	23(30,7)	27 (36)	
Senior High School	27 (18)	19(25,3)	18 (24)	
College	7 (4,1)	7 (7,3)	0	

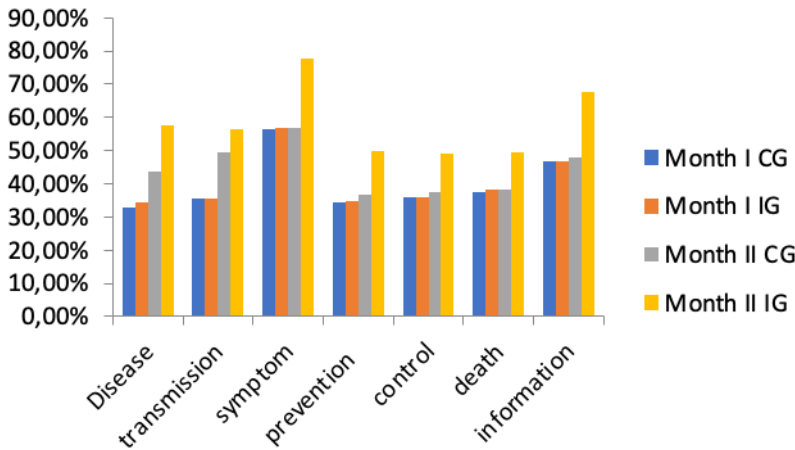


Fig.1 Perception of comparison between groups

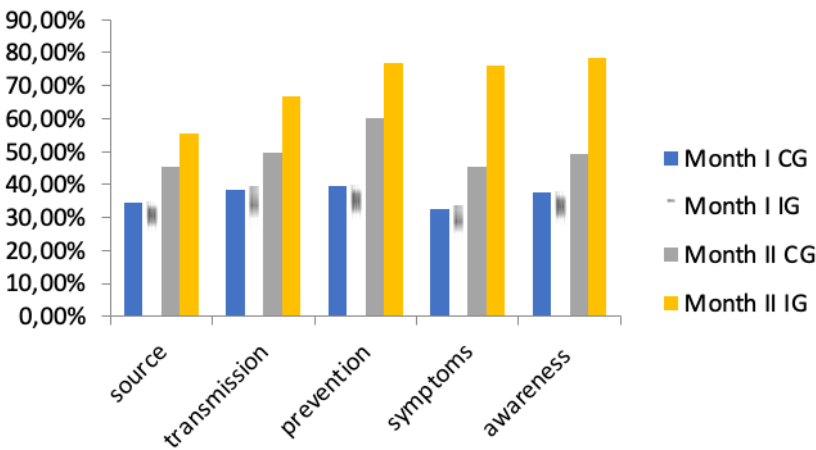


Fig.2 Knowledge of comparison between groups

Perception of Covid 19

In the intervention group after two months the following results were obtained: about half of the respondents (57,4%) have a perception that Covid is a disease that originated in China, especially the city of Wuhan. While (55,4%) identify as an airborne disease, (77,89%) respondents' perceptions of the symptoms that occur in Covid 19, (45,65%) respondents' perceptions of ways of prevention and transmission, (43,67%) respondents have an evaluation of clean and healthy living behavior, (45,61%) respondents recognize the risk of death due to Covid 19, (60,76%) have the perception of looking for information to get to know Covid 19 (Fig. 1)

Knowledge of Covid 19

Changes in knowledge in the intervention group after two months the following results were obtained; (56.75%) respondents knew the source of Covid 19 from animals circulating in the Wuhan City of China, and (62.43%) knowledge of the spread and transmission of the coronavirus, (78.34%) respondents'

knowledge of the prevention and breaking of the Covid 19 transmission chain, (79.12%) of respondents' knowledge of the signs and symptoms of covid 19, (79.67%) of respondents had awareness of clean and healthy living behavior (Fig.2)

DISCUSSION

The study results indicate that self-management education is simple, structured, and able to improve patient perception and knowledge about the prevention and termination of the covid 19 transmission chain. The research subjects had better perception and knowledge about the prevention and termination of covid 19 in the intervention group than subjects in the control group over a period of three months; in addition, these differences are even more pronounced over the six months. The self-management education effect is not seen in one month but gradually increases as time passes by up to two months. This is not surprising, because changing perceptions and knowledge takes time. This study results confirm similar findings (Asaad *et al.*, 2019) and show that patients who receive health-related skills and knowledge through self-management education are encouraged to carry out positive and beneficial developments and integrate them into their daily lives. Thus, the effects of self-management education are cumulative and can be done through a long-term process. The self-management education purpose is to help patients manage the perception of covid 19 disease and knowledge about the prevention and termination of the covid 19 transmission chain through a healthy lifestyle (Zhong *et al.*, 2020).

Perception

In this study, the subjects carried out the steps of prevention and transmission of Covid 19 disease which showed that self-management education that was designed correctly strategy was able to change the perception and knowledge of subjects about Covid 19 disease as well as the prevention and termination of the Covid 19 transmission chain (Asaad *et al.*, 2019). Finally, with the intensity of self-management education reduced, the patient's quality of life is still being improved. Once a patient's confidence in self-management education is established, in contrast to the belief that the subject' perception and knowledge will be able to change, improvements can be observed for a period of two months after observing the second intervention.

This study also shows that the element of self-management education is appropriate in breaking the Covid 19 transmission chain. Subjects in this study are parents who have limited energy to take on more activities because of limited energy and memory or other chronic diseases (Asaad *et al.*, 2019). Subjects were afraid when physical activity caused researchers to repeatedly remind them to follow the research process, so they sometimes avoided this activity. On the other hand, researchers persuade the subject to carry out these activities in daily life following the material that has been submitted in the intervention process. This intervention makes the subjects more confident to live with clean and healthy living

behaviors that are often washing hands, wearing masks, keeping a social distance, not doing a handshake, and not participating in the crowd (Yu, Guo and Zhang, 2014).

Knowledge

This study also shows that self-management education can be implemented simply, with self-management education material through a video that can be watched while patients are in the clinic waiting room. When the subjects are at home, investigators strengthen each other's skills related to perceptions and knowledge about transmission and breaking of the Covid 19 transmission chain through WhatsApp groups, text messages and diaries, which are economical and easily accessible because of the WhatsApp groups popularity can change subject perceptions and knowledge.

These results are consistent with research (Tung *et al.*, 2013), which shows that improving patient cognition. Our study also confirms and extends the findings (Wardani *et al.*, 2022), who consider that self-management education which decides to make it first but still allows to be able to change the perceptions and knowledge of patients through self-management education, provides strong confidence in patients to maintain a clean and healthy life behavior (Voncken-Brewster *et al.*, 2013). Our study shows that there are many differences in implementing self-management education in variable structure and design. For example, our research focuses on self-management education on clean and healthy living behavior through video media that is played repeatedly but this is done to facilitate the intervention process (Effing *et al.*, 2007). This study also shows that investigators can rearrange and adjust the intensity of self-management education based on individual patient characteristics without affecting outcomes. Future research needs to be carried out as a measure of community awareness and willingness, including more comprehensive methods of self-management education carried out in one or more interventions (Kim and Youn, 2015; Bischoff *et al.*, 2012).

CONCLUSION

Self-management education can be used as an alternative method in improving the independent care of the community with change in perception and knowledge about covid19 transmission chain. The novelty of self-management research can change people's perceptions and knowledge of breaking the chain of the covid 19 spread. Further research is the awareness and willingness of the community to practice clean and healthy living behaviors in their daily lives.

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