

# Effect of Family-Based Education on Improving Family Health Tasks in Preventing the Transmission of Covid-19

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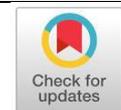
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## Abstract

**Background:** During the 2020 pandemic, the accumulation cases was dominated by family clusters. The Indonesian government established policies to protect family members from Covid-19 transmission, namely modifying behaviours relating to carrying out activities by implementing health protocols. Consistency in implementing health protocols is one way to prevent the transmission of Covid-19. Family-based education also has an important role to socialize and teach family members about health protocols that must be adhered to during the Covid-19 pandemic. Family-based education has been found to improve the implementation of health tasks in the family. However limited studies on family-based education during Covid-19 have been conducted.

**Objective:** This study aims to determine the effect of family-based education on improving family health tasks in preventing the transmission of Covid-19.

**Methods:** The research design used a quasi-experimental pre- and post-test control group design. The research respondents were 31 families for the intervention group and 31 families for the control group. The sampling technique was proportional random sampling. The educational intervention was provided in 3 meetings. Data analysis used Wilcoxon and Mann-Whitney.

**Results:** The results showed that there family-based education had an effect on increasing family health tasks relation to the prevention of the transmission of Covid-19 (p-value =0.000).

**Conclusions:** Therefore, it was recommended that the head of the Public Health and Disease Control program implement family-based education in order to prevent the transmission of Covid 19 within the family and community.

**Keywords:** covid-19; education; family-based; family health tasks; prevention

## INTRODUCTION

Coronavirus or severe acute respiratory syndrome coronavirus 2 (SARSCoV2) is a virus that attacks the respiratory system. Since 2019 Covid-19 has caused the death of 318,789 people worldwide (WHO, 2020). This disease has spread across 166 countries, including Indonesia. On March 11<sup>th</sup>, 2020, the World Health Organisation (WHO) declared COVID-19 as a pandemic. Indonesia declared COVID-19 a national disaster in March 2020. Based on data from the Information Center and Coordination of Covid-19 West Java Province on September 18<sup>th</sup>, 2020, the number of positive confirmed cases of Covid-19 was 232,628 in Indonesia and 15,584 in West Java with a deaths amounting to 9222 in Indonesia and 309 in

West Java. In September 2020, the Governor of West Java declared that there were 4 red zones (where the transmission of Covid-19 was considered high) in regencies or cities in West Java, namely Bekasi Regency, Bogor City, Depok City, and Cimahi City. The number of positive confirmed cases of Covid-19 in Cimahi City on September 14<sup>th</sup>, in 2020 was 262. Based on data from the Cimahi City Health Office, the accumulation of cases was dominated by family clusters (Perdana, 2020).

Based on data from Badan Pusat Statistik (BPS), Central Cimahi District was one of the sub-districts of West Java Province with the densest population, so the risk of Covid-19 transmission is high.



Consistency regarding the implementation of health protocols is one way to prevent the transmission of Covid-19. To break the chain of the spread of Covid-19, public awareness is needed relating to carrying out health protocols. However, there are still many people who ignore this recommendation. The family as the smallest social institution in society and has a very important role in providing education.

The family is the first and foremost institution in educating and protecting family members (Achjar, 2010). The results of this study are in line with the previous study, which has a significant effect ( $p$ -value 0.000) after being provided with family-based education on the behaviour of caring for families with diabetes (Sari et al, 2016) and also the intention of pregnant women to optimize nutrition in the first 1000 days of life (Naim et al, 2017). Another study showed that family-based education had a significant effect (Khatiban et al., 2014; Srisuk et al, 2015) on the hypertension diet pattern. Based on this, family-based education is important to socialize and teach family members about health protocols that must be followed during the Covid-19 pandemic. Family-based education is likely to improve the implementation of health tasks in the family. Families who can carry out these duties will be able to recognize the problem of Covid-19, make the right decisions in dealing with Covid-19, implement efforts to prevent and overcome Covid-19, utilize health facilities appropriately, and create a home environment that can prevent the spread of Covid-19. Due to this, the role of the family becomes essential to remind family members to follow the rules that have been set by the government. This study aimed to determine the effect of family-based education on improving family health tasks in preventing the transmission of Covid-19.

