

# Self-Management to Change of Perception and Clinical and Pharmacological Knowledge of COVID-19

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## ABSTRACT

Coronavirus 2019 (Covid-19) is caused by a coronavirus 2 that causes severe acute respiratory illness (SARS-CoV2). Coronavirus transmission occurs in the community in Indonesia, with a total of 49,009 instances (at time of writing). This research aims to determine the influence of self-management education on the attitudes and knowledge transfer of COVID-19 patients in an East Java hospital. Between January and July 2020, data was collected from 150 patients who visited a clinic in East Java. A sample was accomplished using a straightforward random sampling approach. The pretest data were collected to determine perspectives and knowledge, followed by the self-management education intervention, and finally, the posttest. The pre-and post-test data were collected using a closed questionnaire, and the results were analyzed using an independent T-test. Perception changes after self-management education intervention were seen only in the treatment group. Positive perceptions had a  $p = 0.001$  significance level, whereas negative perceptions had a  $p = 0.001$  significance level. After the treatment group received self-management instruction, knowledge satisfaction was  $p = 0.001$  and satisfaction with self-management was  $p = 0.001$ . Self-management education can alter patients' perceptions and understanding of COVID-19 transmission. In the future, it is vital to do further studies on healthy behaviour awareness and COVID-19 prevention. Also its necessary to improve systems for clinical, pharmacological and medical knowledge for viral infection in societies.

**Keywords:** Covid-19, Clinical knowledge, Coronavirus, Perception, Outbreak.

## INTRODUCTION

Coronavirus is severe acute coronavirus 2 (SARS5CoV-2), an acute respiratory syndrome (Mehanna et al., 2020). In Indonesia, the transmission of the coronavirus still occurs in the community, a total of 49,009 cases, an increase of 114 cases every day (at the time of writing), and has now had a significant impact on several aspects, ranging from the economic and social environment to affecting natural conditions (Mandal et al., 2020; Megatsari et al., 2020; Setiawati et al., 2021).

To prevent the further spread of the virus, several studies on the management of the pandemic have been carried out in

local scales in indonesia (Fenitra et al., 2021; J. Li et al., 2020; Russell et al., 2020). As a result, any healthcare professional may offer information, and significant emphasis is placed on

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social distance and other anti-virus behaviours (World Health Organization Regional Office for Europe, 2020). Covid-19 management has been carried out through massive education and outreach to all elements of the community who can 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, which includes community compliance to follow the government's recommendations, namely all the activity carried out under the COVID-19 health protocol (World Health Organization Regional Office for Europe, 2020).

Perceptions and knowledge about infections and appropriate precautions can be used to control a pandemic (Ayandele *et al.*, 2020; J.-B. Li *et al.*, 2019; Srichan *et al.*, 2020). Currently, the scientific community is investigating the prospect of developing vaccines and medications to combat the aggressiveness of viral diseases. It is believed that increased awareness would drive people to take proactive measures to prevent and control the spread of the virus (Nidom *et al.*, 2020). Washing hands often, using hand sanitizers, wearing face masks, practising proper breathing etiquette, avoiding crowds, social distance, and self-isolation while unwell are critical skills for preventing widespread infections (Saha *et al.*, 2021; . Previous studies have shown that an individual's degree of awareness about infectious illnesses may influence their behaviour to be more clean and healthy, hence preventing infection (Collaboration *et al.*, 2020; Khan *et al.*, 2020; Nagura-ikeda *et al.*, 2020). As a consequence, people may need to be educated about the danger of infection in order to take the necessary measures (Liang *et al.*, 2020; Nursalam *et al.*, 2020)

Self-management education refers to strategies that patients use in deciding on therapy, behaviour, and environment based on knowledge and skills related to health from health workers to improve their ability to care for themselves (CARE, 2020). Health workers advocate for patients to strengthen education and management in caring for themselves; thus, it is hoped that changes can occur in discipline and compliance in carrying out clean and healthy behaviour (Cunningham, 2021). The study of self-management education is conducted on patients who can often not manage the condition of individuals dealing with illness (Cunningham, 2021). This research aims to examine the self-management education of COVID-19 employees toward perception and knowledge. As a result, the approach to defining this area's space will center on the visual elements of the site that provide meaning to visitors (a sense of place) (Andiyan & Cardiah, 2021).

