

Development of the elderly health monitoring system through families and community health workers during the COVID-19 pandemic

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Elderly

Family

Health monitoring

ABSTRACT Elderly people have a high risk of severe and fatal COVID-19 condition. Controlling the risk factors among the elderly is important, but health service provision during outbreaks is challenging. The elderly need increased attention to be monitored for their health status routinely. The elderly must also adjust daily activities according to the COVID-19 protocols. This program aimed to provide a practical example of a feasible system to empower community health workers and families for monitoring health among the elderly. This study used quantitative and qualitative data to identify the problems and needs of elderly health monitoring in Caturtunggal, Sleman, Indonesia. Descriptive quantitative methods used secondary data from the Sleman Health and Demographic Surveillance System and elderly health checklists to identify the issues of non-communicable diseases (NCDs) before and during COVID-19. The community health workers were interviewed to explore the needs and feasibility of programs among the elderly. As much as 16% of Caturtunggal population is elderly. One-third are 60-65 years old (33.30%) and retired (30.60%). The most common NCDs were hypertension (25.60%), diabetes mellitus (13.30%), stroke and coronary heart disease (4.40% for each). Almost all elderly (88.89%) have health insurance. Health counselling, online consultation, and monitoring were agreed on after discussion with the community health workers. Serial consultations (COVID-19 protocol for elderly, regular self-monitoring, the national health insurance mobile application, and health services during the pandemic situation) were conducted through WhatsApp groups. Free counseling was provided throughout the program for the elderly care during the outbreak. The monitoring was achieved through the WhatsApp groups by delivering instructional photos or videos of physical activity, blood pressure measurements, dietary record and stress management. The elderly and families felt more confident to check their health status and reported the results. In conclusion, development of health monitoring system was conducted through health checklists. Family and community cadres were also involved to make the program more feasible and sustainable.

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1. Introduction

The COVID-19 pandemic is severely affecting the global population. In many countries, older people are facing the most threats and challenges. Although all groups

are at risk of contracting COVID-19, elderly persons (>60 years old) and people with non-communicable diseases (NCDs) are at the highest risk for developing severe and fatal COVID-19.¹ Of all coronavirus-related deaths so far, 95% occurred in those older than 60 years. Over 50% of all fatalities involved people aged 80 years or older. Results showed that eight out of 10 deaths are occurring in individuals with at least one comorbidity, in particular those with cardiovascular

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diseases, hypertension and diabetes, but also with a range of other chronic underlying conditions.² In Indonesia, updated November 18th, 2020, there have been 4,798 confirmed COVID-19 cases, and among confirmed cases, 10.4% were elderly (≥ 60 years old). Elderly also contribute 35.2% of death cases related to COVID-19 nationwide.³

The number of elderly (60+ years old) in 2020 was 9.9% of the total population in Indonesia, and this number is predicted to increase to 15.77% in 2035.⁴ Based on Sleman Health Demographic Surveillance System (HDSS), the number of elderly is 15% of the total population and from 2015 until 2019 showed a demographic transition to the elderly population.⁵ The pattern of residence for elderly indicated that most of them are living with three generations (40.64%), with their family (27.30%), with their partner (20.3%) and living alone (9.38%). Support for the elderly and their family is an essential part of the comprehensive response to the pandemic to provide precise information.⁶

During the pandemic, Integrated Health Care Post (Posyandu) managed by Public Primary Care (Puskesmas) for the elderly is temporarily inactive. The community health workers have an important role in providing accurate information to the elderly about healthy living behavior and maintaining health during the pandemic era.⁷ During times of isolation and quarantine, the elderly need safe access to support their physical health and social care. Dissemination of accurate information is critical to ensure that the elderly have clear messages and resources on how to maintain their physical and mental health in good condition.⁸

The pandemic situation has adverse effects, and the elderly need special attention focusing on healthcare and other services. Therefore, interventions to safeguard the elderly must be adjusted and modified according to their beliefs, attitude, behavior and health.⁹ Health-care workers, social service providers, family members and community members who provide care for older people must also be supported with the resources they need. These resources should include innovative approaches to reach older people through providing accurate information. Digital literacy of the elderly needs to be enhanced so they can use mobile applications for receiving data and for communicating with family members and community service providers even when physically separated.⁸

