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Implications of Whatsapp Group-Based Health Education on the Behavior of Elderly Caregivers in Preventing Covid-19 Infection in Palembang City

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ABSTRACT

Deployment *Coronavirus Disease* (COVID-19) increases the risk of infection in the elderly, especially elderly people who have the disease*comorbid* if infected it will worsen the condition of the elderly. Due to this pandemic. The aim of the research is to determine the influence of health-based education *WhatsApp Group* to knowledge, attitudes and actions *caregiver* elderly with*comorbid* in preventing COVID-19 infection. Research design *Quasi Eksperimen Pre Posttest With Non Equivalent Control Group*. The total sample was 76 people consisting of 38 intervention groups and 38 control groups. Sampling method *probability sampling* by using techniques *Sample Random Sampling*. The research results showed that there was a significant influence on the knowledge, attitudes and actions obtained ($p < \alpha = 0.05$). Conclusion based health education *WhatsApp Group* effectively improve knowledge, attitudes and actions *caregiver* elderly with *comorbid* in preventing COVID-19 infection.

INTRODUCTION

The increasing prevalence of Coronavirus Disease COVID-19 is a current world health problem which causes high mortality rates, one of the vulnerable groups is easily infected with the virus and the mortality rate is higher in people aged ≥ 60 years and who have more than two comorbid diseases, this condition will become more severe if infected with COVID-19 (WHO, 2020). United States Institutions *Centers Of Disease Control And Prevention* (CDC). Reports the percentage of COVID-19 deaths aged ≥60 years. In February to August it was 78.2%. Disease *comorbid* The most common cases of COVID-19 are heart disease, 60.9%, and diabetes mellitus, 39.5% (CDC, 2020). In Indonesia, the spread of COVID-19 began on March 2 2020. Currently, Indonesia is in 23rd place in the world and 2nd in Southeast Asia. The number of confirmed COVID-19 cases aged >60 years from March to September was 29,011 people and the death percentage was 41.27% (Covid19.go.id, 2020). Disease *comorbid* The highest number of COVID-19 patients in September were hypertension 50.1%, diabetes mellitus 35.3%, heart disease 19%, and other diseases (Covid19.go.id, 2020)

The South Sumatra health service reported that the number of confirmed COVID-19 cases aged >60 years from March to September was 1,210 people, of whom 207 people died. Disease *comorbid* the highest number of COVID-19 patients were 75 cases of hypertension, 66 cases of diabetes mellitus and 18 cases of heart disease, while the highest incidence rate was in the Palembang city area (South Sumatra Provincial Health Office, 2020). Data from the Palembang city health service reported that the number of positive COVID-19 cases in March aged over 60 years was 3 people and there was no death rate. Meanwhile, in September it increased to 385 people and 80 people died. Disease *comorbid* The highest number of COVID-19 patients were diabetes mellitus 28 cases, hypertension 26 cases and heart disease 11 cases (Palembang City Health Office, 2020)

The elderly are vulnerable to exposure to COVID-19 and this causes the highest death rate due to decreased function of organs in all body systems including the immune system due to the aging process (Ika, 2020). Apart from that, there is disease*comorbid* who have suffered before too

It is very risky to easily become infected with COVID-19 so that it will worsen the condition of the elderly if infected and can cause death (Sanyaolu & Okorie, 2020). Another factor that affects the health of the elderly is caused by a lack of adequate knowledge by *caregiver* thus causing unintentional harm to their loved ones, and possibly themselves (Bassah, Ubenoh, & Palle, 2018). The cause of the high number of COVID-19 cases is due to a lack of understanding and concern among caregivers, society, communities and families regarding the implementation of COVID-19 prevention to increase their concern about health and risk awareness in the elderly (Sun, Yang, Zhang, & Cheng, 2020).

Physical changes and cognitive changes in the elderly will affect health and make it difficult to receive information about health (Laksmidewi et al., 2016). So the elderly really need a role *caregiver* in accompanying and helping to

carry out daily activities day, therefore *caregiver* need to have knowledge and skills so that they can help improve the quality of life of the elderly (Ministry of Health, 2019). Prevention of COVID-19 is an action that must be taken by families to avoid COVID-19 infection. Apart from that, the level of knowledge of people who care for the elderly is very important to know about things that can increase the risk factors for COVID-19 in the elderly (Santika, 2020). Importance *caregiver* elderly to obtain education in order to improve knowledge, attitudes and actions in caring for the elderly (Bassah et al., 2018). In research conducted by Blevins, (2020) states that education for *caregiver* is very important, so you need instructions on how to care for family members and how to prevent yourself from contracting the virus.

