

**SECTION:** HEALTH.

**SEKCJA:** ZDROWIE.

**How to cite:** Levani, Y., Yuliyanasari, N., & Primadina, N. (2024). The Usage Of Whatsapp Group As A Telemedicine Tool For Self-Isolated COVID-19 Patients. *International Conference on Science, Innovations and Global Solutions*. (pp. 544-548). Futurity Research Publishing. <https://futuraity-publishing.com/international-conference-on-science-innovations-and-global-solutions-archive/>

## The Usage Of Whatsapp Group As A Telemedicine Tool For Self-Isolated COVID-19 Patients

**Yelvi Levani<sup>1</sup>, Nurma Yuliyanasari<sup>2</sup>, Nova Primadina<sup>3</sup>**

<sup>1,2,3</sup> *Medical Doctor, Lecturer of Faculty of Medicine, Universitas Muhammadiyah Surabaya, Jl. Sutorejo No. 59, Surabaya, East Java, Indonesia 60113*

**Accepted:** July 25, 2024 | **Published:** July 31, 2024 | **Language:** English

**Abstract:** COVID-19 (Coronavirus Disease 2019) is a respiratory disease caused by the SARS-CoV-2 virus and causing a global public health emergency. COVID-19 patients could develop mild to severe illness, and patients with mild disease should manage their symptoms at home. Telemedicine is an option for monitoring the patient's condition. This study aimed to determine the usage of WhatsApp as a telemedicine tool for self-isolated COVID-19 patients in Surabaya. Twenty self-isolated COVID-19 patients participated in this observational study. For four weeks, doctors observed their health conditions via WhatsApp group. This study showed that 60% of participants answered very satisfied, and 40% of patients answered satisfied with this program. In conclusion, WhatsApp groups can be used as a telemedicine tool for self-isolated COVID-19 patients.

**Keywords:** COVID-19, Telemedicine, WhatsApp group

## Introduction

COVID-19 (Coronavirus Disease, 2019) is a new respiratory disease caused by a novel coronavirus (SARS-CoV-2). It was found in Wuhan at the end of 2019 and has spread worldwide, causing global public health emergency. This virus can be transmitted via droplets, airborne, and aerosol transmission. Therefore social distancing is a significant factor in slowing down the transmission (Li et al., 2020). The average COVID-19 incubation period is four days with a range of 2 to 7 days (Guan et al., 2020). Common early symptoms of illness are fever, fatigue or myalgia, dry cough. Other organs can be involved and cause so many symptoms, such as respiratory disorder (cough, shortness of breath, sore throat, hemoptysis or coughing up blood, chest pain), gastrointestinal disorder (diarrhea, nausea, vomiting), and a neurological disorder (confusion and headache). However, fever, cough, and shortness of breath or dyspnea are the main symptoms. COVID-19 patients could develop mild to severe illness. Patients with mild symptoms will recover in approximately one week. In contrast, patients with severe symptoms will experience progressive respiratory failure because the virus has damaged the alveoli and will cause death (Huang et al., 2020).

The total number of Covid-19 cases globally has reached 267,865,289, with a death rate of 5,285,888. In Indonesia, the total confirmed positive cases of Covid-19 have reached 5,285,8884, with a death rate of 143,923 (WHO, 2020). In July 2021, there was a second wave of COVID-19 outbreaks in Indonesia. In this condition, the government has decided to enforce strict measures in an Emergency PPKM or restrictions on community activities. There were many health facilities overloaded. Therefore, the priority of hospitalization was the moderate and severe COVID-19 patients. The asymptomatic and mild COVID-19 patients were advised to manage their symptoms at home. Effective isolation and quarantine were needed and played an essential role in preventing further transmission or emergency of the new cluster.

Telemedicine was an option to monitor the self-isolated patient's conditions. WHO (World Health Organization) defines telemedicine as delivering health care services where distance is a critical factor by all health professionals using information and communication technologies. The use of telemedicine in epidemic situations has a high potential in improving epidemiological investigations, disease control, and clinical case management, such as in this COVID-19 pandemic (Ohannessian, 2015). Some research has found that telemedicine effectively prevented, diagnosed, treated, and controlled diseases during the COVID-19 pandemic. Social media, including messaging software, WhatsApp, email, live video conferencing, and mobile, were effective in combating the Covid-19 outbreak in some countries (Davarpanah et al., 2020).

Telemedicine not only focuses on aspects of physical health to support successful self-isolation but also as an effective form of social support for COVID-19 patients to isolate themselves safely, especially in some of the most vulnerable populations. However, the role of telemedicine in Indonesia has not been widely reported. Therefore, this study aimed to know the usage of the WhatsApp group as a telemedicine tool for self-isolated COVID-19 patients in Surabaya as one of the regions with the highest number of Covid-19 cases in Indonesia.