Empowerment programs for community health workers and families for monitoring health among the elderly during the COVID-19 pandemic need to become a priority. According to community health workers, they should be given information from competent sources, such as from the experts. Established two-way community feedback mechanisms or platforms can include one or more of the following channels such as WhatsApp (WA) chats, face-to-face interactions when the context permits, participation in qualitative assessments, interactive messaging media, Q&A forums, digital engagement platforms, and social network platforms.¹⁰


In the pandemic era, the elderly in Karangmalang cannot monitor their health in the Integrated Health Care Post (Posyandu). Thus, we aimed to provide a practical example of a system to empower community health workers and families to provide a program of online health monitoring for the elderly during the COVID-19 pandemic. For example, WA group consultation and health personal monitoring were developed using the elderly health checklists.

2. Method

In this paper, we measured the health status of elderly in Karangmalang village, Caturtunggal, Depok, Sleman. We used both quantitative and qualitative data to identify the problems and needs of elderly health monitoring. Descriptive quantitative methods used secondary data from Sleman Health and Demographic Surveillance System (Sleman HDSS) 2019, which included 180 HDSS respondents in the secondary data analysis. We also used elderly health checklists to identify the issues of non-communicable diseases (NCDs) before and during COVID-19.

In the pandemic era, the elderly in Karangmalang cannot monitor their health in the Integrated Health Care Post (Posyandu). Thus, we aimed to provide a practical example of a system to empower community health workers and families to provide a program of online health monitoring for the elderly during the COVID-19 pandemic. For example, WA group consultation and health personal monitoring were developed using the elderly health checklists.


For this monitoring with health checklists, we included 15 elderly in Karangmalang. Data collection was conducted in June 2020 - December 2020



LEMBAR PEMANTAUAN MANDIRI LANSIA SEHAT
 HDSS SLEMAN FK-KMK UGM – PUSKESMAS DEPOK III

Nama Lansia:		Golongan Darah: A/B/AB/O	
Jenis kelamin: L/P		Pendidikan:	
Alamat:		No. HP Lansia:	
		No. HP Keluarga:	
Tanggal lahir:		Pekerjaan:	
Status perkawinan:		Nama Keluarga:	
Riwayat Penyakit Diri Sendiri (centang)		Riwayat Penyakit Keluarga (centang)	
(..) Diabetes	(..) Hipertensi	(..) Diabetes	(..) Hipertensi
(..) Sakit Jantung	(..) Stroke	(..) Sakit Jantung	(..) Stroke
(..) Asma	(..) Kanker	(..) Asma	(..) Kanker
(..) Kolesterol	(..) Benjolan	(..) Kolesterol	(..) Benjolan
Tinggi	Payudara	Tinggi	Payudara
Merokok	Ya	Tidak	
Kurang aktivitas fisik	Ya	Tidak	
Konsumsi gula berlebihan	Ya	Tidak	
Konsumsi garam berlebihan	Ya	Tidak	
Konsumsi lemak berlebihan	Ya	Tidak	
Kurang konsumsi buah dan sayur	Ya	Tidak	
Konsumsi alkohol	Ya	Tidak	
Indikator	Tanggal/Bulan/Tahun		
Berat badan/..../../..../../..../..
Tinggi badan/..../../..../../..../..
Tekanan darah	/ /	/ /	/ /
Gula darah			
Kolesterol			
Asam urat			

(a)



Cara pengisian:

- Nama lansia** diisi sesuai dengan identitas lansia.
- Jenis kelamin** diisi sesuai dengan jenis kelamin lansia.
- Alamat** diisi sesuai dengan alamat tempat tinggal lansia.
- Tanggal lahir** diisi sesuai dengan tanggal lahir lansia.
- Status perkawinan** diisi sesuai dengan status perkawinan lansia.
- Golongan darah** diisi sesuai dengan golongan darah lansia.
- Pendidikan** diisi sesuai dengan tingkat pendidikan terakhir lansia.
- Nomor HP** diisi sesuai dengan nomor handphone aktif yang dipegang lansia dan salah satu keluarga penanggung jawab lansia.
- Pekerjaan** diisi sesuai dengan pekerjaan lansia saat ini.
- Nama keluarga** diisi dengan nama salah satu keluarga yang bertanggung jawab terhadap lansia.
- Riwayat penyakit** dicentang sesuai penyakit yang pernah atau sedang diderita lansia.
 - Diabetes** adalah penyakit menahun yang ditandai dengan meningkatnya kadar gula darah sewaktu melebihi 200 mg/dL. Beri tanda centang bila ada riwayat diabetes.
 - Sakit Jantung** adalah kondisi nyeri pada dada kiri (serangan jantung). Beri tanda centang bila ada riwayat sakit jantung.
 - Asma** adalah kondisi saluran napas meradang, mengembengkak, dan menghasilkan lendir berlebih sehingga menyulitkan bernapas. Beri tanda centang bila ada riwayat asma.
 - Kolesterol tinggi** adalah kondisi di mana tingkat kolesterol dalam darah melampaui 240 mg/dL. Beri tanda centang bila ada riwayat kolesterol tinggi.
 - Hipertensi** adalah penyakit menahun yang ditandai dengan tingginya tekanan darah melebihi 140/90 mmHg. Beri tanda centang bila ada riwayat hipertensi.
 - Stroke** adalah kerusakan otak akibat gangguan suplai darah ditandai dengan kelumpuhan atau mati rasa pada wajah, lengan, atau tungkai. Beri tanda centang bila ada riwayat stroke.
 - Kanker** adalah tumbuhnya daging pada jaringan tubuh yang tidak normal. Beri tanda centang bila ada riwayat kanker.
 - Benjolan payudara** adalah jaringan tidak normal yang tumbuh di dalam payudara. Beri tanda centang bila ada riwayat benjolan payudara.
- Merokok**, lingkari "Ya" bila satu bulan terakhir merokok.
- Kurang aktivitas fisik**, lingkari "Ya" bila aktivitas fisik kurang dari 30 menit.
- Konsumsi gula berlebihan**, lingkari "Ya" bila konsumsi gula lebih dari 4 sendok makan sehari.
- Konsumsi garam berlebihan**, lingkari "Ya" bila konsumsi garam lebih 1 sendok teh sehari.
- Konsumsi lemak berlebihan**, lingkari "Ya" bila konsumsi minyak lebih dari 5 sendok makan misalnya konsumsi gorengan setiap hari.
- Kurang konsumsi buah dan sayur**, lingkari "Ya" bila tidak konsumsi sayur dan buah setiap hari.
- Konsumsi alkohol**, lingkari "Ya" bila konsumsi alkohol.
- Tanggal/bulan/tahun** diisi sesuai tanggal, bulan, dan tahun saat pemeriksaan dilakukan.
- Berat badan** diisi apabila dilakukan penimbangan berat badan.
- Tinggi badan** diisi apabila dilakukan pengukuran tinggi badan.
- Tekanan darah** diisi apabila dilakukan pengukuran tekanan darah.
- Gula darah, kolesterol, dan asam urat** diisi apabila dilakukan pengukuran.

(b)

Figure 1. Elderly health monitoring paper sheets. (a) Front. (b) Back.



Figure 2. Video explanation.

during the COVID-19 pandemic when most of the community health programs were being halted. Families and community health workers monitored the elderly health status. Five steps were conducted in this study: 1) elderly characteristics' overview; 2) needs assessment; 3) activity preparation; 4) implementation; and 5) monitoring and evaluation. First, the elderly characteristics' overview in Karangmalang Caturtunggal Depok was explored. Information obtained from secondary data of Sleman HDSS was related to demographic data (age, marriage status, education level, occupation, health insurance ownership) and NCDs (diabetes mellitus,

hypertension, stroke, coronary heart disease). The list of variables is presented in Table 1. There were 180 elderly in HDSS data in Karangmalang Caturtunggal Depok, and 46 with hypertension. We announced the program to the Integrated Health Post members through community health workers and the head of the village. However, only 15 people were available and agreed to participate.