LITERATURE REVIEW

During COVID-19, it is a challenge for health services to provide good health education, and visit crowded places such as traditional considering that health education plays an markets, and help with selling and there are still important role not only in preventing COVID-19 elderly who come alone for treatment and take but also preventing its complications (Hughes, their routine medication to the hospital. Stallard, & West, 2020). Strategy in delivering education to increase knowledge by utilizing social Remembering the importance of health education media which is currently developing (Sampurno, Kusumandyoko, & Islam, 2020). In the current era, people use social media a lot for communication purposes, sending messages, photos, voice calls, video calls asa toolfor communication information between groups (Kholid, 2017).

The use of technology has become an important tool now that the whole community is exposed to various forms of social media from internal applications*Mobile*which are owned.*WhatsApp* is one of the most popular applications that is widely used by all levels of society (Iqbal, 2020). Excess*WhatsApp* can send images, text messages, videos, audio individually or in groups using pre-existing data packages and at no additional cost,*WhatsApp* also provides information to users such as being able to see when friends are online, typing, when they last accessed the application, providing sending notifications, creating groups with large numbers of members, highlighting whena message was sent and when it was sent to the recipient's device (Church & De Oliveira, 2013).*WhatsApp* very supportive in the world of health as an effective means of communication in distance learning in providing health promotion (Woods, Moorhouse, & Knight, 2019). Educational media that can be provided through social media is in the form of*audiovisual* can facilitate and accommodate individual knowledge and skills (Latif, Ahmed, Amin, Syed, & Ahmede, 2016).

The phenomena in the field are the result of all observations and interviews *caregiver* already has an application *WhatsApp* inside *Mobile* owned, for the most part *caregiver* Elderly people say they rarely access information about health and prevention *virus corona*, found a lot *caregiver* the elderly do not wear long clothes, and do not wear closed footwear, and do not wash clothes

and shower when they get home, and many more*caregiver* letting the elderly leave the house towards *caregiver* elderly so they can know the steps to prevent COVID infection 19 in the elderly, strategies that can be carried out through social media are: *WhatsApp* to carry out the role as an educator so that researchers conduct research on the influence of health-based education *WhatsApp Group* to knowledge, attitudes and actions *caregiver* elderly with *comorbid* in preventing COVID 19 infection in Palembang City.

METHODOLOGY

This research is quantitative research using a research design "*Quasi Experimen Pre-Post Test With Non-Equivalent Control Group*". Researchers will conduct health education using *WhatsApp Group* with the media *Audiovisual* in the intervention group and media control group *Leaflet.* This research was conducted at the Siti Khadijah Islamic Hospital in Palembang on March 17 – April 16 2021. Samples were taken for this research*probality sampling* using sample techniques*Random Sampling* consisting of38 intervention groups and 38 control groups. Data analysis was used to see the difference in means before and after using parametric tests *Uji paired T-test.*

The first procedure of this research is that respondents who have been determined according to the inclusion criteria are given an explanation of the objectives, benefits and action procedures to be carried out and respondents are asked to fill in*informed concent* as a willingness to become a research subject. Respondents will be asked for a cellphone number *WhatsApp* and make *WhatsApp group*. Where the intervention group consisted of 38 people, in the control group no group formation was carried out. Researchers do *pretest* share directly. While filling out the questionnaire, respondents may ask questions that they do not understand.

Researchers entered into a contract with respondents regarding the days and times the material was given to the intervention group. The educational process goes through *WhatsApp Group* with the evaluation is carried out by distributing media *Audiovisual* will be given for 3 weeks and questionaires *post test* directly to both groups. This discussions will be held for 30 minutes at each research has received a letter of passing the ethical meeting, while the control group will receive*leaflet* test from the Health Research Ethics Committee oflike hospitals do and in the fourth week an RSUP Dr. M. Djamil Padang No. 71/KEPK/2021

RESEARCH RESULT

Tabel 1. Distribusi frekuensi usia *caregiver* lansia, jenis kelamin, pendidikan dan hubungan *caregiver* dengan lansia (n=76)