## Research Results

This was a descriptive observational study. The population of this study was COVID-19 patients. The inclusion criteria: The patient was COVID-19 positive confirmed by PCR or antigen test, the patient had a stable condition, the patient had mild symptoms or none, the patient had WhatsApp application in their mobile phone, and the patient agreed to participate in this study. The exclusion criteria: The patient was COVID-19 negative, had an unstable condition, had moderate or severe symptoms, and refused to participate in this study. Twenty self-isolated COVID-19 patients participated in this observational study. Their health conditions have been observed via the WhatsApp group by doctors from the Faculty of Medicine Universitas Muhammadiyah Surabaya from 21 July 2021 to 21 August 2021. At the end of the

program, the participants filled a questionnaire to know their satisfaction with this program. Each question has a satisfaction interval from 1 to 5, where one means very dissatisfied and five means very satisfied.

**Table 1**

*Characteristic of patients*

<b>Characteristic</b>	
Patients (n)	20
Male / Female	8 / 12
Age (range)	21 – 68 years old

Table 1 shows the characteristic of patients. Of 20 patients, there were more females than males. In addition, the age range was 21 – 68 years old.

**Table 2**

*Symptoms of patients*

<b>Symptoms</b>	<b>Percentage</b>
Fever	40%
Anosmia	50%
Cough	75%
Myalgia	45%
Diarrhea	20%
Breath difficulties	25%
Nausea and vomit	20%

Table 2 shows the symptoms of patients at the beginning of the program. The main symptom of these patients was a cough, whether the rare symptoms were gastrointestinal disorders such as diarrhea, nausea, and vomit.

**Table 3**

*Satisfaction Parameters*

<b>Parameters</b>	<b>Very dissatisfied (1)</b>	<b>Dissatisfied (2)</b>	<b>Average (3)</b>	<b>Satisfied (4)</b>	<b>Very Satisfied (5)</b>
The benefit of the telemedicine program	-	-	-	40%	60%
Consultation and daily monitoring with the doctors	-	-	-	50%	50%
The usage of WhatsApp group for	-	-	-	-	100%

Table 3 shows the patient's satisfaction parameters with this program. Most patients were very satisfied (60%) with the benefit of this telemedicine program. They were also satisfied with the consultation and daily monitoring program. All participants agreed that the WhatsApp group was user-friendly.

COVID-19 pandemic has caused a global crisis that impacts the burden health system that has never occurred. A hospital is full of COVID-19 patients who need treatment quickly. COVID-19 can be transmitted via droplets, airborne, and aerosol transmission (Huang et al., 2020). It also affects medical worker's conditions who need more self-protection equipment in the field. Therefore during COVID-19 outbreaks, the health system is rapidly transformed from face-to-face consultation into virtual consultation, especially for non-emergency patients. Social distancing, including virtual consultation via telemedicine, is a significant factor in slowing down the transmission (Li et al., 2020).

Based on WHO, telemedicine's purpose is to provide clinical support and improve health outcomes, although the patients are not in the exact location as doctors. Telemedicine has already been used before COVID-19 outbreaks, especially for chronic-ill patients in developed countries. Telemedicine has benefits because it is cost-effective, improves health outcomes, and monitors patients' conditions. During the pandemic, telemedicine has a benefit for patients not to have to leave the house, so the attendance rate in the Hospitals is decreasing. Telemedicine can reduce COVID-19 suspected patients and allow follow-up COVID-19 patients with mild symptoms (Ohannessian, 2015).

Despite having the potential to improve the quality of medical practice during a pandemic, telemedicine has some challenges related to human resources, infrastructure, and ethical regulations (Elkaddoum et al., 2020). Basic infrastructure like electricity, hardware requirements, communication equipment, and software application to support telemedicine activities are challenging in developing countries (Combi et al., 2016) In addition, a stable internet connection is also essential, especially in rural areas.

In this program, we used the WhatsApp group as a telemedicine tool. The reason for choosing WhatsApp was because WhatsApp is a free download application on mobile phones. This application is easy to use and very common for most ages and all genders. It can facilitate asynchronous and synchronous consultation (Giordano et al., 2017). The asynchronous consultation involves exchanging pre-recorded data between two or more persons at different times. For example, the doctor sends an online form to the patient to monitor the patient's condition that day. Then the patient can fill out the form at any time they want. In contrast, synchronous consultation needs two persons or more simultaneously present for immediate information exchange, such as video calls or chatting. The doctor and the patient can send any data such as images, videos, or documents to support the consultation in the WhatsApp application.