## METHOD

### Setting and Participant

Data collection using questionnaires developed by researchers and online surveys was used to collect pretest and posttest 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 three hospitals, namely Bhayangkara Hospital, Sakinah Mojokerto Hospital, and M Sholeh Probolinggo Hospital Covid-19 pandemic. The online survey

of pretest data collection was carried out for two weeks (3-14 January 2020), and the posttest was carried out for two weeks (17-25 July 2020) and found 150 subjects (pre-post test). The subjects were separated into intervention groups that received self-management education and control groups that got standard treatment but did not get self-management education. Each intervention and control group consisted of 75 participants. Each topic meets the following requirements: (1) must be over the age of 20, (2) must be able to read and write, and (3) must be alert, focused, and eager to join the WhatsApp group. The following criteria were used to exclude subjects: (1) was suffering from a life-threatening condition, such as cancer or heart failure; (2) did not agree.

### Study Protocol

Subjects in the control group received routine care and management from each clinician and continued to access routine health services, including education in fundamental medical knowledge and skills. For six months, subjects in the intervention group got organized, straightforward instruction, namely self-management education (Caserotti *et al.*, 2021). The self-management education program emphasizes the subject's capacity to exercise self-control while engaging in clean and healthy living practices, and the subject's family members are encouraged to participate. This education campaign is delivered through 15-minute movies that cover the following topics: (1) proper handwashing in six stages; (2) the use of masks; (3) maintaining a social distance; and (4) avoiding crowds. Following this session, respondents received flyers to assist them in obtaining information about independent education in the months ahead. To measure and educate public awareness in implementing health protocols, further research is needed (Cardiah *et al.*, 2021).

Additionally, the intervention group got a typical 15-minute telephone call during the intervention's last week. The contents of this telephone conversation are based on the information provided in the leaflet to maintain the participants' knowledge and abilities about clean and healthy living behaviors in their everyday lives. The researcher maintained meticulous records of each telephone conversation made by individuals of the intervention group, and their family members received standard notes over the previous week. The text message's content was simple to comprehend and was based on self-management education programs. All individuals in the intervention group maintained a journal detailing their experiences with COVID-19 illness, coronavirus transmission, prevention, and breaking the COVID-19 transmission cycle. The logbook was handed to researchers each month when individuals visited the clinic. This study uses a regression analysis that is used multiple regression analysis (Husnatarina *et al.*, 2022).

### Questionnaire

Respondents provided sociodemographic data on gender, age, marital status, ethnic origin, educational attainment, and religion. Five items derived from the Ebola knowledge scale

established by Roland and Hanoch (2015) The knowledge component of COVID-19 consists of information on the virus's origins, modes of transmission, symptoms, methods of infection prevention and control, perception of mortality from COVID-19, and sources of information about COVID-19. A score of 3 shows a moderate level of knowledge about COVID-19; a score of more than 3 indicates a high level of knowledge about COVID-19 (satisfactory), and a score of less than 3 indicates a low level of knowledge about COVID-19 (unsatisfactory). The sample population's average scores and standard deviations are computed to determine the sample's degree of knowledge. Similarly, scores above normal indicate a high level of knowledge (acceptable), whereas scores below normal indicate a poor level of knowledge (unsatisfactory).

### Ethical Considerations

The Health Research Ethics Commission of the University of Nahdlatul Ulama Surabaya granted clearance under the number 106/KEPK/UNUSA/VII/2019. Participants were actively engaged in the study process and gave their permission anonymously, voluntarily, and knowingly.

### Statistical Analysis

The World Health Organization's (WHO) guidelines for preventing coronavirus transmission via handwashing, mask use, social distancing, and physical distancing are structured

as tools for perception and information about coronavirus prevention and dissemination. The questionnaire was administered before and after the pretest and posttest. The data were then tallied and statistically evaluated using the Google online format. The study method lasted three months, from January to April 2020, although the intervention's minor effects lingered months longer, until July 2020, at Surabaya's Bhayangkara Hospital, Sakinah Mojokerto Hospital, and M. Sholeh Probolinggo Hospital in East Java. The data was then analyzed using the test or independent t-test to determine the difference between the intervention and control groups. A 0.05 p-value was judged significant (Yu *et al.*, 2014).