Characteristics of Respondents	Intervention Group		Control Group		Homogeneity Test (P value)
	n	%	n	%	
Age Young Adults (18-40 Years) Older Adults (> 40 Years)	 32 6	 84,2 15,8	 34 4	 89,5 10,5	0,434

Gender 1. Female 2. Boy	 35 3	 92,1 7,9	 37 1	 97,4 2,6	0,477
Education 1. Elementary school 2. Middle school 3. High school 4. PT	 0 14 23 1	 0 36,8 60,5 2,6	 0 11 25 2	 0 28,9 65,8 5,3	0,743
Relationships with the Elderly 1. Biological children 2. Son-in-law 3. Grandchildren 4. Sister	 30 4 3 1	 78,9 10,5 7,9 2,6	 34 3 1 0	 89,5 7,9 2,6 0	0,434

Table 1. The number of respondents in this study was 76 people. The characteristics of therespondents showed that the number of respondentsin the intervention group and the control group was the same. The ages of respondents in the intervention group were 32 (84.2%) young adults, 35 (92.1%) were female, 23 (60.5%) had a high school education, and 30 (78.9%) were related to the elderly as children. birth. Characteristics of respondents in the control group 34 (89.5%) were young adults, 37 (97.4%) were female, 25 (65.8%) had a high school education, and 34 (89.5%) had biological children. Based on the homogeneity test on the variables age, gender, education, and relationship with the elderly, it shows that the p value is > 0.05, meaning that the research data for both the intervention and control groups have almost the same characteristics (homogeneous).

Table 2. Average knowledge, attitudes and actions of pre-test and post-test treatment in the intervention and control groups

Variable	N	Mean	SD	*Min – Max*
Intervention Knowledge				
Pre test	38	62,50	8,056	50 - 75
Post test	38	91,92	6,696	83 - 100
Control Knowledgel				
Pre test	38	62,50	8,042	50 - 75
Post test	38	76,08	9,531	58 - 100
Intervention Attitude				
Pre test	38	26.24	3.356	20 - 34
Post test	38	37.03	2.706	30 - 40
Control Attitude				
Pre test	38	26.08	3.356	20 - 34
Post test	38	29.68	3.849	22 - 40
Intervention Action				
Pre test	38	27.21	3.772	20 - 35

Post test	38	37.95	1.902	33 - 40
Control Actions				
Pre test	38	27.24	3.738	20 - 35
Post test	38	32.08	3.823	23 - 40

Table 2 obtained the mean knowledge value of the intervention group at the time *pretest* 62.50 and increased to 91.92, with standard deviation *pretest* 8.056 and *post test* 6,696, with the lowest value *pretest* 50 and 75, when *post test* increased to 83-100. Meanwhile, knowledge in the control group was the mean value at that time *pretest* 62.50 and increased to 76.08, with standard deviation*pretest* 80.42 and*posttest* 1,128, with the lowest value *pretest* 50 and 75, when*posttest* increased to 58-100. Mean attitude value in the current intervention group*pretest* 26.24 and increased to 37.03, standard deviation *pretest* 3.356 and *post test* 2,706 with the lowest score *pretest* are 20 and 34, when *post test* increased to 30 and 40. Meanwhile, attitude in the control group the mean current value*pretest* 26.08 and increased to 29.68 standard deviation*pretest* 3.356 and*posttest* 3,849, with the lowest value*pretest* 20 and 34 seconds*posttest* increased to 22 and 40. Mean value of current action*pretest* 27.21 and increased to 37.95, standard deviation*pretest* 3.772 and*posttest* 1,902 with the lowest value*pretest* are 20 and 35, when*posttest* increased to 33 and 40. Meanwhile, the action in the control group was the mean value at that time*pretest* 27.24 and increased to 32.08 standard deviations*pretest* 3.738 and*posttest* 3,823, with the lowest value*pretest* 20 and 35 seconds*posttest* increased to 23 and 40.

Table 3. The Effect of Whatsapp Group-Based Health Education on Caregiver Knowledge, Attitudes and Actions After Treatment Between the Intervention and Control Groups

Variable	N	Mean	SD	P value
Knowledge				
Intervention	38	91,92	6,696	0.000
Control	38	76,08	9,531	
Attitude				
Intervention	38	37.03	2.706	0.000
Control	38	29.68	3.849	
Action				
Intervention	38	37.95	1.902	0.000
Control	38	31.08	3.823	

Table 3 based on the table above shows that the mean knowledge value in the intervention group is 91.92 and 76.08 in the control group, the standard deviation value in the intervention group is 6.696 and 9.531 in the control group. These results show differences in the mean post test knowledge in the intervention group and the control group. The p value = 0.000 (p value < 0.05)

means that there is an influence of WhatsApp Group-based health education with audio visual media on the knowledge of caregivers of elderly people with comorbidities in preventing COVID-19 infection.