The needs assessment was the second step. We discussed the problems and activities with community health workers and staffs who were responsible to the elderly and NCDs program. Elderly health monitoring through Posyandu had abruptly stopped

during the COVID-19 pandemic. Qualitative methods were used to explore the needs and feasibility of the program, environment condition, social relationship, and health issues in Karangmalang, Caturtunggal, Depok, Sleman. Based on our discussion findings, the program was conducted through online sharing (zoom meeting, WhatsApp call, and WhatsApp message) and direct visits with community health workers.

The third step was preparation activities. After internal discussions with the involved community health workers and staff of the Puskesmas Depok 3, we prepared guidelines, elderly health monitoring checklists, and videos containing self-health monitoring explanations such as blood pressure, body weight and how to complete the health checklists. The elderly health monitoring checklists (Figure 1) were modified from the Puskesmas Depok 3 routine health monitoring form, and was aimed at collecting data on demographics (age, marriage status, blood type, occupation, and the identity of a family member), elderly medical history, family medical history, NCDs risk factor (smoking, less physical activity, high intake of sugar, high intake of salt, high intake of fat, less intake of fruits and vegetables, and alcohol consumption), and health monitoring reporting (body weight, body height, blood pressure, blood glucose level, cholesterol level, uric acid level).

The video explains the importance of health monitoring and how to monitor elderly health independently (Figure 2). All the media were then discussed with the team and staff of the Puskesmas Depok 3. In addition, the monitoring sheets and video were consulted to the staffs of the Puskesmas Depok 3 and the NCD experts to get feedback. The comments and suggestions from all parties were noted and deliberated to get a final version of the monitoring sheets and the videos.

The fourth step was implementation. Elderly health monitoring checklists and videos were distributed to 15 elderly people and their families through community health workers in early November 2020. The elderly were also given weekly online counseling through the WA group.

The fifth step involved monitoring and evaluation. The monitoring was conducted every week after the counseling session through the WA group. The elderly patients sent photos of their activities and elderly health monitoring sheets. The evaluation was conducted at the end of the activity, by discussing all issues and sustainability of the program with community health workers.

In every step (first through fifth steps), we conducted one series of activities, starting with preparation, implementation, and evaluation. For the counseling session, we completed four series through online activities.

Data from Sleman HDSS and this activity were analyzed descriptively to explore participants' characteristics and status towards hypertension monitoring. We used STATA 13 to analyze the data. Ethical approval for this study was obtained from the Medical and Health Research Ethics Committee (MHREC) of Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada - Dr. Sardjito General Hospital Universitas Gadjah Mada, Yogyakarta, Indonesia (KE/FK/0914/EC/2020).

3. Result

3.1 Elderly characteristics obtained from Sleman HDSS Data

Health and Demographic Surveillance System (HDSS) is a population-based survey that periodically collects data on population transition, health status and social transition over a period. We used that data for the preliminary study. Based on data from Sleman HDSS, 16% of the Caturtunggal population are elderly. Table 1 shows the characteristics of 180 elderly patients, with 33.33% of them 60-64 years old and only 3.89% of them >85 years old. More than half of the elderly were married (66.11%).

About one-third of them had basic education, such as elementary or junior high school. Some of them were retired (30.56%) or unemployed (23.89%). Almost all of the elderly patients (88.89%) have health insurance. In terms of health status, some of them have chronic conditions. Table 2 shows the most common NCDs were hypertension (25.56%), diabetes mellitus (13.3%), stroke and coronary heart

Table 1. Demographic characteristics (n=180)