## **METHOD**

The research design used in this study was a Quasi-Experimental study, using a pretest-posttest control group. This research was conducted in the district of Central Cimahi. This research was conducted from January to December 2021. The population in this study were families in the Cimahi Tengah sub-district, Cimahi City. The number of samples was taken using the sample size formula to test the hypothesis difference 2 on average based on previous research by Sari et al. (2016) with a

standard deviation of  $\alpha = 1.64$ ; beta standard deviation = 1.28;  $\sigma = 4.49$ . After completing the calculation using the above formula, the sample size for this study was 28 families, plus the anticipated dropout of 10%, which was 3 families (Naim et al, 2017). A random draw was conducted based on the population to determine the intervention and control groups. The draw was completed after the sample was selected based on the inclusion criteria. The sampling technique in this study was carried out by proportional random sampling, with inclusion criteria as follows: families residing in the Cimahi District, Central Cimahi City, and families must participate in all intervention activities. While the exclusion criteria in this study were families who had participated in similar research activities or education/training on Covid-19.

The instrument used in this study is an instrument that measures family health tasks that was compiled by this study's researchers based on Friedman (2002), Setiawan (2016) and Riasmini (2017) which was subsequently modified. Measurement of family health tasks in preventing transmission of Covid-19 is based on the parameters: Knowledge about Covid-19 and how to prevent transmission based on health protocols in the Covid-19 pandemic. The instrument is a questionnaire with 35 questions in the form of a true-false/yes-no dichotomy. The correct answer is given a score of 1 and the wrong answer is given a score of 0. The assessment ranges from 0-to 100. The results of the assessment can be categorized as high health task implementation, moderate health task implementation 60-79, low health task implementation <60.

Research instruments related to family health tasks were tested for validity with a correlation coefficient value of  $r = 0.50$  and a reliability test with a Cronbach alpha value of 0.892 (Meilianingsih, 2017). However, in this study, the instrument was modified by the researcher adapted to the conditions of the Covid-19 pandemic and a content test was carried out by the Head of the Covid-19 Task Force, Nursing Department, Poltekkes, Ministry of Health, Bandung.

In carrying out data collection, researchers were assisted by nurses from the Cimahi Tengah Health Center who were previously briefed on research and the process of providing family-based education

about Covid-19. Family-based education in this research was provided 5 times, but during the Covid-19 pandemic, family-based education was provided 3 times with the implementation of health protocols. Each meeting is held for 60-90 minutes. Research protocol development based on theory (Glanz, 2004; Green, 2005; Herawati, 2020; Azanella, 2020).

Univariate analysis was carried out to determine the family's health task in preventing the transmission of Covid-19 before and after the intervention using

a central tendency, namely the average value and standard deviation. The analysis used was the Wilcoxon signed-rank test and the Mann-Whitney U test (Dahlan, 2016). The hypothesis was accepted if the p-value < 0.00 ( $\alpha = 0.05$ ). Data was processed using the SPSS program. This research passed the ethical test with the number 49/KEPK/VI/2021 from the Health Polytechnic of the Ministry of Health Bandung.

## RESULT

**Table 1. Distribution of Respondents Frequency Based on Family Member Characteristics (n=62)**

Characteristic	Intervention		Control		p-value
	n	%	n	%	
Gender					0.541
Male	6	19.4	7	22.6	
Female	25	80.6	24	77.4	
Age					0.499
20 – 35	2	6.5	4	12.9	
36 – 49	18	58.0	17	54.8	
50 - >60	11	35.5	10	32.3	
Education					0.842
Junior	13	41.9	13	41.9	
Senior	14	45.2	13	41.9	
Academy	2	6.5	3	9.67	
University	2	6.5	2	6.5	
Role in family					0.561
Husband	7	22.6	8	25.8	
Wife	24	77.4	23	74.2	