## RESULTS

### Survey Respondent

As of June 4, 2020, the study's final data collection date, we have collected replies from 150 respondents. We included 150 respondents from three hospitals in East Java who completed an online questionnaire (complete rate: 100%). The respondents ranged in age from 25 to 60 years. 156 female respondents (70.7%), 18 with a high school diploma (18%), and 34% working in the private sector. The distribution of respondents' attributes is shown in Table 1.

The study's findings following self-management education intervention on the chain of transmission of COVID-19 are summarized in Tables 2 and 3 below;

**Table 1:** Table Distribution Characteristic

Characteristic		Total	Control group	Treatment group	P
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(41.4)	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)	
	Does not work	13 (8.4)	3 (5)	10 (13.3)	
Education level:	No school	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	

**Table 2:** Change of perception of Covid-19 comparison between groups

Perception	Session 1				Session 2			
	Control group	Intervention group	t	P	Control group	Intervention group	t	P
Positive	34.67+ 18.98	32.90 + 28.82	-1.372	0.342	38.21 + 17.13	23.05 + 15.65	- 3.341	0.001
Negative	32.12 + 24.15	30.67 + 22.31	- 0.656	0.541	30.23 + 19.21	27.09 + 16.89	- 2.340	0.001

**Table 3:** Change of knowledge comparison between groups

Knowledge	Session 1		t	P	Session 2		t	P
	Control group	Intervention group			Control group	Intervention group		
Satisfactory	37.87 + 29.67	33.75 + 27.89	- 1.578	0.239	35.92 + 20.87	27.78 + 12.89	-1.893	0.001
Unsatisfactory	40.36 + 37.45	35.67+ 28.87	- 0.784	0.445	37.87+ 32.94	30.67 + 19.76	2.175	0.001

### Change of Perception of COVID-19

Following six months of intervention, the following findings were obtained: There was no significant sense of good ( $p = 0.342$ ) or negative ( $p = 0.541$ ) in the first session. Positive perception ( $p = 0.001$ ) and negative perception ( $p = 0.001$ ) were used to determine the second session. Perception material includes the following: A belief that Covid-19 is a disease that originated in China, specifically in the city of Wuhan; an identification of Covid-19 as an airborne disease; perceptions of the symptoms associated with Covid-19; perceptions of methods of prevention and transmission; an assessment of clean and healthy living behaviour; an acknowledgement of the risk of death associated with Covid-19. One possesses the impression of seeking knowledge to alter one's perspective of COVID-19 (Table. 2).

### Change of Knowledge of COVID-19

The following changes in knowledge occurred after a six-month self-management education intervention on breaking the COVID-19 chain: in the first session, the findings were not significant at acceptable  $p = 0.239$  and unsatisfactory  $p = 0.445$ . Following the second intervention session, good ( $p = 0.001$ ) and poor ( $p = 0.001$ ) outcomes were obtained. The following knowledge material is included: was aware that the source of Covid-19 was from animals circulating in Wuhan City, China; was aware of the spread and transmission of the coronavirus; was aware of the prevention and breaking of the Covid-19 transmission chain; was aware of the signs and symptoms of Covid-19; was aware of the importance of clean and healthy living behaviours; was aware of the importance of seeking information in order to improve knowledge of Covid-19; was aware of the importance of seeking information in order to improve knowledge of (Table 3).