The results of the attitude test showed that the mean value in the intervention group was 37.03 and 29.68 in the control group, the standard deviation value in the intervention group was 2.706 and 3.849 in the control group. These results show differences in the mean posttest attitudes in the intervention group and the control group. The p value = 0.000 (p value < 0.05) means that there is an influence of WhatsApp Group-based education with Audiovisual media on the attitudes of caregivers of elderly people with comorbidities in preventing COVID-19 infection.

The results of the action test showed that the mean value in the intervention group was 37.95 and 31.08 in the control group, the standard deviation value in the intervention group was 1.902 and 3.823 in the control group. These results show differences in the mean posttest actions in the intervention group and the control group. The p value = 0.000 (p value < 0.05) means that there is an influence of WhatsApp Group-based health education on the actions of elderly caregivers by

DISCUSSION

Based on the research results, it shows the average value *post test* knowledge in the intervention group was 91.92 and 76.08 in the control group, while the mean attitude score in the intervention group was 37.03 and 29.68 in the control group and the mean action score in the intervention group was 37.95 and 31.08 in the control group. There are differences in knowledge, attitudes and actions *caregiver* elderly where the mean in the intervention group was higher than the control group. The significant value of the knowledge variable obtained is *p value* 0.000, the attitude variable is 0.000, and the action variable is 0.000, thus it can be concluded that there is an influence of health-based education *WhatsApp Group* with the media *Audio visual* in the intervention group regarding knowledge, attitudes and actions *caregiver* elderly.

The results of this research are also in line with research by Ejeh et al., (2020) that there is an influence of health education using*WhatsApp Group* to knowledge with *p value* 0.019, attitude*p value*0.001, and action*p value* 0.001. Also supported by the research results of X. Li & Liu, (2020) there is a significant influence on respondents in increasing knowledge, attitudes and actions by using social media (*WhatsApp Group*) to promote health in COVID-19 prevention behavior among the community.

Providing information obtained by caregivers using currently (Sampurno et al., 2020). The advantage ofconducting education using social media in health education is that it overcomes time and distance limitations, is more practical and new instructional methods in line with current developments that can be used in delivering learning (M. Z. Latif et al., 2019). This social media can be used as a tool to increase knowledge in the health sector, the technological era has a big role in achieving health information in preventing communicable and

non-communicable diseases, health promotion, improving health services to utilize social media as the main alternative in professional networks. Shariful et al ., (2019)

There are several social media that are used as learning places to get health education, such as Instagram, YouTube, Twitter, Facebook, email, SMS including *WhatsApp* (Alshammari & Alshammari, 2017).*WhatsApp* is one of the most popular applications that is widely used by all levels of society. (Iqbal, 2020). Excess *WhatsApp* can send images, text messages, videos, audio individually or in groups using pre-existing data packages and at no additional cost. This applicationis easy to use by utilizing existing features to help provide education by forming groups so that it can enable many people to participate in providing education and health promotion (Hughes et al., 2020). Message *video* delivered via*WhatsApp* can be saved, so that users can repeat by looking again*video* stored education and can forward messages to other people outside the group (Nardo*et al*.,2016).

Educational media that can be provided through social media in the form of audiovisuals can facilitate and accommodate knowledge and change individual attitudes and actions (Latif et al., 2016). Using audiovisual aids in providing education can also contribute to increasing knowledge and changing patient health behavior (Berkhout et al., 2018). Education provided through audiovisual makes respondents more interested in seeing and hearing, so the information is conveyed more quickly compared to using written and image media (Yusriani & Agustini, 2021). The use of audiovisual media is very appropriate for changing family behavior and actions in preventing disease as a tool for health promotion (Arneliwati, Agrina, & Dewi, 2019).