The table above shows that the majority of the respondents were female both in the intervention group (80.6%) and 77.4% in the control group. Some of the respondents, namely 56.5% in the intervention group and 54.8% of respondents in the control group were in the age range of 36-49 years. Almost half of them, namely 41.9% of respondents in the intervention group and the control group had

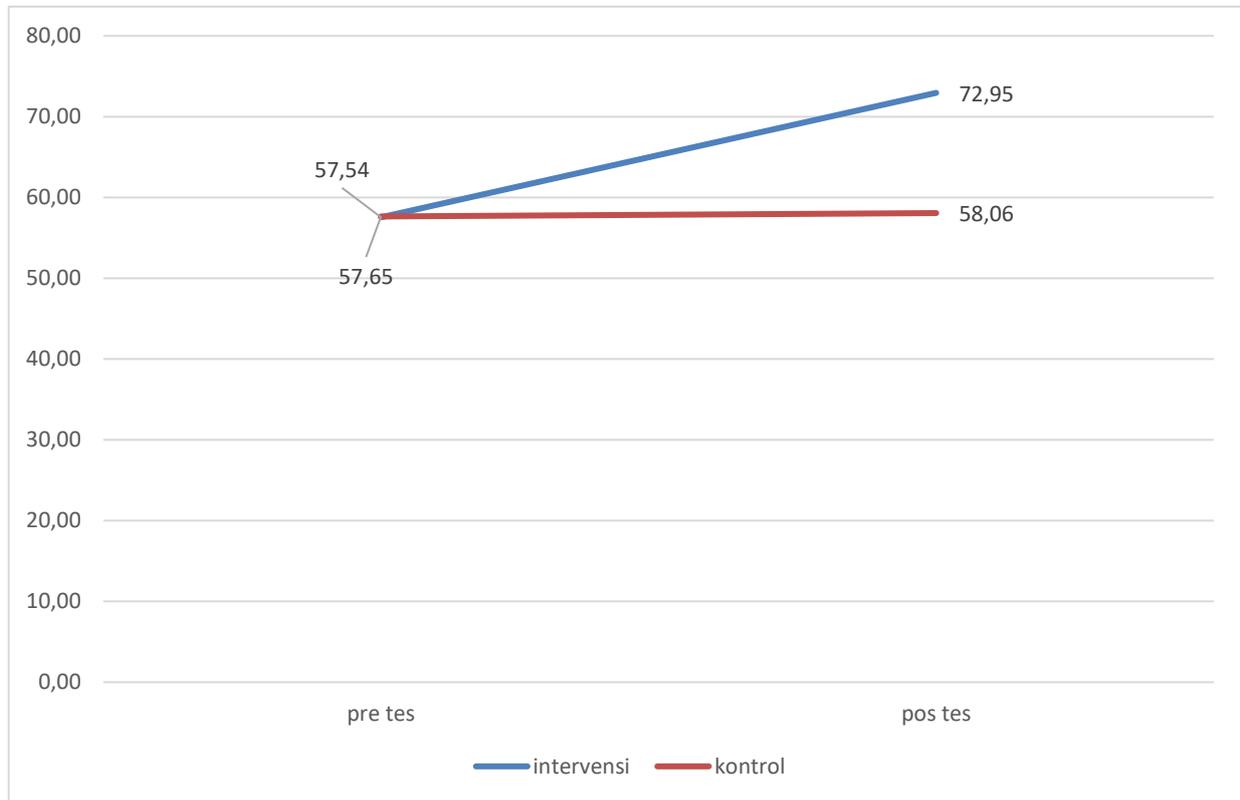
completed junior high school. Most (77.4%) of respondents were housewives. Based on the homogeneity test of the characteristics of the respondents, it was found that the p-value > 0.05 indicated that the respondents in the intervention group and the control group were homogeneous.