No	Variable	N	(%)
1	Age group (years)		
	60-64	60	33.33
	65-69	43	23.89
	70-74	28	15.56
	75-79	27	15.00
	80-84	15	8.33
	> 85	7	3.89
2	Marriage status		
	Not married	2	1.11
	Married	119	66.11
	Divorced	2	1.11
	Widowed	57	31.67
3	Education level		
	No formal schooling	40	22.22
	Basic	57	31.67
	Middle	48	26.67
	Higher	35	19.44
4	Occupation		
	Unemployed	43	23.89
	Housewife	34	18.89
	Entrepreneur/Traders	27	15.00
	Employee	12	6.67
	Retired	55	30.56
	Others	9	5.00
5	Health insurance ownership		
	Yes	160	88.89
	No	20	11.11

Table 2. Prevalence of NCDs (n=180)

No	Variable	N	(%)
1	Hypertension		
	Yes	46	25.56
	No	134	74.44
2	Diabetes mellitus		
	Yes	24	13.33
	No	156	86.67
3	Stroke		
	Yes	8	4.44
	No	172	95.56
4	Coronary heart disease		
	Yes	8	4.44
	No	172	95.56

Table 3. Result of blood pressure (n = 15)

Sex	Blood pressure mean (mmHg)	
	Systolic	Diastolic
Male	152.14	91.71
Female	148.87	90.75
Total	150.4	91.2

disease (4.4% for each).

3.2 Needs assessment, by discussing the activity with community health workers and Puskesmas Depok 3

Discussions with community health workers were done regarding the needs and feasibility of the program, environment conditions, social relationships, and health issues in Karangmalang, Caturtunggal, Depok, Sleman. Online discussion via the WA group involved ten community health workers and elderly patients. The offline discussion was held in July 2020, attended by six community health worker representatives under a strict COVID-19 health protocol (Figure 3).

It was found that the Posyandu stopped functioning during the COVID-19 pandemic, there was no program for monitoring elderly health, there was difficulty to do regular medical check-ups, and there was lack of knowledge of the elderly and their families to monitor the health of the elderly.

Some elderly patients were familiar in using Smartphones and the Internet, so it was feasible to conduct online activities. The social environment was pleasant. It can be seen from the community health workers who visited the elderly person's house several times to monitor their health, such as blood pressure if requested.

From this condition, community health workers and the Sleman HDSS team initiated a program to monitor the health of the elderly during COVID-19.

3.3 Activity preparation

We prepared guidelines, elderly health monitoring checklists, and video explanations. The elderly health monitoring sheet was modified from the Puskesmas Depok 3 health monitoring form. The video explains the importance of health monitoring and how to monitor the health of the elderly independently. Elderly or their family independently completed the forms. How to fill the forms was explained on the back of the sheet or a video explanation was provided.



Figure 4. Elderly sent photos of their activities.

3.4 Implementation

Project implementation was started on November 7, 2020. From 180 elderly in the Karangmalang village based on the Sleman HDSS data, only 15 elderly and their families could use Smartphone applications and agree to participate. We conducted serial counseling and consultations with different topics every week. Counseling topics were about COVID-19 protocols for the elderly, regular self-monitoring, the health insurance mobile app, and health services during pandemic through the WA group. Free counseling was provided throughout the program, for the elderly care during the outbreak.

We provided the health monitoring equipment and tools for the community health workers so that they could monitor the health of the elderly. The equipments to support this program were body weight scale, sphygmomanometer, and health monitoring forms. We also provided chlorine spray 1000 ppm, hand sanitizer and sanitizer tissue.

Families could borrow the equipment to check the elderly's body weight and blood pressure. Then,

they wrote the results on the monitoring health form. If the elderly patients were living alone without their family, the community health workers visited them to help check their health. The monitoring was achieved using the WA group by delivering their photo or video of physical activity, blood pressure measurements, dietary records and stress management.

Blood pressure was measured every week. All elderly had mean blood pressure of 150.4/91.2 mmHg. Table 3 shows the blood pressure in males was higher than females.

3.5 Monitoring and evaluation

Monitoring was done every week after the counselling session through the WA group. Figure 4 shows how the elderly sent photos of activities and elderly health monitoring sheets. From our activities, we concluded that elderly health could be monitored during the COVID-19 pandemic with the support of educational institutions, health services, community health workers, and elderly families' support.