According to Edgar in Susilowati, (2016) if information is obtained by reading, participants will remember 10% of the material read. If information is obtained by seeing and hearing, 50% of the information will be remembered from what is heard and seen. Meanwhile, according to Maulana (2009), the five senses that transmit most knowledge to the brain are the eyes (approximately 75% to 87%), while 13% to 25% of human knowledge is obtained and channeled through the other five senses. Media should be able to stimulate or input information through sharing the senses. The more people are stimulated, the easier it will be to enter information. Audiovisual media provides stimulation through the eyes and ears. The combination of information channels through the eyes which reaches 75% and the ears 13% will provide sufficient stimulation so that it can provide optimal results.

By conducting repetition sessions in providing education, it can give respondents the opportunity to recall the material that has been given in video form. In line with research by Rojabtiyah et al., (2019), repeating material can increase understanding and depth as reinforcement of the material provided. The effective repetition of learning material is repeated once for 10 minutes - 1 hour, the memory retention is 1 day, if the material is repeated twice for 1 week the memory retention is 1 month (Koring et al., 2015).

According to Lawrence Green (1980) in Jaya & Mahendra, (2019) there are three factors that influence a person's behavior, namely: 1) predisposing factors

(motivating factors), namely the basis for motivating someone to do something. Can include knowledge, attitudes, beliefs, beliefs, values, perceptions, traditions, and other elements. 2) enabling factors that facilitate actions and behavior, can be facilities and infrastructure that can support healthy behavior. Such as providing information on preventing COVID-19 infection which can be done by elderly caregivers as done by researchers. 3) reinforcing factors, are factors that strengthen the occurrence of an action or behavior, such as the attitude of health workers providing health education on how to prevent COVID-19 infection in elderly people with comorbidities to caregivers in the form of videos that are easily accessible and can be opened at any time. repeated.

Based on the explanation above, it can be concluded that the WhatsApp social media application is easy to use, with several features that can be used in delivering the health education process so that it can facilitate health workers in communicating with patients in group form, and make it easier for researchers to provide health education in the form of files. audiovisual so that it is easy to access and repeat to recall previously provided material, so that it can improve a person's knowledge, attitudes and actions. Apart from that, the WhatsApp application is widely used by all levels of society to communicate for socializing.

During this pandemic, the alternative used to be able to play the role of an educator is by using social media, including WhatsApp. In line with research (Wahyuni, 2018), WhatsApp's various features, from chatting, sending files in any format, sending pictures, videos and speakers, can help with the learning process. WhatsApp groups can be formed as a supporting medium for disseminating material so that it is easy opened on each respondent's cellphone quickly, can be used for discussions to evaluate the learning that has been delivered and can ask questions related to material that is not yet understood. Health education using the audiovisual method has the advantage because it can convey understanding or information in a more concrete or real way than can be conveyed through spoken words or in the form of pictures, writing such as leaflets, thus making someone more enthusiastic and not bored with getting education. health related to the material provided (Gabarron et al., 2018).

According to (Korda & Itani, 2013), education through social media is effective in supporting health workers and delivering health promotion programs to change a person's behavior to be more adaptive in preventing disease. In this study, WhatsApp groups had a big influence on caregiver behavior by increasing knowledge, positive attitudes and positive actions. By providing WhatsApp-based health education, it is more effective to change a person's behavior so that it influences knowledge, attitudes and actions in carrying out early cancer detection (Imelda, Santoso, Raja, & Lunongga, 2021).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research and discussion, it can be concluded that there is an influence of health-based education*WhatsApp Group* with the media*audiovisual* in improving knowledge, attitudes and actions*caregiver*

elderly with*comorbid* in preventing COVID-19 infection. This shows education by use*WhatsApp Group* can be used in promotive and preventive efforts.

ADVANCED RESEARCH

There are weather changes that affect the internet signal so that it is unstable when providing education and sending material in the form of videos and when respondents want to download videos as material.

During the post test for caregivers who were unable to send answers to the questionnaire that had been given via WhatsApp Group, the researcher waited for the caregiver's schedule to accompany the control elderly to the hospital. For BPJS patients there are rules for further control to wait one more week.

The use of WhatsApp Group-based health education is very important useful for increasing knowledge, attitudes and actions in preventing COVID-19, it is hoped that future researchers can continue research on WhatsApp Group-based health education on knowledge, attitudes and actions to prevent COVID-19 infection by making videos of practices such as how to wash hands, wear masks , cough etiquette and long-term observation so that the elderly do not become infected.

Further research can continue WhatsApp Group-based health education to increase the knowledge and understanding of elderly people and elderly caregivers regarding the benefits of administering the COVID-19 vaccine to the elderly.

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