**Table 2. Distribution of Family Health Tasks in Preventing the Transmission of Covid 19 Before and After Treatment in the intervention group and control group**

Family Health Task	Intervention Group			Control Group		
	Mean	Min	Max	Mean	Min	Max
Pre	57.54	51.61	67.74	57.64	51.61	67.74
Post	72.95	64.52	83.87	58.06	54.84	67.74
Difference	15.41	-	-	0.42	-	-

The table above shows family health tasks in preventing transmission of Covid 19 in the intervention group, namely before treatment 57.74 were included in the category of low health task implementation and after treatment 72.95 was in the medium health task implementation category. In the intervention group, there was an increase of

15.41. Family health tasks in the control group before treatment or at the initial measurement 57.64 and the final measurement 58.06. This shows that there is a slight increase of 0.42, remaining in the category of low health task implementation.



**Picture 1. Family health tasks in preventing the transmission of Covid-19 before and after being given family-based education in the intervention and control groups**

**Table 3. Family Health Tasks in Preventing Covid 19 Transmission Before and After Treatment in the intervention group and control group**

	N	Z	p-value
Intervention Pre – Post	31	4.892	0.00
ControlPre - Post	31	1.890	0.60

The table above explains The Wilcoxon test results show that in the intervention group a p-value of

0.000 means that there is a significant effect of family health tasks in preventing the transmission of Covid-19 after being given Family-Based Education. The results of statistical analysis in the control group showed a p-value of 0.60. This means that there is no significant difference in family health tasks in preventing the transmission of Covid-19 in the initial and final measurements in the control group.

**Table 4. Family Health Tasks in Preventing Covid 19 Transmission Before and After Treatment in the intervention group and the control group**

Group	N	Mean Rank	Sum of Ranks	p-value
Intervention Group	31	47.00	1457.00	0.00
Control Group	31	16.00	490.00	
Total	62			

The table above indicates that there are differences in the amount family health tasks in preventing the transmission of Covid-19 in the intervention group and the control group.

## DISCUSSION

Based on the results of the initial measurement of the implementation of family health tasks in preventing the transmission of Covid-19, the intervention group showed an average of 57.54 and 57.64 in the control group. This value was in the category of low family health tasks. In this study, the families already knew the meaning and causes of Covid-19 but did not know in detail of the symptoms when exposed to Covid-19. The process of recognizing health problems, including covid-19, was related to the perceptions, views and knowledge of the family. The higher the knowledge of the family, the faster the process of recognizing health problems that will be carried out by the family.

The results showed that the family as respondents had not been able to optimally implement health protocols. From the results of the family observations, the result were not suitable with existing behaviour such as washing hands, using and removing masks, and applying cough/sneeze etiquette. The results of interviews with primary health officers, cadres and families may be because during the covid-19 pandemic, socialization was been carried out in local district about covid 19 and health protocols, but most of the material was given through lectures which not an optimal method for families to internalize the material. Observations also showed that there were no leaflets or posters related to health protocols in meeting halls or public places, and there were no public handwashing facilities. The ability to apply health protocols can be hampered if there is a lack of knowledge and skills and the lack of facilities needed to carry out health protocol procedures.

The results of the univariate analysis on the final measurement of family health tasks in preventing Covid-19 transmission in the intervention group showed an average of 72.95 and was included in the category of medium family health tasks. In the intervention group, there was an increase of 15.41. This shows an increase in the family in recognizing the Covid-19 concerns, making the right decisions in managing covid, carrying out efforts to prevent the

transmission of Covid-19 through the application of health protocols, utilizing health facilities appropriately, and creating a home environment that can prevent the transmission of Covid-19. This increase was due to the intervention group being given family-based educational treatment. Family-based education is a health education application with a family nursing approach. Health education encompasses activities that provide and improve knowledge, attitudes and practices for individuals, families and communities (Notoatmodjo, 2010). The implementation of family-based education does not only provide information and knowledge through lectures and discussions but through activities to influence people's behaviour to reflect health values (Friedman, 2010). The learning process through family-based education is more engaging and interactive so that families can better understand and apply the material being acquired.