We evaluated the activities at the end of the program with community health workers. In general, based on then responses from the WA group, elderly, families', and community health workers' responses, participants were satisfied with the program and independent health monitoring video explanation. However, there were some issues, including how there were some of the elderly who were having difficulties using social media and Smartphone apps.

4. Discussion

A total of 16% of Caturtunggal population are elderly. One-third are 60-65 years old (33.3%) and retired (30.6%). This percentage of elderly people in the Special Region of Yogyakarta (14.50%) exceeds the percentage of national elderly population (9.60%), which has the highest proportion among all provinces in Indonesia.¹¹ About 66.11% of these elderly persons are married.¹²

The most common NCDs were hypertension (25.60%), diabetes mellitus (13.30%), stroke and coronary heart disease (4.40% for each). Regarding health, 1 in 4 elderly people in Indonesia have some illness such as NCDs, but in the last five years the number of sick elderly has decreased. Most of the

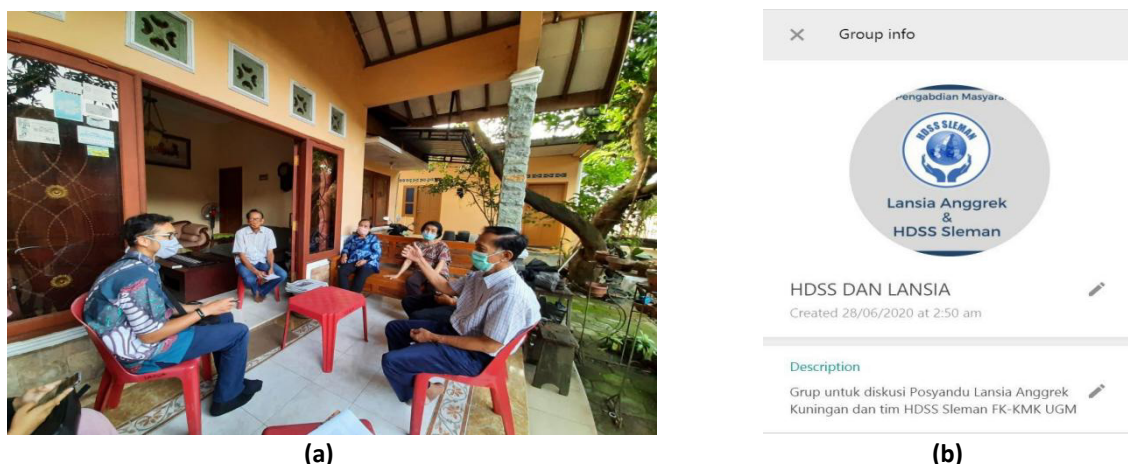


Figure 3. (a) Community health workers representatives with the health protocol. (b) WhatsApp group, which contains ten community health workers and elderly.

elderly in rural areas (42.12%) choose to treat their disease independently compared to the elderly in urban areas (37.98%).¹¹ Hypertension has the highest prevalence, namely 25.56%. These data match the results of the National Basic Health Research in 2018 that showed the main diseases suffered by the elderly were hypertension (63.5%), dental problems (53.6%), arthropathy (18%), oral health issues (17%), diabetes mellitus (5.7%), heart disease (4.5%), stroke (4.4%), kidney failure (0.8%) and cancer (0.4%).¹³ A previous report also identified that hypertension, diabetes and other cardiovascular diseases are the major diseases among patients with COVID-19 and mostly occurred among adult and elderly populations.¹⁴

Almost all of the elderly patients (88.89%) have health insurance. This percentage exceeds the number of elderly who actually have health insurance in Indonesia. Health insurance has not reached all the elderly in Indonesia. Research found that about three out of five elderly have health insurance (69.69%).¹¹