### DISCUSSION

The subjects in this study performed the steps necessary for the prevention and transmission of COVID-19 disease, demonstrating that adequately designed self-management education is a strategy capable of altering subjects' perceptions and knowledge about COVID-19 disease, as well as preventing and terminating the transmission chain (Zhong *et al.*, 2020). Finally, even with a reduction in the degree of self-management instruction, patients' quality of life continues to improve. In contrast to the idea that the respondent's perception and knowledge may change, if a patient's trust in self-management education is established, improvements can be noticed for two months after the

second intervention (Setiawati *et al.*, 2021). Additionally, this research demonstrates that self-management instruction is necessary and effective in breaking the COVID-19 transmission cycle. The subjects of this research are parents who have been unable to engage in additional activities due to low energy levels, memory loss, or other chronic conditions. Subjects were fearful when physical exercise required researchers to continually remind them to continue the study protocol and hence avoided this activity on occasion. On the other hand, researchers convinced respondents to take these actions in everyday life using the intervention materials. This intervention increases individuals' confidence in their ability to live with clean and healthy habits, such as often washing their hands, wearing masks, maintaining a social distance, refusing to conduct handshakes, and avoiding crowds.

Additionally, this research demonstrates that self-management education may be conducted via films that patients can view while sitting in the clinic waiting room. When subjects are at home, investigators reinforce one another's perceptions and knowledge about transmission and breaking the Covid-19 transmission chain via social media (such as whatsapp), text messages, and diaries, which are inexpensive and easily accessible because of the popularity of social groups can alter subjects' perceptions and knowledge. These findings corroborate the study (Tanaka *et al.*, 2020), which shows the importance of improving patient cognition. Our study also confirms and extends the findings of Voncken-Brewster *et al.*, (2013). They believe that self-management education, by choosing to make it first, but yet allowing for the possibility of changing patients' attitudes and understanding via self-management education, instils strong confidence in patients to keep a clean and healthy lifestyle. In comparison to Grady & Gough, (2018), Our research demonstrates several disparities in how self-management education is implemented in terms of structure and design. For instance, our study focuses on self-management instruction in clean and healthy living behaviours using repeated playback of video media to assist the intervention process. The extension is an active procedure requiring contact between the extension worker and the individual to establish a behavior change process (Sulandjari *et al.*, 2022)the difficulty of extension in the period of the COVID-19 epidemic, and the problems of extension in the future. The revitalization of the meaning of extension includes: (1.

Additionally, this research demonstrates that investigators may reorder and change the level of self-management

instruction without influencing results. Future studies should be conducted to assess community awareness and willingness and include more thorough techniques of self-management instruction into one or more treatments. Self-management education may be an alternate strategy for increasing community members' independence via a shift in their attitude and understanding of the COVID-19 transmission chain. The novelty of self-management study has the potential to alter people's perspectives and knowledge, therefore disrupting the chain of Covid-19 distribution. Additional study is needed to determine the community's knowledge and readiness to follow clean and healthy living habits in their everyday lives. This study analyzes the company's approach for surviving the product by using promotional media to boost sales during a pandemic by utilizing the marketplace as a promotional medium (Ratmono *et al.*, 2022).

The study's findings show that self-management education is straightforward, systematic, and effective in changing patients' perceptions and knowledge about preventing and terminating the COVID-19 transmission chain. Over three months, respondents in the intervention group had a more favourable opinion and knowledge about the prevention and cessation of COVID-19 than subjects in the control group; these changes were even more apparent over six months. Self-management instruction has a modest impact over time, up to two months. This is not surprising, given how long it takes to alter one's views and understanding. The conclusions of this investigation corroborate previous findings (Asaad *et al.*, 2019) and demonstrate that patients who acquire health-related skills and information via self-management education are motivated to make excellent and helpful changes in their lives. As a result, the impacts of self-management education are cumulative and may be achieved over time. Self-management education is intended to assist patients in managing their perceptions of COVID-19 illness and their knowledge about how to avoid and terminate the COVID-19 transmission chain via a healthy lifestyle (Zhong *et al.*, 2020).

## CONCLUSIONS

Self-management education may be an alternate way to enhance the community's ability to care for itself by altering perceptions and understanding about the COVID-19 transmission chain.

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## Ethical Approval

This study was conducted with the permission of the participants and the relevant centers and the names were refused.

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## Authorship Contributions

All authors (Eppy Setiyowati, Ayuda Nia Agustina, Ayi Satria Yuddha, Muchtar Muchtar, Endang Fatmawati, Andiyan Andiyan) have similar attempts in study, analysis, and writing of present manuscript.

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