The family is the only social institution that starts out with the responsibility to instruct their members on desired behaviours, instruct on adjustment to the social environment and adapt to environmental changes that occur. The family is one of the most important agents of socialization by teaching its members about the rules expected by society. The ability of the family to control the individual continuously is a social force that cannot be found in other institutions. Family-based education will be a determining factor in the application of health protocols that form new habits among family members (Satrio, 2020).

The task of family health in preventing transmission of Covid-19 in the control group at the final measurement was 58.06. This shows that there is a slight increase of 0.42 but it is still in the category of low-health tasks. This is because this group was not given family-based education so there was no additional information on family health tasks in preventing the transmission of Covid-19.

The Wilcoxon test results from pre and post measurements gave family-based education in the intervention group showed a p-value of  $0.000 < (0.05)$  the null hypothesis was rejected meaning that there was a significant effect of family-based education on family health tasks in preventing the transmission of Covid-19. Family-based education is education given to family members who have a strong relationship and influence in the family so it

can have influence on changing family behaviour to be healthier (Naim et al, 2017).

Family-based education provides an opportunity for individuals to acquire the information and skills needed to make quality health decisions (Naim, 2017). Health education in the family aims to empower and change families so that they can grow healthy lives and develop health efforts that come from families and communities (Sari et al, 2016). This is confirmed by the research results that there is a significant effect between family-based education on the implementation of IMD (p-value 0.004). Likewise, the research conducted by Heni showed that family-based education had a significant effect (p-value 0.044) on the hypertension diet pattern.

In the pre-treatment/initial measurement, there were no differences in family health tasks in preventing Covid-19 transmission in the intervention group and the control group, both were in the low health task category with values of 57.54 and 57.64. This illustrates that the two groups have the same start in the study. However, the measurement after treatment/end of the analysis showed that there was a significant difference in the family health task in preventing the transmission of Covid-19 in the intervention group and the control group (p-value 0.000). Through these results it can be interpreted that family-based education is meaningful and has an effect on family health tasks in preventing the transmission of Covid-19 (Sari et al, (2016). Research shows that family-based education is effective in increasing self-care knowledge and skills. Through family-based education, families can carry out their health duties properly. According to Setiawan (2016) and Riasmini (2017), families who carry out their health duties well will be the most important socialization agents in teaching their family members about implementing health protocols during the Covid-19 pandemic. Compliance with family members in carrying out health protocols will protect against Covid-19 transmission. If every family is well entrenched in the habit of wearing a mask when leaving the house, the habit of keeping a distance, and the habit of washing hands, then controlling the spread of Covid-19 will be more effective. The family is the smallest unit of society that greatly influences

the degree of public health (Friedman et al, 2010). Besides that, family support is very important in the psychological dimension by positively affecting nurses' work motivation and family member motivation too (Rumiati et al, 2021).

This can be caused by the factors that can affect family-based education programs to changes in the stage of family development, namely the theory of family nursing used, the method used, the media implementation of the educational program and motivation from the family.

The implementation of programs based on this theory emphasizes more on the provision of health education to improve disease understanding and monitoring, skills in maintaining healthy life and strategies to improve emotional welfare (Bandura, 2004). This is reinforced by research conducted by Leung et al (2005) about health education programs in intervention groups with Covid-19 conducted by family nurses and the results are obtained from the respondents indicate they need more health education than support from members of the group.

The method of the implementation of this research uses family visits because family involvement is in accordance with the theory of Bailon and Maglaya, in Friedman (2010), however powerless the family still has the right and obligation to make decisions. The family's feelings and opinions on their problems and how they solve them need to be considered.

Educational programs can be successful if supported by good media. In this study, the media used was a module that could be used as a reference in the implementation of family visits. In this study, the intervention group received health education about the management of COVID-19 during several visits using these modules. The results of this study indicate that the implementation of health education programs using media booklets can improve family development tasks. Based on research, community nurses should employ health education in adapting to the Covid-19 pandemic situation (Akbar et al, 2022).

## **CONCLUSION**

This study found there is an effect relating to providing family-based education on family health tasks in preventing Covid-19 transmission in the

intervention group (p-value of 0.000). This intervention can be used to increase family independence in carrying out family health tasks.

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