In our program, the WA groups and informative calls were used to educate the elderly. The COVID-19 pandemic had made people afraid to go to the health facilities.¹⁵ Limiting the exposure of patients, health care workers and systems is an essential safeguard in controlling the spread of the virus. The health of the elderly must be monitored because of the rapid change in the status of the elderly. Telemedicine offers opportunities to improve health system delivery, access, and efficiency.¹⁶ Elderly patients need

additional supervision to ensure adherence to their pharmacological care, and access to nutritious food, social and mental health support and information to maintain their emotional well-being.¹⁵

Elderly people have a high risk for COVID-19 infection. The government is currently conducting promotional and educational programs to break the chain of infection with a special approach of educational methods for the elderly. Accurate knowledge, precautions, and health monitoring should be given for the elderly. Increasing their awareness about COVID-19 and how to prevent it are essential for decreasing the level of COVID-19 fear.¹⁷

Approaches using counseling, online consultations, and monitoring were agreed on after discussion with the community health workers in Karangmalang, Depok, Sleman. The serial consultations (COVID-19 protocol for elderly, regular self-monitoring, role of health insurance, and health services during pandemic) were conducted through the WA groups. Free counseling was provided throughout the program for the elderly care during the outbreak of the pandemic. The monitoring was achieved using the WA group by delivering their photo or video of physical activity, blood pressure measurement, dietary record and stress management. Accordingly, the elderly and families felt more confident to check their health status and reported the results.

WhatsApp chats seem to be a highly valued and

trusted, more flexible, and user-friendly way to seek for medical information and updates. Healthcare professionals or community health workers should share relevant information for further dissemination. Such policies would not only help victims in adopting accurate precautionary measures but also help to combat rumors.¹⁸ Telehealth is an excellent way to manage geriatric problems especially during the COVID-19 pandemic. Telehealth programs can be used to deliver rehabilitation and monitoring explanations in the home and can enhance an older person's quality of life.¹⁹

Community health workers have a pivotal role in fighting the pandemic, especially in countries with less resilient health systems. They should be adequately equipped, trained and supported as part of a well-functioning health system and can help keep the pandemic in check. Investment in community health systems will help achieve the following goals: protect healthcare workers, interrupt the virus, maintain existing healthcare service while surging their capacity, and shielding the most vulnerable from socioeconomic shocks. Professionalized, proactive community health workers are particularly well-placed to build the foundations of trust they have already established and to communicate and implement new and rapidly evolving community-level response measures. They can help by supporting their communities in several ways, including combating misinformation, fear and mistrust by acting as a bridge to the formal health system and national authorities; inspiring positive behavior change and collective action in the community; while identifying and educating at-risk populations (elderly, immunocompromised, and those with underlying conditions) to reduce their exposure to COVID-19.²⁰

The following recommendations are outlined to mitigate the problems: first, identify the family members and train those who can help the elderly; second, the head of the village needs to recruit community health workers; and third, it is essential to work with civil society organizations who have a concern for patients with COVID-19 or the elderly.

There were several strengths of our five steps program: we conducted this program through an

online method (WA group) to ensure the safety of the elderly during COVID-19 pandemic. We developed a monitoring form that was easy to use and provided a video tutorial that was easy to access. The video can be seen by anyone on YouTube video platform. However, we also provided facilities such as an automatic sphygmomanometer and bodyweight tools to encourage monitoring of the elderly patients' health.

This program needs to be improved in several aspects. The limited number of health monitor equipment to monitor the elderly makes them wait to use them. We have tried to make the queue so that it can be rotated. Additionally, with the limited resources and time, there was no knowledge evaluation as a follow-up activity. Future activities should be conducted with pre-tests and post-tests to evaluate this outcome. For the sustainability of the program, more stakeholder support is needed. In this case the district health office and primary health care directors can work with the primary health care centers (Puskesmas) to mobilize the elderly and their families through community health workers to monitor elderly health during the COVID-19 pandemic.

5. Conclusion

During the pandemic era, families and community health workers contribute an essential role to monitor the health status among the elderly. Development of a feasible and functional health monitoring system was conducted through health checklists. The application of online consultation, counseling and monitoring were feasible to optimize the online media. We also involved family and community cadres to make the programs more feasible and sustainable.

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Conflict of interests

No conflict of interest to declare.

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