WhatsApp group usage as a telemedicine tool also has a challenge in the legal aspect. Privacy of data and medical records is a concern regarding the problem of using telemedicine in every practice of doctors. This condition is caused by telemedicine's lack of regulation in medical practice, especially related to patient information (Nittari et al., 2020). The WhatsApp group application can be misused, for example, by spreading contact numbers without permission of the doctor/patient, taking screenshots and disseminating the results of consultations, etc. Therefore, a legal agreement is needed before the consultation program. The agreement must explain the rights and obligations between the doctor and the patients.

This study shows, most patients were very satisfied (60%) with the benefit of this telemedicine program. Most of the patients had mild symptoms such as cough and anosmia. They were also satisfied with the

doctors' consultation and daily monitoring program. All participants agreed that the WhatsApp group was user-friendly. Therefore, it can be concluded that the WhatsApp group can be used as a telemedicine tool for self-isolated COVID-19 patients. Although, this study has limitations, such as the sample of this study is limited (only 20 patients), and the duration of this program is also only four weeks. A future study is needed to evaluate the usage of the WhatsApp group as a telemedicine tool with more participants and longer duration.

## Conclusions

Telemedicine is an alternative tool to monitor the COVID-19 patient's condition during the pandemic. WhatsApp group can be used as a telemedicine tool for self-isolated COVID-19 patients because it is easy to use and can be used anytime.

## References

- Combi, C., Pozzani, G., & Pozzi, G. (2016). Telemedicine for Developing Countries. *Applied Clinical Informatics*, 07(04), 1025–1050. <https://doi.org/10.4338/ACI-2016-06-R-0089>
- Davarpanah, A. H., Mahdavi, A., Sabri, A., Langroudi, T. F., Kahkouee, S., Haseli, S., Kazemi, M. A., Mehrian, P., Mahdavi, A., Falahati, F., Tuchayi, A. M., Bakhshayeshkaram, M., & Taheri, M. S. (2020). Novel Screening and Triage Strategy in Iran During Deadly Coronavirus Disease 2019 (COVID-19) Epidemic: Value of Humanitarian Teleconsultation Service. *Journal of the American College of Radiology*, 17(6), 734–738. <https://doi.org/10.1016/j.jacr.2020.03.015>
- Elkaddoum, R., Haddad, F. G., Eid, R., & Kourie, H. R. (2020). Telemedicine for Cancer Patients During COVID-19 Pandemic: Between Threats and Opportunities. *Future Oncology*, 16(18), 1225–1227. <https://doi.org/10.2217/fo-2020-0324>
- Giordano, V., Koch, H., Godoy-Santos, A., Dias Belangero, W., Esteves Santos Pires, R., & Labronici, P. (2017). WhatsApp Messenger as an Adjunctive Tool for Telemedicine: An Overview. *Interactive Journal of Medical Research*, 6(2), e11. <https://doi.org/10.2196/ijmr.6214>
- Guan, W., Ni, Z., Hu, Y., Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D. S. C., Du, B., Li, L., Zeng, G., Yuen, K. Y., Chen, R., Tang, C., Wang, T., Chen, P., Xiang, J., ... Zhong, N. (2020). Clinical characteristics of coronavirus disease 2019 in China. *New England Journal of Medicine*, 382(18), 1708–1720. <https://doi.org/10.1056/NEJMoa2002032>
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., Gu, X., Cheng, Z., Yu, T., Xia, J., Wei, Y., Wu, W., Xie, X., Yin, W., Li, H., Liu, M., ... Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497–506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
- Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Ren, R., Leung, K. S. M., Lau, E. H. Y., Wong, J. Y., Xing, X., Xiang, N., Wu, Y., Li, C., Chen, Q., Li, D., Liu, T., Zhao, J., Liu, M., ... Feng, Z. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *New England Journal of Medicine*, 382(13), 1199–1207. <https://doi.org/10.1056/NEJMoa2001316>
- Nittari, G., Khuman, R., Baldoni, S., Pallotta, G., Battineni, G., Sirignano, A., Amenta, F., & Ricci, G. (2020). Telemedicine Practice: Review of the Current Ethical and Legal Challenges. *Telemedicine and E-Health*, 26(12), 1427–1437. <https://doi.org/10.1089/tmj.2019.0158>
- Ohannessian, R. (2015). Telemedicine: Potential applications in epidemic situations. *European Research in Telemedicine / La Recherche Européenne En Télé-médecine*, 4(3), 95–98. <https://doi.org/10.1016/j.eurtel.2015.08.002>
- WHO. (2020). *WHO Coronavirus (COVID-19) Disease Report*.